Groundwater Monitoring Report
May–June 2014
Lockheed Martin Middle River Complex
2323 Eastern Boulevard
Middle River, Maryland

Prepared for:

Lockheed Martin Corporation

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ACRONYMS

BTEX	benzene, toluene, ethylbenzene, xylenes
COC	chain(s) of custody
cVOC	chlorinated volatile organic compound
cis-1,2-DCE	*cis*-1,2-dichloroethene
DO	dissolved oxygen
GIS	geographic information system
GLM	Glenn L. Martin Company
IDW	investigation-derived waste
LMCPI	LMC Properties, Inc.
Lockheed Martin	Lockheed Martin Corporation
MDE	Maryland Department of the Environment
µg/L	microgram(s) per liter
ml/min	milliliter(s) per minute
MRAS	MRA Systems, Inc.
MRC	Middle River Complex
MTBE	methyl *tert*-butyl ether
NAA	natural-attenuation assessment
NAVD88	North American Vertical Datum of 1988
ORP	oxidation-reduction potential
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PDF	portable document format
PM	project manager
QA	quality assurance
QC	quality control
RAP	response action plan
SVOC	semivolatile organic compound
TB	trip blank
TCE	trichloroethene
Tetra Tech	Tetra Tech, Inc.
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency

UST	underground storage tank
VC	vinyl chloride
VOC	volatile organic compound

Section 1
Introduction

This groundwater monitoring report summarizes the May–June 2014 groundwater sampling round at the Lockheed Martin Corporation (Lockheed Martin) Middle River Complex (MRC) in Middle River, Maryland. Figure 1-1 shows the location of the Middle River Complex. This sampling provides a current round of groundwater levels and chemical data for selected wells as part of ongoing environmental investigations at the facility. These data will be used to better understand the nature and extent of chemical contamination in groundwater, evaluate the trends of chemical plumes in on-site groundwater, and evaluate the natural attenuation of groundwater chemicals of concern at the Middle River Complex. Groundwater samples were analyzed for volatile organic compounds (VOCs), 1,4-dioxane (a semivolatile organic compound [SVOC]), polychlorinated biphenyls (PCBs), metals, natural-attenuation assessment (NAA) parameters, and perchlorate. Additionally, all wells were inspected during the sampling program to assess the need for repairs. Fifteen wells were repaired in 2014. This report is organized as follows:

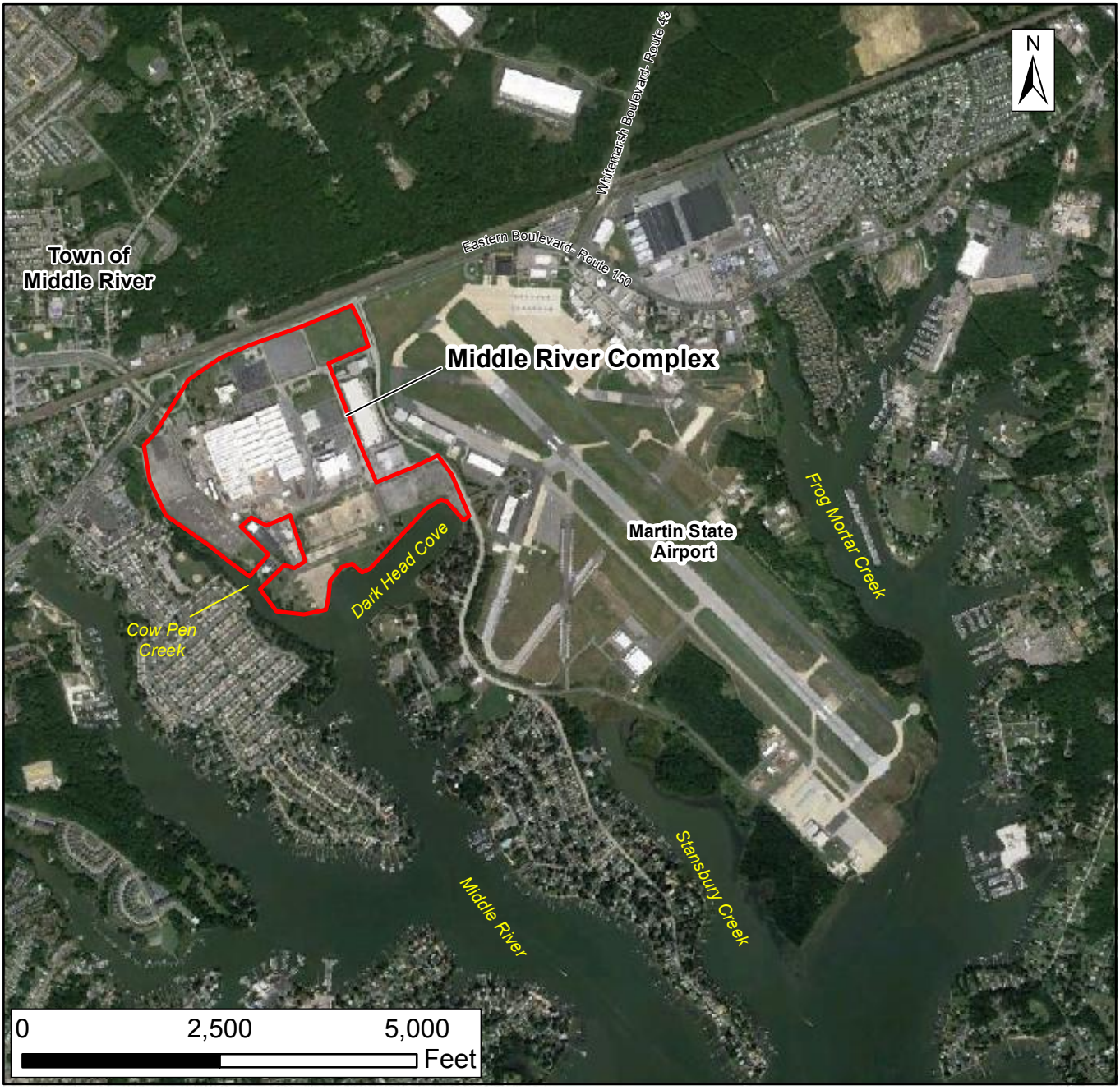
Section 2—Site Background: Briefly summarizes the site and references recent reports containing detailed background information related to groundwater.

Section 3—Investigational Approach: Presents the technical approach to the investigation and describes the field methodologies used.

Section 4—Investigation Results: Presents the investigation results.

Section 5—Summary: Summarizes the investigation findings.

Section 6—References: Cites references used to compile this report.



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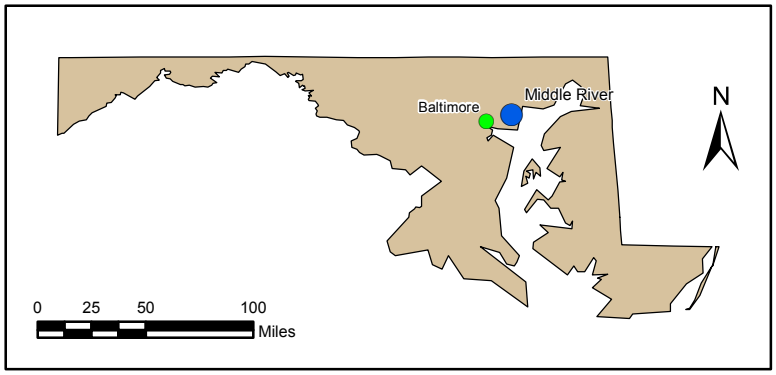

FIGURE 1-1

MIDDLE RIVER COMPLEX
LOCATION MAP

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	CREATED BY:
5/1/13	MP

TETRA TECH

Map Document: (K:\GProject\middle_river\Maps\MiddleRiver_MRC_Location Map_Fig 1-1_revised050113.mxd) 5/1/2013 -- 11:18:55 AM

Section 2
Site Background

2.1 MIDDLE RIVER COMPLEX HISTORY AND SITE CHARACTERISTICS

The Middle River Complex (MRC) is part of the Chesapeake Industrial Park at 2323 Eastern Boulevard in Middle River, Maryland, approximately 11.5 miles northeast of downtown Baltimore. It comprises approximately 161 acres, including 12 main buildings, an active industrial area and yard, perimeter parking lots, an athletic field, a vacant concrete lot, trailer and parts storage areas, and numerous grassy spaces along its perimeter. It is bounded by Eastern Boulevard (Route 150) to the north, Martin State Airport (MSA) to the east, Dark Head Cove to the south, and Cow Pen Creek to the west. Figure 2-1 is a map showing the MRC layout.

MRC is owned by LMC Properties, Inc. (LMCPI), a subsidiary of Lockheed Martin Corporation (Lockheed Martin). Currently, LMCPI's primary activities at the MRC are facility and building management and maintenance. The main site tenant, MRA Systems, Inc., (MRAS) (a subsidiary of General Electric Company), designs, manufactures, fabricates, tests, overhauls, repairs, and maintains aeronautical structures, parts, and components for military and commercial applications. Lockheed Martin Mission Systems & Training (a Lockheed Martin business segment) conducts engineering and fabricates, assembles, tests, and otherwise supports vertical-launch systems. Applied NanoStructured Solutions LLC (a subsidiary of Lockheed Martin) also occupies a portion of the MRC and is engaged in research and design of nanotechnology applications.

In 1929, the Glenn L. Martin Company (GLM) (a predecessor entity of Lockheed Martin) acquired large parcels of undeveloped land in Middle River, Maryland, to manufacture aircraft for United States government and commercial clients. In the early 1960s, GLM merged with American-Marietta Company to form Martin Marietta Corporation. Around 1975, the adjacent eastern airport area (currently MSA), comprised of approximately 750 acres, was transferred to the State of Maryland. In 1995, Martin Marietta Corporation merged with Lockheed to form Lockheed Martin Corporation. Shortly after the merger, General Electric Company acquired most

of Lockheed Martin's aeronautical business in Middle River, and MRAS began operations at the site.

The MRC is an industrial facility surrounded primarily by commercial, industrial, and residential establishments. Six facilities adjacent to the MRC comprise the remaining portion of the Chesapeake Industrial Park. These include Tilley Chemical Company, Inc. (a food- and pharmaceutical-chemical distributor), North American Electric, Inc. (an industrial and commercial electrical contractor), Johnson and Towers (a heavy-duty automotive and boat repair and maintenance company), Ace Logistics, Exxon (a gasoline filling station and convenience store), and the Middle River Post Office. Residential developments are on the opposite shores of Cow Pen Creek, Dark Head Cove, and Dark Head Creek, and north of Eastern Boulevard (Route 150).

2.2 GROUNDWATER

Investigations of MRC groundwater began in 1988 and are ongoing. Groundwater at MRC is encountered at depths ranging from less than one foot to nearly 18 feet below grade. Shallow groundwater follows site topography and flows radially from the hydraulically upgradient northern portion of the MRC at Eastern Boulevard and immediately south of Buildings A, B, and C to the southeast, south, and southwest toward Dark Head Cove and Cow Pen Creek. Deeper groundwater is typically under hydraulically confined conditions at the MRC. Lithologic logging of the soils beneath the MRC has identified a very heterogeneous stratigraphy. Underlying soils are composed primarily of silty sands, fine- to medium-grained sands, silty clays, clayey silts, and plastic clay, with the primary lithology being clay to silty clay. Areas along the waterfront have been filled to their present elevation over past decades.

A risk assessment (Tetra Tech, Inc., [Tetra Tech], 2006) identified trichloroethene (TCE), tetrachloroethene (PCE), vinyl chloride (VC), benzene, and certain metals as the most significant contaminants in groundwater at the MRC. The two largest groups of organic chemicals of concern are chlorinated volatile organic compounds (cVOCs) and petroleum-related hydrocarbons. CVOCs include the commonly used solvents PCE and TCE, which degrade into a variety of other cVOCs and volatile organic compounds (VOCs). CVOCs are in groundwater in several areas of the facility; three areas of elevated cVOCs (Figure 2-2) in groundwater are targeted by the current groundwater remedy program (Tetra Tech, 2012a).

Petroleum-based fuels such as gasoline have numerous chemical constituents. Several VOCs associated with fuels are fairly soluble in groundwater and are therefore mobile in the subsurface. The most commonly detected petroleum-VOCs at MRC are benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl *tert*-butyl ether (MTBE). 1,4-Dioxane is also a groundwater chemical of concern because it has been detected at concentrations above its selected screening-concentration for MRC groundwater, and because it is an emerging contaminant nationwide. The screening level used for 1,4-dioxane is the California Department of Health Services advisory level of 3 µg/L (see Section 4.2); Maryland currently has no drinking water or groundwater standard/advisory for 1,4-dioxane. Metals (primarily nickel, cobalt, beryllium, and zinc) were also detected in groundwater at concentrations above MDE groundwater standards. The MRC *Groundwater Response Action Plan* (Tetra Tech, 2012a) was finalized in 2012. Construction of the groundwater remedies for cVOCs in groundwater in Tax Blocks E, G, and I began in early summer 2013. Additional details regarding MRC background and history, including details of previous environmental investigations and discussions of contaminant source areas, are in the response action plan (RAP) and subsequent groundwater monitoring reports (Tetra Tech, 2012a-d; 2013).

Town of Middle River

AMTRAK RAILROAD

EASTERN BOULEVARD

MARTIN BLVD.

EXXON GAS STATION

PARKING LOT NO. 4

ATHLETIC FIELD

BLOCK 'B'

CHESAPEAKE PLAZA

POST OFFICE

PARKING LOT NO. 5

BLOCK 'A'

BUILDING "E"

BLOCK 'A'

PARKING LOT NO. 1

BUILDING "M"

BUILDING "P"

GATE "A"

BLOCK 'I'

BUILDING "C"

BUILDING "B"

BUILDING "L"

PARKING LOT NO. 2

MAINTENANCE OFFICE AND SHOP

BUILDING "A"

FIRECOAT BUILDING

BLOCK 'H'

DROP HAMMER BUILDING ACTIVE FIRING RANGE

FOUR #2 FUEL OIL USTs ABANDONED IN-PLACE

DRUM STORAGE FACILITY

POWER HOUSE

MAINTENANCE GARAGE

FLAME CUT

CHESAPEAKE PARK PLAZA

DIE STORAGE

PARKING LOT NO. 3

HAZARDOUS WASTE STORAGE BUILDING

BLOCK 'G'

CONSERVATION BUILDING

TILLEY CHEMICAL COMPANY

BLOCK 'E'

FORMER SEWAGE TREATMENT PLANT

NORTH AMERICAN ELECTRIC

FORMER AERO PYHSICS LAB./ WIND TUNNEL TEST BUILDING

FORMER HYDRAULIC AND FIELD TEST BUILDING

COW PEN CREEK

BLOCK 'F'

FORMER TRAINING SCHOOL

FORMER RAMP STORAGE BUILDING

FORMER BOAT HOUSE

SEVEN 1,000-GAL. AVIATION FUEL USTs ABANDONED IN-PLACE

CHESAPEAKE PARK PLAZA

WATERFRONT LOT

FORMER BUILDING "D"

FORMER 500-GAL. UST

500,000-GAL. WATER TANK

TRANSFER SHED

FIRE PUMP BUILDING WITH 275-GAL DIESEL FUEL AST

FORMER 500,000-GAL. DIESEL FUEL AST

DARK HEAD COVE

ANNEX BUILDING

ENG. DEV. LAB BLDG.

PROGRAM BUILDING

VERTICAL ASSEMBLY BUILDING

JOHNSON AND TOWERS

WILSON POINT ROAD

DARK HEAD COVE ROAD

PARKING LOT NO. 6

BLOCK 'D'

Martin State Airport

FIGURE 2-1

MIDDLE RIVER COMPLEX
SITE LAYOUT AND TAX BLOCKS

LEGEND

- MIDDLE RIVER COMPLEX TAX BLOCK BOUNDARY
- STRUCTURE OR FORMER STRUCTURE
- RAILROAD TRACKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 150 300 600 Feet

N

DATE MODIFIED: 7/26/13

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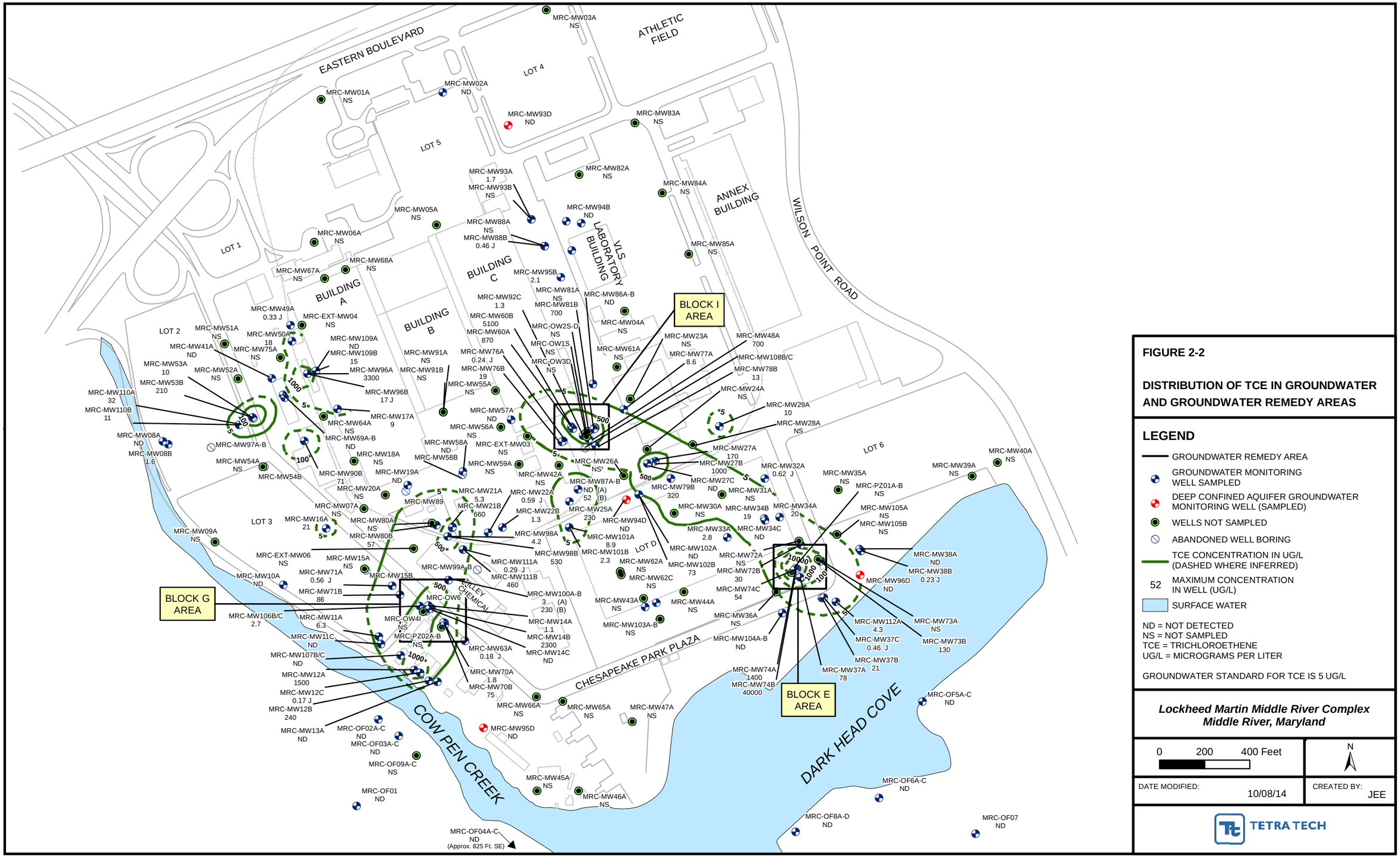

FIGURE 2-2

DISTRIBUTION OF TCE IN GROUNDWATER AND GROUNDWATER REMEDY AREAS

LEGEND

- GROUNDWATER REMEDY AREA
- GROUNDWATER MONITORING WELL SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (SAMPLED)
- WELLS NOT SAMPLED
- ABANDONED WELL BORING
- TCE CONCENTRATION IN UG/L (DASHED WHERE INFERRED)
- 52 MAXIMUM CONCENTRATION IN WELL (UG/L)
- SURFACE WATER

ND = NOT DETECTED
NS = NOT SAMPLED
TCE = TRICHLOROETHENE
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR TCE IS 5 UG/L

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400 Feet

N

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Section 3
Investigational Approach

This report summarizes the 2014 groundwater sampling program for the Middle River Complex (MRC). The investigation included synoptic groundwater-level measurements and the collection of groundwater samples for laboratory chemical analyses. This sampling round augments groundwater data and level measurements obtained from 2003–2013.

3.1 SYNOPTIC GROUNDWATER-LEVEL MEASUREMENTS

A synoptic round of groundwater level measurements was conducted on September 9–10, 2014. An initial round of water levels was attempted before sampling but could not be completed due to inclement weather. The air/watertight sanitary seals on flush-mounted well casings are usually opened the day before measuring levels to allow air pressure and groundwater in the casings to reach equilibrium. Rain or runoff could potentially enter the opened well casings during rain, thus affecting groundwater levels and quality.

Static water levels were measured using a graduated electronic-sounding water-level meter. The static water level was determined by lowering the meter's probe into the well until the liquid level-indicator emitted an audible tone, indicating the air/water interface. The water level was read from the probe cable and recorded to the nearest 0.01 foot as the depth to water, with respect to the top of the plastic well casing. Water levels and the time of measurement were recorded for all monitoring wells. Groundwater level measurements are in Appendix A.

3.2 GROUNDWATER SAMPLING

Groundwater samples were collected from 122 on-site wells from May–June 2014. Chemical analyses of groundwater samples varied by well and depended on the data needed for that particular area. Most samples were analyzed for volatile organic compounds (VOCs) and total (i.e., unfiltered) metals. Less frequent chemical analyses include 1,4-dioxane (a semivolatile organic compound [SVOC]), perchlorate (a component of propellants), polychlorinated biphenyls

(PCBs), and natural-attenuation assessment (NAA) parameters. Wells sampled for this round are on Figure 3-1; the chemical analyses performed for each sample are listed in Table 3-1.

Wells were purged and sampled using the following procedures:

- ***Well purging*—**Monitoring wells were purged before sample collection using low-flow-purging techniques via a peristaltic pump (fitted with dedicated, disposable, Teflon®-lined tubing) positioned in the center of the well's saturated-screen length. The pumping rate during purging ranged between 100 to 300 milliliters per minute (ml/min) and was constantly measured using a graduated cylinder. The purge rate was adjusted but was not allowed to fall below 100 ml/min, to minimize drawing the water level below its static water level.

  Water-level-drawdown measurements and groundwater parameters were collected every five to 10 minutes until purging was complete. Groundwater parameters (including pH [a measure of acidity and alkalinity], temperature, specific conductance, dissolved oxygen [DO], oxidation-reduction potential [ORP], and turbidity) were also measured during purging. These data were recorded on low-flow-purge data sheets. Water-quality parameters were measured with an inline water-quality meter. Turbidity readings were collected using a separate turbidity meter. Groundwater purging and sample record sheets are in Appendix B.

  Purging was considered complete when the monitored water-quality parameters stabilized, when three saturated well casing volumes had been removed, or the well had been purged dry. Stabilization was considered achieved when three consecutive readings, taken at five-minute intervals, were within ±0.1 standard units for pH, ±3% for specific conductance and temperature, ±10% for DO and ORP, and less than 10 nephelometric turbidity units for turbidity. If the monitoring well was purged dry, the water level was allowed to recover at least 80% of its initial static water level before groundwater sampling. All purged water was collected in United States Department of Transportation (USDOT)-approved 55-gallon steel drums that were staged in the central portion of the MRC D-lot.

- ***Sample collection*—**Monitoring wells were sampled after purging, using the same dedicated tubing or submersible pump that had been used during purging. Groundwater was pumped directly into certified-clean sample containers supplied by the analytical laboratory. Sample containers for VOC analyses were filled directly, to minimize VOC losses. Groundwater samples for VOCs were collected first, followed by samples to be analyzed for 1,4-dioxane, PCBs, metals, perchlorate, and NAA parameters.

3.3 WELL REPAIR

All MRC monitoring wells were inspected during the 2014 groundwater sampling program, and repairs were completed for 16 wells. The 2014 inspection documentation includes a written survey of existing well conditions along with a list of required repairs. Groundwater was sampled before

repairs were made, but the condition of the wells requiring repair did not affect sampling or groundwater quality. Needed repairs included replacing bolts (nine wells) and replacing protective well covers and concrete pads (seven wells). Details of well repairs are in the *2014 Monitoring Well Repair Report* (Tetra Tech, Inc. [Tetra Tech], 2014) and are not discussed further herein.

3.4 LABORATORY ANALYSES

Samples from the subject wells were analyzed for the following chemicals (Table 3-1):

- VOCs, by United States Environmental Protection Agency (USEPA) Method 8260C
- 1,4-dioxane, by USEPA Method 522
- PCBs, by USEPA Method 680: for samples from wells in Block E near elevated PCB concentrations in soil, and near a historical PCB detection in groundwater (sampled in April as part of the Block E investigation, and in May as part of the annual monitoring program)
- total metals, by USEPA Methods 6020A, 6010B, and 7470A (mercury)
- perchlorate, by USEPA Method 6850
- NAA parameters, by USEPA SW846 protocols (for nitrate/nitrite, ammonia nitrogen, orthophosphate, sulfate, chloride, total alkalinity, total iron, total manganese, silicon dioxide, total dissolved solids, and dissolved organic carbon)
- methane, ethene, and ethane, by USEPA Method RSK-175

Samples were analyzed at a fixed-base laboratory by TestAmerica, Inc., of North Canton, Ohio. Duplicates were collected at a rate of 5% (1:20 basis) to evaluate laboratory analytical precision. Trip blank (TB) samples were analyzed for VOCs for quality assurance (QA) and quality control (QC). Trip blanks were submitted at a rate of one per cooler of VOCs per day. Matrix-spike/matrix-spike-duplicate samples were also collected and analyzed on a 1:20 basis.

3.5 DOCUMENTATION

A master site logbook was maintained to document field activities. Sample documentation consists of completed chain-of-custody (COC) reports and matrix-specific sample log sheets. The COC report is a standardized form summarizing and documenting pertinent sample information such as sample identification and type, the sampled matrix, date and time of collection, preservation, and

requested analysis. Sample custody procedures document sample acquisition and integrity. COC reports are in Appendix C with the data validation reports.

3.6 EQUIPMENT DECONTAMINATION

Reusable equipment (e.g., water-level meter, submersible pump) was decontaminated before and after each use. Decontamination of reusable small equipment involved the following:

- Liquinox® (a laboratory-grade, phosphate-free, ionic/anionic surfactant) and potable-water wash
- potable-water rinse
- distilled-water rinse
- air drying

Decontamination rinsate water was transferred into 55-gallon drums staged in the central portion of the MRC D-lot for subsequent disposal. Dedicated and/or disposable equipment that did not require decontamination was used for groundwater purging/sampling.

3.7 WASTE MANAGEMENT

Well purge-water was collected as investigation-derived waste (IDW) in USDOT-approved 55-gallon steel drums. The drums were stored at an approved central staging area on the facility's D-lot, pending waste-profile sampling results. Envirite, Inc. (a state-licensed waste transporter) sampled the IDW and deemed it nonhazardous. Upon receipt of the IDW analytical data, Clean Harbors, Inc. removed the IDW from the MRC and properly disposed of it as nonhazardous waste at a Lockheed Martin Corporation (Lockheed Martin)-approved waste treatment facility, in accordance with federal, state, and local regulations.

3.8 GENERAL SAMPLING PROCEDURES, NOMENCLATURE, AND HANDLING

A master site logbook was maintained for the sampling program to document field activities. Each sample collected was given a unique sample identification consisting of the well name and sampling date (e.g., MRC-MW93A-060314). Trip blanks were labeled with a "TB" prefix followed by a six-digit submittal date (e.g., TB-060314). Sample handling included field-related

considerations concerning selection of sample containers, preservatives, allowable holding times, and analyses requested.

Proper custody procedures were followed throughout all phases of sample collection and handling. COC protocols were used throughout sample handling to document the integrity of sample containers. These protocols demonstrate that samples were handled and transferred in a manner that eliminates (or detects) possible tampering. Sample containers were released under signature from the laboratory and were accepted under signature by a responsible individual who maintained custody until the sample containers were transferred to the sampling team. Groundwater samples were released under signature from the sampling team and were accepted under signature by the laboratory. Transport containers returning to the laboratory were sealed with strapping tape and a tamper-resistant custody seal. The custody seal shows the signature of the individual releasing the transport container, along with the date and time. Signed COC are in Appendix C.

3.9 DATA VALIDATION

Data validation involves having a party independent of the analytical laboratory review the laboratory data to ensure that specific criteria are met. These criteria are concerned with specifications that are not sample-dependent; they specify performance requirements that should be fully under a laboratory's control. For organic-data analyses, specific validation areas include blanks, performance-evaluation-standard materials, and instrument-performance checks. For inorganic-data analyses, specific validation areas include blanks, calibration standards, calibration-verification standards, laboratory-control standards, and interference-check standards. Once the investigation was complete, chemical data were validated by Tetra Tech in accordance with established USEPA protocols to assess the reliability and accuracy of the data. This review was based on the USEPA Region 3 modifications to the *National Functional Guidelines for Data Review* (USEPA, 1993 and 1994) and the specifics of the analytical method used. Data-validation reports are in Appendix C (on compact disc).

Validation of these data concluded that they are acceptable for their intended uses (i.e., risk screening and risk assessment), except for data qualified as unreliable (UR flags). The data qualifiers (i.e., flags) applied to the chemical results during data validation are listed below:

J The analyte is considered present in the sample, but the value is estimated and may not meet highest accuracy or precision standards. In this program, samples were qualified

with "*J*" because quantitation was above the method detection limit but below the practical quantitation limit.

NJ The analyte has been tentatively identified. This qualifier indicates presumptive evidence of a compound. Special methods may be required to confirm its presence or absence in future sampling efforts.

U Not detected; the analyte is considered not detected at the reported value.

UJ The analyte was not detected. However, the quantitation or detection limit may be inaccurate or imprecise.

UR The non-detect result is considered qualitatively or quantitatively unreliable. Results flagged with "UR" data qualifiers include 2-chloroethyl vinyl ether (three samples).

Two of these flags (i.e., *J,* and NJ) appear on the chemical-results tables in Section 4; all flags are in Appendices C and D.

3.10 DATA MANAGEMENT

Laboratory data-handling procedures met the requirements set forth in the laboratory subcontract. All analytical and field data are maintained in the project files. The project files contain copies of the COC, sampling log forms, sampling location maps, and data quality-assurance documentation.

3.10.1 Data Tracking and Control

A "cradle to grave" sample tracking system was used from the beginning to the end of the sampling event. The field operations leader coordinated sample tracking before field mobilization. Sample jar labels were handwritten in the field. Labels were reviewed to ensure their accuracy and adherence to work plan requirements. The project manager's (PM) assistant coordinated with the analytical laboratory to ensure that they were aware of the number and type of samples and analyses to expect.

When field sampling was underway, the field operations leader forwarded the COC to the PM's assistant and to the laboratory for each day that samples were collected. The PM's assistant confirmed that the COC provided the information required by the work plan. This allowed early detection of errors made in the field so adjustments could be made while the field team was mobilized. The laboratory submitted an electronic deliverable for the sample delivery groups. When all electronic deliverables had been received from the laboratory, the PM's assistant confirmed that the laboratory performed all analyses requested.

3.10.2 Sampling Information

Data from field measurements were recorded using the appropriate log sheets, as per Tetra Tech, Inc. (Tetra Tech) standard operating procedure SA-6.3. Reduction of field data entailed summarizing and presenting these data in tabular form. Reduction of laboratory data entailed manipulating raw data-instrument output into reportable results. Laboratory data were verified by the group supervisor and then by the laboratory's quality control/documentation department.

3.10.3 Project Data Compilation

The analytical laboratory generated an Adobe *Acrobat*® portable document format (PDF) file of the analytical data packages, as well as an electronic database deliverable. The electronic database was checked against the PDF file provided by the laboratory and updated as required, based on data qualifier flags applied during data validation. Data generated during implementation of the sampling and analysis plan were incorporated into the MRC environmental geographic information system (GIS) database. All data (such as units of measure and chemical nomenclature) were checked to maintain consistency with the project database.

3.10.4 Geographical Information System

The data management system for this effort consists of a relational database and GIS to manage environmental information pertaining to MRC. The relational database stores chemical, geological, hydrogeologic, and other environmental data collected for the MRC environmental investigations. The GIS is built from the relational database and contains subsets of the larger data pool. Using the GIS, environmental data were posted onto base maps to represent the information graphically for this report.

TABLE 3-1

LIST OF WELLS TO BE SAMPLED, CHEMICAL ANALYSES, AND LABORATORY ANALYTICAL METHODS - 2014 AND 2015
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
MIDDLE RIVER, MARYLAND

Well ID	Volatile Organic Compounds (EPA 8260C)	1,4-Dioxane (EPA 522)	Perchlorate (EPA 6850)	Total Metals Beryllium, Cobalt, Nickel (EPA 6020A)	Hexavalent Chromium[1]	PCBs (EPA 8082A)	MEE and NAA Parameters (SW-846 and Microseeps® AM 20GAX)	2014/2015 Well Tally[5]
MRC-MW01A			x					x
MRC-MW02A	x			x				x
MRC-MW03A								
EXT-MW03								
MRC-MW04A				x				x
EXT-MW04								
MRC-MW05A								
MRC-MW06A								
EXT-MW06		x						x
MRC-MW07A		x		x				x
MRC-MW08A	x	x	x	x				x
MRC-MW08B	x	x	x					x
MRC-MW09A								
MRC-MW10A	x	x		x				x
MRC-MW11A	x	x		x				x
MRC-MW11C	x	x						x
MRC-MW12A	x	x		x			x	x
MRC-MW12B	x	x		x			x	x
MRC-MW12C	x	x						x
MRC-MW13A	x	x						x
MRC-MW14A	x	x		x				x
MRC-MW14B	x	x		x			x	x
MRC-MW14C	x	x		x				x
MRC-MW15A		x		x				x
MRC-MW16A	x	x		x				x
MRC-MW17A	x	x	x	x				x
MRC-MW18A								
MRC-MW19A	x	x		x				x
MRC-MW20A								
MRC-MW21A	x	x		x				x
MRC-MW21B	x	x		x			x	x
MRC-MW22A	x	x		x				x
MRC-MW22B	x	x		x				x
MRC-MW23A								
MRC-MW24A				x			x	x
MRC-MW25A	x	x		x			x	x
MRC-MW26A				x				
MRC-MW27A	x			x			x	x
MRC-MW27B	x			x			x	x
MRC-MW27C	x							x
MRC-MW28A								
MRC-MW29A	x			x				x
MRC-MW30A				x				x
MRC-MW31A				x				x

TABLE 3-1

LIST OF WELLS TO BE SAMPLED, CHEMICAL ANALYSES, AND LABORATORY ANALYTICAL METHODS - 2014 AND 2015
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
MIDDLE RIVER, MARYLAND

Well ID	Volatile Organic Compounds (EPA 8260C)	1,4-Dioxane (EPA 522)	Perchlorate (EPA 6850)	Total Metals Beryllium, Cobalt, Nickel (EPA 6020A)	Hexavalent Chromium[1]	PCBs (EPA 8082A)	MEE and NAA Parameters (SW-846 and Microseeps® AM 20GAX)	2014/2015 Well Tally[5]
MRC-MW32A	x							x
MRC-MW33A	x			x				x
MRC-MW34A	x							x
MRC-MW34B	x			x			x	x
MRC-MW34C	x							x
MRC-MW35A								
MRC-MW36A								
MRC-MW37A	x			x			x	x
MRC-MW37B	x						x	x
MRC-MW37C	x							x
MRC-MW38A	x		x					x
MRC-MW38B	x							x
MRC-MW39A								
MRC-MW40A								
MRC-MW41A	x	x	x	x				x
MRC-MW42A				x				x
MRC-MW43A						x		x
MRC-MW44A		x				x		x
MRC-MW45A								
MRC-MW46A				x				x
MRC-MW47A								
MRC-MW48A	x			x			x	x
MRC-MW49A				x				x
MRC-MW50A	x		x	x				x
MRC-MW51A								
MRC-MW52A			x	x				x
MRC-MW53A	x	x	x	x				x
MRC-MW53B	x	x	x	x				x
MRC-MW54A		x	x					x
MRC-MW55A								
MRC-MW56A								
MRC-MW57A	x			x				x
MRC-MW58A	x	x						x
MRC-MW59A				x				x
MRC-MW60A	x		x	x				x
MRC-MW60B	x		x	x			x	x
MRC-MW61A				x				x
MRC-MW62A				x		x		x
MRC-MW62C				x		x		x
MRC-MW63A	x	x		x				x
MRC-MW64A								
MRC-MW65A								
MRC-MW66A								
MRC-MW67A				x				x
MRC-MW68A				x				x

TABLE 3-1

LIST OF WELLS TO BE SAMPLED, CHEMICAL ANALYSES, AND LABORATORY ANALYTICAL METHODS - 2014 AND 2015
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
MIDDLE RIVER, MARYLAND

Well ID	Volatile Organic Compounds (EPA 8260C)	1,4-Dioxane (EPA 522)	Perchlorate (EPA 6850)	Total Metals Beryllium, Cobalt, Nickel (EPA 6020A)	Hexavalent Chromium[1]	PCBs (EPA 8082A)	MEE and NAA Parameters (SW-846 and Microseeps® AM 20GAX)	2014/2015 Well Tally[5]
MRC-MW69A	x	x	x	x				x
MRC-MW69B	x	x	x					x
MRC-MW70A	x	x		x				x
MRC-MW70B	x	x						x
MRC-MW71A	x	x		x				x
MRC-MW71B	x	x		x				x
MRC-MW72A								
MRC-MW72B	x						x	x
MRC-MW73A								
MRC-MW73B	x							x
MRC-MW74A	x		x					x
MRC-MW74B	x		x					x
MRC-MW74C								
MRC-MW75A								
MRC-MW76A	x			x				x
MRC-MW76B	x			x				x
MRC-MW77A	x			x				x
MRC-MW78B	x			x				x
MRC-MW79B	x			x				x
MRC-MW80A		x		x				x
MRC-MW80B	x	x						x
MRC-MW81A				x				x
MRC-MW81B	x			x			x	x
MRC-MW82A								
MRC-MW83A								
MRC-MW84A								
MRC-MW85A								
MRC-MW86A								
MRC-MW86B								
MRC-MW87A	x							x
MRC-MW87B	x			x				x
MRC-MW88A								
MRC-MW88B	x							x
MRC-MW90B	x	x	x					x
MRC-MW91A		x						x
MRC-MW91B								
MRC-MW92C	x			x				x
MRC-MW93A	x			x				x
MRC-MW93B								
MRC-MW93D								
MRC-MW94B	x							x
MRC-MW94D								
MRC-MW95B	x							x

TABLE 3-1

LIST OF WELLS TO BE SAMPLED, CHEMICAL ANALYSES, AND LABORATORY ANALYTICAL METHODS - 2014 AND 2015
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
MIDDLE RIVER, MARYLAND

Well ID	Volatile Organic Compounds (EPA 8260C)	1,4-Dioxane (EPA 522)	Perchlorate (EPA 6850)	Total Metals Beryllium, Cobalt, Nickel (EPA 6020A)	Hexavalent Chromium[1]	PCBs (EPA 8082A)	MEE and NAA Parameters (SW-846 and Microseeps® AM 20GAX)	2014/2015 Well Tally[5]
MRC-MW95D								
MRC-MW96A	x	x	x	x				x
MRC-MW96B	x	x	x	x				x
MRC-MW96D								
MRC-MW98A	x	x		x				x
MRC-MW98B	x	x		x				x
MRC-MW100A	x	x						x
MRC-MW100B	x	x		x				x
MRC-MW101A	x							x
MRC-MW101B	x							x
MRC-MW102A	x							x
MRC-MW102B	x			x				x
MRC-MW103A						x		x
MRC-MW103B						x		x
MRC-MW104A	x							x
MRC-MW104B	x			x				x
MRC-MW105A				x				x
MRC-MW105B								
MRC-MW106B/C	x							x
MRC-MW107B/C	x			x				x
MRC-MW109A	x		x	x				x
MRC-MW109B	x		x	x				x
MRC-MW110A	x	x	x	x				x
MRC-MW110B	x	x	x	x				x
MRC-MW111A	x	x						x
MRC-MW111B	x	x		x				x
MRC-MW112A	x			x				x
MRC-MW113A	x	x[2]	x[2]	x[2]		x		x
MRC-MW114A	x	x[2]	x[2]	x[2]		x		x
MRC-MW115A	x	x[2]	x[2]	x[2]				x
MRC-MW116A	x	x[2]	x[2]	x[2]				x
MRC-PZ01A								
MRC-PZ01B								
MRC-PZ02A								
MRC-PZ02B								
MRC-OW1S								
MRC-OW1I								
MRC-OW1D								
MRC-OW2S								
MRC-OW2I								
MRC-OW2D								
MRC-OW3S								
MRC-OW3I								

TABLE 3-1

LIST OF WELLS TO BE SAMPLED, CHEMICAL ANALYSES, AND LABORATORY ANALYTICAL METHODS - 2014 AND 2015
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
MIDDLE RIVER, MARYLAND

Well ID	Volatile Organic Compounds (EPA 8260C)	1,4-Dioxane (EPA 522)	Perchlorate (EPA 6850)	Total Metals Beryllium, Cobalt, Nickel (EPA 6020A)	Hexavalent Chromium[1]	PCBs (EPA 8082A)	MEE and NAA Parameters (SW-846 and Microseeps® AM 20GAX)	2014/2015 Well Tally[5]
MRC-OW3D								
MRC-OW4S								
MRC-OW4I								
MRC-OW5S								
MRC-OW5D								
MRC-OW6S								
MRC-OW6I								
MRC-OF01								
MRC-OF02A								
MRC-OF02B								
MRC-OF02C								
MRC-OF03A								
MRC-OF03B								
MRC-OF03C								
MRC-OF04A								
MRC-OF04B								
MRC-OF04C								
MRC-OF05A								
MRC-OF05B								
MRC-OF05C								
MRC-OF06A								
MRC-OF06B								
MRC-OF06C								
MRC-OF07								
MRC-OF08A								
MRC-OF08B								
MRC-OF08C								
MRC-OF08D								
MRC-OF09A								
MRC-OF09B								
MRC-OF09C								
Duplicate samples[3]	**6**	**3**	**2**	**5**		**1**		
Trip blanks[4]	**16**							
2014 TOTAL ANALYSES	**117**	**57**	**30**	**88**	**0**	**9**	**15**	**N/A**
2014 TOTAL WELLS	**95**	**54**	**28**	**83**	**0**	**8**	**15**	**122**
2015 TOTAL ANALYSES	**117**	**53[2]**	**26[2]**	**84[2]**	**0**	**9**	**15**	**N/A**
2015 TOTAL WELLS	**95**	**50**	**24**	**79**	**0**	**8**	**15**	**122**

1 Sampling and analysis for hexavalent chromium is not recommended in 2014 and 2015.
2 Analytes not detected in 2014 will not be sampled for in 2015 for these new wells installed in 2013. Assumes 1,4-dioxane, perchlorate and metals will not be detected in 2014 and therefore will not be sampled for in 2015.
3 Duplicate samples will be collected and analyzed on a 1:20 basis for VOCs, 1,4-dioxane, metals, and PCBs.
4 Approximate number of trip blanks based on one per cooler.

5 The total well count for each 2014 and 2015 is 122 as some wells are sampled for specific analyses and not others, refer to this column for the total wells to be sampled count

A - upper surficial aquifer
B - intermediate surficial aquifer
C - lower surficial aquifer
D - deep confined aquifer for MW93D through MW96D
EXT Existing (for wells installed prior to the VCP in 2002)
OF - off facility
MEE- methane, ethane, and ethene via AM 20GAX or equivalent
OW- Observation wells not typically sampled



FIGURE 3-1

GROUNDWATER MONITORING WELLS SAMPLED, 2014

LEGEND

- SURFICIAL GROUNDWATER MONITORING WELL (SAMPLED)
- WELL NOT SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (NOT SAMPLED)
- ABANDONED WELL BORING
- SURFACE WATER

NTS = NOT SAMPLED (FOR OBSCURED WELL SYMBOLS)

Lockheed Martin Middle River Complex
Middle River, Maryland

0 225 450 Feet

N

DATE MODIFIED: 09/10/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\middle_river_gw_locs_2014.mxd)
09/10/14 -- JEE

Section 4
Investigation Results

This section presents the results of the 2014 groundwater elevation data and groundwater sampling and chemical analyses program for the Middle River Complex (MRC).

4.1 GROUNDWATER LEVEL DATA

Table 4-1 lists the September 2014 groundwater level measurements and computed groundwater elevations for wells at the MRC. Figures 4-1 and 4-2 show the groundwater-elevation contour maps for the upper/intermediate and lower surficial-aquifer zones, respectively. As presented in Table 4-1, static groundwater levels in the wells were recorded as groundwater depths measured from the top of the well casings and converted to elevations based on the North American Vertical Datum of 1988 (NAVD88).

Groundwater elevations for the surficial aquifer ranged from 1.58 feet above NAVD88 at well MW112A (southeastern portion of MRC near Dark Head Cove) to 30.78 feet above NAVD88 at well MW58A (south of Buildings A and B). Accounting for well-casing stick-down for flush mounted well designs, groundwater depths ranged from less than one foot to approximately 21 feet below grade in the surficial aquifer. Shallow groundwater was encountered near the ground surface along the shorelines of Cow Pen Creek and Dark Head Cove (at wells MW08A, MW09A, MW12A, MW15A, MW39A, and MW40A) and in Block E (at wells MW30A, MW43A, MW44A, and MW62A). Groundwater depth measurements at or near 0.00 feet indicate groundwater at or near the top of the well casing, which is near the ground surface for most wells. Depth to surficial aquifer groundwater was measured at 16–21 feet deep north and west of Building A (at wells MW67A, MW50A and MW05A); approximately 12 feet deep in the northwestern corner of Block E (at well MW101A); and approximately 17 feet deep south of Building A (MW22B) and south of Building C (MW60A).

Figures 4-1 and 4-2 show the groundwater-elevation contour maps for the upper (“A” and “B”) and lower (“C”) surficial-aquifer wells, respectively. The September 2014 groundwater flow for

the surficial aquifer is similar to that depicted in previous investigations. However, the September 2014 surficial-aquifer groundwater elevations are generally lower than those collected in 2013.

As shown in Figure 4-1, shallow groundwater follows the site topography and flows radially from the hydraulically upgradient northern portion of the MRC (at Eastern Boulevard and immediately south of Buildings A, B, and C) to the southeast, south, and southwest toward Dark Head Cove and Cow Pen Creek. Subsurface sandy zones act as preferential pathways for contaminant transport in groundwater, possibly originating from an upgradient source in the clay-rich materials. Groundwater in the lower surficial-aquifer (Figure 4-2) flows southeast from the area south of Buildings A–C toward Dark Head Cove.

4.2 GROUNDWATER CHEMICAL RESULTS

Validated groundwater-chemical data were used to generate a statistical summary table (Table 4-2) and a "hits" table (Table 4-3) summarizing positive detections of chemical analytes for the 2014 groundwater samples. Appendix D presents all analytical data for 2014, including non-detects. The groundwater results in Table 4-3 are compared against current Maryland Department of the Environment (MDE) groundwater standards (MDE, 2008) for volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), metals, and perchlorate.

At present, MDE has not established an advisory level or standard for 1,4-dioxane in drinking water or groundwater. Several states (e.g., California, Colorado, Connecticut, Florida, Maine, Massachusetts, Michigan, and North Carolina) have established drinking water standards or action levels for 1,4-dioxane, ranging from California's action level of 3 micrograms per liter (µg/L) to Michigan's drinking water standard of 85 µg/L (United States Environmental Protection Agency [USEPA], 2006 and 2009, respectively). USEPA has also published a preliminary remedial goal of 6.1 µg/L for 1,4-dioxane in tap water (USEPA, 2006) and a risk-based regional screening-level of 0.67 µg/L for tap water (USEPA, 2014). The current advisory level or the standard most protective of human health is used as a comparison criterion to evaluate groundwater concentrations of 1,4-dioxane in this report. Therefore, the California Department of Health Services advisory level (3 µg/L) is used herein as the groundwater screening level. Gray shading in Table 4-3 indicates results exceeding Maryland groundwater standards (or the California action level used for

1,4-dioxane). Chemical results for the 2014 groundwater sampling episode are discussed below according to analyte group (i.e., VOCs, SVOCs [1,4-dioxane], PCBs, etc.).

4.2.1 Volatile Organic Compounds

Trichloroethene (TCE) and benzene groundwater plumes previously identified in the central and downgradient portions of the MRC are confirmed by the 2014 results, which is consistent with earlier results showing TCE and benzene in groundwater at concentrations exceeding the Maryland groundwater standard (i.e., 5 µg/L for each constituent). Tetrachloroethene (PCE), chlorobenzene, and chlorobenzene compounds also exceed MDE standards, and have formed a small plume in the southwestern portion of Lot D. TCE and benzene results are discussed herein because they are primary indicators of solvent and petroleum VOC contamination, and are the VOCs in each group that most frequently exceed groundwater standards at MRC. Chlorinated VOC-degradation daughter products (e.g., dichloroethenes, vinyl chloride [VC], etc.) or other petroleum-related VOCs (e.g., methyl *tert*-butyl ether [MTBE], benzene isomers, naphthalene, etc.) are typically co-located with these primary VOCs.

Chlorinated volatile organic compounds (cVOCs)—TCE results are in Table 4-2 and in Figure 4-3. TCE was detected in shallow groundwater at several areas, at concentrations ranging from 0.25*J* µg/L at well MW27C (central portion of MRC, north of Lot D) to 7,800 µg/L at well MW81B (southeastern corner of Building C). PCE, another chlorinated solvent and degreaser, was detected less frequently (19% of samples), at concentrations ranging from 0.3*J* µg/L at well MW22B (near the former 2,000-gallon waste oil underground storage tank [UST] northeast of the Tilley Chemical building) to 43*J* µg/L at newly installed well MW113A (southwestern corner of Lot D), with an average detected concentration of 5.2 µg/L. PCE is co-located with TCE in all cases, and exceeds its groundwater standard (5 µg/L) at wells MW113A (43*J* µg/L), MW16A(9.5 µg/L), MW21B (7.6*J* µg/L), MW62A(12*J* µg/L), and MW98B(5.8 µg/L).

- *Eastern TCE plume:* The largest contiguous area containing samples with the highest concentrations of TCE in groundwater extends southeast from MW60B (5,600 µg/L) and MW81B (7,800 µg/L) (at the southern end of Building C) to well MW112A (3.1*J* µg/L), (near Dark Head Cove). Maximum detected TCE concentrations of 7,800 µg/L, 5,600 µg/L, and 2,500 µg/L are reported for wells MW81B, MW60B, and MW72B, respectively. MW72B is in the southeastern portion of the plume, north of the aboveground water tanks, whereas wells MW81B and MW60B are south of Building C.

- The high concentrations at the north and south ends of the eastern plume, with no high concentrations between them, suggest at least two distinct TCE-source areas. A tank of waste TCE solvent discovered in 2013 during soil pre-remediation work in the Block E groundwater treatment area supports this theory. The tank contained full-strength TCE and appeared to be leaking and was removed. Soil under the tank was impacted by TCE.

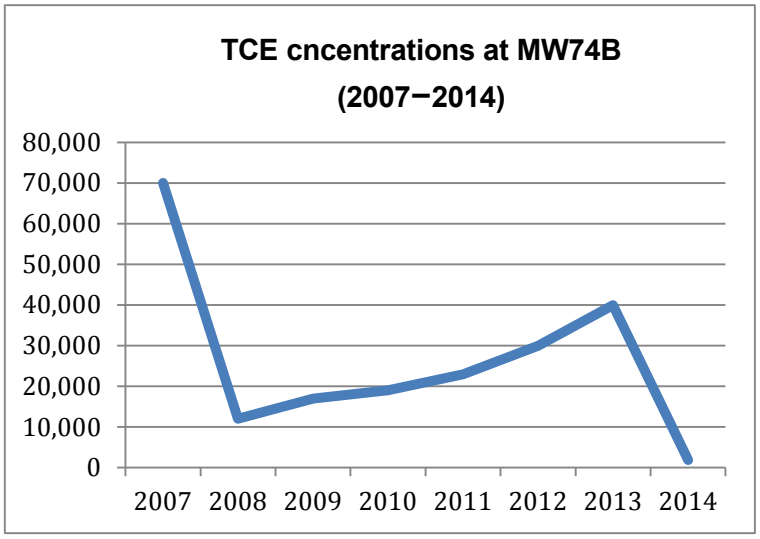
- The maximum concentrations of TCE were detected in the intermediate depth of the surficial aquifer, in wells MW81B and MW60B, screened 30 feet below grade. This plume may originate from the southern end of the Building C Basement (MW60B), or possibly from spills of material handled near MW60B.

- VOCs in groundwater at wells MW72B and MW74B near the southern end of the eastern TCE plume are considered to be from a recently discovered TCE-containing underground storage tank that was located (and removed) near the former Building D foundation.

- At both of the eastern TCE plume source-areas, residual TCE may be trapped in silt and sand lenses in the clay-rich zones, and/or may be adsorbed to organic material and clays. From these source areas, dissolved TCE has presumably been released to groundwater and now moves preferentially to the southeast along the more permeable sandy and silty material that extends from well MW48 southeastward to well MW37.

- TCE concentrations at MW74B over time (shown below) suggest the well was close to non-aqueous source material. Recent remedial actions in this area of groundwater remediation appear to have lowered the TCE concentration from 2013 to 2014 by a factor of 21:

Year	Concentration (µg/L)
2007	70,000
2008	12,000
2009	17,000
2010	19,000
2011	23,000
2012	30,000
2013	40,000
2014	1,900



- *Western TCE plume:* The second largest contiguous area of TCE in groundwater extends from well MW21B (near recognized environmental condition #9, a former 2,000 gallon waste-oil UST) to MW12 (near Cow Pen Creek). The current maximum reported concentrations of TCE in this area are 1,300 µg/L (MW12A, in the southernmost portion of the plume, near Cow Pen Creek) and 1,000 µg/L (MW14B, in the center of the plume). Wells MW21B, MW111B, and MW98B (all in the northern portion of the plume) had the

next three highest TCE concentrations (780*J* µg/L, 530 µg/L, and 470 µg/L, respectively) for the western TCE plume.

- *Other TCE areas:* TCE exceedances of its groundwater standard (5 µg/L) were also detected at the western portion of the facility in wells MW96A-B (3,300 µg/L and 15*J* µg/L, respectively), MW90B (280 µg/L), MW53A (320 µg/L), MW53B (26 µg/L), MW110A-B (31 µg/L and 30 µg/L), MW50A (14 µg/L), and MW17A (12 µg/L). The maximum TCE concentration (3,300 µg/L at well MW96A) is west of Building A.

- *Natural-attenuation parameters:* In addition to the standard analyses for VOCs, the laboratory-analyzed groundwater samples from wells within the plumes for several NAA parameters. The NAA analyses include alkalinity, ammonia nitrogen, chloride, nitrate, nitrite, orthophosphate, sulfate, total dissolved solids, total iron, dissolved organic carbon, manganese, and the dissolved gasses ethane, ethene, and methane. NAA parameters were also measured in the field. Field measurements include groundwater pH (a measure of acidity or alkalinity), oxidation-reduction potential (ORP), dissolved oxygen (DO), and temperature.

  These analyses will help evaluate remedial action in the future because they indicate whether VOCs are undergoing anaerobic reductive-dechlorination at the site, and whether site conditions were enhanced by adding electron donor and/or pH adjustment to stimulate anaerobic reductive-dechlorination. These results will also be used as input for ongoing groundwater-contaminant modeling. Pre-remediation evaluations of NAA parameters can be found in MRC groundwater monitoring reports (Tetra Tech, 2012b, 2012c, 2012d, and 2013). STOP

***Benzene*—**Figure 4-4 presents benzene results for MRC and chlorobenzene-isomer results for wells in the southwestern portion of Lot D (i.e., Tax Block E). The highest concentrations of benzene would likely be encountered in shallow groundwater near source areas, because fuels in product form are less dense than water and, when present above the solubility limit, will float on top of the groundwater. Recharge (i.e., infiltrating precipitation) and downward hydraulic gradients may drive dissolved benzene and other petroleum-related contaminants downward in the aquifer as the contaminant travels farther from the source area(s). However, dissolved oxygen in shallow groundwater provides favorable conditions for the rapid decay and mineralization of fuel-related VOCs, including benzene.

The area with the highest benzene concentrations above the groundwater standard (5 µg/L) is west of Building A, near underground wastewater lines at wells MW96B (470 µg/L) and MW17A (160 µg/L). Other areas with benzene concentrations above the groundwater standard include:

- well MW21B (26*J* µg/L), southeast of Building A near a former UST

- wells MW110B (18 µg/L) and MW53B (13 µg/L), in parking Lot 2 west of Building A and hydraulically downgradient of wells MW96B/MW17
- well MW14B (18 µg/L), co-located with a TCE plume
- well MW77A (11 µg/L), on the east side of the vertical-assembly building in the area of an abandoned-in-place 25,000-gallon fuel oil UST

Some wells had increased benzene concentrations in 2014, while others had decreased concentrations from 2013 levels. Increases from 2013–2014 were observed at three areas of maximum benzene concentrations, in wells MW17A (110 µg/L in 2013 to 160 µg/L in 2014), MW110B (3.3 µg/L to 18 µg/L), and MW21B (23 µg/L to 26 µg/L). Benzene decreased at MW96B (560 µg/L in 2013 to 470 µg/L in 2014), MW14B (36 µg/L to 18 µg/L), and MW77A (18 µg/L to 11 µg/L).

As shown in Figure 4-4 (and Table 4-3), groundwater concentrations of chlorobenzene isomers in the southwestern portion of Lot D (Tax Block E and the former location of Building D) exceed groundwater standards at wells MW43A, MW113A, and MW114A (groundwater standards for the chlorobenzene and chlorobenzene compounds range from 2–70 µg/L). Chlorobenzene compounds exceeding groundwater standards include chlorobenzene, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene (1,2-dichloropropane and several cVOCs also exceed standards in these wells). 1,2,4-Trichlorobenzene at well MW43A (8,000 µg/L) exceeds its standard (70 µg/L) by more than two orders of magnitude (i.e., by more than a factor of 100).

4.2.2 1,4-Dioxane

As shown in Table 4-2 and Figure 4-5, the SVOC 1,4-dioxane was detected in 51 of 54 groundwater samples collected in 2014 at concentrations ranging from 0.0224*J* µg/L (at MW115A) to 374 µg/L (at MW12A). Concentrations exceeding the screening level of 3 µg/L are shown within contours on Figure 4-5. The average of all 1,4-dioxane detections is 26.76 µg/L, and the average of all samples (including non-detects) is 25.27 µg/L (Table 4-2). The highest concentrations occur primarily in the upper and intermediate surficial-aquifer wells, with the highest reported concentrations (132–374 µg/L) at wells MW12A, MW14B, MW98B, and MW111B, in the western TCE plume in the southwestern portion of the MRC.

1,4-Dioxane was detected in several wells in the western TCE plume, ranging from 0.0956*J* µg/L at well MW11A to 374 µg/L at MW12A (both wells are near Cow Pen Creek). 1,4-Dioxane in this

area of the MRC extends from well MW91A near the rear of Building B to well MW12A-B adjacent to Cow Pen Creek, with the highest concentrations in a line from just north of the Tilley Chemical building (wells MW98B and MW111B) to Cow Pen Creek. 1,4-Dioxane was also detected at concentrations exceeding its screening level west and southwest of Building A in samples from wells MW53A (24.4 µg/L), MW90B (19.4 µg/L), MW96A (5.52 µg/L), MW17A (5.04 µg/L), MW53B (4.18 µg/L), MW110B (3.29 µg/L), MW69A (3.27 µg/L), and MW110A (3.23 µg/L). Historically, 1,4-dioxane has not been detected extensively in the eastern TCE plume; exceptions are wells MW44A, MW113A, and MW114A in the southeastern portion of Lot D, where two of three detected concentrations (0.885 and 1.03*J* µg/L at MW114A and MW44A, respectively) are lower than the screening level (3 µg/L). 1,4-Dioxane exceeds its screening level at MW113A (6.86 µg/L).

4.2.3 Polychlorinated Biphenyls

Groundwater samples from eight wells (MW43A, MW44A, MW62A, MW62C, MW103A, MW103B, MW113A, and MW114A) were analyzed for PCB homologs (Tables 4-2 and 4-3). PCB samples were collected in an area where elevated PCBs had previously been detected in soil (Figure 4-6). PCBs were detected in groundwater samples collected from MW43A, MW62A, and MW114A. Seven PCB homologs (mono- through hepta-chlorobiphenyls) were detected at well MW43A at the Block E PCB subsurface-soil source area.

The total PCB concentration in well MW43A (0.62 µg/L) slightly exceeds the groundwater standard (0.5 µg/L). Three other total PCB concentrations (0.042 µg/L and 0.0052 µg/L at MW62A and 0.012 µg/L at MW114A) are more than an order of magnitude (i.e., more than 10 times) lower than the groundwater standard. These wells are upgradient (MW62A) and downgradient (MW114A) of the Block E PCB-source area. Only monochlorobiphenyls were detected at MW114, indicating that higher-chain chlorobiphenyls are not migrating in groundwater from the source area.

4.2.4 Metals

Total metals (i.e., unfiltered) concentrations above MDE standards are found throughout the MRC (previous site-wide plots of beryllium, cobalt, and nickel can be found in Tetra Tech [2009]). Table 4-3 summarizes detections of metals in the groundwater samples. Table 4-4 includes a statistical summary of metals in site groundwater that exceed Maryland groundwater standards.

Concentrations of 11 metals exceed Maryland groundwater standards in one or more samples. Manganese (95% of 15 samples), iron (78% of 15 samples), and nickel (73% of 95 samples) exceed their standards most frequently, with maximum concentrations more than two orders of magnitude (greater than 100 times) above their respective groundwater standards (Table 4-4). Concentrations of beryllium and vanadium exceed their standards in 35% and 9% of samples, respectively, and their maximum concentrations (249*J* µg/L and 36.1 µg/L, respectively) exceed groundwater standards by approximately one and slightly more than one order of magnitude. Concentrations of the remaining metals (arsenic, cadmium, selenium, antimony, barium, and copper) exceed standards in two or fewer samples (in 1–3% of samples collected); all concentrations (except arsenic) exceed standards by a factor of approximately five or less. The maximum arsenic concentration is almost seven times its standard.

4.2.5 Perchlorate

As shown in Table 4-2 and Figure 4-7, perchlorate was detected in 14 (48%) of the 29 groundwater samples in which it was analyzed for. Detected concentrations of perchlorate range from 0.06*J* µg/L (MW74B) to 9.7 µg/L (MW53A), but only three concentrations (9.7 µg/L [MW53A], 4.2 µg/L [MW01A], and 2.8 µg/L [MW96B]) exceed its groundwater standard (2.6 µg/L). Wells MW53A and MW96B are west of Building A, in the western portion of the MRC. Low (nonexceedance) concentrations of perchlorate were detected in newly installed wells MW113A (0.69 µg/L) and MW114A (0.81 µg/L), in the southwestern portion of Lot D.

Table 4-1

Groundwater Levels and Elevations-September 9-10, 2014
Lockheed Martin Middle River Complex, Middle River, Maryland

Well ID	Elevation - top of well casing NAVD 1988 (feet)	Depth to groundwater - below top of casing (feet)	Groundwater elevation NAVD 1988 (feet)
MRC-MW01A	33.63	14.71	18.92
MRC-MW02A	28.41	9.18	19.23
MRC-MW03A	28.17	5.36	22.81
MRC-MW04A	24.43	2.40	22.03
MRC-MW05A	35.15	14.31	20.84
MRC-EXT-MW06	31.63	10.31	21.32
MRC-MW07A	33.39	12.06	21.33
MRC-MW08A	9.70	0.17	9.53
MRC-MW09A	8.26	2.90	5.36
MRC-MW10A	9.52	2.68	6.84
MRC-MW11A	11.90	2.34	9.56
MRC-MW11C	11.45	1.11	10.34
MRC-MW12A	9.29	3.85	5.44
MRC-MW12C	9.83	0.00	9.83
MRC-MW13A	10.31	3.68	6.63
MRC-MW14A	16.67	3.96	12.71
MRC-MW14B	15.88	2.31	13.57
MRC-MW14C	15.88	6.09	9.79
MRC-MW15A	16.80	0.03	16.77
MRC-MW16A	17.20	2.13	15.07
MRC-MW17A	32.59	7.10	25.49
MRC-MW19A	36.36	7.58	28.78
MRC-MW20A	36.18	10.79	25.39
MRC-MW21A	32.70	4.46	28.24
MRC-MW21B	32.91	10.92	21.99
MRC-MW22B	31.04	13.52	17.52
MRC-MW24A	20.77	7.87	12.90
MRC-MW25A	26.71	12.99	13.72
MRC-MW26A	22.90	10.03	12.87
MRC-MW27A	20.76	9.95	10.81
MRC-MW27B	20.90	14.07	6.83
MRC-MW27C	21.35	13.56	7.79
MRC-MW30A	11.14	1.54	9.60
MRC-MW31A	11.00	3.64	7.36

Table 4-1

Groundwater Levels and Elevations-September 9-10, 2014
Lockheed Martin Middle River Complex, Middle River, Maryland

Well ID	Elevation - top of well casing NAVD 1988 (feet)	Depth to groundwater - below top of casing (feet)	Groundwater elevation NAVD 1988 (feet)
MRC-MW32A	11.01	4.23	6.78
MRC-MW33A	11.08	2.99	8.09
MRC-MW34A	10.88	4.83	6.05
MRC-MW34B	10.84	3.18	7.66
MRC-MW34C	10.80	3.55	7.25
MRC-MW35A	8.39	3.13	5.26
MRC-MW37B	7.36	4.97	2.39
MRC-MW37C	7.45	5.22	2.23
MRC-MW38A	8.07	5.21	2.86
MRC-MW38B	8.18	5.01	3.17
MRC-MW39A	4.78	1.34	3.44
MRC-MW40A	4.50	0.00	4.50
MRC-MW41A	27.52	9.31	18.21
MRC-MW42A	28.21	10.84	17.37
MRC-MW43A	11.01	2.03	8.98
MRC-MW44A	10.64	1.83	8.81
MRC-MW45A	4.64	2.94	1.70
MRC-MW46A	6.40	4.11	2.29
MRC-MW47A	10.75	3.03	7.72
MRC-MW49A	31.47	12.54	18.93
MRC-MW50A	30.15	13.98	16.17
MRC-MW51A	21.88	2.82	19.06
MRC-MW52A	20.32	6.26	14.06
MRC-MW53A	18.54	5.03	13.51
MRC-MW53B	18.41	4.56	13.85
MRC-MW54A	17.05	3.98	13.07
MRC-MW57A	36.46	8.52	27.94
MRC-MW58A	35.03	4.25	30.78
MRC-MW59A	34.11	9.66	24.45
MRC-MW60A	31.26	14.22	17.04
MRC-MW60B	30.21	14.41	15.80
MRC-MW61A	24.16	6.28	17.88
MRC-MW62A	10.62	0.00	10.62
MRC-MW62C	10.89	1.74	9.15

Table 4-1

Groundwater Levels and Elevations-September 9-10, 2014
Lockheed Martin Middle River Complex, Middle River, Maryland

Well ID	Elevation - top of well casing NAVD 1988 (feet)	Depth to groundwater - below top of casing (feet)	Groundwater elevation NAVD 1988 (feet)
MRC-MW65A	14.76	5.96	8.80
MRC-MW66A	14.99	7.32	7.67
MRC-MW67A	36.67	20.48	16.19
MRC-MW68A	36.51	12.47	24.04
MRC-MW69A	27.63	10.12	17.51
MRC-MW69B	27.85	10.12	17.73
MRC-MW71A	16.90	2.03	14.87
MRC-MW71B	16.94	4.60	12.34
MRC-MW72B	10.79	5.46	5.33
MRC-MW73B	10.28	6.76	3.52
MRC-MW74A	11.18	7.57	3.61
MRC-MW74B	10.88	7.66	3.22
MRC-MW74C	11.05	7.98	3.07
MRC-MW76A	28.42	11.08	17.34
MRC-MW76B	28.24	10.62	17.62
MRC-MW77A	23.06	7.26	15.80
MRC-MW78B	24.30	8.16	16.14
MRC-MW79B	19.18	9.76	9.42
MRC-MW80A	32.82	7.29	25.53
MRC-MW80B	32.66	8.95	23.71
MRC-MW81A	27.34	10.75	16.59
MRC-MW82A	23.88	3.89	19.99
MRC-MW83A	20.14	0.31	19.83
MRC-MW87A	26.57	12.01	14.56
MRC-MW90B	21.67	6.80	14.87
MRC-MW91A	36.85	9.39	27.46
MRC-MW91B	36.54	21.15	15.39
MRC-MW94B	25.28	6.36	18.92
MRC-MW95B	24.04	4.93	19.11
MRC-MW95D	9.99	0.00	9.99
MRC-MW96D	6.44	0.00	6.44
MRC-MW101A	27.29	15.16	12.13
MRC-MW101B	27.25	15.57	11.68
MRC-MW102A	21.63	10.61	11.02

Table 4-1

Groundwater Levels and Elevations-September 9-10, 2014
Lockheed Martin Middle River Complex, Middle River, Maryland

Well ID	Elevation - top of well casing NAVD 1988 (feet)	Depth to groundwater - below top of casing (feet)	Groundwater elevation NAVD 1988 (feet)
MRC-MW102B	21.58	11.59	9.99
MRC-MW104A	8.19	5.36	2.83
MRC-MW104B	8.23	5.03	3.20
MRC-MW105A	9.66	5.47	4.19
MRC-MW105B	9.64	5.20	4.44
MRC-MW106BC	16.20	6.04	10.16
MRC-MW107BC	10.33	2.15	8.18
MRC-MW109A	31.22	11.74	19.48
MRC-MW109B	31.24	16.96	14.28
MRC-MW110A	16.21	3.01	13.20
MRC-MW110B	16.09	2.58	13.51
MRC-MW112A	4.96	3.38	1.58
MRC-MW113A	11.89	4.36	7.53
MRC-MW114A	11.79	5.51	6.28
MRC-MW115A	26.83	6.74	20.09
MRC-MW116A	25.86	7.05	18.81

MRC - Middle River Complex
MW - monitoring well
NAVD - North American Vertical Datum
A - upper surficial aquifer
B - intermediate surficial aquifer
C - lower surficial aquifer
D - deep confined aquifer for MW93D through MW96D
EXT - existing (for wells installed before 2002)

Table 4-2

Statistical Summary of Groundwater Chemical Analyses-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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Parameter	Frequency of detection	Minimum non-detect result	Maximum non-detect result	Minimum result	Maximum result	Location with maximum detected concetration	Sample with maximum detected concetration	Average of positive results	Average of all results	Standard deviation
Volatile organic compounds (µg/L)										
1,1,1-TRICHLOROETHANE	5/108	0.36 U	50 U	0.39 J	44	MRC-MW98B	MRC-MW98B-061714	17.82	2.082	6.735
1,1,2-TRICHLOROTRIFLUOROETHANE	7/108	0.31 U	50 U	0.63 J	7.7	MRC-MW74B	MRC-MW74B-060614	3.147	1.382	3.892
1,1-DICHLOROETHANE	41/108	0.2 U	50 U	0.22 J	120	MRC-MW98B	MRC-MW98B-061714	15.54	6.61	19.88
1,1-DICHLOROETHENE	39/108	0.57 U	50 U	0.76 J	370	MRC-MW81B	MRC-MW81B-061114	64.5	24.17	64.67
1,2,3-TRICHLOROBENZENE	4/108	0.82 U	50 U	3.2 J	1700 J	MRC-MW43A	MRC-MW43A-032014	470.8	18.98	163.8
1,2,4-TRICHLOROBENZENE	4/108	0.23 U	50 U	15 J	8000 J	MRC-MW43A	MRC-MW43A-032014	2213	83.05	771.3
1,2,4-TRIMETHYLBENZENE	4/108	0.2 U	50 U	0.26 J	22	MRC-MW96B	MRC-MW96B-051314	6.888	1.38	4.274
1,2-DICHLOROBENZENE	4/108	0.21 U	50 U	1.4 J	400 J	MRC-MW43A	MRC-MW43A-032014	111.9	5.229	38.65
1,2-DICHLOROETHANE	12/108	0.36 UJ	50 U	0.38 J	1100 J	MRC-MW114A	MRC-MW114A-032014-D	88.85	11.12	99.06
1,2-DICHLOROPROPANE	2/108	0.2 U	50 U	0.27 J	7.9 J	MRC-MW114A	MRC-MW114A-032014-D	4.035	1.206	3.816
1,3-DICHLOROBENZENE	3/108	0.2 U	50 U	0.32 J	14 J	MRC-MW113A	MRC-MW113A-032014	6.34	1.298	3.974
1,4-DICHLOROBENZENE	6/108	0.2 U	50 U	0.34 J	480 J	MRC-MW43A	MRC-MW43A-032014	94.68	6.334	46.5
2-BUTANONE	1/108	0.81 U	250 U	3.3 J	3.3 J	MRC-MW48A	MRC-MW48A-061114	3.3	5.532	18.91
4-ISOPROPYLTOLUENE	1/108	0.2 U	50 U	0.55 J	0.55 J	MRC-MW17A	MRC-MW17A-060514	0.55	1.138	3.763
ACETONE	16/108	1.3 U	250 U	1.5 J	17 J	MRC-MW60A	MRC-MW60A-061814	4.344	6.191	19.05
BENZENE	30/108	0.2 U	50 U	0.21 J	470	MRC-MW96B	MRC-MW96B-051314	25.08	7.988	47.66
BROMOMETHANE	6/108	0.29 UJ	50 U	0.29 J	1.3 BDJ	MRC-MW48A	MRC-MW48A-061114-DL	0.5817	1.225	3.817
CARBON DISULFIDE	6/108	0.22 U	50 U	0.23 J	1.1 DJ	MRC-MW90B	MRC-MW90B-061814-DL	0.5458	1.163	3.77
CARBON TETRACHLORIDE	3/108	0.45 UJ	50 U	0.69 J	5.4	MRC-MW34B	MRC-MW34B-051214	2.463	1.46	3.977
CHLOROBENZENE	4/108	0.29 U	50 U	1.2 J	570 J	MRC-MW114A	MRC-MW114A-032014-D	141.5	6.455	52
CHLOROETHANE	10/108	0.24 U	50 U	0.28 J	40	MRC-MW98B	MRC-MW98B-061714	8.406	1.887	6.417
CHLOROFORM	28/108	0.25 U	50 U	0.25 J	21 DJ	MRC-MW60B	MRC-MW60B-061814-DL	2.695	1.513	3.704
CHLOROMETHANE	5/108	0.21 U	50 U	0.21 J	0.56 DJ	MRC-MW90B	MRC-MW90B-061814-DL	0.392	1.15	3.772
CIS-1,2-DICHLOROETHENE	64/108	0.3 U	25 U	0.34 J	31000	MRC-MW96A	MRC-MW96A-051314	589.6	349.7	2996
DICHLORODIFLUOROMETHANE	1/108	0.46 U	50 U	1.6	1.6	MRC-MW02A	MRC-MW02A-061814	1.6	1.416	3.962
DIISOPROPYL ETHER	3/108	0.2 U	50 U	0.23 J	10	MRC-MW17A	MRC-MW17A-060514	3.597	1.23	3.856
ETHYLBENZENE	5/108	0.2 U	50 U	0.22 J	45	MRC-MW17A	MRC-MW17A-060514	10.67	1.622	5.671
ISOPROPYLBENZENE	8/108	0.2 U	50 U	0.25 J	12 J	MRC-MW21B	MRC-MW21B-060314	3.355	1.326	3.955

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Parameter	Frequency of detection	Minimum non-detect result	Maximum non-detect result	Minimum result	Maximum result	Location with maximum detected concetration	Sample with maximum detected concetration	Average of positive results	Average of all results	Standard deviation
M+P-XYLENES	4/108	0.33 U	100 U	0.63 J	35	MRC-MW96B	MRC-MW96B-051314	14.37	2.726	8.328
METHYL TERT-BUTYL ETHER	10/108	0.29 U	50 U	1.1	120	MRC-MW77A	MRC-MW77A-060214	22.92	3.326	12.77
METHYLENE CHLORIDE	8/108	0.32 UJ	50 U	0.35 J	8.2	MRC-MW98B	MRC-MW98B-061714	2.744	1.389	3.916
NAPHTHALENE	7/108	0.2 U	50 U	0.73 J	19	MRC-MW96B	MRC-MW96B-051314	8.161	1.606	4.567
N-BUTYLBENZENE	3/108	0.21 U	50 U	0.26 J	1.4 J	MRC-MW96B	MRC-MW96B-051314	0.7133	1.165	3.771
N-PROPYLBENZENE	2/108	0.2 U	50 U	4.3	5.9	MRC-MW17A	MRC-MW17A-060514	5.1	1.225	3.801
O-XYLENE	8/108	0.2 U	50 U	0.42 J	68	MRC-MW96B	MRC-MW96B-051314	9.7	1.822	7.453
SEC-BUTYLBENZENE	4/108	0.27 U	50 U	0.35 J	2.4	MRC-MW77A	MRC-MW77A-060214	1.23	1.247	3.803
STYRENE	1/108	0.2 U	50 U	2.2	2.2	MRC-MW96B	MRC-MW96B-051314	2.2	1.152	3.764
TERT-AMYL METHYL ETHER	1/108	0.2 U	50 U	0.52 J	0.52 J	MRC-MW77A	MRC-MW77A-060214	0.52	1.137	3.763
TERT-BUTYLBENZENE	2/108	0.2 U	50 U	0.28 J	0.35 J	MRC-MW77A	MRC-MW77A-060214	0.315	1.134	3.764
TERTIARY-BUTYL ALCOHOL	4/108	11 U	2000 U	18 J	350 J	MRC-MW62A	MRC-MW62A-031814	104.8	51.96	154.5
TETRACHLOROETHENE	20/108	0.3 U	50 U	0.3 J	43 J	MRC-MW113A	MRC-MW113A-032014	5.227	2.047	5.716
TOLUENE	4/108	0.2 U	50 U	0.36 J	32	MRC-MW17A	MRC-MW17A-060514	8.57	1.442	4.791
TOTAL XYLENES	5/108	0.53 U	150 U	1.3 J	100	MRC-MW96B	MRC-MW96B-051314	26.04	4.514	14.75
TRANS-1,2-DICHLOROETHENE	22/108	0.33 U	50 U	0.33 J	75	MRC-MW96A	MRC-MW96A-051314	6.812	2.244	8.158
TRICHLOROETHENE	74/108	0.22 U	11 UJ	0.25 J	7800	MRC-MW81B	MRC-MW81B-061114	525.3	360	1131
TRICHLOROFLUOROMETHANE	6/108	0.2 U	50 U	0.44 J	1500 J	MRC-MW113A	MRC-MW113A-032014	275	16.39	144.8
VINYL CHLORIDE	28/108	0.32 U	50 U	0.32 J	89	MRC-MW81B	MRC-MW81B-061114	14.25	4.522	13.22
Volatile gases (µg/L)										
ETHANE	7/18	0.2 U	10 U	0.22 J	77	MRC-MW48A	MRC-MW48A-061114	19.06	7.886	20.55
ETHENE	9/18	0.11 U	2 U	0.2 J	75	MRC-MW48A	MRC-MW48A-061114	15.37	7.838	19.66
METHANE	14/18	0.21 U	2 U	5.8	6300 D	MRC-MW48A	MRC-MW48A-061114-DL	807	627.8	1529
Semivolatile organic conpounds (µg/L)										
1,4-DIOXANE	51/54	0.02 U	0.02 U	0.0224 J	374	MRC-MW12A	MRC-MW12A-053014	26.76	25.27	62.15
Polychlorinated biphenyl homologs (µg/L)										
DICHLOROBIPHENYLS	2/16	0.0044 U	0.0044 U	0.034	0.072	MRC-MW43A	MRC-MW43A-032014	0.053	0.0086	0.0187
HEPTACHLOROBIPHENYLS	1/16	0.011 U	0.011 U	0.012 J	0.012 J	MRC-MW43A	MRC-MW-43A-041714	0.012	0.0059	0.0016
HEXACHLOROBIPHENYL	2/16	0.01 U	0.01 U	0.054	0.062	MRC-MW43A	MRC-MW43A-032014	0.058	0.0116	0.0182
MONOCHLOROBIPHENYLS	4/16	0.0017 U	0.0017 U	0.0066	0.23	MRC-MW43A	MRC-MW-43A-041714	0.1172	0.0299	0.0762
PENTACHLOROBIPHENYLS	2/16	0.0088 U	0.0088 U	0.18	0.23	MRC-MW43A	MRC-MW-43A-041714	0.205	0.0295	0.0691
TETRACHLOROBIPHENYLS	2/16	0.0054 U	0.0054 U	0.041	0.048	MRC-MW43A	MRC-MW-43A-041714	0.0445	0.0079	0.0143
TRICHLOROBIPHENYLS	2/16	0.0034 U	0.017 U	0.012	0.042	MRC-MW62A	MRC-MW62A-031814	0.027	0.0055	0.0102

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Parameter	Frequency of detection	Minimum non-detect result	Maximum non-detect result	Minimum result	Maximum result	Location with maximum detected concetration	Sample with maximum detected concetration	Average of positive results	Average of all results	Standard deviation
Filtered polychlorinated biphenyls (µg/L)										
DICHLOROBIPHENYLS	2/8	0.0044 U	0.0044 U	0.0052	0.0055	MRC-MW43A	MRC-MW-43A-041714	0.00535	0.0030	0.0015
MONOCHLOROBIPHENYLS	1/8	0.0017 U	0.0017 U	0.026	0.026	MRC-MW43A	MRC-MW-43A-041714	0.026	0.0040	0.0089
Metals (µg/L)										
ANTIMONY	16/79	0.157 U	1.6 U	0.196 J	21.9	MRC-MW11A	MRC-MW11A-060214	2.289	0.5776	2.484
ARSENIC	63/79	0.211 U	1.1 U	0.226 J	69.4 J	MRC-MW14B	MRC-MW14B-060514	3.575	2.878	9.421
BARIUM	72/79	33.8 U	98.4 U	11.9	2400	MRC-MW68A	MRC-MW68A-051314	228.1	210.2	315
BERYLLIUM	81/83	0.02 U	0.02 U	0.034 J	249 J	MRC-MW67A	MRC-MW67A-051314	9.409	9.182	33.06
CADMIUM	29/79	0.008 U	0.08 U	0.024 J	10.3	MRC-MW67A	MRC-MW67A-051314	1.309	0.4848	1.452
CHROMIUM	33/79	0.47 U	823 U	0.492 J	10.1	MRC-MW98A	MRC-MW98A-061714	2.822	7.011	46.12
COBALT	83/83	--	--	0.177 J	7550	MRC-MW67A	MRC-MW67A-051314	331.1	331.1	943.8
COPPER	79/79	--	--	0.509 J	2120	MRC-MW67A	MRC-MW67A-051314	46.17	46.17	239.4
IRON	71/79	13.6 U	256 U	51.2 J	92600	MRC-MW42A	MRC-MW42A-061314-D	21960	19740	24710
LEAD	73/79	0.061 U	0.61 U	0.069 J	6.5	MRC-MW67A	MRC-MW67A-051314	1.036	0.9637	1.335
MANGANESE	79/79	--	--	6.4 J	42800	MRC-MW08A	MRC-MW08A-052214	5501	5501	9102
MERCURY	7/83	0.024 U	0.024 U	0.025 J	0.252	MRC-MW29A	MRC-MW29A-052114	0.06464	0.01644	0.02695
MOLYBDENUM	37/79	0.068 U	0.926 U	0.073 J	13.7	MRC-MW116A	MRC-MW116A-060214	1.507	0.7493	1.904
NICKEL	83/83	--	--	2.5	129000	MRC-MW67A	MRC-MW67A-051314	1877	1877	14150
SELENIUM	53/79	0.213 U	2.1 U	0.236	258 J	MRC-MW14B	MRC-MW14B-060514	10.69	7.224	35.96
SILICON	56/56	--	--	1750	18500	MRC-MW11A	MRC-MW11A-060214	7835	7835	4266
SILVER	24/79	0.015 U	0.201 U	0.017 J	0.875 J	MRC-MW49A	MRC-MW49A-051914-D	0.1448	0.05499	0.1368
THALLIUM	18/79	0.011 U	0.307 U	0.031 J	1.1 J	MRC-MW67A	MRC-MW67A-051314	0.1893	0.05996	0.163
VANADIUM	17/79	0.169 U	5.5 U	0.457 J	36.1	MRC-MW78B	MRC-MW78B-061714	7.035	1.923	5.235
ZINC	1/1	--	--	344 J	344 J	MRC-MW61A	MRC-MW61A-060614	344	344	--

Table 4-2

Statistical Summary of Groundwater Chemical Analyses-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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Parameter	Frequency of detection	Minimum non-detect result	Maximum non-detect result	Minimum result	Maximum result	Location with maximum detected concetration	Sample with maximum detected concetration	Average of positive results	Average of all results	Standard deviation
Miscellaneous parameters										
AMMONIA-N (mg/L)	11/15	0.004 U	0.05 U	0.007 BJ	1.66	MRC-MW27A	MRC-MW27A-052914	0.2174	0.1616	0.4203
CARBONATE ALKALINITY (mg/L)	12/15	0.3 U	0.3 U	8.7 B	195	MRC-MW81B	MRC-MW81B-061114	58.98	47.21	49.18
CHLORIDE (mg/L)	15/15	--	--	13.1 J	660	MRC-MW27A	MRC-MW27A-052914	137	137	189.2
DISSOLVED ORGANIC CARBON (mg/L)	12/15	1 U	1 U	0.6 J	6.4	MRC-MW37B	MRC-MW37B-060514	2.425	2.04	1.826
NITRATE (mg/L)	3/6	1 U	1 U	0.5 J	9.6	MRC-MW37A	MRC-MW37A-061814	3.6	2.05	3.7
NITRATE-N (mg/L)	1/9	0.2 U	0.2 U	0.5 J	0.5 J	MRC-MW34B	MRC-MW34B-051214	0.5	0.1444	0.1333
ORTHOPHOSPHATE-P (mg/L)	12/15	0.002 U	0.02 U	0.002 J	0.17	MRC-MW37B	MRC-MW37B-060514	0.03233	0.02697	0.04351
SILICA (mg/L)	15/15	--	--	3.25	19.2	MRC-MW48A	MRC-MW48A-061114	11.15	11.15	4.227
SULFATE (mg/L)	14/15	1.9 U	1.9 U	2.8	185	MRC-MW37A	MRC-MW37A-061814	23.24	21.75	45.96
TOTAL DISSOLVED SOLIDS (mg/L)	13/13	--	--	67	1090	MRC-MW27A	MRC-MW27A-052914	329.9	329.9	317.3
BROMIDE (µg/L)	7/7	--	--	49	10000	MRC-MW81B	MRC-MW81B-062014	2526	2526	4119
PERCHLORATE (µg/L)	14/29	0.026 U	0.2 U	0.06 J	9.7	MRC-MW53A	MRC-MW53A-052314	1.955	0.9593	1.985

NJ - analyte tentatively identified at estimated concentration
B - analyte detected in laboratory blank
D - diiluted sample analysis
DJ - diluted sample concentration is estimated.
E - estimated value. Value is greater than the instrument calibration range. Use the value obtained from the diluted sample (DL) analyses for this result.
J - chemical detected, concentration is estimated
U - analyte not detected at the concentration shown left of the letter
UJ - non-detected concentration is estimated
µg/L - micrograms per liter
NA - not available (second column) or not analyzed
mg/L - milligrams per liter

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-EXT06-060514 20140605 GW	MRC-MW01A-061314 20140613 GW	MRC-MW01A-061314-AVG 20140613 GW	MRC-MW01A-061314-D 20140613 GW	MRC-MW02A-060914 20140609 GW	MRC-MW02A-061814 20140618 GW	MRC-MW04A-060914 20140609 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	NA	NA	NA	NA	--	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	NA	--	NA
1,1-DICHLOROETHANE	90	NA	NA	NA	NA	NA	--	NA
1,1-DICHLOROETHENE	7	NA	NA	NA	NA	NA	--	NA
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	NA	--	NA
1,2,4-TRICHLOROBENZENE	70	NA	NA	NA	NA	NA	--	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	NA	--	NA
1,2-DICHLOROBENZENE	600	NA	NA	NA	NA	NA	--	NA
1,2-DICHLOROETHANE	5	NA	NA	NA	NA	NA	--	NA
1,2-DICHLOROPROPANE	5	NA	NA	NA	NA	NA	--	NA
1,3-DICHLOROBENZENE	1.8	NA	NA	NA	NA	NA	--	NA
1,4-DICHLOROBENZENE	75	NA	NA	NA	NA	NA	--	NA
2-BUTANONE	700	NA	NA	NA	NA	NA	--	NA
4-ISOPROPYLTOLUENE	NA	NA	NA	NA	NA	NA	--	NA
ACETONE	550	NA	NA	NA	NA	NA	--	NA
BENZENE	5	NA	NA	NA	NA	NA	--	NA
BROMOMETHANE	0.85	NA	NA	NA	NA	NA	--	NA
CARBON DISULFIDE	100	NA	NA	NA	NA	NA	--	NA
CARBON TETRACHLORIDE	5	NA	NA	NA	NA	NA	--	NA
CHLOROBENZENE	100	NA	NA	NA	NA	NA	--	NA
CHLOROETHANE	3.6	NA	NA	NA	NA	NA	--	NA
CHLOROFORM	80	NA	NA	NA	NA	NA	--	NA
CHLOROMETHANE	19	NA	NA	NA	NA	NA	--	NA
CIS-1,2-DICHLOROETHENE	70	NA	NA	NA	NA	NA	--	NA
DICHLORODIFLUOROMETHANE	NA	NA	NA	NA	NA	NA	1.6	NA
DIISOPROPYL ETHER	NA	NA	NA	NA	NA	NA	--	NA
ETHYLBENZENE	700	NA	NA	NA	NA	NA	--	NA
ISOPROPYLBENZENE	66	NA	NA	NA	NA	NA	--	NA
M+P-XYLENES	NA	NA	NA	NA	NA	NA	--	NA
METHYL TERT-BUTYL ETHER	20	NA	NA	NA	NA	NA	--	NA
METHYLENE CHLORIDE	5	NA	NA	NA	NA	NA	--	NA
NAPHTHALENE	0.65	NA	NA	NA	NA	NA	--	NA
N-BUTYLBENZENE	NA	NA	NA	NA	NA	NA	--	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA	NA	--	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-EXT06-060514 20140605 GW	MRC-MW01A-061314 20140613 GW	MRC-MW01A-061314-AVG 20140613 GW	MRC-MW01A-061314-D 20140613 GW	MRC-MW02A-060914 20140609 GW	MRC-MW02A-061814 20140618 GW	MRC-MW04A-060914 20140609 GW
O-XYLENE	NA	NA	NA	NA	NA	NA	--	NA
SEC-BUTYLBENZENE	NA	NA	NA	NA	NA	NA	--	NA
STYRENE	100	NA	NA	NA	NA	NA	--	NA
TERT-AMYL METHYL ETHER	NA	NA	NA	NA	NA	NA	--	NA
TERT-BUTYLBENZENE	NA	NA	NA	NA	NA	NA	--	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA	NA	--	NA
TETRACHLOROETHENE	5	NA	NA	NA	NA	NA	--	NA
TOLUENE	1000	NA	NA	NA	NA	NA	--	NA
TOTAL XYLENES	10000	NA	NA	NA	NA	NA	--	NA
TRANS-1,2-DICHLOROETHENE	100	NA	NA	NA	NA	NA	--	NA
TRICHLOROETHENE	5	NA	NA	NA	NA	NA	--	NA
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	NA	5.4	NA
VINYL CHLORIDE	2	NA	NA	NA	NA	NA	--	NA
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	1.7	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-EXT06-060514 20140605 GW	MRC-MW01A-061314 20140613 GW	MRC-MW01A-061314-AVG 20140613 GW	MRC-MW01A-061314-D 20140613 GW	MRC-MW02A-060914 20140609 GW	MRC-MW02A-061814 20140618 GW	MRC-MW04A-060914 20140609 GW
Filtered polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	NA	NA	NA	--	NA	--
ARSENIC	10	NA	NA	NA	NA	--	NA	--
BARIUM	2000	NA	NA	NA	NA	144	NA	472
BERYLLIUM	4	NA	NA	NA	NA	5.6	NA	0.205 J
CADMIUM	5	NA	NA	NA	NA	0.152 J	NA	--
CHROMIUM	100	NA	NA	NA	NA	--	NA	--
COBALT	NA	NA	NA	NA	NA	108	NA	7.7 J
COPPER	1300	NA	NA	NA	NA	119	NA	83.1
IRON	300	NA	NA	NA	NA	271	NA	224
LEAD	15	NA	NA	NA	NA	0.354 J	NA	--
MANGANESE	50	NA	NA	NA	NA	43.8	NA	159
MERCURY	2	NA	NA	NA	NA	--	NA	--
MOLYBDENUM	NA	NA	NA	NA	NA	0.479 J	NA	2.2 J
NICKEL	73	NA	NA	NA	NA	150	NA	22.1
SELENIUM	50	NA	NA	NA	NA	0.745 J	NA	--
SILICON	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	100	NA	NA	NA	NA	--	NA	--
THALLIUM	2	NA	NA	NA	NA	--	NA	--
VANADIUM	3.7	NA	NA	NA	NA	0.457 J	NA	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-EXT06-060514 20140605 GW	MRC-MW01A-061314 20140613 GW	MRC-MW01A-061314-AVG 20140613 GW	MRC-MW01A-061314-D 20140613 GW	MRC-MW02A-060914 20140609 GW	MRC-MW02A-061814 20140618 GW	MRC-MW04A-060914 20140609 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	4.2	4.2	4.2	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW07A-060314 20140603 GW	MRC-MW08A-052214 20140522 GW	MRC-MW08B-061214 20140612 GW	MRC-MW10A-052214 20140522 GW	MRC-MW11A-060214 20140602 GW	MRC-MW11C-052214 20140522 GW	MRC-MW12A-053014 20140530 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	--	--	--	--	--
1,1-DICHLOROETHANE	90	NA	--	--	0.22 J	--	--	25
1,1-DICHLOROETHENE	7	NA	--	--	--	--	--	220
1,2,3-TRICHLOROBENZENE	NA	NA	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	NA	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	--	--	--	--	--	--
1,2-DICHLOROBENZENE	600	NA	--	--	--	--	--	--
1,2-DICHLOROETHANE	5	NA	--	--	--	--	--	--
1,2-DICHLOROPROPANE	5	NA	--	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	NA	--	--	--	--	--	--
1,4-DICHLOROBENZENE	75	NA	--	--	--	--	--	--
2-BUTANONE	700	NA	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	NA	--	--	--	--	--	--
ACETONE	550	NA	--	--	--	--	--	--
BENZENE	5	NA	--	--	--	--	--	4.7 J
BROMOMETHANE	0.85	NA	--	--	--	--	--	--
CARBON DISULFIDE	100	NA	--	--	--	--	--	--
CARBON TETRACHLORIDE	5	NA	--	--	--	--	--	--
CHLOROBENZENE	100	NA	--	--	--	--	--	--
CHLOROETHANE	3.6	NA	--	--	--	--	--	--
CHLOROFORM	80	NA	--	--	--	--	--	4.6 J
CHLOROMETHANE	19	NA	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	NA	--	--	0.49 J	--	--	82
DICHLORODIFLUOROMETHANE	NA	NA	--	--	--	--	--	--
DIISOPROPYL ETHER	NA	NA	--	--	--	--	--	--
ETHYLBENZENE	700	NA	--	--	--	--	--	--
ISOPROPYLBENZENE	66	NA	--	--	--	--	--	--
M+P-XYLENES	NA	NA	--	--	--	--	--	--
METHYL TERT-BUTYL ETHER	20	NA	--	--	--	--	--	--
METHYLENE CHLORIDE	5	NA	--	--	--	--	--	--
NAPHTHALENE	0.65	NA	--	--	--	--	--	--
N-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
N-PROPYLBENZENE	NA	NA	--	--	--	--	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW07A-060314 20140603 GW	MRC-MW08A-052214 20140522 GW	MRC-MW08B-061214 20140612 GW	MRC-MW10A-052214 20140522 GW	MRC-MW11A-060214 20140602 GW	MRC-MW11C-052214 20140522 GW	MRC-MW12A-053014 20140530 GW
O-XYLENE	NA	NA	--	--	--	--	--	--
SEC-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
STYRENE	100	NA	--	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	NA	--	--	--	--	--	--
TERT-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	--	--	--	--	--	--
TETRACHLOROETHENE	5	NA	--	--	--	--	--	--
TOLUENE	1000	NA	--	--	--	--	--	--
TOTAL XYLENES	10000	NA	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	NA	--	--	--	--	--	--
TRICHLOROETHENE	5	NA	--	0.9 J	--	--	--	1300
TRICHLOROFLUOROMETHANE	NA	NA	--	--	--	--	--	--
VINYL CHLORIDE	2	NA	--	--	--	--	--	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	--
ETHENE	NA	NA	NA	NA	NA	NA	NA	0.52 J
METHANE	NA	NA	NA	NA	NA	NA	NA	46
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	4.69	0.39	0.0764 J	1.32	0.0956 J	--	374
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW07A-060314 20140603 GW	MRC-MW08A-052214 20140522 GW	MRC-MW08B-061214 20140612 GW	MRC-MW10A-052214 20140522 GW	MRC-MW11A-060214 20140602 GW	MRC-MW11C-052214 20140522 GW	MRC-MW12A-053014 20140530 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	--	NA	--	21.9	NA	--
ARSENIC	10	--	2.2	NA	2.1	1.5	NA	0.975 J
BARIUM	2000	83.9	150	NA	98.4	--	NA	112
BERYLLIUM	4	0.236 J	0.287	NA	0.287 J	0.047 J	NA	1
CADMIUM	5	0.68 J	--	NA	--	--	NA	--
CHROMIUM	100	--	--	NA	--	--	NA	--
COBALT	NA	33.4 J	149	NA	92.2	2.4 J	NA	65.7
COPPER	1300	14.3	6.8 J	NA	2.6 J	15.3	NA	1.8
IRON	300	413	44800	NA	71400	4670	NA	55000
LEAD	15	0.779 J	1.2	NA	0.773 J	2.4	NA	0.547 J
MANGANESE	50	676	42800	NA	6900	242	NA	2610
MERCURY	2	--	--	NA	--	--	NA	--
MOLYBDENUM	NA	--	0.892 J	NA	--	5.2	NA	--
NICKEL	73	134	372	NA	67.1	8.9	NA	115
SELENIUM	50	1.7 J	--	NA	1.5 J	1.4 J	NA	0.638 J
SILICON	NA	3740	7270	NA	4340	18500	NA	8210
SILVER	100	--	--	NA	--	--	NA	--
THALLIUM	2	0.054 J	--	NA	--	--	NA	--
VANADIUM	3.7	--	--	NA	--	12.7 J	NA	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW07A-060314 20140603 GW	MRC-MW08A-052214 20140522 GW	MRC-MW08B-061214 20140612 GW	MRC-MW10A-052214 20140522 GW	MRC-MW11A-060214 20140602 GW	MRC-MW11C-052214 20140522 GW	MRC-MW12A-053014 20140530 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	0.024 J
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	28.1
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	59.1 J
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	1.7
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	--
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	0.02 J
SILICA	NA	NA	NA	NA	NA	NA	NA	15.1
SULFATE	NA	NA	NA	NA	NA	NA	NA	23.7
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	178
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	--	2.2	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW-12A-063014 20140630 GW	MRC-MW-12A-072414 20140724 GW	MRC-MW12B-053014 20140530 GW	MRC-MW-12B-063014 20140630 GW	MRC-MW-12B-072414 20140724 GW	MRC-MW12C-053014 20140530 GW	MRC-MW13A-053014 20140530 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	NA	--	NA	NA	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	--	NA	NA	--	--
1,1-DICHLOROETHANE	90	NA	NA	4.8	NA	NA	--	--
1,1-DICHLOROETHENE	7	NA	NA	38	NA	NA	--	--
1,2,3-TRICHLOROBENZENE	NA	NA	NA	--	NA	NA	--	--
1,2,4-TRICHLOROBENZENE	70	NA	NA	--	NA	NA	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	--	NA	NA	--	--
1,2-DICHLOROBENZENE	600	NA	NA	--	NA	NA	--	--
1,2-DICHLOROETHANE	5	NA	NA	0.78 J	NA	NA	--	--
1,2-DICHLOROPROPANE	5	NA	NA	--	NA	NA	--	--
1,3-DICHLOROBENZENE	1.8	NA	NA	--	NA	NA	--	--
1,4-DICHLOROBENZENE	75	NA	NA	--	NA	NA	--	--
2-BUTANONE	700	NA	NA	--	NA	NA	--	--
4-ISOPROPYLTOLUENE	NA	NA	NA	--	NA	NA	--	--
ACETONE	550	NA	NA	--	NA	NA	--	--
BENZENE	5	NA	NA	1.2 J	NA	NA	--	--
BROMOMETHANE	0.85	NA	NA	--	NA	NA	--	--
CARBON DISULFIDE	100	NA	NA	--	NA	NA	--	--
CARBON TETRACHLORIDE	5	NA	NA	--	NA	NA	--	--
CHLOROBENZENE	100	NA	NA	--	NA	NA	--	--
CHLOROETHANE	3.6	NA	NA	--	NA	NA	--	--
CHLOROFORM	80	NA	NA	0.62 J	NA	NA	--	--
CHLOROMETHANE	19	NA	NA	--	NA	NA	--	--
CIS-1,2-DICHLOROETHENE	70	NA	NA	19	NA	NA	--	0.61 J
DICHLORODIFLUOROMETHANE	NA	NA	NA	--	NA	NA	--	--
DIISOPROPYL ETHER	NA	NA	NA	--	NA	NA	--	--
ETHYLBENZENE	700	NA	NA	--	NA	NA	--	--
ISOPROPYLBENZENE	66	NA	NA	--	NA	NA	--	--
M+P-XYLENES	NA	NA	NA	--	NA	NA	--	--
METHYL TERT-BUTYL ETHER	20	NA	NA	--	NA	NA	--	--
METHYLENE CHLORIDE	5	NA	NA	--	NA	NA	--	--
NAPHTHALENE	0.65	NA	NA	--	NA	NA	--	--
N-BUTYLBENZENE	NA	NA	NA	--	NA	NA	--	--
N-PROPYLBENZENE	NA	NA	NA	--	NA	NA	--	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW-12A-063014 20140630 GW	MRC-MW-12A-072414 20140724 GW	MRC-MW12B-053014 20140530 GW	MRC-MW-12B-063014 20140630 GW	MRC-MW-12B-072414 20140724 GW	MRC-MW12C-053014 20140530 GW	MRC-MW13A-053014 20140530 GW
O-XYLENE	NA	NA	NA	--	NA	NA	--	--
SEC-BUTYLBENZENE	NA	NA	NA	--	NA	NA	--	--
STYRENE	100	NA	NA	--	NA	NA	--	--
TERT-AMYL METHYL ETHER	NA	NA	NA	--	NA	NA	--	--
TERT-BUTYLBENZENE	NA	NA	NA	--	NA	NA	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	--	NA	NA	--	--
TETRACHLOROETHENE	5	NA	NA	--	NA	NA	--	--
TOLUENE	1000	NA	NA	--	NA	NA	--	--
TOTAL XYLENES	10000	NA	NA	--	NA	NA	--	--
TRANS-1,2-DICHLOROETHENE	100	NA	NA	--	NA	NA	--	--
TRICHLOROETHENE	5	NA	NA	320	NA	NA	--	--
TRICHLOROFLUOROMETHANE	NA	NA	NA	--	NA	NA	--	--
VINYL CHLORIDE	2	NA	NA	--	NA	NA	--	0.41 J
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	--	NA	NA	NA	NA
ETHENE	NA	NA	NA	--	NA	NA	NA	NA
METHANE	NA	NA	NA	--	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	71.8	NA	NA	--	0.554
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW-12A-063014 20140630 GW	MRC-MW-12A-072414 20140724 GW	MRC-MW12B-053014 20140530 GW	MRC-MW-12B-063014 20140630 GW	MRC-MW-12B-072414 20140724 GW	MRC-MW12C-053014 20140530 GW	MRC-MW13A-053014 20140530 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	NA	--	NA	NA	NA	NA
ARSENIC	10	NA	NA	0.634 J	NA	NA	NA	NA
BARIUM	2000	NA	NA	84.6	NA	NA	NA	NA
BERYLLIUM	4	NA	NA	0.088 J	NA	NA	NA	NA
CADMIUM	5	NA	NA	--	NA	NA	NA	NA
CHROMIUM	100	NA	NA	--	NA	NA	NA	NA
COBALT	NA	NA	NA	10.4	NA	NA	NA	NA
COPPER	1300	NA	NA	3.4	NA	NA	NA	NA
IRON	300	NA	NA	9900	NA	NA	NA	NA
LEAD	15	NA	NA	1.2	NA	NA	NA	NA
MANGANESE	50	NA	NA	815	NA	NA	NA	NA
MERCURY	2	NA	NA	--	NA	NA	NA	NA
MOLYBDENUM	NA	NA	NA	--	NA	NA	NA	NA
NICKEL	73	NA	NA	38.5	NA	NA	NA	NA
SELENIUM	50	NA	NA	--	NA	NA	NA	NA
SILICON	NA	NA	NA	5570	NA	NA	NA	NA
SILVER	100	NA	NA	--	NA	NA	NA	NA
THALLIUM	2	NA	NA	--	NA	NA	NA	NA
VANADIUM	3.7	NA	NA	--	NA	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW-12A-063014 20140630 GW	MRC-MW-12A-072414 20140724 GW	MRC-MW12B-053014 20140530 GW	MRC-MW-12B-063014 20140630 GW	MRC-MW-12B-072414 20140724 GW	MRC-MW12C-053014 20140530 GW	MRC-MW13A-053014 20140530 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	0.091	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	34.2	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	13.1 J	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	--	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	--	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	0.016 J	NA	NA	NA	NA
SILICA	NA	NA	NA	8.13	NA	NA	NA	NA
SULFATE	NA	NA	NA	9.6	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	74	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW13A-053014-AVG 20140530 GW	MRC-MW13A-053014-D 20140530 GW	MRC-MW14A-060414 20140604 GW	MRC-MW14B-060514 20140605 GW	MRC-MW14C-060414 20140604 GW	MRC-MW15A-052014 20140520 GW	MRC-MW16A-052014 20140520 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	--	--	3.7 J	--	NA	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	--	--	3.9 J	--	NA	--
1,1-DICHLOROETHANE	90	--	--	0.98 J	24	--	NA	35
1,1-DICHLOROETHENE	7	--	--	0.98 J	240	--	NA	96
1,2,3-TRICHLOROBENZENE	NA	--	--	--	--	--	NA	--
1,2,4-TRICHLOROBENZENE	70	--	--	--	--	--	NA	--
1,2,4-TRIMETHYLBENZENE	NA	--	--	--	--	--	NA	--
1,2-DICHLOROBENZENE	600	--	--	--	--	--	NA	--
1,2-DICHLOROETHANE	5	--	--	--	--	--	NA	--
1,2-DICHLOROPROPANE	5	--	--	--	--	--	NA	--
1,3-DICHLOROBENZENE	1.8	--	--	--	--	--	NA	--
1,4-DICHLOROBENZENE	75	--	--	--	--	--	NA	--
2-BUTANONE	700	--	--	--	--	--	NA	--
4-ISOPROPYLTOLUENE	NA	--	--	--	--	--	NA	--
ACETONE	550	--	--	--	--	--	NA	--
BENZENE	5	--	--	--	18	--	NA	0.87 J
BROMOMETHANE	0.85	--	--	--	--	0.29 J	NA	--
CARBON DISULFIDE	100	--	--	--	--	--	NA	--
CARBON TETRACHLORIDE	5	--	--	--	--	--	NA	--
CHLOROBENZENE	100	--	--	--	--	--	NA	--
CHLOROETHANE	3.6	--	--	--	--	--	NA	0.29 J
CHLOROFORM	80	--	--	--	2.7 J	--	NA	--
CHLOROMETHANE	19	--	--	--	--	--	NA	--
CIS-1,2-DICHLOROETHENE	70	0.615	0.62 J	9.4	34	--	NA	13
DICHLORODIFLUOROMETHANE	NA	--	--	--	--	--	NA	--
DIISOPROPYL ETHER	NA	--	--	--	--	--	NA	--
ETHYLBENZENE	700	--	--	--	--	--	NA	--
ISOPROPYLBENZENE	66	--	--	--	--	--	NA	--
M+P-XYLENES	NA	--	--	--	--	--	NA	--
METHYL TERT-BUTYL ETHER	20	--	--	--	--	--	NA	--
METHYLENE CHLORIDE	5	--	--	--	--	--	NA	--
NAPHTHALENE	0.65	--	--	--	--	--	NA	--
N-BUTYLBENZENE	NA	--	--	--	--	--	NA	--
N-PROPYLBENZENE	NA	--	--	--	--	--	NA	--

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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW13A-053014-AVG 20140530 GW	MRC-MW13A-053014-D 20140530 GW	MRC-MW14A-060414 20140604 GW	MRC-MW14B-060514 20140605 GW	MRC-MW14C-060414 20140604 GW	MRC-MW15A-052014 20140520 GW	MRC-MW16A-052014 20140520 GW
O-XYLENE	NA	--	--	--	--	--	NA	--
SEC-BUTYLBENZENE	NA	--	--	--	--	--	NA	--
STYRENE	100	--	--	--	--	--	NA	--
TERT-AMYL METHYL ETHER	NA	--	--	--	--	--	NA	--
TERT-BUTYLBENZENE	NA	--	--	--	--	--	NA	--
TERTIARY-BUTYL ALCOHOL	NA	--	--	--	--	--	NA	--
TETRACHLOROETHENE	5	--	--	--	2.5 J	--	NA	9.5
TOLUENE	1000	--	--	--	--	--	NA	--
TOTAL XYLENES	10000	--	--	--	--	--	NA	--
TRANS-1,2-DICHLOROETHENE	100	--	--	1.6	2.4 J	--	NA	0.47 J
TRICHLOROETHENE	5	--	--	2.3	1000	--	NA	26
TRICHLOROFLUOROMETHANE	NA	--	--	--	--	--	NA	--
VINYL CHLORIDE	2	0.365	0.32 J	--	--	--	NA	12
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	--	NA	NA	NA
ETHENE	NA	NA	NA	NA	0.29 J	NA	NA	NA
METHANE	NA	NA	NA	NA	12	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	0.55	0.546	3.65	177	0.0286 J	22.5	83.8
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW13A-053014-AVG 20140530 GW	MRC-MW13A-053014-D 20140530 GW	MRC-MW14A-060414 20140604 GW	MRC-MW14B-060514 20140605 GW	MRC-MW14C-060414 20140604 GW	MRC-MW15A-052014 20140520 GW	MRC-MW16A-052014 20140520 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	NA	--	--	--	--	--
ARSENIC	10	NA	NA	1.3 J	69.4 J	0.652 J	2.8	0.547 J
BARIUM	2000	NA	NA	87.9	132	72.3	169	299
BERYLLIUM	4	NA	NA	0.066 J	0.467 J	0.186 J	0.124 J	7.9
CADMIUM	5	NA	NA	0.052 J	0.068 J	--	--	1.5
CHROMIUM	100	NA	NA	0.492 J	4.3	7.5	--	--
COBALT	NA	NA	NA	31.8	56.6 J	9.4 J	24.4	369
COPPER	1300	NA	NA	2.2	3	6.9	8.6 J	13.3 J
IRON	300	NA	NA	31800	26300	14700	38300	4750
LEAD	15	NA	NA	0.069 J	1	4.6	0.955 J	0.909 J
MANGANESE	50	NA	NA	2010	2280	869	5540	6100
MERCURY	2	NA	NA	--	--	--	--	--
MOLYBDENUM	NA	NA	NA	--	--	--	--	--
NICKEL	73	NA	NA	32.7	120 J	13.2 J	5.9	379
SELENIUM	50	NA	NA	1.3 J	258 J	--	--	1.9 J
SILICON	NA	NA	NA	8860	9460	16700	3890	17700
SILVER	100	NA	NA	--	--	--	--	--
THALLIUM	2	NA	NA	--	--	--	--	--
VANADIUM	3.7	NA	NA	--	4.9 J	25.3 J	--	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW13A-053014-AVG 20140530 GW	MRC-MW13A-053014-D 20140530 GW	MRC-MW14A-060414 20140604 GW	MRC-MW14B-060514 20140605 GW	MRC-MW14C-060414 20140604 GW	MRC-MW15A-052014 20140520 GW	MRC-MW16A-052014 20140520 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	0.044 J	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	--	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	72.3	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	0.8 J	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	--	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	--	NA	NA	NA
SILICA	NA	NA	NA	NA	16.3	NA	NA	NA
SULFATE	NA	NA	NA	NA	15.1	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW17A-060514 20140605 GW	MRC-MW19A-060914 20140609 GW	MRC-MW19A-061814 20140618 GW	MRC-MW21A-060314 20140603 GW	MRC-MW21B-060314 20140603 GW	MRC-MW22A-060314 20140603 GW	MRC-MW22B-061714 20140617 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	NA	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	NA	--	--	--	--	--
1,1-DICHLOROETHANE	90	0.36 J	NA	3	1.2	12 J	--	1.4
1,1-DICHLOROETHENE	7	--	NA	--	1.5	140 J	--	4.3
1,2,3-TRICHLOROBENZENE	NA	--	NA	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	--	NA	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	4.6	NA	--	--	--	--	--
1,2-DICHLOROBENZENE	600	--	NA	--	--	--	--	--
1,2-DICHLOROETHANE	5	--	NA	--	--	5 J	--	--
1,2-DICHLOROPROPANE	5	--	NA	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	--	NA	--	--	--	--	--
1,4-DICHLOROBENZENE	75	--	NA	--	--	--	--	--
2-BUTANONE	700	--	NA	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	0.55 J	NA	--	--	--	--	--
ACETONE	550	--	NA	--	--	--	--	--
BENZENE	5	160	NA	--	--	26 J	--	0.3 J
BROMOMETHANE	0.85	--	NA	--	--	--	--	--
CARBON DISULFIDE	100	--	NA	--	--	--	--	0.27 J
CARBON TETRACHLORIDE	5	--	NA	--	--	--	--	--
CHLOROBENZENE	100	--	NA	--	--	--	--	--
CHLOROETHANE	3.6	0.32 J	NA	--	--	--	--	--
CHLOROFORM	80	0.25 J	NA	0.75 J	--	2.3 J	--	--
CHLOROMETHANE	19	--	NA	--	0.21 J	--	--	--
CIS-1,2-DICHLOROETHENE	70	2	NA	--	--	5.6 J	--	--
DICHLORODIFLUOROMETHANE	NA	--	NA	--	--	--	--	--
DIISOPROPYL ETHER	NA	10	NA	--	--	--	--	--
ETHYLBENZENE	700	45	NA	--	--	--	--	--
ISOPROPYLBENZENE	66	3.5	NA	--	--	12 J	--	--
M+P-XYLENES	NA	21	NA	--	--	--	--	--
METHYL TERT-BUTYL ETHER	20	--	NA	--	--	--	--	--
METHYLENE CHLORIDE	5	--	NA	--	--	--	--	--
NAPHTHALENE	0.65	3.9	NA	--	--	--	--	--
N-BUTYLBENZENE	NA	0.48 J	NA	--	--	--	--	--
N-PROPYLBENZENE	NA	5.9	NA	--	--	--	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW17A-060514 20140605 GW	MRC-MW19A-060914 20140609 GW	MRC-MW19A-061814 20140618 GW	MRC-MW21A-060314 20140603 GW	MRC-MW21B-060314 20140603 GW	MRC-MW22A-060314 20140603 GW	MRC-MW22B-061714 20140617 GW
O-XYLENE	NA	4.9	NA	--	--	--	--	--
SEC-BUTYLBENZENE	NA	0.67 J	NA	--	--	--	--	--
STYRENE	100	--	NA	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	--	NA	--	--	--	--	--
TERT-BUTYLBENZENE	NA	--	NA	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	--	NA	--	--	--	--	--
TETRACHLOROETHENE	5	--	NA	--	0.64 J	7.6 J	--	0.3 J
TOLUENE	1000	32	NA	--	--	--	--	--
TOTAL XYLENES	10000	26	NA	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	--	NA	--	--	--	--	--
TRICHLOROETHENE	5	12	NA	--	2	780 J	0.62 J	1.6
TRICHLOROFLUOROMETHANE	NA	--	NA	1	--	--	--	--
VINYL CHLORIDE	2	0.54 J	NA	--	0.39 J	--	--	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	0.22 J	NA	NA
ETHENE	NA	NA	NA	NA	NA	0.6 J	NA	NA
METHANE	NA	NA	NA	NA	NA	21	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	5.04	8.06	NA	1.16	62.4	0.608	7.7
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW17A-060514 20140605 GW	MRC-MW19A-060914 20140609 GW	MRC-MW19A-061814 20140618 GW	MRC-MW21A-060314 20140603 GW	MRC-MW21B-060314 20140603 GW	MRC-MW22A-060314 20140603 GW	MRC-MW22B-061714 20140617 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	--	NA	--	--	--	--
ARSENIC	10	1.3 J	--	NA	2.7	--	--	--
BARIUM	2000	331	42.8	NA	--	110	--	129
BERYLLIUM	4	0.427 J	2.2	NA	0.121 J	0.488 J	0.045 J	--
CADMIUM	5	--	1.8	NA	--	--	--	--
CHROMIUM	100	0.694 J	--	NA	--	--	--	--
COBALT	NA	59.4	880	NA	3.5 J	57.8 J	28.9 J	120
COPPER	1300	9.6	228	NA	8.5	3.6	3.3	0.51 J
IRON	300	60600	3520	NA	12500	33600	752	6600
LEAD	15	0.263 J	1.6	NA	0.311 J	0.144 J	0.215 J	--
MANGANESE	50	8740	2090	NA	700	3040	1240	2170
MERCURY	2	--	--	NA	--	--	--	--
MOLYBDENUM	NA	--	0.153 J	NA	1.3	--	--	--
NICKEL	73	70.3	2550	NA	5.1	70.3	56.1	210
SELENIUM	50	--	1.8 J	NA	--	0.341 J	--	0.442 J
SILICON	NA	6320	NA	NA	6140	6500	5020	NA
SILVER	100	--	--	NA	--	--	--	--
THALLIUM	2	--	0.185 J	NA	--	0.035 J	--	0.036 J
VANADIUM	3.7	--	2.1	NA	--	--	--	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW17A-060514 20140605 GW	MRC-MW19A-060914 20140609 GW	MRC-MW19A-061814 20140618 GW	MRC-MW21A-060314 20140603 GW	MRC-MW21B-060314 20140603 GW	MRC-MW22A-060314 20140603 GW	MRC-MW22B-061714 20140617 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	0.035 J	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	41.5	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	69.8	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	--	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	--	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	--	NA	NA
SILICA	NA	NA	NA	NA	NA	14.9	NA	NA
SULFATE	NA	NA	NA	NA	NA	2.8	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	161	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	--	NA	NA	NA	--	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID	MDE Groundwater Standard[1,2]	MRC-MW24A-052914	MRC-MW25A-061714	MRC-MW26A-052114	MRC-MW27A-052914	MRC-MW27B-052914	MRC-MW27C-052914	MRC-MW29A-052114
SAMPLE DATE		20140529	20140617	20140521	20140529	20140529	20140529	20140521
MATRIX		GW	GW	GW	GW	GW	GW	GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	NA	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	NA	--	--	--	--
1,1-DICHLOROETHANE	90	NA	--	NA	1.3	7.7 J	--	4.3
1,1-DICHLOROETHENE	7	NA	--	NA	1.7	14	--	2.9
1,2,3-TRICHLOROBENZENE	NA	NA	--	NA	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	NA	--	NA	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	--	NA	--	--	--	--
1,2-DICHLOROBENZENE	600	NA	--	NA	--	--	--	--
1,2-DICHLOROETHANE	5	NA	--	NA	--	--	--	--
1,2-DICHLOROPROPANE	5	NA	--	NA	--	--	--	--
1,3-DICHLOROBENZENE	1.8	NA	--	NA	--	--	--	--
1,4-DICHLOROBENZENE	75	NA	--	NA	--	--	--	--
2-BUTANONE	700	NA	--	NA	--	--	--	--
4-ISOPROPYLTOLUENE	NA	NA	--	NA	--	--	--	--
ACETONE	550	NA	2.8 J	NA	--	--	--	--
BENZENE	5	NA	0.37 J	NA	1.3	--	--	--
BROMOMETHANE	0.85	NA	--	NA	--	--	--	--
CARBON DISULFIDE	100	NA	--	NA	--	--	--	--
CARBON TETRACHLORIDE	5	NA	--	NA	--	--	--	--
CHLOROBENZENE	100	NA	--	NA	--	--	--	--
CHLOROETHANE	3.6	NA	--	NA	--	--	--	--
CHLOROFORM	80	NA	--	NA	--	--	--	--
CHLOROMETHANE	19	NA	--	NA	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	NA	3	NA	33	350	--	3.2
DICHLORODIFLUOROMETHANE	NA	NA	--	NA	--	--	--	--
DIISOPROPYL ETHER	NA	NA	--	NA	0.23 J	--	--	--
ETHYLBENZENE	700	NA	--	NA	--	--	--	--
ISOPROPYLBENZENE	66	NA	--	NA	--	--	--	--
M+P-XYLENES	NA	NA	--	NA	--	--	--	--
METHYL TERT-BUTYL ETHER	20	NA	--	NA	18	5 J	--	3.4
METHYLENE CHLORIDE	5	NA	--	NA	--	--	--	--
NAPHTHALENE	0.65	NA	--	NA	--	--	--	--
N-BUTYLBENZENE	NA	NA	--	NA	--	--	--	--
N-PROPYLBENZENE	NA	NA	--	NA	--	--	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW24A-052914 20140529 GW	MRC-MW25A-061714 20140617 GW	MRC-MW26A-052114 20140521 GW	MRC-MW27A-052914 20140529 GW	MRC-MW27B-052914 20140529 GW	MRC-MW27C-052914 20140529 GW	MRC-MW29A-052114 20140521 GW
O-XYLENE	NA	NA	--	NA	--	--	--	--
SEC-BUTYLBENZENE	NA	NA	--	NA	--	--	--	--
STYRENE	100	NA	--	NA	--	--	--	--
TERT-AMYL METHYL ETHER	NA	NA	--	NA	--	--	--	--
TERT-BUTYLBENZENE	NA	NA	--	NA	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	--	NA	--	--	--	--
TETRACHLOROETHENE	5	NA	--	NA	0.38 J	--	--	--
TOLUENE	1000	NA	--	NA	--	--	--	--
TOTAL XYLENES	10000	NA	--	NA	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	NA	--	NA	2.8	5.4 J	--	--
TRICHLOROETHENE	5	NA	72	NA	110	1300	0.25 J	9
TRICHLOROFLUOROMETHANE	NA	NA	--	NA	--	--	--	--
VINYL CHLORIDE	2	NA	--	NA	19	12	--	0.85 J
Volatile gasses (µg/L)								
ETHANE	NA	1	--	NA	6.3	--	NA	NA
ETHENE	NA	--	--	NA	3.3	--	NA	NA
METHANE	NA	380	5.8	NA	2400	14	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	0.524	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW24A-052914 20140529 GW	MRC-MW25A-061714 20140617 GW	MRC-MW26A-052114 20140521 GW	MRC-MW27A-052914 20140529 GW	MRC-MW27B-052914 20140529 GW	MRC-MW27C-052914 20140529 GW	MRC-MW29A-052114 20140521 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	--	--	--	--	NA	--
ARSENIC	10	0.366 J	--	0.32 J	4.4	0.447 J	NA	0.708 J
BARIUM	2000	245	30.8	426	503	43.2	NA	319
BERYLLIUM	4	24	0.541 J	7.1 J	1.7	1.1	NA	7.5
CADMIUM	5	1.2	--	1.3	--	--	NA	0.533 J
CHROMIUM	100	--	--	--	--	--	NA	--
COBALT	NA	219	12.2	361 J	589	249	NA	382
COPPER	1300	50.3	3.6	12.6 J	4.3	8	NA	16.1 J
IRON	300	--	773	27000	90200	386	NA	4830
LEAD	15	0.232 J	--	0.902 J	--	0.254 J	NA	0.33 J
MANGANESE	50	27200	570	9080	31100	136	NA	4360
MERCURY	2	--	--	--	--	--	NA	0.252
MOLYBDENUM	NA	--	0.864 J	--	--	--	NA	--
NICKEL	73	690	20.5	388 J	247	264	NA	165
SELENIUM	50	1.8 J	0.902 J	1 J	0.249 J	2	NA	1.8 J
SILICON	NA	5940	NA	6890	5270	3070	NA	5270
SILVER	100	0.209 J	--	--	--	--	NA	--
THALLIUM	2	--	--	--	--	0.459 J	NA	--
VANADIUM	3.7	--	0.815 J	--	--	--	NA	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW24A-052914 20140529 GW	MRC-MW25A-061714 20140617 GW	MRC-MW26A-052114 20140521 GW	MRC-MW27A-052914 20140529 GW	MRC-MW27B-052914 20140529 GW	MRC-MW27C-052914 20140529 GW	MRC-MW29A-052114 20140521 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	0.259	0.045 J	NA	1.66	--	NA	NA
CARBONATE ALKALINITY	NA	--	55.3	NA	73.7	25.1	NA	NA
CHLORIDE	NA	506	55.8	NA	660	82.2	NA	NA
DISSOLVED ORGANIC CARBON	NA	1.2	5	NA	3.4	--	NA	NA
NITRATE	NA	NA	0.5 J	NA	NA	NA	NA	NA
NITRATE-N	NA	--	0.5 J	NA	--	--	NA	NA
ORTHOPHOSPHATE-P	NA	0.002 J	--	NA	0.013	0.003 J	NA	NA
SILICA	NA	13	8.84	NA	12.9	6.75	NA	NA
SULFATE	NA	--	23.2	NA	4.1	5.9	NA	NA
TOTAL DISSOLVED SOLIDS	NA	824	69	NA	1090	172	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW30A-050814 20140508 GW	MRC-MW31A-050814 20140508 GW	MRC-MW32A-050814 20140508 GW	MRC-MW33A-050814 20140508 GW	MRC-MW34A-051214 20140512 GW	MRC-MW34B-051214 20140512 GW	MRC-MW34C-051214 20140512 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	NA	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	--	--	--	--	--
1,1-DICHLOROETHANE	90	NA	NA	--	--	--	0.73 J	--
1,1-DICHLOROETHENE	7	NA	NA	--	--	--	--	--
1,2,3-TRICHLOROBENZENE	NA	NA	NA	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	NA	NA	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	--	--	--	--	--
1,2-DICHLOROBENZENE	600	NA	NA	--	--	--	--	--
1,2-DICHLOROETHANE	5	NA	NA	--	--	--	--	--
1,2-DICHLOROPROPANE	5	NA	NA	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	NA	NA	--	--	--	--	--
1,4-DICHLOROBENZENE	75	NA	NA	--	--	--	--	--
2-BUTANONE	700	NA	NA	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	NA	NA	--	--	--	--	--
ACETONE	550	NA	NA	--	--	--	--	--
BENZENE	5	NA	NA	--	--	--	0.23 J	--
BROMOMETHANE	0.85	NA	NA	--	--	--	--	--
CARBON DISULFIDE	100	NA	NA	--	--	--	--	--
CARBON TETRACHLORIDE	5	NA	NA	--	--	--	5.4	--
CHLOROBENZENE	100	NA	NA	--	--	--	--	--
CHLOROETHANE	3.6	NA	NA	--	--	--	--	--
CHLOROFORM	80	NA	NA	--	--	--	1.9	--
CHLOROMETHANE	19	NA	NA	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	NA	NA	--	0.67 J	--	15	--
DICHLORODIFLUOROMETHANE	NA	NA	NA	--	--	--	--	--
DIISOPROPYL ETHER	NA	NA	NA	--	--	--	--	--
ETHYLBENZENE	700	NA	NA	--	--	--	--	--
ISOPROPYLBENZENE	66	NA	NA	--	--	--	--	--
M+P-XYLENES	NA	NA	NA	--	--	--	--	--
METHYL TERT-BUTYL ETHER	20	NA	NA	--	1.2	--	18	--
METHYLENE CHLORIDE	5	NA	NA	--	--	--	--	--
NAPHTHALENE	0.65	NA	NA	--	--	--	--	--
N-BUTYLBENZENE	NA	NA	NA	--	--	--	--	--
N-PROPYLBENZENE	NA	NA	NA	--	--	--	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW30A-050814 20140508 GW	MRC-MW31A-050814 20140508 GW	MRC-MW32A-050814 20140508 GW	MRC-MW33A-050814 20140508 GW	MRC-MW34A-051214 20140512 GW	MRC-MW34B-051214 20140512 GW	MRC-MW34C-051214 20140512 GW
O-XYLENE	NA	NA	NA	--	--	--	--	--
SEC-BUTYLBENZENE	NA	NA	NA	--	--	--	--	--
STYRENE	100	NA	NA	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	NA	NA	--	--	--	--	--
TERT-BUTYLBENZENE	NA	NA	NA	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	--	--	--	--	--
TETRACHLOROETHENE	5	NA	NA	--	--	--	--	--
TOLUENE	1000	NA	NA	--	--	--	--	--
TOTAL XYLENES	10000	NA	NA	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	NA	NA	--	--	--	1.1	--
TRICHLOROETHENE	5	NA	NA	--	0.6 J	14	16	--
TRICHLOROFLUOROMETHANE	NA	NA	NA	--	--	--	--	--
VINYL CHLORIDE	2	NA	NA	--	--	--	2.2	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	0.29 J	NA
ETHENE	NA	NA	NA	NA	NA	NA	--	NA
METHANE	NA	NA	NA	NA	NA	NA	69	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW30A-050814 20140508 GW	MRC-MW31A-050814 20140508 GW	MRC-MW32A-050814 20140508 GW	MRC-MW33A-050814 20140508 GW	MRC-MW34A-051214 20140512 GW	MRC-MW34B-051214 20140512 GW	MRC-MW34C-051214 20140512 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	1.1	--	NA	--	NA	--	NA
ARSENIC	10	--	--	NA	--	NA	--	NA
BARIUM	2000	98.3	90.5	NA	17.9 J	NA	137	NA
BERYLLIUM	4	0.225 J	4.9 J	NA	1.9 J	NA	8.8 J	NA
CADMIUM	5	--	--	NA	0.107 J	NA	0.348 J	NA
CHROMIUM	100	--	--	NA	--	NA	--	NA
COBALT	NA	2.2	43.2 J	NA	18.2 J	NA	113 J	NA
COPPER	1300	4.5	21.9 J	NA	2.2 J	NA	31.5 J	NA
IRON	300	--	--	NA	--	NA	--	NA
LEAD	15	0.147 J	0.289 J	NA	0.1 J	NA	0.089 J	NA
MANGANESE	50	18	14.8	NA	108	NA	411	NA
MERCURY	2	--	--	NA	--	NA	0.047 J	NA
MOLYBDENUM	NA	0.364 J	--	NA	--	NA	--	NA
NICKEL	73	7.3	83.3 J	NA	14.5 J	NA	135 J	NA
SELENIUM	50	1.9 J	0.236 J	NA	0.255 J	NA	0.807 J	NA
SILICON	NA	3420	12100	NA	2740	NA	3490	NA
SILVER	100	--	--	NA	--	NA	--	NA
THALLIUM	2	--	--	NA	--	NA	0.065 J	NA
VANADIUM	3.7	10.2 J	--	NA	--	NA	0.522 J	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW30A-050814 20140508 GW	MRC-MW31A-050814 20140508 GW	MRC-MW32A-050814 20140508 GW	MRC-MW33A-050814 20140508 GW	MRC-MW34A-051214 20140512 GW	MRC-MW34B-051214 20140512 GW	MRC-MW34C-051214 20140512 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	--	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	--	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	165	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	1.1	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	0.5 J	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	--	NA
SILICA	NA	NA	NA	NA	NA	NA	8.04	NA
SULFATE	NA	NA	NA	NA	NA	NA	27.3	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	314	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW37A-061314 20140613 GW	MRC-MW37A-061814 20140618 GW	MRC-MW37B-060514 20140605 GW	MRC-MW37C-060514 20140605 GW	MRC-MW37C-060514-AVG 20140605 GW	MRC-MW37C-060514-D 20140605 GW	MRC-MW38A-051214 20140512 GW	MRC-MW38A-061814 20140618 GW
Volatile organic compounds (µg/L)									
1,1,1-TRICHLOROETHANE	200	--	NA	--	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	NA	--	--	--	--	--	--
1,1-DICHLOROETHANE	90	--	NA	--	--	--	--	--	--
1,1-DICHLOROETHENE	7	--	NA	--	--	--	--	--	--
1,2,3-TRICHLOROBENZENE	NA	--	NA	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	--	NA	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	NA	--	--	--	--	--	--
1,2-DICHLOROBENZENE	600	--	NA	--	--	--	--	--	--
1,2-DICHLOROETHANE	5	--	NA	--	--	--	--	--	--
1,2-DICHLOROPROPANE	5	--	NA	--	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	--	NA	--	--	--	--	--	--
1,4-DICHLOROBENZENE	75	--	NA	--	--	--	--	--	--
2-BUTANONE	700	--	NA	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	--	NA	--	--	--	--	--	--
ACETONE	550	2.7 J	NA	--	--	--	--	--	--
BENZENE	5	--	NA	--	--	--	--	--	--
BROMOMETHANE	0.85	--	NA	--	--	--	--	--	--
CARBON DISULFIDE	100	--	NA	--	--	--	--	--	--
CARBON TETRACHLORIDE	5	--	NA	--	--	--	--	--	--
CHLOROBENZENE	100	--	NA	--	--	--	--	--	--
CHLOROETHANE	3.6	--	NA	--	--	--	--	--	--
CHLOROFORM	80	--	NA	--	--	--	--	6.9	7
CHLOROMETHANE	19	--	NA	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	--	NA	1.5	--	--	--	--	--
DICHLORODIFLUOROMETHANE	NA	--	NA	--	--	--	--	--	--
DIISOPROPYL ETHER	NA	--	NA	--	--	--	--	--	--
ETHYLBENZENE	700	--	NA	--	--	--	--	--	--
ISOPROPYLBENZENE	66	--	NA	--	--	--	--	--	--
M+P-XYLENES	NA	--	NA	--	--	--	--	--	--
METHYL TERT-BUTYL ETHER	20	--	NA	--	--	--	--	--	--
METHYLENE CHLORIDE	5	--	NA	--	--	--	--	--	--
NAPHTHALENE	0.65	--	NA	--	--	--	--	--	--
N-BUTYLBENZENE	NA	--	NA	--	--	--	--	--	--
N-PROPYLBENZENE	NA	--	NA	--	--	--	--	--	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW37A-061314 20140613 GW	MRC-MW37A-061814 20140618 GW	MRC-MW37B-060514 20140605 GW	MRC-MW37C-060514 20140605 GW	MRC-MW37C-060514-AVG 20140605 GW	MRC-MW37C-060514-D 20140605 GW	MRC-MW38A-051214 20140512 GW	MRC-MW38A-061814 20140618 GW
O-XYLENE	NA	--	NA	--	--	--	--	--	--
SEC-BUTYLBENZENE	NA	--	NA	--	--	--	--	--	--
STYRENE	100	--	NA	--	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	--	NA	--	--	--	--	--	--
TERT-BUTYLBENZENE	NA	--	NA	--	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	--	NA	--	--	--	--	--	--
TETRACHLOROETHENE	5	--	NA	--	--	--	--	--	--
TOLUENE	1000	--	NA	--	--	--	--	--	--
TOTAL XYLENES	10000	--	NA	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	--	NA	--	--	--	--	--	--
TRICHLOROETHENE	5	0.35 J	NA	4.8	0.28 J	0.195	--	--	--
TRICHLOROFLUOROMETHANE	NA	--	NA	--	--	--	--	--	--
VINYL CHLORIDE	2	--	NA	--	--	--	--	--	--
Volatile gasses (µg/L)									
ETHANE	NA	--	NA	--	NA	NA	NA	NA	NA
ETHENE	NA	--	NA	--	NA	NA	NA	NA	NA
METHANE	NA	--	NA	--	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)									
1,4-DIOXANE	3	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)									
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW37A-061314 20140613 GW	MRC-MW37A-061814 20140618 GW	MRC-MW37B-060514 20140605 GW	MRC-MW37C-060514 20140605 GW	MRC-MW37C-060514-AVG 20140605 GW	MRC-MW37C-060514-D 20140605 GW	MRC-MW38A-051214 20140512 GW	MRC-MW38A-061814 20140618 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ									
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)									
ANTIMONY	6	--	NA	NA	NA	NA	NA	NA	NA
ARSENIC	10	--	NA	NA	NA	NA	NA	NA	NA
BARIUM	2000	59.6	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	4	0.571 J	NA	NA	NA	NA	NA	NA	NA
CADMIUM	5	0.289 J	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	100	--	NA	NA	NA	NA	NA	NA	NA
COBALT	NA	5	NA	NA	NA	NA	NA	NA	NA
COPPER	1300	5.6	NA	NA	NA	NA	NA	NA	NA
IRON	300	5600	NA	NA	NA	NA	NA	NA	NA
LEAD	15	4.5	NA	NA	NA	NA	NA	NA	NA
MANGANESE	50	57.8	NA	NA	NA	NA	NA	NA	NA
MERCURY	2	--	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	NA	0.169 J	NA	NA	NA	NA	NA	NA	NA
NICKEL	73	6.2	NA	NA	NA	NA	NA	NA	NA
SELENIUM	50	1.4 J	NA	NA	NA	NA	NA	NA	NA
SILICON	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	100	--	NA	NA	NA	NA	NA	NA	NA
THALLIUM	2	0.057 J	NA	NA	NA	NA	NA	NA	NA
VANADIUM	3.7	10	NA	NA	NA	NA	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW37A-061314 20140613 GW	MRC-MW37A-061814 20140618 GW	MRC-MW37B-060514 20140605 GW	MRC-MW37C-060514 20140605 GW	MRC-MW37C-060514-AVG 20140605 GW	MRC-MW37C-060514-D 20140605 GW	MRC-MW38A-051214 20140512 GW	MRC-MW38A-061814 20140618 GW
Miscellaneous parameters (mg/L)									
AMMONIA-N	NA	0.046 J	NA	--	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	60.6	NA	90.4	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	38.7	27	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	3.9	NA	6.4	NA	NA	NA	NA	NA
NITRATE	NA	NA	9.6	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	9.6	--	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	0.062	0.17	NA	NA	NA	NA	NA
SILICA	NA	3.25	NA	8.31	NA	NA	NA	NA	NA
SULFATE	NA	NA	185	11.9	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	422	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)									
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	0.59	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW41A-061314 20140613 GW	MRC-MW42A-061314 20140613 GW	MRC-MW42A-061314-AVG 20140613 GW	MRC-MW42A-061314-D 20140613 GW	MRC-MW43A-032014 20140320 GW	MRC-MW-43A-041714 20140417 GW	MRC-MW44A-031814 20140318 GW	MRC-MW-44A-041714 20140417 GW
Volatile organic compounds (µg/L)									
1,1,1-TRICHLOROETHANE	200	--	NA	NA	NA	--	NA	--	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	NA	NA	NA	--	NA	--	NA
1,1-DICHLOROETHANE	90	--	NA	NA	NA	--	NA	--	NA
1,1-DICHLOROETHENE	7	--	NA	NA	NA	--	NA	--	NA
1,2,3-TRICHLOROBENZENE	NA	--	NA	NA	NA	1700 J	NA	--	NA
1,2,4-TRICHLOROBENZENE	70	--	NA	NA	NA	8000 J	NA	--	NA
1,2,4-TRIMETHYLBENZENE	NA	--	NA	NA	NA	--	NA	--	NA
1,2-DICHLOROBENZENE	600	--	NA	NA	NA	400 J	NA	--	NA
1,2-DICHLOROETHANE	5	--	NA	NA	NA	--	NA	--	NA
1,2-DICHLOROPROPANE	5	--	NA	NA	NA	--	NA	--	NA
1,3-DICHLOROBENZENE	1.8	--	NA	NA	NA	--	NA	--	NA
1,4-DICHLOROBENZENE	75	--	NA	NA	NA	480 J	NA	--	NA
2-BUTANONE	700	--	NA	NA	NA	--	NA	--	NA
4-ISOPROPYLTOLUENE	NA	--	NA	NA	NA	--	NA	--	NA
ACETONE	550	--	NA	NA	NA	--	NA	1.5 J	NA
BENZENE	5	--	NA	NA	NA	--	NA	--	NA
BROMOMETHANE	0.85	--	NA	NA	NA	--	NA	--	NA
CARBON DISULFIDE	100	--	NA	NA	NA	--	NA	--	NA
CARBON TETRACHLORIDE	5	--	NA	NA	NA	--	NA	--	NA
CHLOROBENZENE	100	--	NA	NA	NA	--	NA	--	NA
CHLOROETHANE	3.6	--	NA	NA	NA	--	NA	--	NA
CHLOROFORM	80	--	NA	NA	NA	--	NA	--	NA
CHLOROMETHANE	19	--	NA	NA	NA	--	NA	--	NA
CIS-1,2-DICHLOROETHENE	70	--	NA	NA	NA	--	NA	--	NA
DICHLORODIFLUOROMETHANE	NA	--	NA	NA	NA	--	NA	--	NA
DIISOPROPYL ETHER	NA	--	NA	NA	NA	--	NA	--	NA
ETHYLBENZENE	700	--	NA	NA	NA	--	NA	--	NA
ISOPROPYLBENZENE	66	--	NA	NA	NA	--	NA	--	NA
M+P-XYLENES	NA	--	NA	NA	NA	--	NA	--	NA
METHYL TERT-BUTYL ETHER	20	--	NA	NA	NA	--	NA	--	NA
METHYLENE CHLORIDE	5	--	NA	NA	NA	--	NA	--	NA
NAPHTHALENE	0.65	--	NA	NA	NA	--	NA	--	NA
N-BUTYLBENZENE	NA	--	NA	NA	NA	--	NA	--	NA
N-PROPYLBENZENE	NA	--	NA	NA	NA	--	NA	--	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW41A-061314 20140613 GW	MRC-MW42A-061314 20140613 GW	MRC-MW42A-061314-AVG 20140613 GW	MRC-MW42A-061314-D 20140613 GW	MRC-MW43A-032014 20140320 GW	MRC-MW-43A-041714 20140417 GW	MRC-MW44A-031814 20140318 GW	MRC-MW-44A-041714 20140417 GW
O-XYLENE	NA	--	NA	NA	NA	--	NA	--	NA
SEC-BUTYLBENZENE	NA	--	NA	NA	NA	--	NA	--	NA
STYRENE	100	--	NA	NA	NA	--	NA	--	NA
TERT-AMYL METHYL ETHER	NA	--	NA	NA	NA	--	NA	--	NA
TERT-BUTYLBENZENE	NA	--	NA	NA	NA	--	NA	--	NA
TERTIARY-BUTYL ALCOHOL	NA	--	NA	NA	NA	--	NA	--	NA
TETRACHLOROETHENE	5	--	NA	NA	NA	--	NA	--	NA
TOLUENE	1000	--	NA	NA	NA	--	NA	--	NA
TOTAL XYLENES	10000	--	NA	NA	NA	--	NA	--	NA
TRANS-1,2-DICHLOROETHENE	100	--	NA	NA	NA	--	NA	--	NA
TRICHLOROETHENE	5	--	NA	NA	NA	--	NA	--	NA
TRICHLOROFLUOROMETHANE	NA	--	NA	NA	NA	--	NA	--	NA
VINYL CHLORIDE	2	--	NA	NA	NA	--	NA	--	NA
Volatile gasses (µg/L)									
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)									
1,4-DIOXANE	3	0.26	NA	NA	NA	NA	NA	1.03 J	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)									
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	0.22	0.23	--	--
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	0.072	0.034	--	--
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	--	0.012	--	--
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	0.041	0.048	--	--
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	0.18	0.23	--	--
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	0.062	0.054	--	--
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	--	0.012 J	--	--
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	0.575	0.62	0	0

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW41A-061314 20140613 GW	MRC-MW42A-061314 20140613 GW	MRC-MW42A-061314-AVG 20140613 GW	MRC-MW42A-061314-D 20140613 GW	MRC-MW43A-032014 20140320 GW	MRC-MW-43A-041714 20140417 GW	MRC-MW44A-031814 20140318 GW	MRC-MW-44A-041714 20140417 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ									
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	0.026	NA	--
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	0.0055	NA	--
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	0.62	NA	0
Total metals (µg/L)									
ANTIMONY	6	--	--	--	--	NA	NA	NA	NA
ARSENIC	10	--	--	--	--	NA	NA	NA	NA
BARIUM	2000	29.5	29.2	28.4	27.6	NA	NA	NA	NA
BERYLLIUM	4	0.415 J	5.4	5.3	5.2	NA	NA	NA	NA
CADMIUM	5	--	--	--	--	NA	NA	NA	NA
CHROMIUM	100	--	--	--	--	NA	NA	NA	NA
COBALT	NA	109	80.9	78.6	76.3	NA	NA	NA	NA
COPPER	1300	5.9	17.5	17.5	17.5	NA	NA	NA	NA
IRON	300	60600	88600	90600	92600	NA	NA	NA	NA
LEAD	15	0.334 J	3.4	3.55	3.7	NA	NA	NA	NA
MANGANESE	50	6290	3310	3235	3160	NA	NA	NA	NA
MERCURY	2	--	--	0.0185	0.025 J	NA	NA	NA	NA
MOLYBDENUM	NA	0.245 J	0.165 J	0.164	0.163 J	NA	NA	NA	NA
NICKEL	73	57.1	80.7	77.2	73.7	NA	NA	NA	NA
SELENIUM	50	--	--	--	--	NA	NA	NA	NA
SILICON	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	100	--	--	--	--	NA	NA	NA	NA
THALLIUM	2	--	0.043 J	0.02925	--	NA	NA	NA	NA
VANADIUM	3.7	--	2	2.1	2.2	NA	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW41A-061314 20140613 GW	MRC-MW42A-061314 20140613 GW	MRC-MW42A-061314-AVG 20140613 GW	MRC-MW42A-061314-D 20140613 GW	MRC-MW43A-032014 20140320 GW	MRC-MW-43A-041714 20140417 GW	MRC-MW44A-031814 20140318 GW	MRC-MW-44A-041714 20140417 GW
Miscellaneous parameters (mg/L)									
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (μg/L)									
PERCHLORATE	2.6	--	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW46A-051214 20140512 GW	MRC-MW48A-061114 20140611 GW	MRC-MW48A-061814 20140618 GW	MRC-MW49A-051914 20140519 GW	MRC-MW49A-051914-AVG 20140519 GW	MRC-MW49A-051914-D 20140520 GW	MRC-MW50A-051914 20140519 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	NA	NA	NA	NA	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	NA	NA	NA	NA	--
1,1-DICHLOROETHANE	90	NA	1.4	NA	NA	NA	NA	--
1,1-DICHLOROETHENE	7	NA	2.5	NA	NA	NA	NA	--
1,2,3-TRICHLOROBENZENE	NA	NA	--	NA	NA	NA	NA	--
1,2,4-TRICHLOROBENZENE	70	NA	--	NA	NA	NA	NA	--
1,2,4-TRIMETHYLBENZENE	NA	NA	0.69 J	NA	NA	NA	NA	--
1,2-DICHLOROBENZENE	600	NA	--	NA	NA	NA	NA	--
1,2-DICHLOROETHANE	5	NA	--	NA	NA	NA	NA	--
1,2-DICHLOROPROPANE	5	NA	--	NA	NA	NA	NA	--
1,3-DICHLOROBENZENE	1.8	NA	--	NA	NA	NA	NA	--
1,4-DICHLOROBENZENE	75	NA	--	NA	NA	NA	NA	--
2-BUTANONE	700	NA	3.3 J	NA	NA	NA	NA	--
4-ISOPROPYLTOLUENE	NA	NA	--	NA	NA	NA	NA	--
ACETONE	550	NA	5.1 J	NA	NA	NA	NA	--
BENZENE	5	NA	0.27 J	NA	NA	NA	NA	0.68 J
BROMOMETHANE	0.85	NA	--	NA	NA	NA	NA	--
CARBON DISULFIDE	100	NA	--	NA	NA	NA	NA	--
CARBON TETRACHLORIDE	5	NA	--	NA	NA	NA	NA	--
CHLOROBENZENE	100	NA	--	NA	NA	NA	NA	--
CHLOROETHANE	3.6	NA	0.67 J	NA	NA	NA	NA	--
CHLOROFORM	80	NA	0.36 J	NA	NA	NA	NA	--
CHLOROMETHANE	19	NA	--	NA	NA	NA	NA	--
CIS-1,2-DICHLOROETHENE	70	NA	400	NA	NA	NA	NA	0.81 J
DICHLORODIFLUOROMETHANE	NA	NA	--	NA	NA	NA	NA	--
DIISOPROPYL ETHER	NA	NA	--	NA	NA	NA	NA	--
ETHYLBENZENE	700	NA	--	NA	NA	NA	NA	0.22 J
ISOPROPYLBENZENE	66	NA	0.82 J	NA	NA	NA	NA	--
M+P-XYLENES	NA	NA	--	NA	NA	NA	NA	--
METHYL TERT-BUTYL ETHER	20	NA	--	NA	NA	NA	NA	--
METHYLENE CHLORIDE	5	NA	0.58 J	NA	NA	NA	NA	--
NAPHTHALENE	0.65	NA	--	NA	NA	NA	NA	--
N-BUTYLBENZENE	NA	NA	--	NA	NA	NA	NA	--
N-PROPYLBENZENE	NA	NA	--	NA	NA	NA	NA	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW46A-051214 20140512 GW	MRC-MW48A-061114 20140611 GW	MRC-MW48A-061814 20140618 GW	MRC-MW49A-051914 20140519 GW	MRC-MW49A-051914-AVG 20140519 GW	MRC-MW49A-051914-D 20140520 GW	MRC-MW50A-051914 20140519 GW
O-XYLENE	NA	NA	1.3	NA	NA	NA	NA	--
SEC-BUTYLBENZENE	NA	NA	0.35 J	NA	NA	NA	NA	--
STYRENE	100	NA	--	NA	NA	NA	NA	--
TERT-AMYL METHYL ETHER	NA	NA	--	NA	NA	NA	NA	--
TERT-BUTYLBENZENE	NA	NA	0.28 J	NA	NA	NA	NA	--
TERTIARY-BUTYL ALCOHOL	NA	NA	--	NA	NA	NA	NA	--
TETRACHLOROETHENE	5	NA	2.3	NA	NA	NA	NA	--
TOLUENE	1000	NA	0.62 J	NA	NA	NA	NA	--
TOTAL XYLENES	10000	NA	1.3 J	NA	NA	NA	NA	--
TRANS-1,2-DICHLOROETHENE	100	NA	5.4	NA	NA	NA	NA	0.39 J
TRICHLOROETHENE	5	NA	260	NA	NA	NA	NA	14
TRICHLOROFLUOROMETHANE	NA	NA	--	NA	NA	NA	NA	--
VINYL CHLORIDE	2	NA	56	NA	NA	NA	NA	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	77	NA	NA	NA	NA	NA
ETHENE	NA	NA	75	NA	NA	NA	NA	NA
METHANE	NA	NA	6300	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW46A-051214 20140512 GW	MRC-MW48A-061114 20140611 GW	MRC-MW48A-061814 20140618 GW	MRC-MW49A-051914 20140519 GW	MRC-MW49A-051914-AVG 20140519 GW	MRC-MW49A-051914-D 20140520 GW	MRC-MW50A-051914 20140519 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	1.9	--	NA	--	--	--	--
ARSENIC	10	0.91 J	49.4	NA	2.7 J	3	3.3 J	0.283 J
BARIUM	2000	191	599	NA	246	252.5	259	101
BERYLLIUM	4	1.4 J	7.7	NA	20.1	20.45	20.8	2.1
CADMIUM	5	0.251 J	--	NA	--	--	--	--
CHROMIUM	100	--	--	NA	--	--	--	--
COBALT	NA	21 J	104	NA	772	767.5	763	45.1
COPPER	1300	8.1 J	--	NA	134 J	185	236 J	35.2 J
IRON	300	2200	31400	NA	--	--	--	3160
LEAD	15	5.7	0.355 J	NA	3.1 J	3	2.9 J	0.433 J
MANGANESE	50	136	7800	NA	860	891.5	923	250
MERCURY	2	0.051 J	--	NA	--	--	--	--
MOLYBDENUM	NA	1.8	0.086 J	NA	--	--	--	--
NICKEL	73	16.4 J	129	NA	1290	1335	1380	47.7
SELENIUM	50	0.606 J	193	NA	4.8 J	5.5	6.2 J	1.7 J
SILICON	NA	11100	NA	NA	6180	6210	6240	2100
SILVER	100	--	--	NA	0.846 J	0.8605	0.875 J	0.726 J
THALLIUM	2	--	--	NA	--	--	--	--
VANADIUM	3.7	2 J	--	NA	--	--	--	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW46A-051214 20140512 GW	MRC-MW48A-061114 20140611 GW	MRC-MW48A-061814 20140618 GW	MRC-MW49A-051914 20140519 GW	MRC-MW49A-051914-AVG 20140519 GW	MRC-MW49A-051914-D 20140520 GW	MRC-MW50A-051914 20140519 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	--	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	44.4	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	115	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	1.6	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	--	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	--	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	--	NA	NA	NA	NA
SILICA	NA	NA	19.2	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	3.5	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	322	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	0.38

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW52A-060314 20140603 GW	MRC-MW53A-052314 20140523 GW	MRC-MW53B-052314 20140523 GW	MRC-MW54A-052214 20140522 GW	MRC-MW57A-061214 20140612 GW	MRC-MW58A-051914 20140519 GW	MRC-MW59A-051914 20140519 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	--	NA	--	--	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	--	NA	--	--	NA
1,1-DICHLOROETHANE	90	NA	0.43 J	--	NA	--	--	NA
1,1-DICHLOROETHENE	7	NA	18	--	NA	--	--	NA
1,2,3-TRICHLOROBENZENE	NA	NA	--	--	NA	--	--	NA
1,2,4-TRICHLOROBENZENE	70	NA	--	--	NA	--	--	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	--	--	NA	--	--	NA
1,2-DICHLOROBENZENE	600	NA	--	--	NA	--	--	NA
1,2-DICHLOROETHANE	5	NA	0.38 J	--	NA	--	--	NA
1,2-DICHLOROPROPANE	5	NA	--	--	NA	--	--	NA
1,3-DICHLOROBENZENE	1.8	NA	--	--	NA	--	--	NA
1,4-DICHLOROBENZENE	75	NA	--	--	NA	--	--	NA
2-BUTANONE	700	NA	--	--	NA	--	--	NA
4-ISOPROPYLTOLUENE	NA	NA	--	--	NA	--	--	NA
ACETONE	550	NA	--	--	NA	--	--	NA
BENZENE	5	NA	1.5	13	NA	--	--	NA
BROMOMETHANE	0.85	NA	--	--	NA	--	--	NA
CARBON DISULFIDE	100	NA	--	--	NA	--	--	NA
CARBON TETRACHLORIDE	5	NA	1.3	--	NA	--	--	NA
CHLOROBENZENE	100	NA	--	--	NA	--	--	NA
CHLOROETHANE	3.6	NA	--	--	NA	--	--	NA
CHLOROFORM	80	NA	1.9	0.48 J	NA	--	--	NA
CHLOROMETHANE	19	NA	--	--	NA	--	--	NA
CIS-1,2-DICHLOROETHENE	70	NA	17	3.9	NA	--	--	NA
DICHLORODIFLUOROMETHANE	NA	NA	--	--	NA	--	--	NA
DIISOPROPYL ETHER	NA	NA	--	--	NA	--	--	NA
ETHYLBENZENE	700	NA	--	0.6 J	NA	--	--	NA
ISOPROPYLBENZENE	66	NA	--	--	NA	--	--	NA
M+P-XYLENES	NA	NA	--	0.84 J	NA	--	--	NA
METHYL TERT-BUTYL ETHER	20	NA	--	3.5	NA	--	--	NA
METHYLENE CHLORIDE	5	NA	--	--	NA	--	--	NA
NAPHTHALENE	0.65	NA	--	--	NA	--	--	NA
N-BUTYLBENZENE	NA	NA	--	--	NA	--	--	NA
N-PROPYLBENZENE	NA	NA	--	--	NA	--	--	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW52A-060314 20140603 GW	MRC-MW53A-052314 20140523 GW	MRC-MW53B-052314 20140523 GW	MRC-MW54A-052214 20140522 GW	MRC-MW57A-061214 20140612 GW	MRC-MW58A-051914 20140519 GW	MRC-MW59A-051914 20140519 GW
O-XYLENE	NA	NA	--	0.61 J	NA	--	--	NA
SEC-BUTYLBENZENE	NA	NA	--	--	NA	--	--	NA
STYRENE	100	NA	--	--	NA	--	--	NA
TERT-AMYL METHYL ETHER	NA	NA	--	--	NA	--	--	NA
TERT-BUTYLBENZENE	NA	NA	--	--	NA	--	--	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	--	--	NA	--	--	NA
TETRACHLOROETHENE	5	NA	--	--	NA	--	--	NA
TOLUENE	1000	NA	--	--	NA	--	--	NA
TOTAL XYLENES	10000	NA	--	1.5 J	NA	--	--	NA
TRANS-1,2-DICHLOROETHENE	100	NA	0.33 J	--	NA	--	--	NA
TRICHLOROETHENE	5	NA	320	26	NA	--	--	NA
TRICHLOROFLUOROMETHANE	NA	NA	--	--	NA	--	--	NA
VINYL CHLORIDE	2	NA	--	--	NA	--	--	NA
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	24.4	4.18	0.195 J	NA	0.788	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW52A-060314 20140603 GW	MRC-MW53A-052314 20140523 GW	MRC-MW53B-052314 20140523 GW	MRC-MW54A-052214 20140522 GW	MRC-MW57A-061214 20140612 GW	MRC-MW58A-051914 20140519 GW	MRC-MW59A-051914 20140519 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	--	1.4	NA	--	NA	--
ARSENIC	10	1.7	--	0.288 J	NA	--	NA	2.9
BARIUM	2000	751	203	323	NA	19.4	NA	174
BERYLLIUM	4	28.7	4.8	0.604 J	NA	0.353 J	NA	2.5
CADMIUM	5	1.1	--	0.648 J	NA	--	NA	--
CHROMIUM	100	--	--	--	NA	--	NA	--
COBALT	NA	2110 J	79	1040	NA	54.6	NA	504
COPPER	1300	87.6	11.9 J	28.1 J	NA	9.4	NA	8.3 J
IRON	300	7700	146	2330	NA	68900	NA	52300
LEAD	15	2.4	--	2.7	NA	0.104 J	NA	0.172 J
MANGANESE	50	28500	824	1280	NA	38000	NA	10900
MERCURY	2	--	--	0.025 J	NA	--	NA	--
MOLYBDENUM	NA	--	--	0.474 J	NA	0.744 J	NA	0.914 J
NICKEL	73	1410	131	923	NA	383	NA	306
SELENIUM	50	--	0.315 J	--	NA	--	NA	--
SILICON	NA	12400	6270	9300	NA	NA	NA	6490
SILVER	100	0.296 J	--	--	NA	--	NA	--
THALLIUM	2	0.888 J	--	--	NA	--	NA	--
VANADIUM	3.7	--	--	--	NA	--	NA	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW52A-060314 20140603 GW	MRC-MW53A-052314 20140523 GW	MRC-MW53B-052314 20140523 GW	MRC-MW54A-052214 20140522 GW	MRC-MW57A-061214 20140612 GW	MRC-MW58A-051914 20140519 GW	MRC-MW59A-051914 20140519 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	--	9.7	2.4	--	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW60A-061114 20140611 GW	MRC-MW60A-061814 20140618 GW	MRC-MW60B-061114 20140611 GW	MRC-MW60B-061814 20140618 GW	MRC-MW61A-060614 20140606 GW	MRC-MW62A-031814 20140318 GW	MRC-MW-62A-041714 20140417 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	NA	--	NA	--	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	NA	--	NA	--	NA
1,1-DICHLOROETHANE	90	NA	--	NA	--	NA	--	NA
1,1-DICHLOROETHENE	7	NA	2.9 J	NA	--	NA	--	NA
1,2,3-TRICHLOROBENZENE	NA	NA	--	NA	--	NA	3.2 J	NA
1,2,4-TRICHLOROBENZENE	70	NA	--	NA	--	NA	15 J	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	--	NA	--	NA	0.26 J	NA
1,2-DICHLOROBENZENE	600	NA	--	NA	--	NA	1.4 J	NA
1,2-DICHLOROETHANE	5	NA	--	NA	--	NA	--	NA
1,2-DICHLOROPROPANE	5	NA	--	NA	--	NA	--	NA
1,3-DICHLOROBENZENE	1.8	NA	--	NA	--	NA	--	NA
1,4-DICHLOROBENZENE	75	NA	--	NA	--	NA	2.1 J	NA
2-BUTANONE	700	NA	--	NA	--	NA	--	NA
4-ISOPROPYLTOLUENE	NA	NA	--	NA	--	NA	--	NA
ACETONE	550	NA	--	NA	--	NA	1.9 J	NA
BENZENE	5	NA	--	NA	--	NA	--	NA
BROMOMETHANE	0.85	NA	--	NA	--	NA	--	NA
CARBON DISULFIDE	100	NA	--	NA	--	NA	--	NA
CARBON TETRACHLORIDE	5	NA	--	NA	--	NA	0.69 J	NA
CHLOROBENZENE	100	NA	--	NA	--	NA	1.2 J	NA
CHLOROETHANE	3.6	NA	--	NA	--	NA	0.32 J	NA
CHLOROFORM	80	NA	1.8 J	NA	--	NA	7.6 J	NA
CHLOROMETHANE	19	NA	--	NA	--	NA	--	NA
CIS-1,2-DICHLOROETHENE	70	NA	670	NA	180	NA	2.7 J	NA
DICHLORODIFLUOROMETHANE	NA	NA	--	NA	--	NA	--	NA
DIISOPROPYL ETHER	NA	NA	--	NA	--	NA	--	NA
ETHYLBENZENE	700	NA	--	NA	--	NA	--	NA
ISOPROPYLBENZENE	66	NA	1.1 J	NA	--	NA	--	NA
M+P-XYLENES	NA	NA	--	NA	--	NA	--	NA
METHYL TERT-BUTYL ETHER	20	NA	--	NA	--	NA	--	NA
METHYLENE CHLORIDE	5	NA	3.9 J	NA	--	NA	--	NA
NAPHTHALENE	0.65	NA	--	NA	--	NA	13 J	NA
N-BUTYLBENZENE	NA	NA	--	NA	--	NA	--	NA
N-PROPYLBENZENE	NA	NA	--	NA	--	NA	--	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW60A-061114 20140611 GW	MRC-MW60A-061814 20140618 GW	MRC-MW60B-061114 20140611 GW	MRC-MW60B-061814 20140618 GW	MRC-MW61A-060614 20140606 GW	MRC-MW62A-031814 20140318 GW	MRC-MW-62A-041714 20140417 GW
O-XYLENE	NA	NA	--	NA	--	NA	0.46 J	NA
SEC-BUTYLBENZENE	NA	NA	--	NA	--	NA	--	NA
STYRENE	100	NA	--	NA	--	NA	--	NA
TERT-AMYL METHYL ETHER	NA	NA	--	NA	--	NA	--	NA
TERT-BUTYLBENZENE	NA	NA	--	NA	--	NA	--	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	--	NA	--	NA	350 J	NA
TETRACHLOROETHENE	5	NA	3.5 J	NA	--	NA	12 J	NA
TOLUENE	1000	NA	--	NA	--	NA	--	NA
TOTAL XYLENES	10000	NA	--	NA	--	NA	--	NA
TRANS-1,2-DICHLOROETHENE	100	NA	4.1 J	NA	--	NA	--	NA
TRICHLOROETHENE	5	NA	450	NA	5600	NA	1.5 J	NA
TRICHLOROFLUOROMETHANE	NA	NA	--	NA	--	NA	--	NA
VINYL CHLORIDE	2	NA	49	NA	--	NA	0.6 J	NA
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	--	NA	NA	NA
ETHENE	NA	NA	NA	NA	0.2 J	NA	NA	NA
METHANE	NA	NA	NA	NA	110	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	--	--
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	--	--
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	0.042	--
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	--	--
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	--	--
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	--	--
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	--	--
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	0.042	0

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW60A-061114 20140611 GW	MRC-MW60A-061814 20140618 GW	MRC-MW60B-061114 20140611 GW	MRC-MW60B-061814 20140618 GW	MRC-MW61A-060614 20140606 GW	MRC-MW62A-031814 20140318 GW	MRC-MW-62A-041714 20140417 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	--
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	0.0052
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	0.0052
Total metals (µg/L)								
ANTIMONY	6	--	NA	--	NA	--	NA	NA
ARSENIC	10	--	NA	--	NA	1.3	NA	NA
BARIUM	2000	52.7	NA	62.3	NA	273 J	NA	NA
BERYLLIUM	4	0.676 J	NA	--	NA	32.2 J	4.8	NA
CADMIUM	5	--	NA	--	NA	1.2	NA	NA
CHROMIUM	100	--	NA	--	NA	0.816 J	NA	NA
COBALT	NA	41.4	NA	45.6	NA	519 J	20.1	NA
COPPER	1300	2.2	NA	--	NA	16.4	NA	NA
IRON	300	15200	NA	11300	NA	174	NA	NA
LEAD	15	0.137 J	NA	--	NA	3.3	NA	NA
MANGANESE	50	2700	NA	2240	NA	18000	NA	NA
MERCURY	2	--	NA	--	NA	--	--	NA
MOLYBDENUM	NA	0.407 J	NA	--	NA	--	NA	NA
NICKEL	73	40.2	NA	76.6	NA	311 J	100	NA
SELENIUM	50	2.3	NA	0.739 J	NA	--	NA	NA
SILICON	NA	NA	NA	NA	NA	5970	NA	NA
SILVER	100	--	NA	--	NA	0.081 J	NA	NA
THALLIUM	2	--	NA	0.031 J	NA	0.069 J	NA	NA
VANADIUM	3.7	--	NA	--	NA	--	NA	NA
ZINC	5000	NA	NA	NA	NA	344 J	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW60A-061114 20140611 GW	MRC-MW60A-061814 20140618 GW	MRC-MW60B-061114 20140611 GW	MRC-MW60B-061814 20140618 GW	MRC-MW61A-060614 20140606 GW	MRC-MW62A-031814 20140318 GW	MRC-MW-62A-041714 20140417 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	--	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	50.7	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	19	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	0.6 J	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	--	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	--	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	--	NA	NA	NA
SILICA	NA	NA	NA	11.5	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	2.9	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	79	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	--	NA	--	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW62C-031814 20140318 GW	MRC-MW-62C-041714 20140417 GW	MRC-MW63A-052314 20140523 GW	MRC-MW67A-051314 20140513 GW	MRC-MW68A-051314 20140513 GW	MRC-MW69A-051314 20140513 GW	MRC-MW69B-051314 20140513 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	NA	--	NA	NA	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	NA	--	NA	NA	--	--
1,1-DICHLOROETHANE	90	--	NA	4.7	NA	NA	--	--
1,1-DICHLOROETHENE	7	--	NA	3.9	NA	NA	--	--
1,2,3-TRICHLOROBENZENE	NA	--	NA	--	NA	NA	--	--
1,2,4-TRICHLOROBENZENE	70	--	NA	--	NA	NA	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	NA	--	NA	NA	--	--
1,2-DICHLOROBENZENE	600	--	NA	--	NA	NA	--	--
1,2-DICHLOROETHANE	5	--	NA	--	NA	NA	--	--
1,2-DICHLOROPROPANE	5	--	NA	--	NA	NA	--	--
1,3-DICHLOROBENZENE	1.8	--	NA	--	NA	NA	--	--
1,4-DICHLOROBENZENE	75	--	NA	--	NA	NA	--	--
2-BUTANONE	700	--	NA	--	NA	NA	--	--
4-ISOPROPYLTOLUENE	NA	--	NA	--	NA	NA	--	--
ACETONE	550	7.1 J	NA	--	NA	NA	--	--
BENZENE	5	--	NA	--	NA	NA	--	--
BROMOMETHANE	0.85	--	NA	--	NA	NA	--	--
CARBON DISULFIDE	100	--	NA	--	NA	NA	--	--
CARBON TETRACHLORIDE	5	--	NA	--	NA	NA	--	--
CHLOROBENZENE	100	--	NA	--	NA	NA	--	--
CHLOROETHANE	3.6	0.64 J	NA	--	NA	NA	--	--
CHLOROFORM	80	--	NA	--	NA	NA	--	--
CHLOROMETHANE	19	0.27 J	NA	--	NA	NA	--	--
CIS-1,2-DICHLOROETHENE	70	--	NA	5.6	NA	NA	--	--
DICHLORODIFLUOROMETHANE	NA	--	NA	--	NA	NA	--	--
DIISOPROPYL ETHER	NA	--	NA	--	NA	NA	--	--
ETHYLBENZENE	700	--	NA	--	NA	NA	--	--
ISOPROPYLBENZENE	66	--	NA	--	NA	NA	--	--
M+P-XYLENES	NA	--	NA	--	NA	NA	--	--
METHYL TERT-BUTYL ETHER	20	--	NA	--	NA	NA	--	--
METHYLENE CHLORIDE	5	--	NA	--	NA	NA	--	--
NAPHTHALENE	0.65	--	NA	--	NA	NA	--	--
N-BUTYLBENZENE	NA	--	NA	--	NA	NA	--	--
N-PROPYLBENZENE	NA	--	NA	--	NA	NA	--	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW62C-031814 20140318 GW	MRC-MW-62C-041714 20140417 GW	MRC-MW63A-052314 20140523 GW	MRC-MW67A-051314 20140513 GW	MRC-MW68A-051314 20140513 GW	MRC-MW69A-051314 20140513 GW	MRC-MW69B-051314 20140513 GW
O-XYLENE	NA	--	NA	--	NA	NA	--	--
SEC-BUTYLBENZENE	NA	--	NA	--	NA	NA	--	--
STYRENE	100	--	NA	--	NA	NA	--	--
TERT-AMYL METHYL ETHER	NA	--	NA	--	NA	NA	--	--
TERT-BUTYLBENZENE	NA	--	NA	--	NA	NA	--	--
TERTIARY-BUTYL ALCOHOL	NA	24 J	NA	--	NA	NA	--	--
TETRACHLOROETHENE	5	--	NA	--	NA	NA	--	--
TOLUENE	1000	--	NA	--	NA	NA	--	--
TOTAL XYLENES	10000	--	NA	--	NA	NA	--	--
TRANS-1,2-DICHLOROETHENE	100	--	NA	--	NA	NA	--	--
TRICHLOROETHENE	5	--	NA	6.6	NA	NA	--	--
TRICHLOROFLUOROMETHANE	NA	--	NA	--	NA	NA	--	--
VINYL CHLORIDE	2	--	NA	1.6	NA	NA	--	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	9.73	NA	NA	3.27	0.393
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	--	--	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	--	--	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	--	--	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	--	--	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	--	--	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	--	--	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	--	--	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	0	0	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW62C-031814 20140318 GW	MRC-MW-62C-041714 20140417 GW	MRC-MW63A-052314 20140523 GW	MRC-MW67A-051314 20140513 GW	MRC-MW68A-051314 20140513 GW	MRC-MW69A-051314 20140513 GW	MRC-MW69B-051314 20140513 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	--	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	--	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	0	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	NA	--	--	--	--	NA
ARSENIC	10	NA	NA	0.578 J	3.7 J	1.4 J	1.3	NA
BARIUM	2000	NA	NA	408	688	2400	73.7	NA
BERYLLIUM	4	0.091 J	NA	1.1	249 J	168 J	0.034 J	NA
CADMIUM	5	NA	NA	--	10.3	5.7	--	NA
CHROMIUM	100	NA	NA	--	3.8 J	--	1.5 J	NA
COBALT	NA	12	NA	326	7550	1640	42.5	NA
COPPER	1300	NA	NA	8.3 J	2120	84.2	8.1	NA
IRON	300	NA	NA	66000	9230	173	6700	NA
LEAD	15	NA	NA	0.88 J	6.5	0.598 J	0.89 J	NA
MANGANESE	50	NA	NA	2700	12600	6750	1340	NA
MERCURY	2	--	NA	--	--	--	--	NA
MOLYBDENUM	NA	NA	NA	0.489 J	0.708 J	--	0.279 J	NA
NICKEL	73	21.6	NA	430	129000	5640	49.6	NA
SELENIUM	50	NA	NA	--	6.4 J	4.5 J	--	NA
SILICON	NA	NA	NA	13900	14200	17500	4460	NA
SILVER	100	NA	NA	--	0.258 J	0.391 J	--	NA
THALLIUM	2	NA	NA	--	1.1 J	--	--	NA
VANADIUM	3.7	NA	NA	--	--	--	--	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW62C-031814 20140318 GW	MRC-MW-62C-041714 20140417 GW	MRC-MW63A-052314 20140523 GW	MRC-MW67A-051314 20140513 GW	MRC-MW68A-051314 20140513 GW	MRC-MW69A-051314 20140513 GW	MRC-MW69B-051314 20140513 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW70A-060214 20140602 GW	MRC-MW70B-060214 20140602 GW	MRC-MW71A-052014 20140520 GW	MRC-MW71B-052014 20140520 GW	MRC-MW72B-061714 20140617 GW	MRC-MW73B-060614 20140606 GW	MRC-MW74A-060614 20140606 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	--	--	0.39 J	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	--	--	--	--	--	--
1,1-DICHLOROETHANE	90	0.87 J	3.5	0.71 J	2.4	--	--	--
1,1-DICHLOROETHENE	7	--	37	9.1	30	--	--	--
1,2,3-TRICHLOROBENZENE	NA	--	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	--	--	--	--	--	--
1,2-DICHLOROBENZENE	600	--	--	--	--	--	--	--
1,2-DICHLOROETHANE	5	--	0.48 J	--	--	--	--	--
1,2-DICHLOROPROPANE	5	--	--	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	--	--	--	--	--	--	0.32 J
1,4-DICHLOROBENZENE	75	--	--	--	--	--	--	0.64 J
2-BUTANONE	700	--	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	--	--	--	--	--	--	--
ACETONE	550	--	--	--	--	--	--	1.6 J
BENZENE	5	--	0.61 J	--	--	--	--	--
BROMOMETHANE	0.85	--	--	--	--	--	--	--
CARBON DISULFIDE	100	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	5	--	--	--	--	--	--	--
CHLOROBENZENE	100	--	--	--	--	--	--	--
CHLOROETHANE	3.6	--	--	--	--	--	--	--
CHLOROFORM	80	--	--	--	--	--	--	--
CHLOROMETHANE	19	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	1.3	9.6	--	5	--	2.2	2
DICHLORODIFLUOROMETHANE	NA	--	--	--	--	--	--	--
DIISOPROPYL ETHER	NA	--	--	--	--	--	--	--
ETHYLBENZENE	700	--	--	--	--	--	--	--
ISOPROPYLBENZENE	66	--	--	--	--	--	--	--
M+P-XYLENES	NA	--	--	--	--	--	--	--
METHYL TERT-BUTYL ETHER	20	--	--	--	--	--	--	--
METHYLENE CHLORIDE	5	--	--	--	--	--	--	--
NAPHTHALENE	0.65	--	--	--	--	--	--	--
N-BUTYLBENZENE	NA	--	--	--	--	--	--	--
N-PROPYLBENZENE	NA	--	--	--	--	--	--	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW70A-060214 20140602 GW	MRC-MW70B-060214 20140602 GW	MRC-MW71A-052014 20140520 GW	MRC-MW71B-052014 20140520 GW	MRC-MW72B-061714 20140617 GW	MRC-MW73B-060614 20140606 GW	MRC-MW74A-060614 20140606 GW
O-XYLENE	NA	--	--	--	--	--	--	--
SEC-BUTYLBENZENE	NA	--	--	--	--	--	--	--
STYRENE	100	--	--	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	--	--	--	--	--	--	--
TERT-BUTYLBENZENE	NA	--	--	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	--	--	--	--	--	--	--
TETRACHLOROETHENE	5	--	0.53 J	--	0.4 J	--	--	--
TOLUENE	1000	--	--	--	--	--	--	--
TOTAL XYLENES	10000	--	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	--	--	--	--	--	--	--
TRICHLOROETHENE	5	1.2	180	0.36 J	49	2500	100	83
TRICHLOROFLUOROMETHANE	NA	--	--	--	--	--	--	--
VINYL CHLORIDE	2	--	0.46 J	--	--	--	--	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	--	NA	NA
ETHENE	NA	NA	NA	NA	NA	--	NA	NA
METHANE	NA	NA	NA	NA	NA	--	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	2.05	26.9	1.43	19.9	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW70A-060214 20140602 GW	MRC-MW70B-060214 20140602 GW	MRC-MW71A-052014 20140520 GW	MRC-MW71B-052014 20140520 GW	MRC-MW72B-061714 20140617 GW	MRC-MW73B-060614 20140606 GW	MRC-MW74A-060614 20140606 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	NA	2.6	--	NA	NA	NA
ARSENIC	10	3.6	NA	--	--	NA	NA	NA
BARIUM	2000	92.6	NA	--	--	NA	NA	NA
BERYLLIUM	4	2.4	NA	1	--	NA	NA	NA
CADMIUM	5	--	NA	3.7	--	NA	NA	NA
CHROMIUM	100	--	NA	--	--	NA	NA	NA
COBALT	NA	29 J	NA	11.4	7.2	NA	NA	NA
COPPER	1300	4.3	NA	7.5 J	5.4 J	NA	NA	NA
IRON	300	59300	NA	--	4830	NA	NA	NA
LEAD	15	1.4 J	NA	0.179 J	0.541 J	NA	NA	NA
MANGANESE	50	1400	NA	279	670	NA	NA	NA
MERCURY	2	--	NA	--	--	NA	NA	NA
MOLYBDENUM	NA	0.377 J	NA	0.809 J	--	NA	NA	NA
NICKEL	73	32.3	NA	22.2	10.9	NA	NA	NA
SELENIUM	50	0.63 J	NA	0.487 J	--	NA	NA	NA
SILICON	NA	8220	NA	9490	5170	NA	NA	NA
SILVER	100	--	NA	--	--	NA	NA	NA
THALLIUM	2	--	NA	--	--	NA	NA	NA
VANADIUM	3.7	--	NA	--	--	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW70A-060214 20140602 GW	MRC-MW70B-060214 20140602 GW	MRC-MW71A-052014 20140520 GW	MRC-MW71B-052014 20140520 GW	MRC-MW72B-061714 20140617 GW	MRC-MW73B-060614 20140606 GW	MRC-MW74A-060614 20140606 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	--	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	8.7	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	17	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	1.1	NA	NA
NITRATE	NA	NA	NA	NA	NA	0.7 J	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	0.7 J	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	0.02	NA	NA
SILICA	NA	NA	NA	NA	NA	8.56	NA	NA
SULFATE	NA	NA	NA	NA	NA	6.5	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	67	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	0.2

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW74B-060614 20140606 GW	MRC-MW76A-061114 20140611 GW	MRC-MW76A-061814 20140618 GW	MRC-MW76B-061114 20140611 GW	MRC-MW76B-061814 20140618 GW	MRC-MW77A-060214 20140602 GW	MRC-MW78B-061714 20140617 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	NA	--	NA	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	7.7	NA	--	NA	--	--	--
1,1-DICHLOROETHANE	90	--	NA	--	NA	1.5	12	--
1,1-DICHLOROETHENE	7	--	NA	--	NA	0.98 J	1.9	--
1,2,3-TRICHLOROBENZENE	NA	--	NA	--	NA	--	--	--
1,2,4-TRICHLOROBENZENE	70	--	NA	--	NA	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	NA	--	NA	--	--	--
1,2-DICHLOROBENZENE	600	--	NA	--	NA	--	--	--
1,2-DICHLOROETHANE	5	--	NA	--	NA	--	--	--
1,2-DICHLOROPROPANE	5	--	NA	--	NA	--	--	--
1,3-DICHLOROBENZENE	1.8	--	NA	--	NA	--	--	--
1,4-DICHLOROBENZENE	75	--	NA	--	NA	--	--	--
2-BUTANONE	700	--	NA	--	NA	--	--	--
4-ISOPROPYLTOLUENE	NA	--	NA	--	NA	--	--	--
ACETONE	550	--	NA	--	NA	--	--	--
BENZENE	5	--	NA	--	NA	--	11	--
BROMOMETHANE	0.85	--	NA	--	NA	--	--	--
CARBON DISULFIDE	100	--	NA	--	NA	--	--	--
CARBON TETRACHLORIDE	5	--	NA	--	NA	--	--	--
CHLOROBENZENE	100	--	NA	--	NA	--	--	--
CHLOROETHANE	3.6	--	NA	--	NA	--	--	--
CHLOROFORM	80	--	NA	--	NA	--	--	--
CHLOROMETHANE	19	--	NA	--	NA	--	--	--
CIS-1,2-DICHLOROETHENE	70	21	NA	--	NA	1.3	2.4	--
DICHLORODIFLUOROMETHANE	NA	--	NA	--	NA	--	--	--
DIISOPROPYL ETHER	NA	--	NA	--	NA	--	0.56 J	--
ETHYLBENZENE	700	--	NA	--	NA	--	--	--
ISOPROPYLBENZENE	66	--	NA	--	NA	--	0.53 J	--
M+P-XYLENES	NA	--	NA	--	NA	--	--	--
METHYL TERT-BUTYL ETHER	20	--	NA	--	NA	--	120	--
METHYLENE CHLORIDE	5	--	NA	--	NA	--	0.81 J	--
NAPHTHALENE	0.65	--	NA	--	NA	--	0.73 J	--
N-BUTYLBENZENE	NA	--	NA	--	NA	--	0.26 J	--
N-PROPYLBENZENE	NA	--	NA	--	NA	--	--	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW74B-060614 20140606 GW	MRC-MW76A-061114 20140611 GW	MRC-MW76A-061814 20140618 GW	MRC-MW76B-061114 20140611 GW	MRC-MW76B-061814 20140618 GW	MRC-MW77A-060214 20140602 GW	MRC-MW78B-061714 20140617 GW
O-XYLENE	NA	--	NA	--	NA	--	--	--
SEC-BUTYLBENZENE	NA	--	NA	--	NA	--	2.4	--
STYRENE	100	--	NA	--	NA	--	--	--
TERT-AMYL METHYL ETHER	NA	--	NA	--	NA	--	0.52 J	--
TERT-BUTYLBENZENE	NA	--	NA	--	NA	--	0.35 J	--
TERTIARY-BUTYL ALCOHOL	NA	--	NA	--	NA	--	18 J	--
TETRACHLOROETHENE	5	--	NA	--	NA	--	--	--
TOLUENE	1000	--	NA	--	NA	--	--	--
TOTAL XYLENES	10000	--	NA	--	NA	--	--	--
TRANS-1,2-DICHLOROETHENE	100	--	NA	--	NA	--	--	--
TRICHLOROETHENE	5	1900	NA	--	NA	9.5	6.4	1.3
TRICHLOROFLUOROMETHANE	NA	--	NA	--	NA	--	--	--
VINYL CHLORIDE	2	--	NA	--	NA	--	1.4	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW74B-060614 20140606 GW	MRC-MW76A-061114 20140611 GW	MRC-MW76A-061814 20140618 GW	MRC-MW76B-061114 20140611 GW	MRC-MW76B-061814 20140618 GW	MRC-MW77A-060214 20140602 GW	MRC-MW78B-061714 20140617 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	--	NA	--	NA	--	1.6
ARSENIC	10	NA	--	NA	--	NA	0.627 J	3.6
BARIUM	2000	NA	93.2	NA	147	NA	638	11.9
BERYLLIUM	4	NA	8.3	NA	0.635 J	NA	28.2	0.437 J
CADMIUM	5	NA	0.024 J	NA	--	NA	--	0.252 J
CHROMIUM	100	NA	--	NA	--	NA	--	--
COBALT	NA	NA	437	NA	198	NA	435 J	5.1
COPPER	1300	NA	2.1	NA	--	NA	31.3	11
IRON	300	NA	26600	NA	16100	NA	69700	2270
LEAD	15	NA	0.102 J	NA	0.259 J	NA	0.473 J	2.9
MANGANESE	50	NA	17500	NA	7560	NA	25400	19.3
MERCURY	2	NA	--	NA	--	NA	--	0.025 J
MOLYBDENUM	NA	NA	--	NA	--	NA	--	1
NICKEL	73	NA	366	NA	254	NA	661	7.6
SELENIUM	50	NA	2.5	NA	--	NA	0.445 J	0.958 J
SILICON	NA	NA	NA	NA	NA	NA	7970	NA
SILVER	100	NA	--	NA	--	NA	--	--
THALLIUM	2	NA	--	NA	0.047 J	NA	0.131 J	--
VANADIUM	3.7	NA	--	NA	--	NA	--	36.1
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW74B-060614 20140606 GW	MRC-MW76A-061114 20140611 GW	MRC-MW76A-061814 20140618 GW	MRC-MW76B-061114 20140611 GW	MRC-MW76B-061814 20140618 GW	MRC-MW77A-060214 20140602 GW	MRC-MW78B-061714 20140617 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	0.06 J	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW79B-060214 20140602 GW	MRC-MW80A-061214 20140612 GW	MRC-MW80B-061214 20140612 GW	MRC-MW81A-061114 20140611 GW	MRC-MW81B-052714 20140527 GW	MRC-MW81B-060414 20140604 GW	MRC-MW81B-061114 20140611 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	NA	--	NA	NA	NA	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	NA	--	NA	NA	NA	--
1,1-DICHLOROETHANE	90	2	NA	1.6	NA	NA	NA	110
1,1-DICHLOROETHENE	7	3.1	NA	23	NA	NA	NA	370
1,2,3-TRICHLOROBENZENE	NA	--	NA	--	NA	NA	NA	--
1,2,4-TRICHLOROBENZENE	70	--	NA	--	NA	NA	NA	--
1,2,4-TRIMETHYLBENZENE	NA	--	NA	--	NA	NA	NA	--
1,2-DICHLOROBENZENE	600	--	NA	--	NA	NA	NA	--
1,2-DICHLOROETHANE	5	--	NA	0.42 J	NA	NA	NA	--
1,2-DICHLOROPROPANE	5	--	NA	--	NA	NA	NA	--
1,3-DICHLOROBENZENE	1.8	--	NA	--	NA	NA	NA	--
1,4-DICHLOROBENZENE	75	--	NA	--	NA	NA	NA	--
2-BUTANONE	700	--	NA	--	NA	NA	NA	--
4-ISOPROPYLTOLUENE	NA	--	NA	--	NA	NA	NA	--
ACETONE	550	--	NA	--	NA	NA	NA	--
BENZENE	5	1.4 J	NA	--	NA	NA	NA	--
BROMOMETHANE	0.85	--	NA	--	NA	NA	NA	--
CARBON DISULFIDE	100	--	NA	--	NA	NA	NA	--
CARBON TETRACHLORIDE	5	--	NA	--	NA	NA	NA	--
CHLOROBENZENE	100	--	NA	--	NA	NA	NA	--
CHLOROETHANE	3.6	--	NA	--	NA	NA	NA	--
CHLOROFORM	80	0.72 J	NA	--	NA	NA	NA	--
CHLOROMETHANE	19	--	NA	--	NA	NA	NA	--
CIS-1,2-DICHLOROETHENE	70	71	NA	2.5	NA	NA	NA	3400
DICHLORODIFLUOROMETHANE	NA	--	NA	--	NA	NA	NA	--
DIISOPROPYL ETHER	NA	--	NA	--	NA	NA	NA	--
ETHYLBENZENE	700	--	NA	--	NA	NA	NA	--
ISOPROPYLBENZENE	66	--	NA	--	NA	NA	NA	--
M+P-XYLENES	NA	--	NA	--	NA	NA	NA	--
METHYL TERT-BUTYL ETHER	20	36	NA	--	NA	NA	NA	--
METHYLENE CHLORIDE	5	--	NA	--	NA	NA	NA	--
NAPHTHALENE	0.65	--	NA	--	NA	NA	NA	--
N-BUTYLBENZENE	NA	--	NA	--	NA	NA	NA	--
N-PROPYLBENZENE	NA	--	NA	--	NA	NA	NA	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW79B-060214 20140602 GW	MRC-MW80A-061214 20140612 GW	MRC-MW80B-061214 20140612 GW	MRC-MW81A-061114 20140611 GW	MRC-MW81B-052714 20140527 GW	MRC-MW81B-060414 20140604 GW	MRC-MW81B-061114 20140611 GW
O-XYLENE	NA	--	NA	--	NA	NA	NA	--
SEC-BUTYLBENZENE	NA	--	NA	--	NA	NA	NA	--
STYRENE	100	--	NA	--	NA	NA	NA	--
TERT-AMYL METHYL ETHER	NA	--	NA	--	NA	NA	NA	--
TERT-BUTYLBENZENE	NA	--	NA	--	NA	NA	NA	--
TERTIARY-BUTYL ALCOHOL	NA	27 J	NA	--	NA	NA	NA	--
TETRACHLOROETHENE	5	--	NA	--	NA	NA	NA	--
TOLUENE	1000	--	NA	--	NA	NA	NA	--
TOTAL XYLENES	10000	--	NA	--	NA	NA	NA	--
TRANS-1,2-DICHLOROETHENE	100	3.9	NA	--	NA	NA	NA	27 J
TRICHLOROETHENE	5	300	NA	57	NA	NA	NA	7800
TRICHLOROFLUOROMETHANE	NA	--	NA	--	NA	NA	NA	--
VINYL CHLORIDE	2	16	NA	--	NA	NA	NA	89
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	0.63 J
ETHENE	NA	NA	NA	NA	NA	NA	NA	7
METHANE	NA	NA	NA	NA	NA	NA	NA	780
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	1.26	18.1	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW79B-060214 20140602 GW	MRC-MW80A-061214 20140612 GW	MRC-MW80B-061214 20140612 GW	MRC-MW81A-061114 20140611 GW	MRC-MW81B-052714 20140527 GW	MRC-MW81B-060414 20140604 GW	MRC-MW81B-061114 20140611 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	--	NA	--	NA	NA	--
ARSENIC	10	1.2	--	NA	--	NA	NA	8.1
BARIUM	2000	227	37.1	NA	202	NA	NA	484
BERYLLIUM	4	1.2	0.586 J	NA	0.834 J	NA	NA	--
CADMIUM	5	--	--	NA	--	NA	NA	--
CHROMIUM	100	--	--	NA	--	NA	NA	--
COBALT	NA	274 J	0.761 J	NA	44.3	NA	NA	58.1
COPPER	1300	13	4.6	NA	4.2	NA	NA	1.5
IRON	300	64300	--	NA	48600	NA	NA	36100
LEAD	15	0.154 J	0.123 J	NA	1.2	NA	NA	0.245 J
MANGANESE	50	19900	28.5	NA	4560	NA	NA	3170
MERCURY	2	--	0.034 J	NA	--	NA	NA	--
MOLYBDENUM	NA	--	0.864 J	NA	0.154 J	NA	NA	0.211 J
NICKEL	73	74.2	6.1	NA	38.1	NA	NA	88.9
SELENIUM	50	0.881 J	--	NA	1 J	NA	NA	30.3
SILICON	NA	3730	NA	NA	NA	NA	NA	NA
SILVER	100	--	--	NA	--	NA	NA	--
THALLIUM	2	0.061 J	--	NA	--	NA	NA	--
VANADIUM	3.7	--	--	NA	3.2	NA	NA	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW79B-060214 20140602 GW	MRC-MW80A-061214 20140612 GW	MRC-MW80B-061214 20140612 GW	MRC-MW81A-061114 20140611 GW	MRC-MW81B-052714 20140527 GW	MRC-MW81B-060414 20140604 GW	MRC-MW81B-061114 20140611 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	0.159
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	195
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	2.3
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	12.5
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW81B-061814 20140618 GW	MRC-MW81B-062014 20140620 GW	MRC-MW87A-052914 20140529 GW	MRC-MW87B-052814 20140528 GW	MRC-MW88B-052914 20140529 GW	MRC-MW90B-060914 20140609 GW	MRC-MW90B-061814 20140618 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	NA	--	--	--	NA	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	--	--	--	NA	--
1,1-DICHLOROETHANE	90	NA	NA	--	--	--	NA	0.61 J
1,1-DICHLOROETHENE	7	NA	NA	--	--	--	NA	52
1,2,3-TRICHLOROBENZENE	NA	NA	NA	--	--	--	NA	--
1,2,4-TRICHLOROBENZENE	70	NA	NA	--	--	--	NA	--
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	--	--	--	NA	--
1,2-DICHLOROBENZENE	600	NA	NA	--	--	--	NA	--
1,2-DICHLOROETHANE	5	NA	NA	--	--	--	NA	--
1,2-DICHLOROPROPANE	5	NA	NA	--	--	--	NA	--
1,3-DICHLOROBENZENE	1.8	NA	NA	--	--	--	NA	--
1,4-DICHLOROBENZENE	75	NA	NA	--	--	--	NA	--
2-BUTANONE	700	NA	NA	--	--	--	NA	--
4-ISOPROPYLTOLUENE	NA	NA	NA	--	--	--	NA	--
ACETONE	550	NA	NA	--	--	--	NA	--
BENZENE	5	NA	NA	--	--	--	NA	--
BROMOMETHANE	0.85	NA	NA	--	0.3 J	--	NA	--
CARBON DISULFIDE	100	NA	NA	--	--	--	NA	--
CARBON TETRACHLORIDE	5	NA	NA	--	--	--	NA	--
CHLOROBENZENE	100	NA	NA	--	--	--	NA	--
CHLOROETHANE	3.6	NA	NA	--	--	--	NA	--
CHLOROFORM	80	NA	NA	--	--	--	NA	1
CHLOROMETHANE	19	NA	NA	--	--	--	NA	0.55 J
CIS-1,2-DICHLOROETHENE	70	NA	NA	--	1.4	--	NA	9.2
DICHLORODIFLUOROMETHANE	NA	NA	NA	--	--	--	NA	--
DIISOPROPYL ETHER	NA	NA	NA	--	--	--	NA	--
ETHYLBENZENE	700	NA	NA	--	--	--	NA	--
ISOPROPYLBENZENE	66	NA	NA	--	--	--	NA	--
M+P-XYLENES	NA	NA	NA	--	--	--	NA	--
METHYL TERT-BUTYL ETHER	20	NA	NA	--	--	--	NA	--
METHYLENE CHLORIDE	5	NA	NA	--	--	--	NA	--
NAPHTHALENE	0.65	NA	NA	--	--	--	NA	--
N-BUTYLBENZENE	NA	NA	NA	--	--	--	NA	--
N-PROPYLBENZENE	NA	NA	NA	--	--	--	NA	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW81B-061814 20140618 GW	MRC-MW81B-062014 20140620 GW	MRC-MW87A-052914 20140529 GW	MRC-MW87B-052814 20140528 GW	MRC-MW88B-052914 20140529 GW	MRC-MW90B-060914 20140609 GW	MRC-MW90B-061814 20140618 GW
O-XYLENE	NA	NA	NA	--	--	--	NA	--
SEC-BUTYLBENZENE	NA	NA	NA	--	--	--	NA	--
STYRENE	100	NA	NA	--	--	--	NA	--
TERT-AMYL METHYL ETHER	NA	NA	NA	--	--	--	NA	--
TERT-BUTYLBENZENE	NA	NA	NA	--	--	--	NA	--
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	--	--	--	NA	--
TETRACHLOROETHENE	5	NA	NA	--	--	--	NA	--
TOLUENE	1000	NA	NA	--	--	--	NA	--
TOTAL XYLENES	10000	NA	NA	--	--	--	NA	--
TRANS-1,2-DICHLOROETHENE	100	NA	NA	--	--	--	NA	0.41 J
TRICHLOROETHENE	5	NA	NA	--	49	0.3 J	NA	280
TRICHLOROFLUOROMETHANE	NA	NA	NA	--	--	--	NA	--
VINYL CHLORIDE	2	NA	NA	--	--	--	NA	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	19.4	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW81B-061814 20140618 GW	MRC-MW81B-062014 20140620 GW	MRC-MW87A-052914 20140529 GW	MRC-MW87B-052814 20140528 GW	MRC-MW88B-052914 20140529 GW	MRC-MW90B-060914 20140609 GW	MRC-MW90B-061814 20140618 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	NA	NA	--	NA	NA	NA
ARSENIC	10	NA	NA	NA	0.459 J	NA	NA	NA
BARIUM	2000	NA	NA	NA	97.7	NA	NA	NA
BERYLLIUM	4	NA	NA	NA	0.074 J	NA	NA	NA
CADMIUM	5	NA	NA	NA	--	NA	NA	NA
CHROMIUM	100	NA	NA	NA	--	NA	NA	NA
COBALT	NA	NA	NA	NA	12.4	NA	NA	NA
COPPER	1300	NA	NA	NA	8.9	NA	NA	NA
IRON	300	NA	NA	NA	3260	NA	NA	NA
LEAD	15	NA	NA	NA	--	NA	NA	NA
MANGANESE	50	NA	NA	NA	561	NA	NA	NA
MERCURY	2	NA	NA	NA	--	NA	NA	NA
MOLYBDENUM	NA	NA	NA	NA	2.6	NA	NA	NA
NICKEL	73	NA	NA	NA	21.4	NA	NA	NA
SELENIUM	50	NA	NA	NA	1.8 J	NA	NA	NA
SILICON	NA	NA	NA	NA	4080	NA	NA	NA
SILVER	100	NA	NA	NA	--	NA	NA	NA
THALLIUM	2	NA	NA	NA	--	NA	NA	NA
VANADIUM	3.7	NA	NA	NA	--	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW81B-061814 20140618 GW	MRC-MW81B-062014 20140620 GW	MRC-MW87A-052914 20140529 GW	MRC-MW87B-052814 20140528 GW	MRC-MW88B-052914 20140529 GW	MRC-MW90B-060914 20140609 GW	MRC-MW90B-061814 20140618 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	155	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	--	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	--	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	0.055	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	3.8	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	517	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	1.4	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW91A-052914 20140529 GW	MRC-MW92C-061114 20140611 GW	MRC-MW93A-060314 20140603 GW	MRC-MW94B-052814 20140528 GW	MRC-MW95B-052914 20140529 GW	MRC-MW96A-051314 20140514 GW	MRC-MW96B-051314 20140514 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	--	--	--	--	--
1,1-DICHLOROETHANE	90	NA	--	--	--	--	--	--
1,1-DICHLOROETHENE	7	NA	--	--	--	--	72	--
1,2,3-TRICHLOROBENZENE	NA	NA	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	NA	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	--	--	--	--	--	22
1,2-DICHLOROBENZENE	600	NA	--	--	--	--	--	--
1,2-DICHLOROETHANE	5	NA	--	--	--	--	--	--
1,2-DICHLOROPROPANE	5	NA	--	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	NA	--	--	--	--	--	--
1,4-DICHLOROBENZENE	75	NA	--	--	--	--	--	--
2-BUTANONE	700	NA	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	NA	--	--	--	--	--	--
ACETONE	550	NA	--	--	--	--	--	--
BENZENE	5	NA	--	--	--	--	--	470
BROMOMETHANE	0.85	NA	--	--	--	--	--	--
CARBON DISULFIDE	100	NA	--	--	--	--	--	--
CARBON TETRACHLORIDE	5	NA	--	--	--	--	--	--
CHLOROBENZENE	100	NA	--	--	--	--	--	--
CHLOROETHANE	3.6	NA	--	--	--	--	--	--
CHLOROFORM	80	NA	--	--	--	--	--	0.58 J
CHLOROMETHANE	19	NA	--	0.37 J	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	NA	0.93 J	1.4	--	--	31000	22
DICHLORODIFLUOROMETHANE	NA	NA	--	--	--	--	--	--
DIISOPROPYL ETHER	NA	NA	--	--	--	--	--	--
ETHYLBENZENE	700	NA	--	--	--	--	--	6.7
ISOPROPYLBENZENE	66	NA	--	--	--	--	--	7.8
M+P-XYLENES	NA	NA	--	--	--	--	--	35
METHYL TERT-BUTYL ETHER	20	NA	--	--	--	--	--	23
METHYLENE CHLORIDE	5	NA	--	--	--	--	--	--
NAPHTHALENE	0.65	NA	--	--	--	--	18 J	19
N-BUTYLBENZENE	NA	NA	--	--	--	--	--	1.4 J
N-PROPYLBENZENE	NA	NA	--	--	--	--	--	4.3

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW91A-052914 20140529 GW	MRC-MW92C-061114 20140611 GW	MRC-MW93A-060314 20140603 GW	MRC-MW94B-052814 20140528 GW	MRC-MW95B-052914 20140529 GW	MRC-MW96A-051314 20140514 GW	MRC-MW96B-051314 20140514 GW
O-XYLENE	NA	NA	--	--	--	--	--	68
SEC-BUTYLBENZENE	NA	NA	--	--	--	--	--	1.5 J
STYRENE	100	NA	--	--	--	--	--	2.2
TERT-AMYL METHYL ETHER	NA	NA	--	--	--	--	--	--
TERT-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	--	--	--	--	--	--
TETRACHLOROETHENE	5	NA	--	--	--	--	--	--
TOLUENE	1000	NA	--	--	--	--	--	1.3 J
TOTAL XYLENES	10000	NA	--	--	--	--	--	100
TRANS-1,2-DICHLOROETHENE	100	NA	--	--	--	--	75	0.74 J
TRICHLOROETHENE	5	NA	1.7	2.5	--	2.1	3300	15
TRICHLOROFLUOROMETHANE	NA	NA	--	--	--	--	--	--
VINYL CHLORIDE	2	NA	--	--	--	--	37 J	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	3.55	NA	NA	NA	NA	5.52	1.16
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW91A-052914 20140529 GW	MRC-MW92C-061114 20140611 GW	MRC-MW93A-060314 20140603 GW	MRC-MW94B-052814 20140528 GW	MRC-MW95B-052914 20140529 GW	MRC-MW96A-051314 20140514 GW	MRC-MW96B-051314 20140514 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	NA	--	--	NA	NA	--	--
ARSENIC	10	NA	--	3	NA	NA	2.1	--
BARIUM	2000	NA	228	133	NA	NA	271	576
BERYLLIUM	4	NA	0.183 J	39.8	NA	NA	12.8 J	4.7 J
CADMIUM	5	NA	--	4	NA	NA	0.106 J	1 J
CHROMIUM	100	NA	--	--	NA	NA	0.971 J	--
COBALT	NA	NA	35.5	3400 J	NA	NA	491	789
COPPER	1300	NA	1.7	89.7	NA	NA	18.7	50.4
IRON	300	NA	16400	5190	NA	NA	9790	--
LEAD	15	NA	0.303 J	3.4 J	NA	NA	1.2	1.2 J
MANGANESE	50	NA	1190	8390	NA	NA	4160	2730
MERCURY	2	NA	--	--	NA	NA	--	--
MOLYBDENUM	NA	NA	2.7	0.859 J	NA	NA	--	0.587 J
NICKEL	73	NA	28.8	3250	NA	NA	390	1460
SELENIUM	50	NA	--	5.8	NA	NA	6.4	2.8 J
SILICON	NA	NA	NA	15600	NA	NA	14000	8970
SILVER	100	NA	--	--	NA	NA	--	--
THALLIUM	2	NA	--	--	NA	NA	--	--
VANADIUM	3.7	NA	--	--	NA	NA	--	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW91A-052914 20140529 GW	MRC-MW92C-061114 20140611 GW	MRC-MW93A-060314 20140603 GW	MRC-MW94B-052814 20140528 GW	MRC-MW95B-052914 20140529 GW	MRC-MW96A-051314 20140514 GW	MRC-MW96B-051314 20140514 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	--	2.8

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW98A-061714 20140617 GW	MRC-MW98B-061714 20140617 GW	MRC-MW100A-061214 20140612 GW	MRC-MW100B-061214 20140612 GW	MRC-MW101A-050814 20140508 GW	MRC-MW101B-050814 20140508 GW	MRC-MW102A-050814 20140508 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	44	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	3.4	--	0.63 J	--	--	--
1,1-DICHLOROETHANE	90	1.1	120	2.2	28	--	3.1	--
1,1-DICHLOROETHENE	7	2.1	240	1.8	84	--	1.1	--
1,2,3-TRICHLOROBENZENE	NA	--	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	--	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	--	--	--	--	--	--
1,2-DICHLOROBENZENE	600	--	--	--	--	--	--	--
1,2-DICHLOROETHANE	5	--	1.6	--	0.9 J	--	--	--
1,2-DICHLOROPROPANE	5	--	--	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	--	--	--	--	--	--	--
1,4-DICHLOROBENZENE	75	--	--	--	--	--	--	--
2-BUTANONE	700	--	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	--	--	--	--	--	--	--
ACETONE	550	1.5 J	--	--	--	--	--	--
BENZENE	5	--	2.2	--	0.25 J	--	--	0.22 J
BROMOMETHANE	0.85	--	--	--	--	--	--	--
CARBON DISULFIDE	100	--	--	--	--	--	--	--
CARBON TETRACHLORIDE	5	--	--	--	--	--	--	--
CHLOROBENZENE	100	--	--	--	--	--	--	--
CHLOROETHANE	3.6	--	40	--	--	--	--	--
CHLOROFORM	80	--	0.86 J	--	0.56 J	--	--	--
CHLOROMETHANE	19	--	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	0.34 J	27	1.1	39	2.6	1.4	1.2
DICHLORODIFLUOROMETHANE	NA	--	--	--	--	--	--	--
DIISOPROPYL ETHER	NA	--	--	--	--	--	--	--
ETHYLBENZENE	700	--	--	--	--	--	--	--
ISOPROPYLBENZENE	66	--	--	--	--	--	--	--
M+P-XYLENES	NA	--	--	--	--	--	--	--
METHYL TERT-BUTYL ETHER	20	--	--	--	--	--	--	--
METHYLENE CHLORIDE	5	--	8.2	--	0.35 J	--	--	--
NAPHTHALENE	0.65	--	--	--	--	--	--	--
N-BUTYLBENZENE	NA	--	--	--	--	--	--	--
N-PROPYLBENZENE	NA	--	--	--	--	--	--	--

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW98A-061714 20140617 GW	MRC-MW98B-061714 20140617 GW	MRC-MW100A-061214 20140612 GW	MRC-MW100B-061214 20140612 GW	MRC-MW101A-050814 20140508 GW	MRC-MW101B-050814 20140508 GW	MRC-MW102A-050814 20140508 GW
O-XYLENE	NA	--	--	--	--	--	--	--
SEC-BUTYLBENZENE	NA	--	--	--	--	--	--	--
STYRENE	100	--	--	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	--	--	--	--	--	--	--
TERT-BUTYLBENZENE	NA	--	--	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	--	--	--	--	--	--	--
TETRACHLOROETHENE	5	--	5.8	--	0.8 J	--	--	--
TOLUENE	1000	--	--	--	--	--	--	--
TOTAL XYLENES	10000	--	--	--	--	--	--	--
TRANS-1,2-DICHLOROETHENE	100	--	0.42 J	--	0.36 J	--	--	--
TRICHLOROETHENE	5	3.1	470	5.2	200	1.1	1.4	--
TRICHLOROFLUOROMETHANE	NA	--	0.44 J	--	--	--	--	--
VINYL CHLORIDE	2	--	1.7	--	0.42 J	--	--	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	1.96	149	2.09	94.6	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

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Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW98A-061714 20140617 GW	MRC-MW98B-061714 20140617 GW	MRC-MW100A-061214 20140612 GW	MRC-MW100B-061214 20140612 GW	MRC-MW101A-050814 20140508 GW	MRC-MW101B-050814 20140508 GW	MRC-MW102A-050814 20140508 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	--	NA	--	NA	NA	NA
ARSENIC	10	--	--	NA	--	NA	NA	NA
BARIUM	2000	46.2	40.9	NA	93.2	NA	NA	NA
BERYLLIUM	4	--	9	NA	0.664 J	NA	NA	NA
CADMIUM	5	--	--	NA	--	NA	NA	NA
CHROMIUM	100	10.1	--	NA	--	NA	NA	NA
COBALT	NA	0.177 J	87.7	NA	64.1	NA	NA	NA
COPPER	1300	1.1	2.8	NA	0.689 J	NA	NA	NA
IRON	300	172	18700	NA	31700	NA	NA	NA
LEAD	15	--	--	NA	0.197 J	NA	NA	NA
MANGANESE	50	--	2750	NA	1750	NA	NA	NA
MERCURY	2	--	--	NA	--	NA	NA	NA
MOLYBDENUM	NA	5.2	--	NA	0.073 J	NA	NA	NA
NICKEL	73	2.5	143	NA	101	NA	NA	NA
SELENIUM	50	2.5	--	NA	--	NA	NA	NA
SILICON	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	100	--	--	NA	--	NA	NA	NA
THALLIUM	2	--	0.06 J	NA	0.064 J	NA	NA	NA
VANADIUM	3.7	0.803 J	--	NA	--	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW98A-061714 20140617 GW	MRC-MW98B-061714 20140617 GW	MRC-MW100A-061214 20140612 GW	MRC-MW100B-061214 20140612 GW	MRC-MW101A-050814 20140508 GW	MRC-MW101B-050814 20140508 GW	MRC-MW102A-050814 20140508 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW102B-050814 20140508 GW	MRC-MW103A-031814 20140318 GW	MRC-MW-103A-041814 20140418 GW	MRC-MW103B-031814 20140318 GW	MRC-MW-103B-041814 20140418 GW	MRC-MW104A-051214 20140512 GW	MRC-MW104B-051214 20140512 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	--	--	NA	--	NA	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	--	NA	--	NA	--	--
1,1-DICHLOROETHANE	90	--	--	NA	--	NA	--	--
1,1-DICHLOROETHENE	7	1.9	--	NA	--	NA	--	--
1,2,3-TRICHLOROBENZENE	NA	--	--	NA	--	NA	--	--
1,2,4-TRICHLOROBENZENE	70	--	--	NA	--	NA	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	--	NA	--	NA	--	--
1,2-DICHLOROBENZENE	600	--	--	NA	--	NA	--	--
1,2-DICHLOROETHANE	5	--	23 J	NA	1.3 J	NA	--	--
1,2-DICHLOROPROPANE	5	--	0.27 J	NA	--	NA	--	--
1,3-DICHLOROBENZENE	1.8	--	--	NA	--	NA	--	--
1,4-DICHLOROBENZENE	75	--	--	NA	--	NA	--	--
2-BUTANONE	700	--	--	NA	--	NA	--	--
4-ISOPROPYLTOLUENE	NA	--	--	NA	--	NA	--	--
ACETONE	550	--	--	NA	--	NA	--	--
BENZENE	5	0.27 J	--	NA	--	NA	--	--
BROMOMETHANE	0.85	--	--	NA	--	NA	--	--
CARBON DISULFIDE	100	--	--	NA	--	NA	--	--
CARBON TETRACHLORIDE	5	--	--	NA	--	NA	--	--
CHLOROBENZENE	100	--	--	NA	--	NA	--	--
CHLOROETHANE	3.6	--	--	NA	--	NA	--	--
CHLOROFORM	80	--	1.5 J	NA	--	NA	--	--
CHLOROMETHANE	19	--	--	NA	--	NA	--	--
CIS-1,2-DICHLOROETHENE	70	410 J	--	NA	--	NA	--	--
DICHLORODIFLUOROMETHANE	NA	--	--	NA	--	NA	--	--
DIISOPROPYL ETHER	NA	--	--	NA	--	NA	--	--
ETHYLBENZENE	700	--	--	NA	--	NA	--	--
ISOPROPYLBENZENE	66	--	--	NA	--	NA	--	--
M+P-XYLENES	NA	--	--	NA	--	NA	--	--
METHYL TERT-BUTYL ETHER	20	--	--	NA	--	NA	--	--
METHYLENE CHLORIDE	5	--	--	NA	--	NA	--	--
NAPHTHALENE	0.65	--	--	NA	--	NA	--	--
N-BUTYLBENZENE	NA	--	--	NA	--	NA	--	--
N-PROPYLBENZENE	NA	--	--	NA	--	NA	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW102B-050814 20140508 GW	MRC-MW103A-031814 20140318 GW	MRC-MW-103A-041814 20140418 GW	MRC-MW103B-031814 20140318 GW	MRC-MW-103B-041814 20140418 GW	MRC-MW104A-051214 20140512 GW	MRC-MW104B-051214 20140512 GW
O-XYLENE	NA	--	--	NA	--	NA	--	--
SEC-BUTYLBENZENE	NA	--	--	NA	--	NA	--	--
STYRENE	100	--	--	NA	--	NA	--	--
TERT-AMYL METHYL ETHER	NA	--	--	NA	--	NA	--	--
TERT-BUTYLBENZENE	NA	--	--	NA	--	NA	--	--
TERTIARY-BUTYL ALCOHOL	NA	--	--	NA	--	NA	--	--
TETRACHLOROETHENE	5	--	--	NA	--	NA	--	--
TOLUENE	1000	--	--	NA	--	NA	--	--
TOTAL XYLENES	10000	--	--	NA	--	NA	--	--
TRANS-1,2-DICHLOROETHENE	100	2.9	--	NA	--	NA	--	--
TRICHLOROETHENE	5	93	--	NA	--	NA	--	--
TRICHLOROFLUOROMETHANE	NA	--	3.1 J	NA	--	NA	--	--
VINYL CHLORIDE	2	0.35 J	--	NA	--	NA	--	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	--	--	--	--	NA	NA
DICHLOROBIPHENYLS	0.5	NA	--	--	--	--	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	--	--	--	--	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	--	--	--	--	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	--	--	--	--	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	--	--	--	--	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	--	--	--	--	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	0	0	0	0	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW102B-050814 20140508 GW	MRC-MW103A-031814 20140318 GW	MRC-MW-103A-041814 20140418 GW	MRC-MW103B-031814 20140318 GW	MRC-MW-103B-041814 20140418 GW	MRC-MW104A-051214 20140512 GW	MRC-MW104B-051214 20140512 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	--	NA	--	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	--	NA	--	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	0	NA	0	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	NA	NA	NA	NA	NA	--
ARSENIC	10	1.4	NA	NA	NA	NA	NA	--
BARIUM	2000	42.4	NA	NA	NA	NA	NA	52.7
BERYLLIUM	4	12.8 J	NA	NA	NA	NA	NA	4.7 J
CADMIUM	5	0.812 J	NA	NA	NA	NA	NA	--
CHROMIUM	100	--	NA	NA	NA	NA	NA	--
COBALT	NA	437 J	NA	NA	NA	NA	NA	51.2
COPPER	1300	2.1 J	NA	NA	NA	NA	NA	5.7
IRON	300	264	NA	NA	NA	NA	NA	664
LEAD	15	0.687 J	NA	NA	NA	NA	NA	0.767 J
MANGANESE	50	396	NA	NA	NA	NA	NA	440
MERCURY	2	--	NA	NA	NA	NA	NA	--
MOLYBDENUM	NA	--	NA	NA	NA	NA	NA	--
NICKEL	73	602 J	NA	NA	NA	NA	NA	61.3
SELENIUM	50	4.5	NA	NA	NA	NA	NA	0.279 J
SILICON	NA	8780	NA	NA	NA	NA	NA	3640
SILVER	100	--	NA	NA	NA	NA	NA	--
THALLIUM	2	--	NA	NA	NA	NA	NA	--
VANADIUM	3.7	--	NA	NA	NA	NA	NA	1.1 J
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW102B-050814 20140508 GW	MRC-MW103A-031814 20140318 GW	MRC-MW-103A-041814 20140418 GW	MRC-MW103B-031814 20140318 GW	MRC-MW-103B-041814 20140418 GW	MRC-MW104A-051214 20140512 GW	MRC-MW104B-051214 20140512 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW105A-051214 20140512 GW	MRC-MW106B/C-052314 20140523 GW	MRC-MW107B/C-060214 20140602 GW	MRC-MW109A-060514 20140605 GW	MRC-MW109B-060514 20140605 GW	MRC-MW110A-060314 20140603 GW	MRC-MW110B-060314 20140603 GW
Volatile organic compounds (µg/L)								
1,1,1-TRICHLOROETHANE	200	NA	--	--	--	--	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	--	--	--	--	--	--
1,1-DICHLOROETHANE	90	NA	--	--	--	--	0.61 J	--
1,1-DICHLOROETHENE	7	NA	--	--	1.3	--	0.76 J	--
1,2,3-TRICHLOROBENZENE	NA	NA	--	--	--	--	--	--
1,2,4-TRICHLOROBENZENE	70	NA	--	--	--	--	--	--
1,2,4-TRIMETHYLBENZENE	NA	NA	--	--	--	--	--	--
1,2-DICHLOROBENZENE	600	NA	--	--	--	--	--	--
1,2-DICHLOROETHANE	5	NA	--	--	--	--	--	--
1,2-DICHLOROPROPANE	5	NA	--	--	--	--	--	--
1,3-DICHLOROBENZENE	1.8	NA	--	--	--	--	--	--
1,4-DICHLOROBENZENE	75	NA	--	--	--	--	--	--
2-BUTANONE	700	NA	--	--	--	--	--	--
4-ISOPROPYLTOLUENE	NA	NA	--	--	--	--	--	--
ACETONE	550	NA	--	--	--	--	--	--
BENZENE	5	NA	--	--	0.21 J	10	1.5	18
BROMOMETHANE	0.85	NA	--	--	--	--	--	--
CARBON DISULFIDE	100	NA	0.55 J	--	--	--	--	0.23 J
CARBON TETRACHLORIDE	5	NA	--	--	--	--	--	--
CHLOROBENZENE	100	NA	--	--	--	--	--	--
CHLOROETHANE	3.6	NA	0.28 J	--	--	--	--	--
CHLOROFORM	80	NA	0.27 J	--	--	--	--	0.54 J
CHLOROMETHANE	19	NA	--	--	--	--	--	--
CIS-1,2-DICHLOROETHENE	70	NA	0.43 J	--	45	21	6.3	3.2
DICHLORODIFLUOROMETHANE	NA	NA	--	--	--	--	--	--
DIISOPROPYL ETHER	NA	NA	--	--	--	--	--	--
ETHYLBENZENE	700	NA	--	--	--	--	--	0.83 J
ISOPROPYLBENZENE	66	NA	--	--	--	0.25 J	--	--
M+P-XYLENES	NA	NA	--	--	--	--	--	0.63 J
METHYL TERT-BUTYL ETHER	20	NA	--	--	--	--	--	1.1
METHYLENE CHLORIDE	5	NA	--	--	--	--	--	--
NAPHTHALENE	0.65	NA	--	--	--	--	--	--
N-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
N-PROPYLBENZENE	NA	NA	--	--	--	--	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW105A-051214 20140512 GW	MRC-MW106B/C-052314 20140523 GW	MRC-MW107B/C-060214 20140602 GW	MRC-MW109A-060514 20140605 GW	MRC-MW109B-060514 20140605 GW	MRC-MW110A-060314 20140603 GW	MRC-MW110B-060314 20140603 GW
O-XYLENE	NA	NA	--	--	--	0.42 J	--	0.81 J
SEC-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
STYRENE	100	NA	--	--	--	--	--	--
TERT-AMYL METHYL ETHER	NA	NA	--	--	--	--	--	--
TERT-BUTYLBENZENE	NA	NA	--	--	--	--	--	--
TERTIARY-BUTYL ALCOHOL	NA	NA	--	--	--	--	--	--
TETRACHLOROETHENE	5	NA	--	--	--	--	--	--
TOLUENE	1000	NA	--	--	0.36 J	--	--	--
TOTAL XYLENES	10000	NA	--	--	--	--	--	1.4 J
TRANS-1,2-DICHLOROETHENE	100	NA	--	--	1.1	1.6	--	--
TRICHLOROETHENE	5	NA	2.9	--	--	4.1	31	30
TRICHLOROFLUOROMETHANE	NA	NA	--	--	--	--	--	--
VINYL CHLORIDE	2	NA	--	--	31	0.6 J	0.41 J	--
Volatile gasses (µg/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)								
1,4-DIOXANE	3	NA	NA	NA	NA	NA	3.23	3.29
Polychlorinated biphenyl (PCB) homologs (µg/L)								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW105A-051214 20140512 GW	MRC-MW106B/C-052314 20140523 GW	MRC-MW107B/C-060214 20140602 GW	MRC-MW109A-060514 20140605 GW	MRC-MW109B-060514 20140605 GW	MRC-MW110A-060314 20140603 GW	MRC-MW110B-060314 20140603 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ								
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	NA	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	NA	NA	NA
Total metals (µg/L)								
ANTIMONY	6	--	NA	--	--	2.8 J	--	--
ARSENIC	10	--	NA	0.226 J	6 J	0.629 J	0.806 J	0.286 J
BARIUM	2000	53.8	NA	--	102	74.5	944	173
BERYLLIUM	4	2.9	NA	0.067 J	0.083 J	0.675 J	2.9	0.552 J
CADMIUM	5	0.233 J	NA	0.081 J	--	--	--	--
CHROMIUM	100	--	NA	--	1.8 J	1.5 J	--	--
COBALT	NA	38.2	NA	5.6 J	70.2	31.9	859 J	172 J
COPPER	1300	11.3	NA	0.875 J	2.5	3.7	3.6	12.2
IRON	300	164	NA	4200	60000	164	41100	10800
LEAD	15	0.396 J	NA	0.27 J	0.233 J	0.345 J	0.304 J	1.1 J
MANGANESE	50	69.7	NA	689	944	83	19800	1510
MERCURY	2	--	NA	--	--	--	--	--
MOLYBDENUM	NA	--	NA	0.409 J	0.42 J	0.652 J	--	--
NICKEL	73	30.2	NA	19.7	48.8	56.6	566	159
SELENIUM	50	1.9 J	NA	--	3.7 J	0.546 J	0.254 J	--
SILICON	NA	1750	NA	5030	10300	5330	9230	6020
SILVER	100	--	NA	--	--	--	--	--
THALLIUM	2	--	NA	--	--	--	--	--
VANADIUM	3.7	--	NA	--	--	3.2 J	--	--
ZINC	5000	NA	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW105A-051214 20140512 GW	MRC-MW106B/C-052314 20140523 GW	MRC-MW107B/C-060214 20140602 GW	MRC-MW109A-060514 20140605 GW	MRC-MW109B-060514 20140605 GW	MRC-MW110A-060314 20140603 GW	MRC-MW110B-060314 20140603 GW
Miscellaneous parameters (mg/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)								
PERCHLORATE	2.6	NA	NA	NA	--	0.16 J	1.8	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW111A-061614 20140616 GW	MRC-MW111B-061614 20140616 GW	MRC-MW112A-060514 20140605 GW	MRC-MW113A-032014 20140320 GW	MRC-MW-113A-041814 20140418 GW	MRC-MW114A-032014 20140320 GW
Volatile organic compounds (µg/L)							
1,1,1-TRICHLOROETHANE	200	--	1	--	--	NA	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	1.7	--	--	NA	--
1,1-DICHLOROETHANE	90	--	41	--	2.2 J	NA	--
1,1-DICHLOROETHENE	7	--	190	--	--	NA	--
1,2,3-TRICHLOROBENZENE	NA	--	--	--	60 J	NA	120 J
1,2,4-TRICHLOROBENZENE	70	--	--	--	270 J	NA	530 J
1,2,4-TRIMETHYLBENZENE	NA	--	--	--	--	NA	--
1,2-DICHLOROBENZENE	600	--	--	--	15 J	NA	30 J
1,2-DICHLOROETHANE	5	--	1.4	--	--	NA	960 J
1,2-DICHLOROPROPANE	5	--	--	--	--	NA	7.7 J
1,3-DICHLOROBENZENE	1.8	--	--	--	14 J	NA	4.7 J
1,4-DICHLOROBENZENE	75	--	--	0.34 J	36 J	NA	49 J
2-BUTANONE	700	--	--	--	--	NA	--
4-ISOPROPYLTOLUENE	NA	--	--	--	--	NA	--
ACETONE	550	8.4	1.7 J	--	--	NA	--
BENZENE	5	--	3.2	0.27 J	--	NA	--
BROMOMETHANE	0.85	--	--	--	--	NA	--
CARBON DISULFIDE	100	--	--	--	--	NA	0.48 J
CARBON TETRACHLORIDE	5	--	--	--	--	NA	--
CHLOROBENZENE	100	--	--	1.8 J	23 J	NA	510 J
CHLOROETHANE	3.6	--	0.94 J	--	--	NA	--
CHLOROFORM	80	--	0.48 J	--	2.6 J	NA	--
CHLOROMETHANE	19	--	--	--	--	NA	--
CIS-1,2-DICHLOROETHENE	70	--	47	1.9 J	8.4 J	NA	0.95 J
DICHLORODIFLUOROMETHANE	NA	--	--	--	--	NA	--
DIISOPROPYL ETHER	NA	--	--	--	--	NA	--
ETHYLBENZENE	700	--	--	--	--	NA	--
ISOPROPYLBENZENE	66	--	--	--	--	NA	--
M+P-XYLENES	NA	--	--	--	--	NA	--
METHYL TERT-BUTYL ETHER	20	--	--	--	--	NA	--
METHYLENE CHLORIDE	5	--	--	--	--	NA	1.6 J
NAPHTHALENE	0.65	--	--	--	--	NA	--
N-BUTYLBENZENE	NA	--	--	--	--	NA	--
N-PROPYLBENZENE	NA	--	--	--	--	NA	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW111A-061614 20140616 GW	MRC-MW111B-061614 20140616 GW	MRC-MW112A-060514 20140605 GW	MRC-MW113A-032014 20140320 GW	MRC-MW-113A-041814 20140418 GW	MRC-MW114A-032014 20140320 GW
O-XYLENE	NA	--	--	--	--	NA	--
SEC-BUTYLBENZENE	NA	--	--	--	--	NA	--
STYRENE	100	--	--	--	--	NA	--
TERT-AMYL METHYL ETHER	NA	--	--	--	--	NA	--
TERT-BUTYLBENZENE	NA	--	--	--	--	NA	--
TERTIARY-BUTYL ALCOHOL	NA	--	--	--	--	NA	--
TETRACHLOROETHENE	5	--	2.2	--	43 J	NA	2.1 J
TOLUENE	1000	--	--	--	--	NA	--
TOTAL XYLENES	10000	--	--	--	--	NA	--
TRANS-1,2-DICHLOROETHENE	100	--	0.44 J	--	--	NA	--
TRICHLOROETHENE	5	--	530	3.1 J	24 J	NA	4.5 J
TRICHLOROFLUOROMETHANE	NA	--	--	--	1500 J	NA	140 J
VINYL CHLORIDE	2	--	1.8	1.4 J	--	NA	5.3 J
Volatile gasses (µg/L)							
ETHANE	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)							
1,4-DIOXANE	3	0.177 J	132	NA	6.86	NA	0.709
Polychlorinated biphenyl (PCB) homologs (µg/L)							
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	--	--	0.012
DICHLOROBIPHENYLS	0.5	NA	NA	NA	--	--	--
TRICHLOROBIPHENYLS	0.5	NA	NA	NA	--	--	--
TETRACHLOROBIPHENYLS	0.5	NA	NA	NA	--	--	--
PENTACHLOROBIPHENYLS	0.5	NA	NA	NA	--	--	--
HEXACHLOROBIPHENYL	0.5	NA	NA	NA	--	--	--
HEPTACHLOROBIPHENYLS	0.5	NA	NA	NA	--	--	--
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	0	0	0.012

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW111A-061614 20140616 GW	MRC-MW111B-061614 20140616 GW	MRC-MW112A-060514 20140605 GW	MRC-MW113A-032014 20140320 GW	MRC-MW-113A-041814 20140418 GW	MRC-MW114A-032014 20140320 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ							
MONOCHLOROBIPHENYLS	0.5	NA	NA	NA	NA	--	NA
DICHLOROBIPHENYLS	0.5	NA	NA	NA	NA	--	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	NA	NA	0	NA
Total metals (µg/L)							
ANTIMONY	6	NA	--	--	NA	NA	NA
ARSENIC	10	NA	4	0.871 J	NA	NA	NA
BARIUM	2000	NA	83.6	115	NA	NA	NA
BERYLLIUM	4	NA	0.281 J	9.6	0.98 J	NA	6.8
CADMIUM	5	NA	0.467 J	--	NA	NA	NA
CHROMIUM	100	NA	--	2 J	NA	NA	NA
COBALT	NA	NA	49.5	67.9	34.4	NA	28.8
COPPER	1300	NA	1.2	2.7	NA	NA	NA
IRON	300	NA	31900	12500	NA	NA	NA
LEAD	15	NA	0.678 J	0.394 J	NA	NA	NA
MANGANESE	50	NA	805	284	NA	NA	NA
MERCURY	2	NA	--	--	--	NA	--
MOLYBDENUM	NA	NA	--	--	NA	NA	NA
NICKEL	73	NA	87.6	86.9	54.8	NA	67.1
SELENIUM	50	NA	0.52 J	1.1 J	NA	NA	NA
SILICON	NA	NA	NA	4140	NA	NA	NA
SILVER	100	NA	--	--	NA	NA	NA
THALLIUM	2	NA	0.037 J	--	NA	NA	NA
VANADIUM	3.7	NA	--	4.1 J	NA	NA	NA
ZINC	5000	NA	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW111A-061614 20140616 GW	MRC-MW111B-061614 20140616 GW	MRC-MW112A-060514 20140605 GW	MRC-MW113A-032014 20140320 GW	MRC-MW-113A-041814 20140418 GW	MRC-MW114A-032014 20140320 GW
Miscellaneous parameters (mg/L)							
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)							
PERCHLORATE	2.6	NA	NA	NA	0.69	NA	0.76

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW114A-032014-AVG 20140320 GW	MRC-MW114A-032014-D 20140320 GW	MRC-MW-114A-041814 20140418 GW	MRC-MW115A-060214 20140602 GW	MRC-MW116A-060214 20140602 GW
Volatile organic compounds (µg/L)						
1,1,1-TRICHLOROETHANE	200	--	--	NA	--	--
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	--	--	NA	--	--
1,1-DICHLOROETHANE	90	--	--	NA	--	--
1,1-DICHLOROETHENE	7	--	--	NA	--	--
1,2,3-TRICHLOROBENZENE	NA	120	120 J	NA	--	--
1,2,4-TRICHLOROBENZENE	70	565	600 J	NA	--	--
1,2,4-TRIMETHYLBENZENE	NA	--	--	NA	--	--
1,2-DICHLOROBENZENE	600	31	32 J	NA	--	--
1,2-DICHLOROETHANE	5	1030	1100 J	NA	--	--
1,2-DICHLOROPROPANE	5	7.8	7.9 J	NA	--	--
1,3-DICHLOROBENZENE	1.8	4.7	4.7 J	NA	--	--
1,4-DICHLOROBENZENE	75	49	49 J	NA	--	--
2-BUTANONE	700	--	--	NA	--	--
4-ISOPROPYLTOLUENE	NA	--	--	NA	--	--
ACETONE	550	--	--	NA	--	--
BENZENE	5	--	--	NA	--	--
BROMOMETHANE	0.85	--	--	NA	--	--
CARBON DISULFIDE	100	0.455	0.43 J	NA	--	--
CARBON TETRACHLORIDE	5	--	--	NA	--	--
CHLOROBENZENE	100	540	570 J	NA	--	--
CHLOROETHANE	3.6	--	--	NA	--	--
CHLOROFORM	80	--	--	NA	--	--
CHLOROMETHANE	19	--	--	NA	--	--
CIS-1,2-DICHLOROETHENE	70	0.88	0.81 J	NA	--	--
DICHLORODIFLUOROMETHANE	NA	--	--	NA	--	--
DIISOPROPYL ETHER	NA	--	--	NA	--	--
ETHYLBENZENE	700	--	--	NA	--	--
ISOPROPYLBENZENE	66	--	--	NA	--	--
M+P-XYLENES	NA	--	--	NA	--	--
METHYL TERT-BUTYL ETHER	20	--	--	NA	--	--
METHYLENE CHLORIDE	5	1.45	1.3 J	NA	--	--
NAPHTHALENE	0.65	--	--	NA	--	--
N-BUTYLBENZENE	NA	--	--	NA	--	--
N-PROPYLBENZENE	NA	--	--	NA	--	--

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW114A-032014-AVG 20140320 GW	MRC-MW114A-032014-D 20140320 GW	MRC-MW-114A-041814 20140418 GW	MRC-MW115A-060214 20140602 GW	MRC-MW116A-060214 20140602 GW
O-XYLENE	NA	--	--	NA	--	--
SEC-BUTYLBENZENE	NA	--	--	NA	--	--
STYRENE	100	--	--	NA	--	--
TERT-AMYL METHYL ETHER	NA	--	--	NA	--	--
TERT-BUTYLBENZENE	NA	--	--	NA	--	--
TERTIARY-BUTYL ALCOHOL	NA	--	--	NA	--	--
TETRACHLOROETHENE	5	2.1	2.1 J	NA	--	--
TOLUENE	1000	--	--	NA	--	--
TOTAL XYLENES	10000	--	--	NA	--	--
TRANS-1,2-DICHLOROETHENE	100	--	--	NA	--	--
TRICHLOROETHENE	5	4.5	4.5 J	NA	--	--
TRICHLOROFLUOROMETHANE	NA	140	140 J	NA	--	--
VINYL CHLORIDE	2	5.25	5.2 J	NA	--	--
Volatile gasses (µg/L)						
ETHANE	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA
Semivolatile organic compounds (µg/L)						
1,4-DIOXANE	3	0.782	0.855	NA	0.0224 J	--
Polychlorinated biphenyl (PCB) homologs (µg/L)						
MONOCHLOROBIPHENYLS	0.5	0.012	0.012	0.0066	NA	NA
DICHLOROBIPHENYLS	0.5	--	--	--	NA	NA
TRICHLOROBIPHENYLS	0.5	--	--	--	NA	NA
TETRACHLOROBIPHENYLS	0.5	--	--	--	NA	NA
PENTACHLOROBIPHENYLS	0.5	--	--	--	NA	NA
HEXACHLOROBIPHENYL	0.5	--	--	--	NA	NA
HEPTACHLOROBIPHENYLS	0.5	--	--	--	NA	NA
TOTAL PCB HOMOLOGS	0.5	0.012	0.012	0.0066	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW114A-032014-AVG 20140320 GW	MRC-MW114A-032014-D 20140320 GW	MRC-MW-114A-041814 20140418 GW	MRC-MW115A-060214 20140602 GW	MRC-MW116A-060214 20140602 GW
Filtered polychlorinated biphenyl (PCB) homologs (µ						
MONOCHLOROBIPHENYLS	0.5	NA	NA	--	NA	NA
DICHLOROBIPHENYLS	0.5	NA	NA	--	NA	NA
TOTAL PCB HOMOLOGS	0.5	NA	NA	0	NA	NA
Total metals (µg/L)						
ANTIMONY	6	NA	NA	NA	--	--
ARSENIC	10	NA	NA	NA	1.5	1.9
BARIUM	2000	NA	NA	NA	248	--
BERYLLIUM	4	6.9	7	NA	--	0.047 J
CADMIUM	5	NA	NA	NA	--	0.065 J
CHROMIUM	100	NA	NA	NA	--	--
COBALT	NA	29.1	29.4	NA	43.2 J	1.9 J
COPPER	1300	NA	NA	NA	3.8	5.7
IRON	300	NA	NA	NA	4910	2380
LEAD	15	NA	NA	NA	--	0.718 J
MANGANESE	50	NA	NA	NA	822	179
MERCURY	2	--	--	NA	--	--
MOLYBDENUM	NA	NA	NA	NA	7.2	13.7
NICKEL	73	68	68.9	NA	40.1	5
SELENIUM	50	NA	NA	NA	--	0.355 J
SILICON	NA	NA	NA	NA	8110	12900
SILVER	100	NA	NA	NA	--	--
THALLIUM	2	NA	NA	NA	--	--
VANADIUM	3.7	NA	NA	NA	--	--
ZINC	5000	NA	NA	NA	NA	NA

Table 4-3

Detected Analytes and Screening Level Exceedances in Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland
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SAMPLE ID SAMPLE DATE MATRIX	MDE Groundwater Standard[1,2]	MRC-MW114A-032014-AVG 20140320 GW	MRC-MW114A-032014-D 20140320 GW	MRC-MW-114A-041814 20140418 GW	MRC-MW115A-060214 20140602 GW	MRC-MW116A-060214 20140602 GW
Miscellaneous parameters (mg/L)						
AMMONIA-N	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA
Miscellaneous parameters (µg/L)						
PERCHLORATE	2.6	0.785	0.81	NA	--	--

1 Maryland Department of the Environment (MDE) groundwater standards (MDE, 2008) unless noted.
2 State of California drinking water action level. MDE standard not available.
Shading indicates value exceeds groundwater standard or action level.
-- not detected
-AVG - average concentration using sample and its duplicate analyses
-D - duplicate sample
EXT - well installed prior to MW series wells
GW - groundwater
J - chemical detected, concentration is estimated
mg/L - milligrams per liter
µg/L - micrograms per liter
MRC - Middle River Complex
MW - monitoring well
NA - not available (second column) or not analyzed

Table 4-4

Statistical Summary of Metals Exceeding Groundwater Screening Levels-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

Parameter	Maryland Department of the Envrionment groundwater standard[1]	Total metals			
		Detections exceeding screening level		Maximum concentration (µg/L)	Exceedance factor (maximum concentration/ screening level)
		(quantity)	(percent)		
Priority pollutant and miscellaneous metals					
NICKEL	73	46	55%	129000	1767.1
BERYLLIUM	4	29	35%	249 J	62.3
VANADIUM	3.7	7	9%	36.1	9.8
ARSENIC	10	2	3%	69.4 J	6.9
CADMIUM	5	2	3%	10.3	2.1
SELENIUM	50	2	3%	258 J	5.2
ANTIMONY	6	1	1%	21.9	3.7
BARIUM	2000	1	1%	2400	1.2
COPPER	1300	1	1%	2120	1.6
CHROMIUM	100	0	0%	10.1	--
COBALT	NA	0	0%	7550	--
LEAD	15	0	0%	6.5	--
MERCURY	2	0	0%	0.252	--
MOLYBDENUM	NA	0	0%	13.7	--
SILVER	100	0	0%	0.875 J	--
THALLIUM	2.7	0	0%	1.1 J	--
ZINC	5000	0	0%	344 J	--
Natural attenuation analysis (NAA) metals					
MANGANESE	50	75	95%	42800	856.0
IRON	300	62	78%	92600	308.7
SILICON	NA	0	0%	18500	--

1 Maryland Department of the Environment Soil and Groundwater Standards, Interim Final 2.1,

J - analyte present at estimated concentration

NA - No screening level available or not applicable/not analyzed.

µg/L - micrograms per liter (i.e. parts per billion)

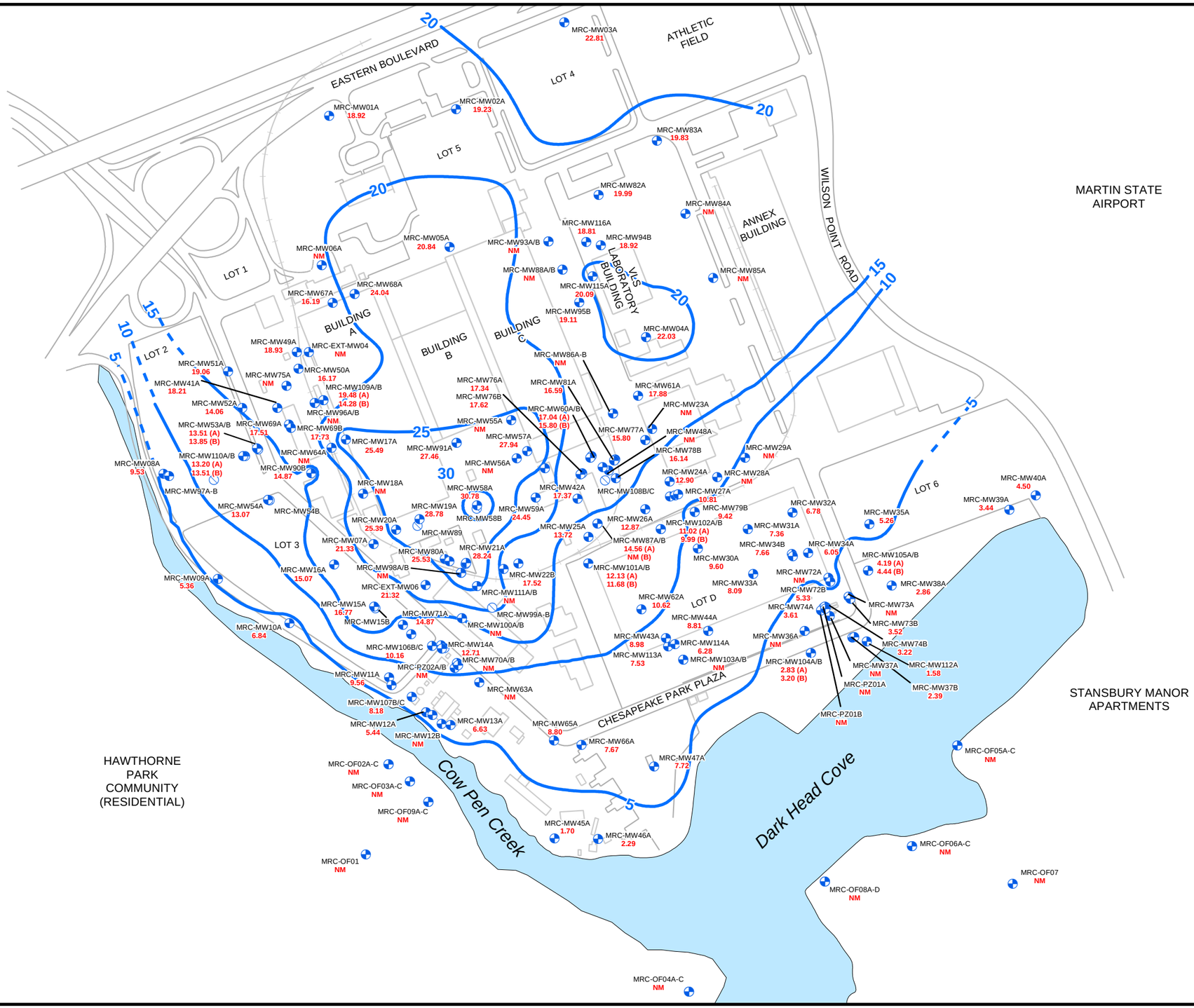

FIGURE 4-1

GROUNDWATER ELEVATION CONTOUR MAP
UPPER SURFICIAL AQUIFER
SEPTEMBER 2014

LEGEND

- SURFICIAL GROUNDWATER MONITORING WELL
- ABANDONED WELL BORING
- GROUNDWATER CONTOUR (INTERVAL = 5 FEET, DASHED WHERE INFERRED)
- SURFACE WATER
- 15.23 GROUNDWATER ELEVATION (IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988)
- NM NOT MEASURED

Groundwater data for September 9-10, 2014.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 225 450 Feet

N

DATE MODIFIED: 09/16/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\mrc_gw_contours_sep2014_upper.mxd)
09/16/14 -- JEE

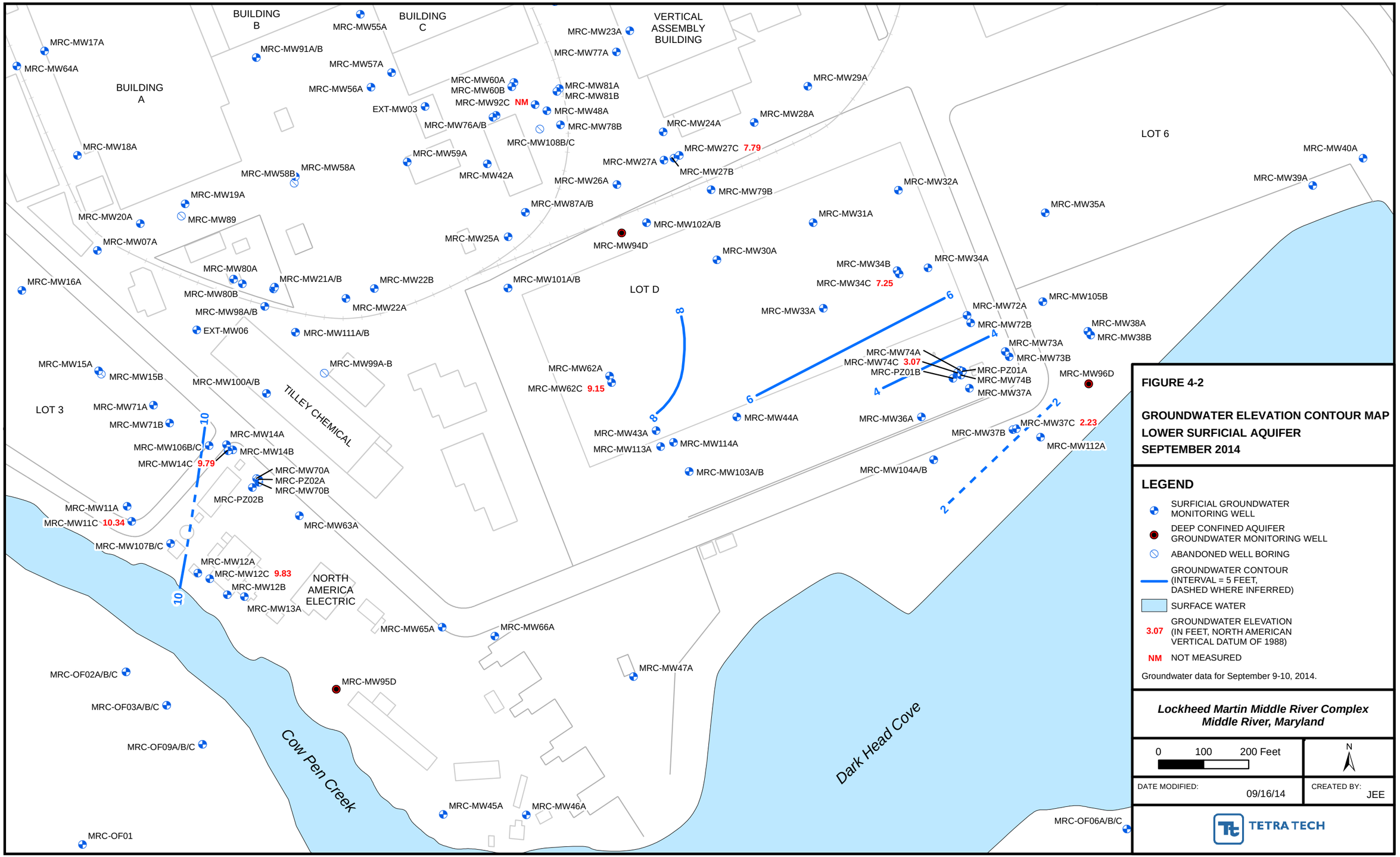

FIGURE 4-2

GROUNDWATER ELEVATION CONTOUR MAP
LOWER SURFICIAL AQUIFER
SEPTEMBER 2014

LEGEND

- SURFICIAL GROUNDWATER MONITORING WELL
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL
- ABANDONED WELL BORING
- GROUNDWATER CONTOUR (INTERVAL = 5 FEET, DASHED WHERE INFERRED)
- SURFACE WATER
- 3.07 GROUNDWATER ELEVATION (IN FEET, NORTH AMERICAN VERTICAL DATUM OF 1988)
- NM NOT MEASURED

Groundwater data for September 9-10, 2014.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 100 200 Feet

N

DATE MODIFIED: 09/16/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\mrc_gw_contours_sep2014_lower.mxd)
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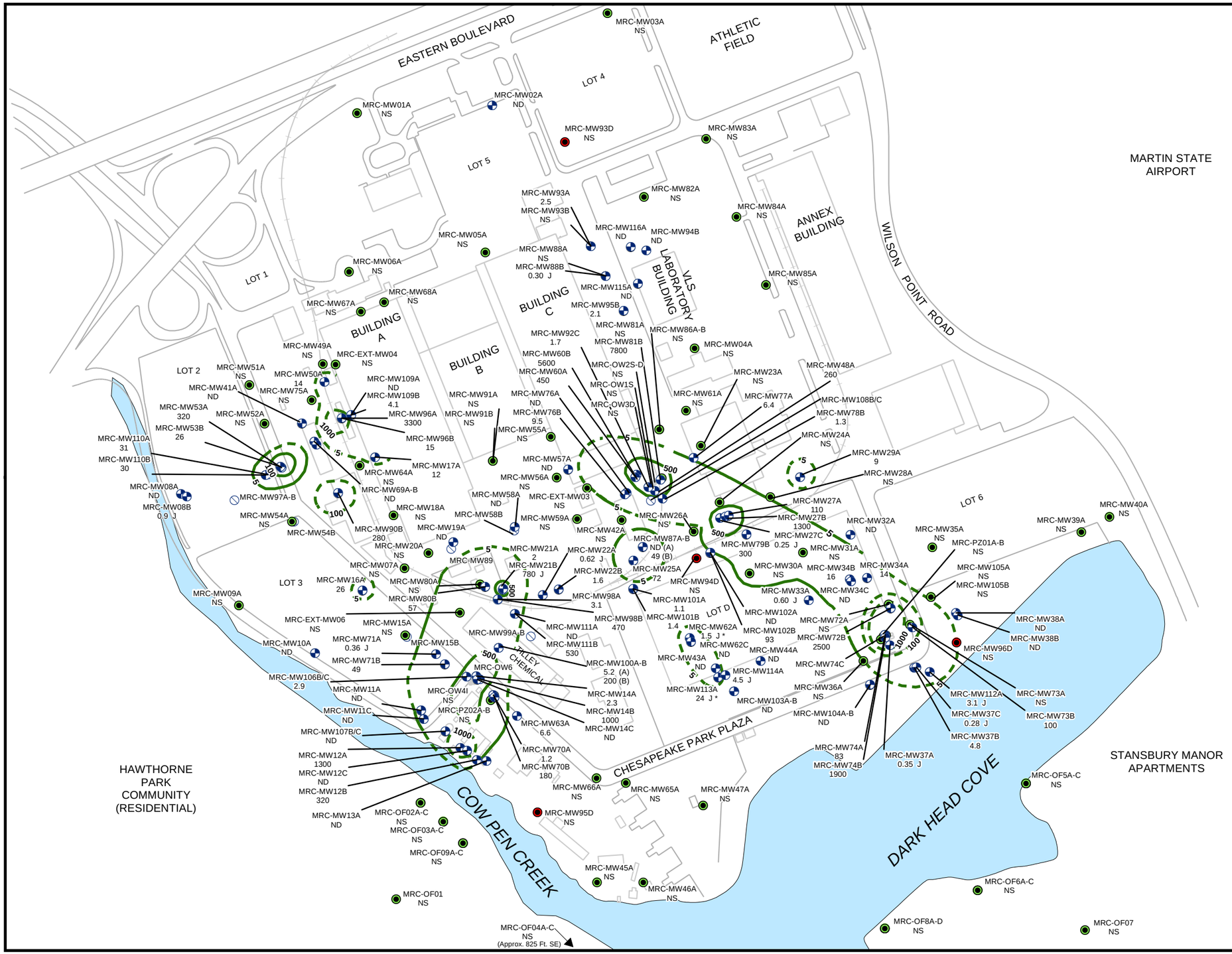

FIGURE 4-3

DISTRIBUTION OF TCE IN GROUNDWATER, 2014

LEGEND

- GROUNDWATER MONITORING WELL (SAMPLED)
- WELL NOT SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (NOT SAMPLED)
- ABANDONED WELL
- TCE ISOCONCENTRATION (UG/L, DASHED WHER INFERRED; CONTOUR IN SOUTHWESTERN PORTION OF LOT D IS FOR PCE AND TCE)
- WATER
- 4.2 MAXIMUM CONCENTRATION IN WELL (UG/L)

J = ESTIMATED VAULE
ND = NOT DETECTED
NS = NOT SAMPLED
PCE = TETRACHLOROETHENE
TCE = TRICHLOROETHENE
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR TCE IS 5 UG/L.

* PCE DETECTED ABOVE THE GROUNDWATER STANDARD OF 5 UG/L AT MRC-MW43A (43 UG/L) AND MRC-MW62A (12 UG/L). CONTOUR FOR THIS AREA INCLUDES PCE AND TCE.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400 Feet

N

DATE MODIFIED: 09/16/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\Middle River TCE Distribution in GW_2014.mxd)
09/16/14 -- JEE

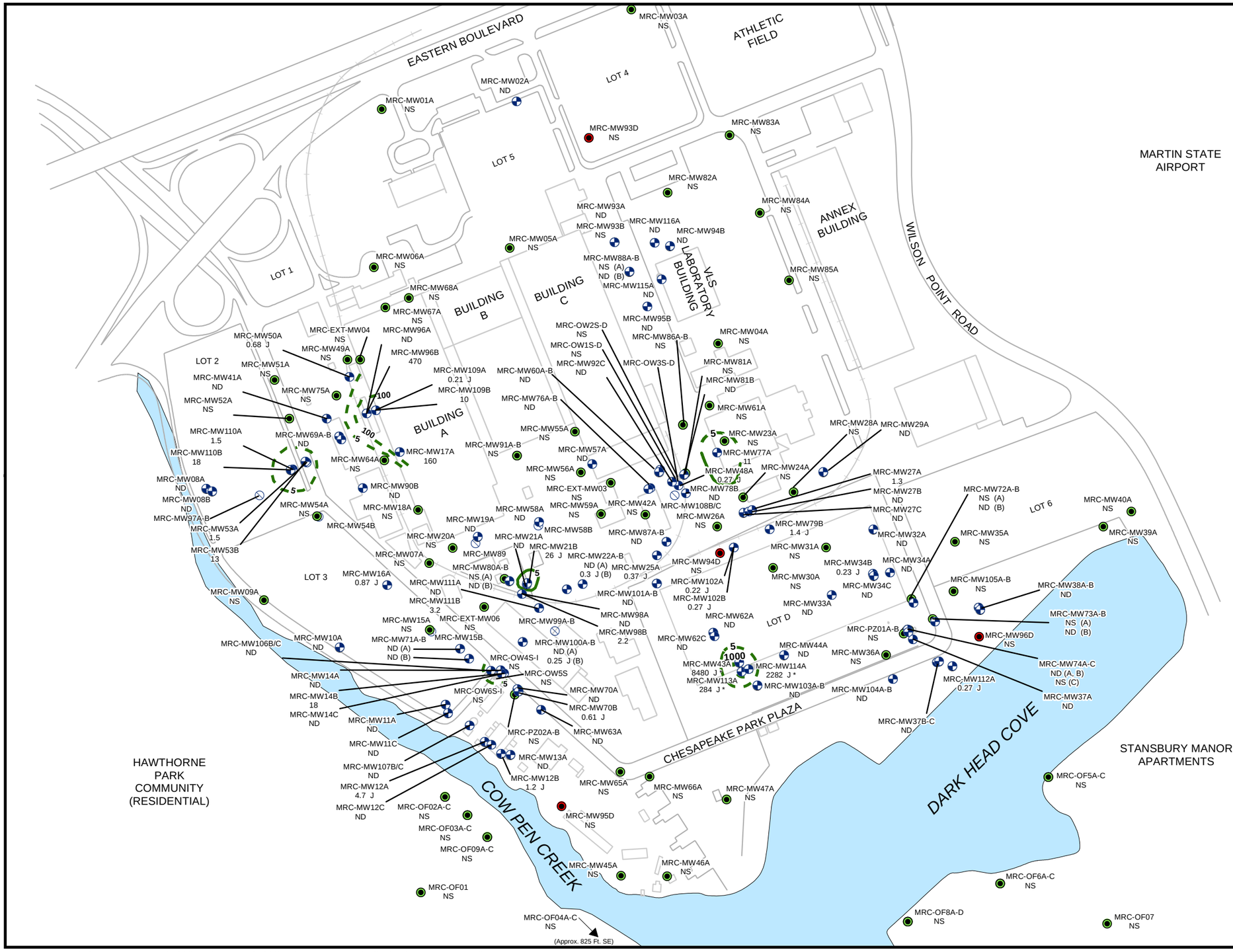

FIGURE 4-4

DISTRIBUTION OF BENZENE IN GROUNDWATER, 2014

LEGEND

- GROUNDWATER MONITORING WELL (SAMPLED)
- WELL NOT SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (NOT SAMPLED)
- ABANDONED WELL
- BENZENE ISOCONCENTRATION (UG/L, DASHED WHER INFERRED; CONTOUR IN SOUTHWESTERN PORTION OF LOT D IS FOR SUM OF CHLOROBENZENE ISOMERS)
- WATER
- 1.4 MAXIMUM CONCENTRATION IN WELL (UG/L)

J = ESTIMATED VALUE
ND = NOT DETECTED
NS = NOT SAMPLED
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR BENZENE IS 5 UG/L.

* CONCENTRATION IS SUM OF CHLOROBENZENE ISOMERS ABOVE GROUNDWATER STANDARDS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400 Feet

N

DATE MODIFIED: 09/10/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\Middle River Benzene Distribution in GW_2014.mxd)
09/10/14 -- JEE

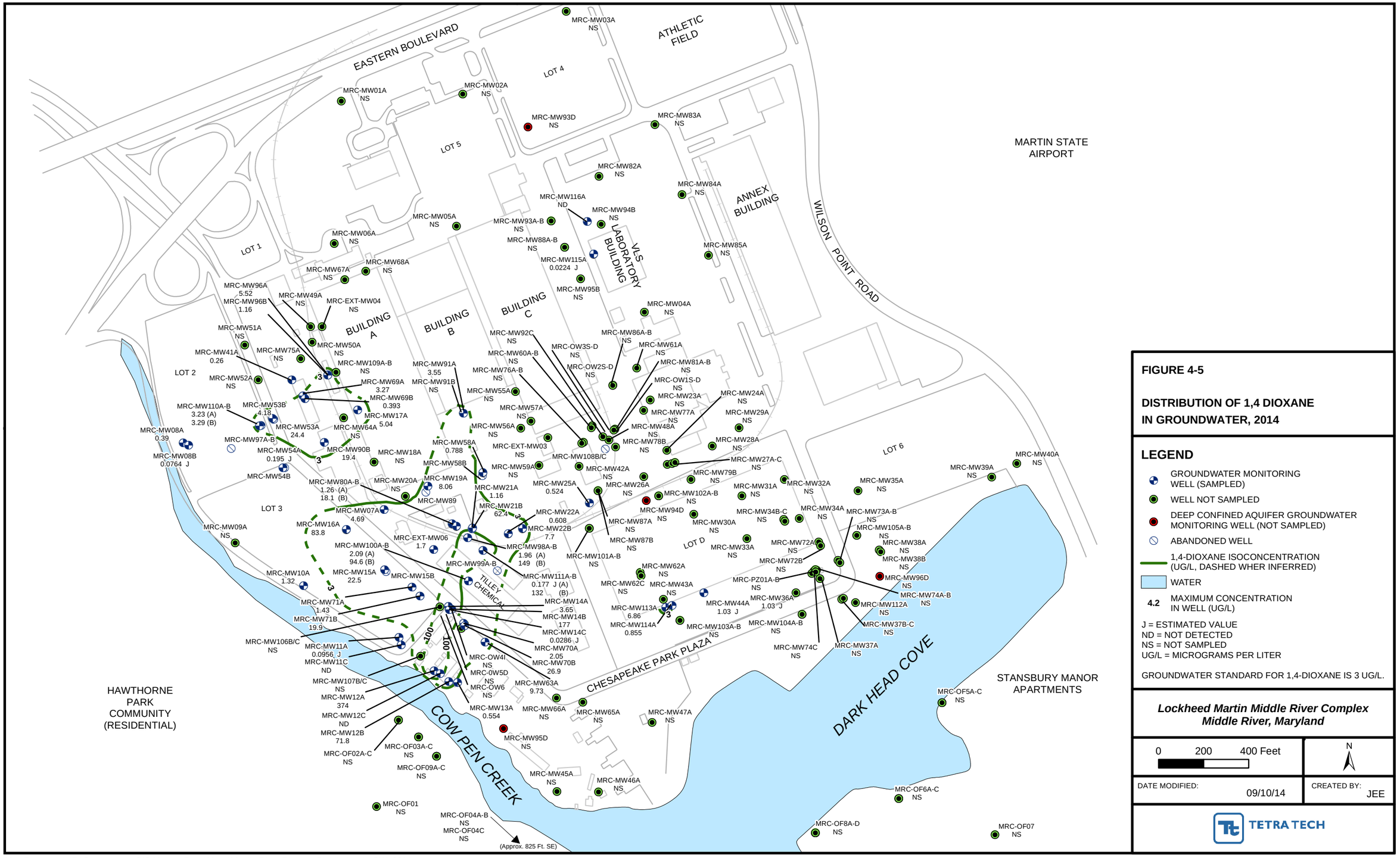

FIGURE 4-5

DISTRIBUTION OF 1,4 DIOXANE IN GROUNDWATER, 2014

LEGEND

- GROUNDWATER MONITORING WELL (SAMPLED)
- WELL NOT SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (NOT SAMPLED)
- ABANDONED WELL
- 1,4-DIOXANE ISOCONCENTRATION (UG/L, DASHED WHER INFERRED)
- WATER
- 4.2 MAXIMUM CONCENTRATION IN WELL (UG/L)

J = ESTIMATED VALUE
ND = NOT DETECTED
NS = NOT SAMPLED
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR 1,4-DIOXANE IS 3 UG/L.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400 Feet

N

DATE MODIFIED: 09/10/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\Middle River Dioxane Distribution in GW_2014.mxd)
09/10/14 -- JEE

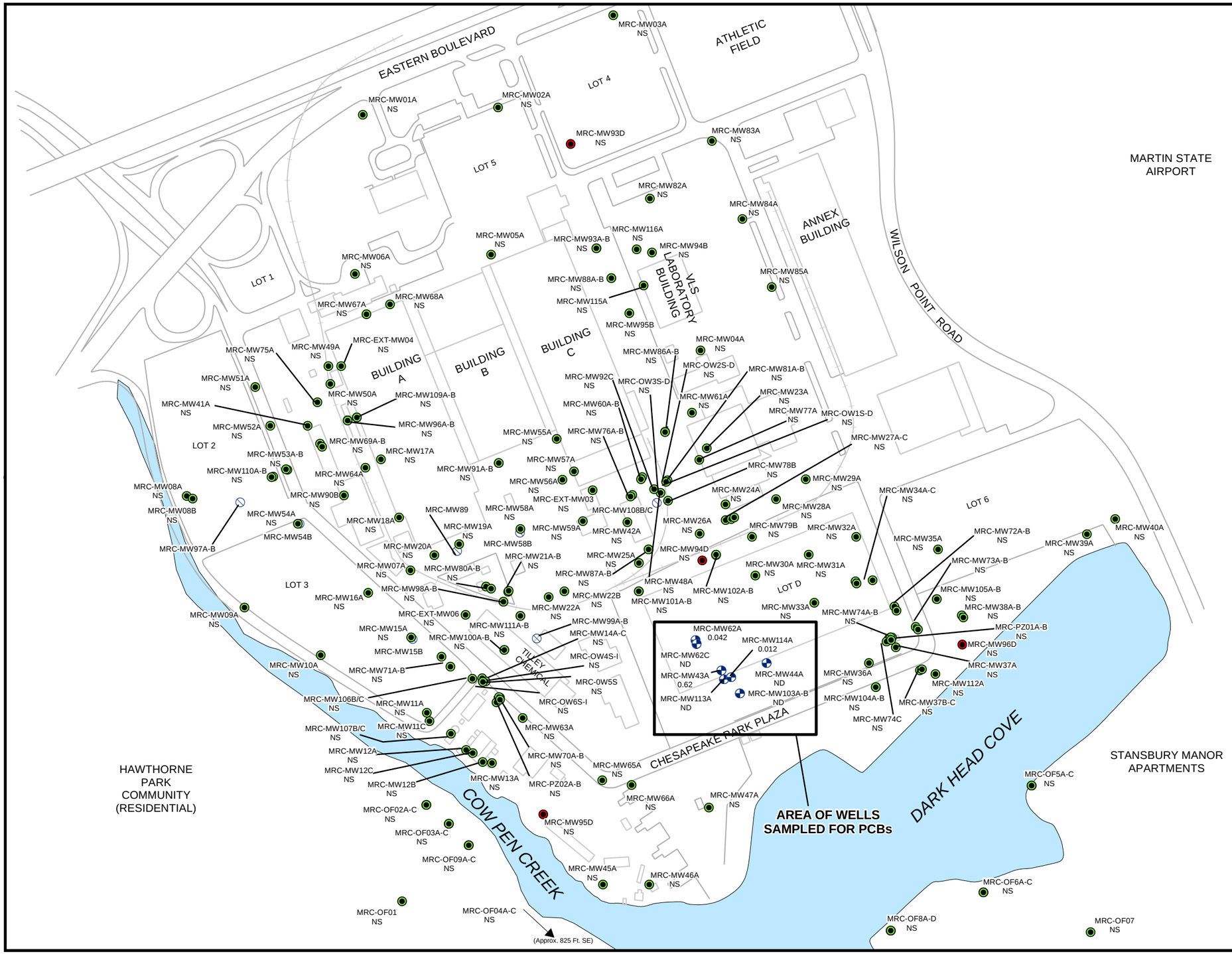

FIGURE 4-6

DISTRIBUTION OF PCBs IN GROUNDWATER, 2014

LEGEND

- GROUNDWATER MONITORING WELL (SAMPLED)
- WELL NOT SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (NOT SAMPLED)
- ABANDONED WELL
- WATER
- **0.62** MAXIMUM CONCENTRATION IN WELL (UG/L)

J = ESTIMATED VALUE
ND = NOT DETECTED
NS = NOT SAMPLED
PCBs = POLYCHLORINATED BIPHENYLS
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR PCBs IS 0.5 UG/L.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400 Feet

N

DATE MODIFIED: 09/16/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\Middle River PCB Distribution in GW_2014.mxd)
09/16/14 -- JEE

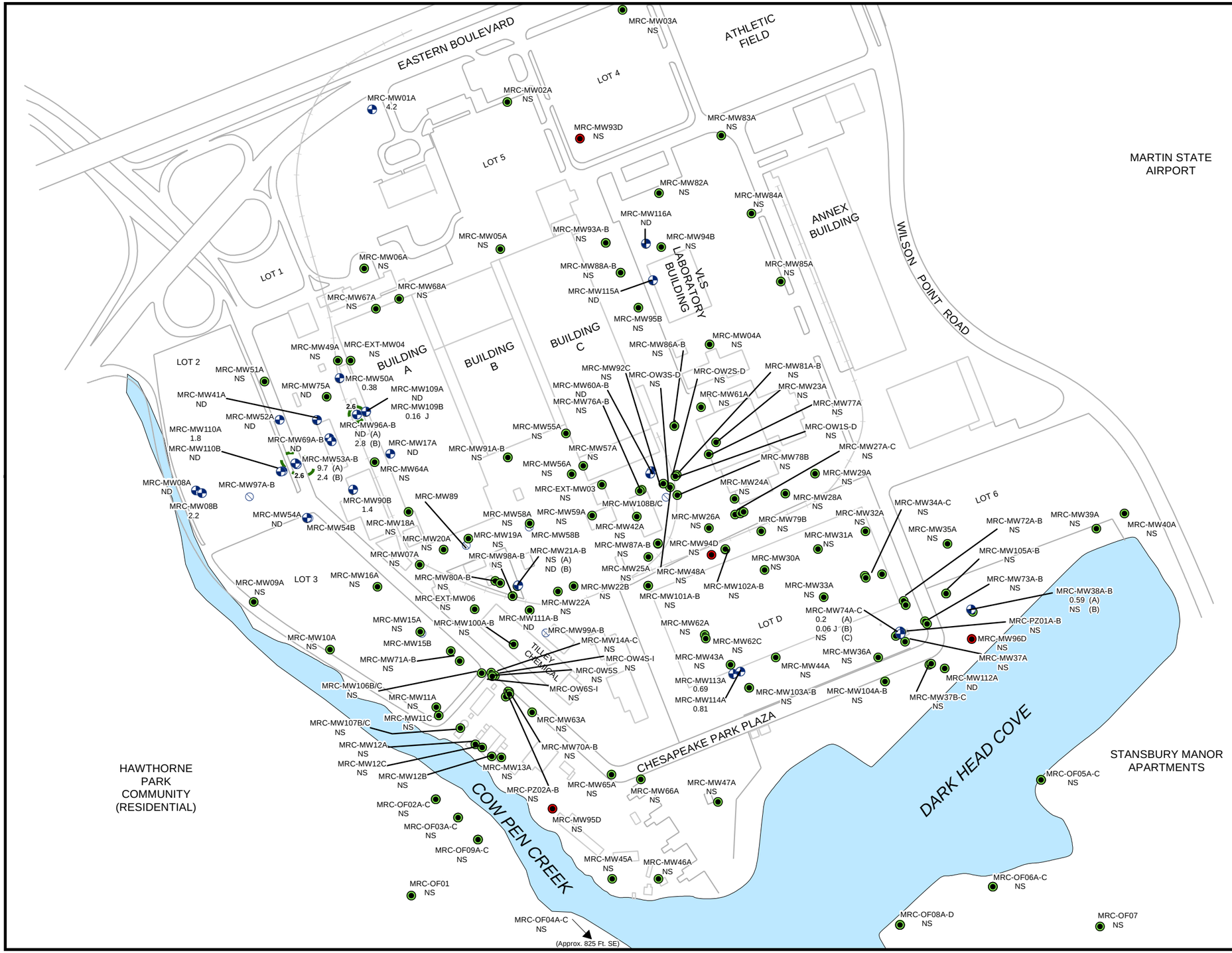

FIGURE 4-7

DISTRIBUTION OF PERCHLORATE IN GROUNDWATER, 2014

LEGEND

- GROUNDWATER MONITORING WELL (SAMPLED)
- WELL NOT SAMPLED
- DEEP CONFINED AQUIFER GROUNDWATER MONITORING WELL (NOT SAMPLED)
- ABANDONED WELL
- PERCHLORATE ISOCONCENTRATION (UG/L, DASHED WHER INFERRED)
- WATER

J = ESTIMATED VALUE
ND = NOT DETECTED
NS = NOT SAMPLED
UG/L = MICROGRAMS PER LITER

GROUNDWATER STANDARD FOR PERCHLORATE IS 2.6 UG/L.

Lockheed Martin Middle River Complex
Middle River, Maryland

0 200 400 Feet

N

DATE MODIFIED: 09/10/14

CREATED BY: JEE

TETRA TECH

Map Document: (P:\Germantown GIS\Middle_River\Maps\Middle River Perchlorate Distribution in GW_2014.mxd)
09/10/14 -- JEE

Section 5
Summary

The findings of the 2014 groundwater sampling and analyses and the September 2014 groundwater level measurements are summarized below:

- All wells were inspected during the 2014 sampling program to assess their need for repairs; 16 wells were repaired in 2014.

- Groundwater samples were collected from monitoring wells in May–June 2014. Samples were analyzed for volatile organic compounds (VOCs), 1,4-dioxane, total metals, perchlorate, polychlorinated biphenyls (PCBs), natural-attenuation assessment (NAA) parameters, and field water-quality parameters. A round of synoptic groundwater measurements was obtained from the wells on September 9–10, 2014.

- Groundwater flow in September 2014 is similar to that depicted by previous groundwater investigations. Shallow groundwater follows site topography and flows radially from the hydraulically upgradient northern portion of the Middle River Complex (MRC) at Eastern Boulevard and immediately south of Buildings A, B, and C to the southeast, south, and southwest toward Dark Head Cove and Cow Pen Creek. Groundwater in the deep surficial aquifer flows southeasterly from Eastern Boulevard toward Dark Head Cove. September 2014 surficial-aquifer groundwater elevations were generally lower than those measured in 2013.

- Concentrations of chlorinated volatile organic compounds exceed Maryland groundwater standards at three main areas of the facility and at multiple depths. Trichloroethene (TCE), a common industrial solvent and metal degreaser, is the primary volatile organic compound exceeding its Maryland groundwater standard. Trichloroethene-degradation products, such as dichloroethenes and vinyl chloride (VC), also exceed Maryland groundwater standards at the facility, as do tetrachloroethene (PCE), chlorobenzene compounds, and the fuel-related volatile organic compound benzene.

  These data confirm three trichloroethene and trichloroethene-degradation-product plumes: the eastern trichloroethene plume (likely originating from a solvent spill south of Building C and possibly related to past handling and storage practices, and from the area of a former underground storage tank [UST] near the above-ground water tanks in Block E); the western trichloroethene plume (originating from a solvent spill from a waste-oil tank north of Tilley Chemical and a possible secondary trichloroethene source at the former wastewater treatment plant south of Tilley Chemical and Chesapeake Park Plaza in Block G); and a smaller trichloroethene plume west of Building A. The eastern and western trichloroethene plumes extend southeast and southwest, respectively, to areas adjacent to Dark Head Cove and Cow Pen Creek. The three source areas for the eastern and western

trichloroethene plumes are being addressed as part of the groundwater remedy program (Tetra Tech, 2012a). Trichloroethene has also been detected at several isolated locations in the western portion of the facility, south of the eastern trichloroethene plume and north of the eastern trichloroethene plume.

- The maximum concentrations of trichloroethene were detected in the intermediate depth of the surficial aquifer in wells MW81B and MW60B, screened 30 feet below grade. The source(s) of this plume may originate from the south end of the Building C Basement (MW60B), or possibly from spills of material handled near MW60B. Volatile organic compounds in groundwater near the southern end of the eastern trichloroethene plume at wells MW74A/B are likely associated with a recently discovered underground storage tank that was located (and removed) near the former Building D foundation; this tank contained trichloroethene product. The two source areas for the eastern trichloroethene plume (near wells MW60A/B and MW74A/B) are being addressed as part of the groundwater remedy program (Tetra Tech, 2012a).

- The 2014 trichloroethene concentration in well MW74B has reduced from previous years by a factor of 21 (from 40,000 micrograms per liter [µg/L] in 2013 to 1,900 µg/L in 2014).

- Benzene concentrations at areas west of Building A, in the western trichloroethene plume, and near the vertical-assembly building, exceed the state groundwater standard of five micrograms per liter. However, concentrations decline rapidly to levels below the standard at nearby downgradient wells. Some benzene concentrations detected in 2014 increased and others decreased, as compared to those measured in 2013. Increases were observed at three wells containing the maximum or near-maximum benzene concentrations.

- Chlorobenzene and chlorobenzene compounds exceed groundwater standards (by more than a factor of 100 in one case) and form a plume of dissolved volatile organic compounds in a grouping of four shallow wells in the southwestern portion of Lot D (Tax Block E). Chlorobenzene compounds exceeding the groundwater standards include chlorobenzene, 1,2,4-trichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene. 1,2-Dichloropropane and several chlorinated volatile organic compounds, including tetrachloroethene, trichloroethene, 1,2-dichloroethane, and vinyl chloride, also exceed their groundwater standards at one or more of these wells.

- 1,4-Dioxane was detected in several wells in the western trichloroethene plume. The highest concentrations occur primarily in the upper and intermediate surficial-aquifer wells. The highest 1,4-dioxane concentrations occur along a southwesterly line originating just north of the Tilley Chemical building to Cow Pen Creek. 1,4-Dioxane exceedances were detected in six wells west and southwest of Building A. 1,4-Dioxane exceeds the screening level at newly installed well MW113A, in the southwestern corner of Lot D.

- Polychlorinated biphenyl homologs were detected in groundwater samples collected from three wells in the southwestern portion of Lot D (Tax Block E). The total polychlorinated biphenyl homolog concentration in well MW43A slightly exceeds the groundwater standard. However, the three other total polychlorinated biphenyl homolog concentrations (well MW62A and newly installed well MW114A) were more than one order of magnitude

(i.e., 10 times) below the groundwater standard. Only monochlorobiphenyls were detected downgradient of the Block E polychlorinated biphenyl source area at well MW114; the more toxic and less mobile, higher-chain chlorobiphenyls do not appear to be migrating from the Block E source area.

- Concentrations of 11 metals exceed Maryland groundwater standards in one or more groundwater samples this round. Concentrations of manganese, iron, and nickel exceed their respective standards most frequently, with maxima exceeding standards by more than two orders of magnitude (greater than 100 times). Other metals exceed their respective standards less frequently, with the maxima less than one order of magnitude more than groundwater standards.

- Perchlorate was detected in 14 of 29 groundwater samples analyzed in 2014, including newly installed wells MW113A and MW114A in the southwestern portion of Lot D. Of the detected perchlorate concentrations, only three (at wells MW53B, MW01A, and MW96B) exceed its groundwater standard. Wells MW53A and MW96B are west of Building A.

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Section 6
References

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APPENDIX A—GROUNDWATER-LEVEL RECORD SHEETS

TETRA TECH

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: 2014 MRC GW Sampling
Project No.: 112IC06247-02
Location: MRC Middle River, MD
Personnel: S.Cameron/T.Apanavage
Weather Conditions: Mostly Cloudy 75°F
Measuring Device: 100' WLM
Tidally Influenced: Yes ___ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Groundwater Elevation (feet)*	Comments
51A	9/9/14	0900			2.82		
52A		0905			6.26		
53A		0906			5.03		
53B		0907			4.56		
110A		0913			3.01		
110B		0914			2.58		
8A		0920			0.17		
8B		0921			ARTESIAN		
71B		0927			4.60		
71A		0928			2.03		
11A		0932			2.34		
HC		1003			1.11		
15A		0934			0.03		
15B		0935			UNABLE TO FIND		
16A		0937			2.13		
54A		0940			3.98		
54B		—			UNABLE TO FIND		
9A		1001			2.90		
10A		1002			2.68		
106B/C		1005			6.04		
14A		1012			3.96		
14B		1015			2.31		
63A		1026			WLM WOULDN'T WORK PROPERLY IN WELL		
12B		1027			16.73		
14C		1013			6.09		

* All measurements to the nearest 0.01 foot

TETRA TECH

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: 2014 MRC GW Sampling **Project No.:** 112IC06247-02
Location: MRC Middle River, MD **Personnel:** S.Cameron/T.Apanavage
Weather Conditions: _____ **Measuring Device:** _____
Tidally Influenced: Yes ___ No _X_ **Remarks:** _____

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Groundwater Elevation (feet)*	Comments
13A		1034			3.68		
12C		1035			ARTESIAN		
12A		1036			3.85		
107B/C		1038			2.15		
66A		1040			7.32		
65A		1042			5.96		
95D		1043			WATER AT TOP OF PVC		BOLTS MISSING
45A		1045			2.94		
46A		1056			4.11		
47A		1058			3.03		
104A		1100			5.36		
104B		1101			5.03		
37B		1102			4.97		
37C		1103			5.22		
112A		1105			3.38		
96D		1106			ARTESIAN		
38A		1108			5.21		
38B		1107			5.01		
105A		1109			5.47		
105B		1110			5.20		
39A		1114			1.34		
35A		1130			3.13		
40A		1132			ARTESIAN / WATER AT TOP OF PVC		
3A		1155			5.36		
93D		1200			WLM WOULDN'T WORK IN WELL		

* All measurements to the nearest 0.01 foot

TETRA TECH

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: 2014 MRC GW Sampling
Project No.: 112IC06247-02
Location: MRC Middle River, MD
Personnel: S.Cameron/T.Apanavage
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ___ No _X_
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Groundwater Elevation (feet)*	Comments
2A		1205			9.18		
1A		1206			14.71		
5A		1214			14.31		
83A		1217			0.31		
82A		1218			3.89		
6A		1235			24.60		
41A		1238			9.31		
69A		1240			10.12		
69B		1242			10.12		
75A							CAR OBSTRUCTION
116A		1245			7.05		
94B		1247			6.36		
4A		1256			2.40		
68A		1303			12.47		
67A		1304			20.48		
49A		1308			12.54		
50A		1310			13.98		
109A		1312			11.74		
109B		1314			16.96		
17A		1316			7.10		
90B		1318			6.80		
7A		1323			12.06		
20A		1326			10.79		
19A		1328			7.58		
EXT-06		1330			10.31		

* All measurements to the nearest 0.01 foot

TETRA TECH

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: 2014 MRC GW Sampling
Project No.: 112IC06247-02
Location: MRC Middle River, MD
Personnel: S.Cameron/T.Apanavage
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ___ No _X_
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Groundwater Elevation (feet)*	Comments
80B		1335			8.95		
80A		1337			7.29		
21A		1338			4.46		
21B		1339			10.92		
22B		1342			13.52		
58A		1346			4.25		
91A		1347			9.39		
91B		1348			21.15		
59A		1350			9.66		
57A		1353			8.52		
25A		1400			12.99		
87A		1402			12.01		
87B		1404			12.29		
42A		1406			10.84		
76A		1408			11.08		
76B		1409			10.62		
60A		1412			14.22		
60B		1411			13.41		
81A		1414			10.75		
78B		1416			8.16		
115A		1420			6.74		
95B		1422			4.93		
61A		1433			6.28		
77A		1435			7.26		
26A		1440			10.03		

* All measurements to the nearest 0.01 foot

TETRA TECH

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: 2014 MRC GW Sampling
Project No.: 112IC06247-02
Location: MRC Middle River, MD
Personnel: S.Cameron/T.Apanavage
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ___ No _X_
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Groundwater Elevation (feet)*	Comments
27A		1445			9.95		
27B		1448			~~9.93~~	14.07	
27C		1451			~~13.57~~	13.56	
24A		1500			~~7.85~~	7.87	
29A		1505			8.06		
9/10/14	9/10/14						
72B					5.46		
74A					7.57		
74B					7.66		
73B					6.76		
34A					4.83		
34C					3.55		
34B					3.18		
32A					4.23		
31A					3.64		
79B					9.76		
102A					10.61		
102B					11.59		
101A					15.16		
101B					15.57		
62A					0.00		
62C					1.74		
43A					2.03		
44A					1.83		
30A					1.54		

* All measurements to the nearest 0.01 foot

Tetra Tech

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: 2014 MRC GW Sampling
Project No.: 112IC06247-02
Location: MRC Middle River, MD
Personnel: S. Cameron
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ___ No ___
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
33A	9/10/14				2.99			
113A					4.36			
114A					5.51			
74C					7.98			

* All measurements to the nearest 0.01 foot

APPENDIX B—MONITORING WELL PURGING AND SAMPLING RECORDS

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MPC GW 2014 **PROJECT NO.:** 112I06247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
6/11/14	Horiba U-52	~~R19193~~	JAM			pH 7.21	3.94		
↓	↓	↓	↓			Stand 0.001	4.52		
						TWS 242	0.0		
	↓	↓				DO 11.19	10.22		
↓	LaMotte	02510G	↓			~~TWS~~ 0/9.76	0/10.0		
6/12/14	Horiba U-52	R19193	JAM			pH 5.88	3.92		
↓	↓	↓	↓			Stand 0.000	4.48		
						TWS 239	0.0		
	↓	↓				DO 11.05	9.25		
↓	LaMotte	02510G	↓			TWS 0/9.50	0/10		
6/13/14	Horiba U-52	R19193	JAM			pH 5.77	3.96		
↓	↓	↓	↓			Stand 0.000	4.48		
						TWS 253	0.0		
	↓	↓				DO 9.66	9.41		
↓	LaMotte	02510G	↓			TWS 0/9.83	0/10		

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAL Annual GW 2014
Project No.: 117-IC06247

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MAL-MW-01A
Sample Location: MAL
Sampled By: JMH
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/13/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Time: 1125								
Method: peri pump	clear	5.09	0.301	16.60	35.9	0.00	0.07	178

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/13/14								
Method: peri pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC			SEE LOW FLOW PURGE DATA SHEET					
Total Well Depth (TD): 29'								
Static Water Level (WL): 12.70								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1040								
End Purge (hrs): 1130								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): ~2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Perchlorate	-	1-250 mL plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	DUP-06

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAC Annual GW
Project No.: 112IL06247

Sample ID No.: MAC-MW-02A-0614
Sample Location: MW-02A
Sampled By: WP
C.O.C. No.:

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/9/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Time: 1549								
Method: peri pump	clear	3.71	0.682	21.57	0.0	4.15	0.3	322

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/9/14								
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material			SEE	LOW FLOW	PURGE	DATA	SHEET	
Type: 2" PVC								
Total Well Depth (TD): [redacted]								
Static Water Level (WL): 7.75								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1458								
End Purge (hrs): 1549								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 2.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 ml vials	✓
Total Metals	HNO3	1-500 ml plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD | Duplicate ID No.: —

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRC Annual GW
Project No.: 117-1006247

Sample ID No.: MRC-MW-04A-060814
Sample Location: MW-04A
Sampled By: WP
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	
Date: 6/9/14								ORP
Time: 1435								
Method: peri pump	clear	8.57	21.2	20.56	8.7	0.42	12.5	20

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/9/14								
Method: peri pump								
Monitor Reading (ppm): –								
Well Casing Diameter & Material Type: 2" PVC			SEE LOW FLOW PURGE DATA SHEET					
Total Well Depth (TD): –								
Static Water Level (WL): 2.43								
One Casing Volume(gal/L): –								
Start Purge (hrs): 1324								
End Purge (hrs): 1430								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): 2.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals	HNO3	1-500 mL poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD | Duplicate ID No.: –

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAL Annual GW
Project No.: 112G06247

Sample ID No.: MAL-EXT-06-060514
Sample Location: MW EXT-06
Sampled By: WP
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/5/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Time: 1407								
Method: peri pump	Clear	5.90	0.677	16.00	0.0	7.82	0.3	137

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/5/14								
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material Type: ~~2"~~ 4" PVC			See low flow purge data sheet					
Total Well Depth (TD): —								
Static Water Level (WL): 9.35								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1316								
End Purge (hrs): 1402								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
1-4 dioxane	NaHSO4	2 - 200 ml amber	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAC Annual GW
Project No.: 117IL06297

Sample ID No.: MAC-MW-42A
Sample Location: MAC
Sampled By: TVM
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/13/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	orp
Time: 0945								
Method: peri pump	clear	5.74	1.45	18.75	11.6	0.00	0.07	33

PURGE DATA:

Date: 6/13/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: peri pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC		See low flow purge data sheet						
Total Well Depth (TD): —								
Static Water Level (WL): 8.79								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0900								
End Purge (hrs): 1000								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): ~3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals	HNO3	1-500 mL poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.: DUP-05

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRC Annual GW
Project No.: 117ICO6247

Sample ID No.: MRC-MW-57A-061214
Sample Location: MW-57A
Sampled By: WP
C.O.C. No.:

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/12/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Time: 1422								
Method: peri pump	clear	6.74	3.36	14.29	0.0	0.33	1.8	701

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/12/14								
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material Type: 2" PVC			See low flow purge data sheet					
Total Well Depth (TD): —								
Static Water Level (WL): 7.75								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1331								
End Purge (hrs): 1417								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 2.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL VOAs	Y
Total Metals	HNO3	1-500 mL poly	Y

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.: —

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MLC Annual GW
Project No.: 117IC0B247

Sample ID No.: MLC-MW-60B-061614
Sample Location: MW-60B
Sampled By: WP
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/16/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Time: 1117								
Method: peri pump	clear	6.04	0.197	19.77	0.0	0.30	0.1	-3

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/16/14								
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material			See low flow purge data sheets					
Type: 2" PVC								
Total Well Depth (TD): —								
Static Water Level (WL): 11.70								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1026								
End Purge (hrs): 1112								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 2.7								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓
Metals	HNO3	1-500mL poly	✓
Perchlorate	—	1-250 mL poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRC Annual GW
Project No.: 117IC06247

Sample ID No.: MRC-MW-76B-061114
Sample Location: MW-76B
Sampled By: WP
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/11/14	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	ORP
Time: 1245								
Method: peri pump	clear	5.10	0.575	18.62	0.0	0.36	0.3	79

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/11/14								
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material								
Type: 2" PVC								
Total Well Depth (TD): —								
Static Water Level (WL): 9.40								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1154								
End Purge (hrs): 1240								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): 2.5								

See low flow purge data sheet

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2-40 mL vials	✓
Total Metals	HNO3	1-500 mL poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River-Complex
Project No.: 112EC06247

Sample ID No.: MRC-MW-87B-052814
Sample Location: MW-87B
Sampled By: WP
C.O.C. No.:
Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

- [ ] Domestic Well Data
- [X] Monitoring Well Data
- [ ] Other Well Type:
- [ ] QA Sample Type:

SAMPLING DATA:

Date: 5-28-14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1135								ORP
Method: Peristaltic Pump	Clear	4.87	1.07	20.97	4.8	1.37	0.5	59

PURGE DATA:

Date: 5-28-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):		See low flow purge						
Static Water Level (WL): 10.90								
One Casing Volume (gal.):			Data Sheet					
Start Purge (hrs): 0954								
End Purge (hrs): 1130								
Total Purge Time (min): 91								
Total Vol. Purged (gal.): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	
Total metals	HNO3	1 - 500 ml Poly	
		"	

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):
Walt Pa

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112BC06247

Sample ID No.: MRC-MW-07A-052814
Sample Location: MW-07A
Sampled By: MP
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5-29-14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1230								ORP
Method: Peristaltic pump	Slightly	4.41	1.53	20.78	18.7	0.77	0.7	118

PURGE DATA:

Date: 5-28-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC			SEE	low	flow	page		
Total Well Depth (TD):								
Static Water Level (WL): 10.70			Data	Sheet				
One Casing Volume(gal.):								
Start Purge (hrs): 1144								
End Purge (hrs): 1230								
Total Purge Time (min): 35								
Total Vol. Purged (gal.): 1.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	5-29-14 1230

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112IC06247

Sample ID No.: MRC-MW-08B-052914
Sample Location: MW-08B
Sampled By: MP
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5-29-14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1029								
Method: Peristaltic pump	Clear	5.67	0.44	16.04	1.7	1.49	0.0	133

PURGE DATA:

Date: 5-29-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC		See Low Flow Purge Data sheet						
Total Well Depth (TD):								
Static Water Level (WL): 4.21								
One Casing Volume(gal/L):								
Start Purge (hrs): 0913								
End Purge (hrs): 1024								
Total Purge Time (min): 70								
Total Vol. Purged (gal): 4.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓

OBSERVATIONS / NOTES:

Circle If Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River - Center
Project No.: NEI06247

Sample ID No.: MRC-MW-90B-060914
Sample Location: MW-90B
Sampled By: MP
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

Sampling Data

Date: 6-9-14	Color (Visual)	pH (SU)	S.C. (µS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1121								
Method: Peristaltic pump	Clear	11.00	1.86	20.41	0.0	0.35	0.9	-36

Purging Data

Date: 6-9-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material:								
Type: 2" PVC		See low flow purge data sheet						
Total Well Depth (ft):								
Depth to Water Level (ft): 6.95								
One Casing Volume (gal):								
Start Purge (hrs): 1030								
End Purge (hrs): 1166								
Total Purge Time (min): 46								
Total Vol. Purged (gal): 7.5								

Sample Collection Information

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
1,4-Dioxane	Na2S2O3	2 - 250 ml Amber	✓
Perchlorate	—	1 - 250 ml Poly	✓

Observations / Notes

Check if Applicable:

Duplicate	Duplicate ID No.:	Equipment Blank
✓		

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112EC06247

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRC-MW-90B-061814
Sample Location: MW-90B
Sampled By: MP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6-18-14								
Time: 0939								
Method: Peristaltic pump	Clear	11.37	1.70	22.09	0.0	0.24	0.9	-26

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6-18-14								
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC			See	low	flow	purge		
Total Well Depth (TD):			Data	sheet				
Static Water Level (WL): 6.60								
One Casing Volume(gal/L):								
Start Purge (hrs): 0903								
End Purge (hrs): 0934								
Total Purge Time (min): 31								
Total Vol. Purged (gal/L): 1.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 ml VOA	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Matt P

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112IC06247

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRC-MW-91A-052914
Sample Location: MW-91A
Sampled By: WP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5-29-14								
Time: 1523								
Method: Peristaltic pump	Slightly	6.77	3.00	16.87	28.6	1.08	1.6	87

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 5-29-14								
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC		See	low	flow	purge			
Total Well Depth (TD):								
Static Water Level (WL): 9.01		Data	Sheet					
One Casing Volume (gal/L):								
Start Purge (hrs): 1352								
End Purge (hrs): 1518								
Total Purge Time (min): 81								
Total Vol. Purged (gal/L): 3.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
1,4 Dioxane	~~Na~~ H_2SO_4	2 - 250 ml Ambers	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Walt R

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRL Annual GW 2014
Project No.: 112IC06347

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRL-MW-92C
Sample Location: MRL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6/11/14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1215								
Method: peri pump	clear	6.64	0.353	18.82	48	0.00	0.02	blk

PURGE DATA:

Date: 6/11/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: peri pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC		SEE LOW FLOW PURGE DATA SHEET						
Total Well Depth (TD): -								
Static Water Level (WL): 11.05								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1130								
End Purge (hrs): 1215								
Total Purge Time (min): 45								
Total Vol. Purged (gal/L): ~2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓
Total Metals	HNO3	1-500 mL plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112G6247

Sample ID No.: MRC-MW-93A 05-29-14
Sample Location: MW-93A
Sampled By: MP
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5-29-14 6-3-14	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other chl
Time: 0810								
Method: Peristaltic Pump	Slightly	4.37	5.24	15.71	47.0	1.42	2.9	315

PURGE DATA:

Date: 5-29-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Meter Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):			See low flow purge					
Static Water Level (WL): 9.10								
One Casing Volume (gal.):			Data Sheet					
Start Purge (hrs): 0822								
End Purge (hrs): 0858								
Total Purge Time (min): 35								
Total Vol. Purged (gal): 0.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	6-3-14 0810
Total metals	HNO3	1 - 500 ml Poly	

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River - Center
Project No.: 112G06247

Sample ID No.: MC-MW-94B-052814
Sample Location: MW-94B
Sampled By: MP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

Date: 5-28-14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 0942								
Method: Peristaltic pump	Clear	5.00	0.055	17.02	3.8	2.11	0.1	87

PURGE DATA:

Date: 5-28-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC		See Low Flow Purge Data Sheet						
Total Well Depth (TD):								
Static Water Level (WL): 4.65								
One Casing Volume (gal/L):								
Start Purge (hrs): 0916								
End Purge (hrs): 0937								
Total Purge Time (min): 80								
Total Vol. Purged (gal): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3- 40 ml VOA	✓

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River-Central
Project No.: 1125C06247

Sample ID No.: MRC-MW-95B-052914
Sample Location: MW-95B
Sampled By: MP
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5-29-14	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1156								
Method: Peristaltic Pump	Clear	7.88	0.244	16.13	7.5	0.35	0.1	6

PURGE DATA:

Date: 5-29-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC		See	low	flow	purge			
Total Well Depth (TD):								
Static Water Level (WL): 3.65			Data	Sheet				
One Casing Volume (gal.):								
Start Purge (hrs): 1100								
End Purge (hrs): 1151								
Total Purge Time (min): 51								
Total Vol. Purged (gal): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD | Duplicate ID No.:

Signature(s): Matt B

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112IC06247

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRC-MW-96A-051414
Sample Location: MW-96A
Sampled By: WP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5-14-14								
Time: 0915								
Method: Peristaltic pump	Clear	3.95	0.835	14.30	0.0	0.91	0.4	ORP 385

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 5-14-14								
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC		See low flow purge						
Total Well Depth (TD):								
Static Water Level (WL): 10.40		Data sheet						
One Casing Volume(gal/L):								
Start Purge (hrs): 0822								
End Purge (hrs): 0910								
Total Purge Time (min): 48								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
1,4 Dioxane		2 - 250 ml Ambers	✓
Perchlorate	—	1 - 250 ml Poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
—		Walt P

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112S006247

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: MRC-MW-96B 05141
Sample Location: MW-96B
Sampled By: VP
C.O.C. No.:
Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5-14-14 / Time: 1025 / Method: Peristaltic Pump	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
	Clear	5.24	3.08	16.27	0.0	0.41	1.6	252

PURGE DATA:

Date: 5-14-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC				See Low Flow purge				
Total Well Depth (TD):								
Static Water Level (WL): 15.10				Data Sheet				
One Casing Volume(gal/L):								
Start Purge (hrs): 0934								
End Purge (hrs): 1020								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 100 ml Poly	✓
1,4 Dioxane		2 - 250 ml Amber	✓
Perchlorate	—	1 - 250 ml Poly	✓

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):
Walt R

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112EC06247

Sample ID No.: MRC-MW-GEA-060714
Sample Location: MW-GEA
Sampled By: WP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

SAMPLING DATA:

Date: 6-17-14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1444								
Method: Peristaltic pump	Clear	5.46	0.576	25.51	9.9	5.40	0.2	172

PURGE DATA:

Date: 6-17-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):			See Low Flow Purge Data Sheet					
Static Water Level (WL): 3.90								
One Casing Volume(gal/L):								
Start Purge (hrs): 1353								
End Purge (hrs): 1439								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 1.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
1,4 Dioxane	Na2S2O3	2 - 250 ml Amber	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD
Duplicate ID No.:

Signature(s):

Tetra Tech

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle Rio Grande Conservancy
Project No.:

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRGC-MW-58B-061714
Sample Location: MW-58B
Sampled By: VP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-17-14	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Time: 1545	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	ORP
Method: Peristaltic Pump	Clear	3.56	0.782	23.65	0.0	0.44	0.4	179

PURGE DATA:

Date: 6-17-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):			See	low	flow	purge		
Static Water Level (WL): 11.20								
One Casing Volume(gal/L):			Data	Sheet				
Start Purge (hrs): 1454								
End Purge (hrs): 1540								
Total Purge Time (min): 46								
Total Vol. Purged (gal/L): 1.7								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
1,4 Dioxane	Na2S2O3	2 - 250 ml Amber	✓

OBSERVATIONS / NOTES:

Circle if Applicable:		Signature(s):
MS/MSD	Duplicate ID No.:	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: MRL Annual GW 2014
Project No.: 112IL06247

[] Domestic Well Data
[✓] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRL-MW-100A
Sample Location: MRL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[✓] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/12/14								
Time: 1005								
Method: peri pump	clear	~~10.92~~ 6.21	0.429	17.39	7.54	0.00	0.02	ORP 225

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/12/14								
Method: peri pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): ~19'		See low flow purge data sheet						
Static Water Level (WL): 9.15'								
One Casing Volume(gal/L): –								
Start Purge (hrs): 0920								
End Purge (hrs): 1010								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): ~3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓
1-4 dioxane	NaHSO4	2-250 mL pumbers	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
		[signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Mar Annual GW 2014
Project No.: 112L06247

Sample ID No.: MAR-MW-100B
Sample Location: MAR
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/12/14								
Time: 1100								
Method: peri pump	clear	5.70	0.256	19.59	20.8	0.00	0.01	ORP 54

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/12/14								
Method: peri pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC			See low flow purge data sheet					
Total Well Depth (TD): —								
Static Water Level (WL): 9.73								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1015								
End Purge (hrs): 1115								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): ~2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40mL VIALS	✓
1-4 dioxane	NaHSO4	2-250mL AMBERS	✓
Total Metals	HNO3	1-500 mL plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRL Annual GW 2014
Project No.: 112G06247

Sample ID No.: MRL-MW-101A
Sample Location: MRL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[x] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

Date: 5/8/14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1430								
Method: Peri pump	Clear	5.48	0.080	23.86	10.2	1.00	0.0	ORP 192

PURGE DATA:

Date: 5/8/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peri pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC			See low flow		purge	data	sheet	
Total Well Depth (TD): 17.71								
Static Water Level (WL): 14.76								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1125								
End Purge (hrs): 1150								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): ~1.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40mL vials	✓

OBSERVATIONS / NOTES:

Well went dry @ 1152, allow recharge, sample taken @ 1430

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAL Annual Gw 2014
Project No.: 112G06247

Sample ID No.: MAL-MW-101B
Sample Location: MAL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

- [ ] Domestic Well Data
- [x] Monitoring Well Data
- [ ] Other Well Type:
- [ ] QA Sample Type:

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5/8/14								
Time: 1745								
Method: per pump	Clear	4.76	0.085	23.74	48.9	0.00	0.0	ORP 344

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 5/8/14								
Method: per pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 35.68			See low flow purge sheet					
Static Water Level (WL): 14.53								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1200								
End Purge (hrs): 1247								
Total Purge Time (min): 47								
Total Vol. Purged (gal/L): 2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 mL glass vials	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRL Annual GW 2014
Project No.: 112G06247

Sample ID No.: MRL-MW102B
Sample Location: MRL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

Date: 5/8/14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 0950								ORP
Method: peri pump	Clear	4.14	0.101	18.78	4.26	0.00	0.0	375

PURGE DATA:

Date: 5/8/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: peri pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC			SEE	LOW FLOW	PURGE	SHEET		
Total Well Depth (TD): 361								
Static Water Level (WL): 10.89								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0900								
End Purge (hrs): 0955								
Total Purge Time (min): 55								
Total Vol. Purged (gal/L): ~2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL glass vials	✓
Total Metals	HNO3	1-500 mL Plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRC Annual GW 2014
Project No.: 112100247

Sample ID No.: MRC-MW102A
Sample Location: MRC
Sampled By: JAM
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5/8/14								
Time: 1100								
Method: peri pump	clear	6.21	0.391	19.34	12.7	0.00	0.1	ORP -85

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 5/8/14								
Method: peri pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 16.02			See low flow purge data sheet					
Static Water Level (WL): 10.38								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1010								
End Purge (hrs): 1102								
Total Purge Time (min): 52								
Total Vol. Purged (gal/L): ~2.2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40mL VIALS	✓

OBSERVATIONS / NOTES:

Circle If Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAL Annual GW 2014
Project No.: 112G06747

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MAL-MW104B
Sample Location: MAL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5/12/14								
Time: 1130								
Method: Grd pump	Clear	7.04	2.04	18.39	138	0.00	0.7	ORP 281

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 5/12/14								
Method: grd pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC			See low flow purge data sheet					
Total Well Depth (TD): 24.5'								
Static Water Level (WL): 5.20'								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1045								
End Purge (hrs): 1135								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): ~2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓
Total Metals	HNO3	1-500 mL plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAL Annual GW 2014
Project No.: 112106247

Sample ID No.: MAL-MW-104A
Sample Location: MAL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

- [ ] Domestic Well Data
- [x] Monitoring Well Data
- [ ] Other Well Type:
- [ ] QA Sample Type:

SAMPLING DATA:

Date: 5/12/14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1025								
Method: peri pump	Clear	5.35	1.43	22.53	14.4	0.00	0.4	257

PURGE DATA:

Date: 5/12/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: peri pump								
Monitor Reading (ppm): –								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD): 14.71			See low flow purge sheet					
Static Water Level (WL): 4.87								
One Casing Volume(gal/L): –								
Start Purge (hrs): 0935								
End Purge (hrs): 1030								
Total Purge Time (min): 55								
Total Vol. Purged (gal/L): ~2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓

OBSERVATIONS / NOTES:

Circle If Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Mal Annual Gw 2014
Project No.: 112G6297

Sample ID No.: MAL-MW-105A
Sample Location: MAL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 5/12/14								ORP
Time: 1345								
Method: peri pump	clear	5.18	0.612	23.34	7.91	8.13	0.2	297

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 5/12/14								
Method: peri pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC		See low flow purge data Sheet						
Total Well Depth (TD): 16.95								
Static Water Level (WL): 4.54								
One Casing Volume(gal/L): -								
Start Purge (hrs): 1300								
End Purge (hrs): 1350								
Total Purge Time (min): 50								
Total Vol. Purged (gal/L): -								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
Total Metals	HNO3	1-500 ml plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MAL Annual GW 2014
Project No.: 112106247

Sample ID No.: MAL-MW106B/C
Sample Location: MAL
Sampled By: JAM
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5/23/14	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 0910								
Method: peri pump	clear	5.50	0.117	18.81	12.84	0.20	0.0	41

PURGE DATA:

Date: 5/23/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: peri pump								
Monitor Reading (ppm): -								
Well Casing Diameter & Material Type: 2" PVC			SEE LOW FLOW PURGE DATA SHEET					
Total Well Depth (TD): 50.0								
Static Water Level (WL): 44.0								
One Casing Volume(gal/L): 2.0								
Start Purge (hrs): 0825								
End Purge (hrs): 0912								
Total Purge Time(min): 47								
Total Vol. Purged (gal/L): ~2								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 ml vials	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRL Annual GW 2014
Project No.: 192I106247

[] Domestic Well Data
[✓] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRL-MW-107B/C
Sample Location: MRL
Sampled By: JAM
C.O.C. No.:
Type of Sample:
[✓] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/2/14								
Time: 1025								ORP
Method: peri pump	Clear	5.36	0.049	~~15.1~~ 22.6	915.1	8.00	~~580.0~~	0.58

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/2/14								
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material			See low flow purge sheet					
Type: 2" PVC								
Total Well Depth (TD): 59.31								
Static Water Level (WL): 0.4								
One Casing Volume (gal/L): —								
Start Purge (hrs): 0940								
End Purge (hrs): 1045								
Total Purge Time (min): 65								
Total Vol. Purged (gal/L): ~3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 ml vials	✓
~~[illegible]~~			
Total metals	HNO_3	1-500 ml plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River - Eureka
Project No.: 112EC06247

Sample ID No.: MRE-MW-109A-060514
Sample Location: -MW-109A
Sampled By: WP
C.O.C. No.:

☐ Domestic Well Data
☑ Monitoring Well Data
☐ Other Well Type:
☐ QA Sample Type:

Type of Sample:
☐ Low Concentration
☐ High Concentration

SAMPLING DATA:

Date: 6-5-14	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1036								
Method: Peristaltic pump	Clear	6.46	0.641	16.57	3.0	0.33	0.3	-57

PURGE DATA:

Date: 6-5-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic Pump								
Monitor Casing (inch): 0.0								
Well Casing Diameter & Material:		See low flow purge						
Type: 2" PVC								
Total Well Depth (ft):		Data sheet						
Static Water Level (ft): 11.00								
One Casing Volume (gal):								
Start Purge (hr): 0945								
End Purge (hr): 1031								
Total Purge Time (min): 46								
Total Vol. Purged (gal): 1.3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
Perchlorate	—	1 - 250 ml Poly	✓

COMMENTS / NOTES:

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature: Walt P

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112C06217

Sample ID No.: MRC-MW-109B-060514
Sample Location: MW-109B
Sampled By: WP
C.O.C. No.:
Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

- [ ] Domestic Well Data
- [x] Monitoring Well Data
- [ ] Other Well Type:
- [ ] QA Sample Type:

SAMPLING DATA:

Date: 6-5-14	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1132								
Method: Peristaltic Pump	Clear	7.53	0.292	17.63	0.0	2.90	0.1	-34

PURGE DATA:

Date: 6-5-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic Pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC		See Low Flow Purge						
Total Well Depth (ft):								
Static Water Level (ft): 15.90			Data Sheet					
One Casing Volume (gal):								
Start Purge (hrs): 1041								
End Purge (hrs): 1127								
Total Purge Time (min): 46								
Total Vol. Purged (gal): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
Perchlorate	—	1 - 250 ml Poly	✓
		"	

COMMENTS / NOTES:

Check if Applicable:
- [ ] SPLIT
- Duplicate ID No.:

Signature: Walt R

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MRL Annual 2014
Project No.: 112G06247

Sample ID No.: MRL-MW-110A
Sample Location: MRL
Sampled By: Sam
C.O.C. No.:

☐ Domestic Well Data
☑ Monitoring Well Data
☐ Other Well Type:
☐ QA Sample Type:

Type of Sample:
☑ Low Concentration
☐ High Concentration

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Date: 6/3/14								
Time: 1245								
Method: peri pump	clear	7.30	1.65	24.23	0.00	0.10	0.08	134

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/3/14								
Method: peri pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material Type: 2" PVC		See low flow purge data sheet						
Total Well Depth (TD): 21.69'								
Static Water Level (SWL): 2.74'								
One Casing Volume (gal.): —								
Start Purge (hrs): 1200								
End Purge (hrs): 1305								
Total Purge Time (min): 65								
Total Vol. Purged (gal.): ~3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓
1-4 dioxane	$NaHSO_4$	2-250 mL amber	✓
Total Metals	HNO_3	1-500 mL plastic	✓
Perchlorate	—	1-250 mL plastic	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: MRC Annual GW
Project No.: 112IC06247

[] Domestic Well Data
[✓] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRC-MW-110B
Sample Location: MRC
Sampled By: TAM
C.O.C. No.:
Type of Sample:
[✓] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6/3/14								
Time: 1350								ORP
Method: peri pump	Clear	5.60	2.54	23.00	10.35	0.00	0.18	109

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6/3/14								
Method: peri pump								
Monitor Reading (ppm):								
Well Casing Diameter & Material		See low flow purge sheet						
Type: 2" PVC								
Total Well Depth (TD): 55.25								
Static Water Level (WL): 2.15								
One Casing Volume (gal/L): —								
Start Purge (hrs): 13.05								
End Purge (hrs): 1405								
Total Purge Time (min): 60								
Total Vol. Purged (gal/L): ~3								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3-40 mL vials	✓
1-4 dioxane	Na_2HSO_4	2-250 mL ambers	—
Perchlorate	—	1-250 mL ~~amber~~ plastic	✓
Total metals	HNO_3	1-500 mL plastic	—

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle Riven Center
Project No.: 112SC06247

Sample ID No.: MRC-MW-111A-061614
Sample Location: MW 111A
Sampled By: HP
C.O.C. No.:
Type of Sample:
[ ] Low Concentration
[ ] High Concentration

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

SAMPLING DATA:

	Color (Visual)	pH (SU)	S.C. (µS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Date: 6-16-14								
Time: 1415								
Method: Peristaltic pump	Slightly	6.74	0.716	23.99	57.2	0.56	0.3	-136

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6-16-14								
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC								
Total Well Depth (TD):			See low flow purge					
Static Water Level (WL): 4.40								
One Casing Volume (mL):			Data Sheet					
Start Purge (hrs): 1323								
End Purge (hrs): 1410								
Total Purge Time (min): 47								
Total Vol. Purged (gal): 2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservation	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
E.M. Dioxane	Nitrous	2 - 250 ml Ambers	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s): Walt R

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River-Conta
Project No.: 112Fc0624.7

Sample ID No.: MRC-MW-111B-061614
Sample Location: MW-111B
Sampled By: WP
C.O.C. No.:

Type of Sample:
- [ ] Low Concentration
- [ ] High Concentration

- [ ] Domestic Well Data
- [ ] Monitoring Well Data
- [ ] Other Well Types:
- [ ] QA Sample Types:

	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6-16-14								
Time: 1516								
Method: Peristaltic pump	Clean	5.66	0.257	24.84	9.9	0.29	0.1	ORP 3

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6-16-14								
Method: Peristaltic pump								
Tubing Diameter (inch): 0.6								
Well Casing Diameter & Material:								
Type: 2" PVC			See	low	flow	pump		
Total Well Depth (ft):								
Static Water Level (ft): 12.92			Data	Sheet				
One Casing Volume (gal):								
Start Purge (hrs): 1425								
End Purge (hrs): 1511								
Total Purge Time (min): 46								
Total Vol. Purged (gal): 1.7								

Analysis	Preservative	Container(s)/Volume(s)	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
1,4-Dioxane	Na2SO4	2 - 250 ml Amber	✓

Comments/Observations/Remarks:

Sample Shipped Via:

Signature:

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: MNL Annual GW 2014
Project No.: 112I06247

Sample ID No.: MNL-MW-112A
Sample Location: MNL
Sampled By: JAR
C.O.C. No.:

- [ ] Domestic Well Data
- [x] Monitoring Well Data
- [ ] Other Well Type:
- [ ] QA Sample Type:

Type of Sample:
- [x] Low Concentration
- [ ] High Concentration

SAMPLING DATA:

Date: 6/5/14	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1340								
Method: peri pump	Clear	5.09	0.655	16.17	11.7	6.00	0.03	217

PURGE DATA:

Date: 6/5/14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: peri pump								
Monitor Reading (ppm): —								
Well Casing Diameter & Material Type: 2" PVC		See Low flow purge data sheet						
Total Well Depth (TD): ~30								
Static Water Level (WL): 2.56								
One Casing Volume (gal): —								
Start Purge (hrs): 1255								
End Purge (hrs): 1345								
Total Purge Time (min): 50								
Total Vol. Purged (gal): ~2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 40 mL vials	✓
Total (Metals)	HNO3	1-500 mL plastic	✓

OBSERVATIONS / NOTES:

Circle If Applicable:
MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle River Center
Project No.: 112IC06247

Sample ID No.: MRC-MW-115A-060214
Sample Location: MW-115A
Sampled By: MP
C.O.C. No.:

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Type of Sample:
[ ] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 6-2-14	Color (Visual)	pH (SU)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP
Time: 1209								
Method: Peristaltic pump	Clear	7.07	1.37	21.04	0.41	0.26	0.7	-104

PURGE DATA:

Date: 6-2-14	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material Type: 2" PVC		See	low	flow	purge			
Total Well Depth (TD):								
Static Water Level (WL): 6.41			Data	Sheet				
One Casing Volume (gal):								
Start Purge (hrs): 1023								
End Purge (hrs): 1204								
Total Purge Time (min): 91								
Total Vol. Purged (gal): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml. VOA	✓
Total metals	HNO3	1 - 500 ml Poly	✓
1,4-Dioxane	NaHSO4	2 - 250 ml Ambers	✓
Perchlorate	—	1 - 250 ml Poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:
MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Middle Diver center
Project No.: H2FC06247

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: MRC-MW-116A-C60214
Sample Location: MW-116A
Sampled By: WP
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 6-2-14								
Time: 0938								ORP
Method: Peristaltic pump	Clear	8.09	0.575	16.40	0.0	1.90	0.3	-160

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 6-2-14								
Method: Peristaltic pump								
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 2" PVC		See	low	flow	purge			
Total Well Depth (TD):								
Static Water Level (WL): 5.45			Data	Sheet				
One Casing Volume (gal/L):								
Start Purge (hrs): 0802								
End Purge (hrs): 0933								
Total Purge Time (min): 91								
Total Vol. Purged (gal/L): 3.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	3 - 40 ml VOA	✓
Total Metals	HNO3	1 - 500 ml Poly	✓
1,4-Dioxane	Nat2SO4	2 - 250 ml Ambers	✓
Perchlorate	—	1 - 250 ml Poly	✓

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Walt Pe

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual Gw 2014
PROJECT NUMBER: 117160247

WELL ID.: MRL MW-01A
DATE: 6/13/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1040	12.70	-	-	-	-	-	-	-		
1045	12.99	300	5.67	0.00	N/A	10.24	24.32	61	0.00	
1050	13.30	300	5.23	~~0.00~~ 0.337	10	0.76	18.73	134	0.02	
1055	13.70	~~300~~	5.12	0.310	56.1	0.00	17.47	157	0.01	
1100	13.95	300	5.15	0.305	63.4	0.00	17.16	162	0.01	
1105	14.20	300	5.08	0.302	54.1	0.00	16.91	171	0.01	
1110	14.45	300	5.06	0.302	47.8	0.00	16.52	175	0.01	
1115	14.70	300	5.07	0.302	42.7	0.00	16.81	176	0.01	
1120	14.90	300	5.08	0.301	39.3	0.00	16.84	178	0.01	
1125	15.04	300	5.09	0.301	35.9	0.00	16.60	178	0.01	
~~1130~~	Sample	Perchlorate + Take Dup-06 @1125								

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Condo
PROJECT NUMBER: 112Fc0247

WELL ID.: MRC-MW-02A-061814
DATE: 6-18-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1018	6.80	—	—	—	—	—	—	—	—	Initial, pre color clear water
1019	7.60	300	5.65	0.656	0.0	1.84	23.97	213	0.3	
1024	8.10	250	4.93	0.653	0.0	1.67	23.66	234	0.3	
1029	8.20	200	4.29	0.654	0.0	1.63	23.57	251	0.3	
1034	8.22	100	4.09	0.648	0.0	1.60	23.76	260	0.3	
1039	8.30	100	3.79	0.643	0.0	1.54	23.97	226	0.3	
1044	8.35	100	3.75	0.645	0.0	1.54	23.97	275	0.3	
1049	8.40	100	3.70	0.645	0.0	1.52	24.14	280	0.3	
				Well Parameters			Stabilize			
					Sampling	Begins				

SIGNATURE(S): Matt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-02A-060904
DATE: 6-9-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1458	7.25	—	—	—	—	—	—	—	—	Initial, no odor
1459	8.25	300	6.82	0.817	32.7	6.65	21.02	232	0.4	Slightly cloudy
1504	8.50	300	5.10	0.756	17.1	5.49	21.18	269	0.4	↓
1509	8.55	200	4.41	0.709	6.1	5.02	22.30	287	0.3	clear water
1519	8.70	200	3.88	0.669	7.0	4.80	21.67	308	0.3	↓
1529	8.70	150	3.80	0.649	4.5	4.33	22.28	316	0.3	↓
1534	8.70	150	3.77	0.644	6.3	4.28	22.01	318	0.3	↓
1539	8.70	150	3.73	0.643	6.0	4.20	21.97	321	0.3	↓
1544	8.70	150	3.71	0.642	6.0	4.65	21.97	322	0.3	↓

Well Parameter Stabilized →

Sampling Begins →

SIGNATURE(S): W. R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-04A-060914
DATE: 6-9-14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (‰ or ppt)	Comments
1324	2.43	—	—	—	—	—	—	—	—	Initial, MW cover
1325	3.40	300	9.21	22.3	274	0.87	26.74	81	13.5	cloudy water
1330	3.90	250	9.54	23.4	253	0.49	24.27	71	14.2	
1335	3.90	200	9.40	24.6	267	0.52	21.56	69	14.9	
1345	4.30	200	8.84	22.4	125	0.64	20.78	50	13.5	
1355	4.60	100	9.00	21.8	47.4	0.66	20.92	39	13.0	
1405	4.85	100	8.94	21.2	34.6	0.46	20.86	35	12.7	
1415	5.30	100	8.67	21.4	22.4	0.43	20.46	32	12.8	
1420	5.40	100	8.61	21.4	19.0	0.42	20.52	26	12.8	clear water
1425	5.42	100	8.54	21.3	18.7	0.41	20.56	20	12.5	
1430	5.45	100	8.51	21.2	8.7	0.42	20.56	20	12.5	
				Well Parameters Stabilize						
				Sampling Begins						

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-EXT-06-060514
DATE: 6-5-14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
1316	9.35	—	—	—	—	—	—	—	—	Initial water clear water
1317	9.40	300	6.71	0.644	0.0	5.12	16.96	94	0.3	
1322	9.50	300	6.51	0.669	0.0	3.34	16.04	96	0.3	
1327	9.50	300	6.43	0.671	0.0	2.71	16.24	99	0.3	
1332	9.50	300	6.24	0.675	0.0	2.46	16.11	101	0.3	
1347	9.50	300	6.06	0.674	0.0	2.86	16.14	114	0.3	
1352	9.50	300	5.99	0.676	0.0	2.85	16.20	122	0.3	
1357	9.50	300	5.95	0.677	0.0	2.83	16.09	127	0.3	
1402	9.50	300	5.90	0.677	0.0	2.82	16.00	131	0.3	
				4 of parameters stabilized						
				Sampling Begins						

SIGNATURE(S): Will Pe

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112I106247
WELL ID.: MRL MW-07A
DATE: 6/3/14

Time (hrs)	Water Level (Ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	%	Comments
0815	11.29	—	—	—	—	—	—	—	—		
0820	11.43	100	5.13	2.81	29.1	3.91	20.46	296	0.15		
0825	11.53	100	5.66	2.95	19.4	3.19	20.25	283	0.15		
0830	11.63	100	5.76	2.98	14.3	3.11	19.91	281	0.15		
0835	11.79	100	5.78	3.00	12.72	2.84	19.49	282	0.16		
0840	11.94	100	5.79	3.01	11.15	2.70	19.34	283	0.16		
0845	12.15	100	5.79	3.00	11.67	2.57	19.47	282	0.16		
0850	12.45	100	5.84	3.02	9.06	2.55	19.50	280	0.16		
0855	12.75	100	5.87	3.04	8.74	2.54	19.56	277	0.16		
0900	13.03	100	5.88	3.05	8.55	2.53	19.60	277	0.16		
	Sample 1-4 dioxane, Total metals										

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRC MW-08B
DATE: 6/12/14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (% of ppt)	Comments
1300	—	—	—	—	—	—	—	—	—	
1305	—	100	5.77	0.000	OVR	9.51	19.59	166	0.00	
1310	—	100	6.10	0.106	2087AV	1.08	19.63	145	0.00	
1315	—	100	5.88	0.089	OVR	0.85	19.75	173	0.00	
1320	—	100	5.94	0.095	OVR	0.74	19.82	177	0.00	
1325	—	100	5.99	0.125	OVR	0.32	19.93	177	0.01	
1330	—	100	6.16	0.111	OVR	0.27	20.02	173	0.01	
1335	—	100	5.83	0.074	6 ESTAV	0.52	20.06	193	0.00	
1340	—	100	5.55	0.064	12	0.59	20.11	212	0.00	
1345	—	100	5.54	0.060	14	0.54	20.17	227	0.00	
		Sample vols, perchlorate, 1-4 dried and @ 1345								

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112I06167

WELL ID.: MRL-MW08A-
DATE: 5/22/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (ppt or PPT)	Comments
1000	0.3	—		—	—	—	—	—	—	
1005	0.44	100	5.73	2.57	789.4	0.00	19.73	13	0.9	
1010	1.75	100	5.76	2.55	51	0.00	19.44	4	0.9	
1015	2.59	100	5.77	2.54	59.8	0.00	19.47	0	0.9	
1020	3.76	100	5.78	2.54	39.2	0.00	19.44	-1	0.9	
1025	3.56	100	5.76	2.53	33.9	0.00	19.40	1	0.8	
1030	3.56	100	5.74	2.51	32.8	0.00	19.56	5	0.8	
1035	3.56	100	5.72	2.50	34.3	0.00	19.68	7	0.8	
1040	3.56	100	5.72	2.50	32.6	0.00	19.61	9	0.8	
1045	3.56	100	5.71	2.49	31.9	0.00	19.65	9	0.8	
	Sample	VOCs 1-4 dioxane, Total metals, Perchlorate @ 1045								

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014 **WELL ID.:** MRC MW10A-052214
PROJECT NUMBER: 112106183 **DATE:** 5/22/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1200	1.70	—	—	—	—	—	—	—	—	
1205	1.82	100	6.16	0.426	45	0.51	29.67	-80	0.1	
1210	2.21	100	6.09	0.349	27.3	0.00	27.79	-88	0.1	
1215	2.66	100	6.06	0.388	13.8	0.00	27.25	-89	0.1	
1220	3.01	100	6.06	0.385	12.7	0.00	26.81	-89	0.1	
1225	3.33	100	6.06	0.424	14.9	0.00	21.39	-89	0.1	
1230	3.43	100	6.08	0.424	15.9	0.00	21.23	-94	0.1	
1235	3.49	100	6.16	0.418	14.4	0.00	20.95	-100	0.1	
1240	3.49	100	6.19	0.411	22.4	0.00	20.90	-102	0.1	
1245	3.49	100	6.18	0.410	29.1	0.00	20.89	-102	0.1	
	Sample	VOCs, 1-4 dioxane, Total metals @ 1245								

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112EL06247

WELL ID.: MRC-MW-11A-060214
DATE: 6/2/14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0815	1.58	–	–	–	–	–	–	–	–	
0820	2.03	100	6.35	1.33	23	0.35	23.28	129	0.3	
0825	2.19	100	6.68	1.05	55.1	0.00	20.96	39	0.3	
0830	2.20	100	6.74	1.06	47.3	0.00	20.31	13	0.3	
0835	2.20	100	6.77	1.07	48.1	0.00	19.86	6	0.3	
0840	2.20	100	6.75	1.08	34.2	0.00	19.43	4	0.3	
0845	2.20	100	6.74	1.09	30.1	0.00	19.24	5	0.3	
0850	2.20	100	6.73	1.09	28.7	0.00	19.20	6	0.3	
0855	2.20	100	6.72	1.09	29.1	0.00	19.10	7	0.3	
0900	2.20	100	6.71	1.10	29.8	0.00	19.09	8	0.3	
	Sample	LOCS,	1-4 dual,	Tot-1	Metals @	0900				

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MAC Annual Gw 2014
PROJECT NUMBER: 117106183

WELL ID.: MAC-MW11C-0522N
DATE: 5/22/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1310	0.5	—	—	—	—	—	—	—	—	
1315	0.5	100	4.69	0.035	11.8	2.32	25.72	190	0.0	
1320	0.5	100	4.42	0.026	12.18	1.90	23.75	211	0.0	
1325	0.5	100	4.44	0.027	11.60	1.78	23.39	234	0.0	
1330	0.5	100	4.36	0.024	11.2	1.67	23.25	247	0.0	
1335	0.5	100	4.32	0.022	10.6	1.68	23.09	256	0.0	
1340	0.5	100	4.30	0.022	0.0	1.75	23.27	261	0.0	
1345	0.5	100	4.29	0.021	0.0	1.74	23.35	265	0.0	
1350	0.5	100	4.32	0.021	0.0	1.79	23.30	267	0.0	
1355	0.5	100	4.32	0.021	0.0	1.78	23.10	268	0.0	
	Sample VOCs and		1-4 dichlane @		1355					

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Bromide Sampling
PROJECT NUMBER: 112IC04769

WELL ID.: MRL-MW-12A
DATE: 6/17/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0830	0.4	–	–	–	–	–	–	–	–	
0835	0.74	300	5.59	0.289	34.4	1.28	16.50	78	0.01	
0840	1.29	300	5.51	0.290	23.4	0.83	15.68	68	0.01	
0845	1.53	300	5.54	0.288	28.0	0.60	15.44	62	0.01	
0850	1.77	300	5.60	0.287	27.7	0.97	15.56	54	0.01	
0855	1.98	300	5.72	0.287	30.5	0.81	15.42	47	0.01	
0900	2.20	300	5.70	0.279	34.2	0.65	16.12	47	0.01	
0905	2.40	300	5.60	0.276	31.9	0.45	17.10	49	0.01	
0910	2.50	300	5.73	0.279	31.8	0.38	15.96	46	0.01	
0915	2.60	300	5.67	0.277	29.0	0.31	15.92	47	0.01	
	Sample	Bromide	@ 0915							

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Car Rem. Bromide Sampling
PROJECT NUMBER: 117108764

WELL ID.: MW-MW-12B
DATE: 6/17/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0930	13.27	-	-	-	-	-	-	-	-	
0935	14.04	300	5.81	0.115	OVR	1.53	19.91	84	0.01	
0940	14.94	300	5.81	0.116	34	0.80	19.75	101	0.01	
0945	15.74	300	5.82	0.118	43	0.63	19.00	108	0.01	
0950	16.50	300	5.70	0.120	45	0.54	19.07	116	0.01	
0955	17.06	300	5.72	0.121	44	0.48	20.02	118	0.01	
1000	17.94	300	5.77	0.122	50	0.41	20.04	113	0.01	
1005	18.45	300	5.75	0.123	49	0.41	19.91	114	0.01	
1010	19.20	300	5.81	0.127	50	0.36	19.75	108	0.01	
1015	20.01	300	5.82	0.128	50	0.32	19.40	105	0.01	
		Sample	Bromide	@1015						

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MPC Annual GW 2014
PROJECT NUMBER: 112106247
WELL ID.: MPC MW 14C
DATE: 6/9/14

Time	Water Level (ft below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (ppt)	Comments
1305	5.17	—	—	—	—	—	—	—	—	
1310	5.60	100	6.09	0.060	OVR	2.95	32.82	67	0.00	
1315	5.91	100	6.04	0.091	OVR	1.70	22.46	77	0.00	
1320	6.10	100	5.87	0.089	1247AV	0.42	20.88	105	0.00	
1325	6.21	100	5.80	0.088	923AV	0.37	20.53	118	0.00	
1330	6.34	100	5.76	0.087	962AV	0.18	20.20	118	0.00	
1335	6.44	100	5.70	0.088	848AV	0.08	19.89	111	0.00	
1340	6.54	100	5.59	0.086	747AV	0.00	19.54	102	0.00	
1345	6.61	100	5.61	0.089	673AV	0.00	19.52	95	0.00	
1350	6.68	100	5.55	0.090	635AV	0.00	19.26	91	0.00	
1355	6.71	100	5.53	0.091	604AV	0.00	19.51	85	0.00	
1400	6.72	100	5.57	0.091	46	0.00	19.33	82	0.00	
1405	6.75	100	5.69	0.090	43	0.00	19.15	75	0.00	
1410	6.81	100	5.64	0.091	37	0.00	19.03	75	0.00	
1415	6.81	100	5.67	0.092	38	0.00	19.16	71	0.00	
1420	6.81	100	5.71	0.093	29	0.00	19.19	66	0.00	
1425	6.84	100	5.82	0.093	34	0.00	19.26	59	0.00	
1430	6.84	100	5.75	0.093	38	0.00	19.06	61	0.00	
1435	6.84	100	5.80	0.093	25	0.00	19.25	59	0.00	
	Sample	VOCs, 1,4-dioxane, Total Metals								

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Mill Annex GW 2014
PROJECT NUMBER: 112G06247

WELL ID: MW-14A-060414
DATE: 6/4/14

Time	Water Level (ft. below TOC)	Flow (mL)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Salinity (ppt)	Comments
1005	3.20	—	—	—	—	—	—	—	—	
1010	3.51	100	5.92	0.755	46	0.87	21.15	66	0.04	
1015	3.64	100	5.99	0.831	39	0.32	21.26	54	0.04	
1020	3.71	100	5.99	0.839	54.4	0.00	21.00	52	0.04	
1025	3.85	100	6.00	0.893	51.1	0.00	20.69	53	0.04	
1030	3.85	100	6.07	0.871	0.0	0.00	20.64	44	0.04	
1035	4.07	100	6.01	0.879	0.0	0.00	20.61	45	0.04	
1040	4.13	100	6.04	0.889	0.0	0.00	20.93	45	0.04	
1045	4.21	100	6.00	0.900	0.0	0.00	21.12	46	0.04	
1050	4.26	100	6.02	0.906	0.0	0.00	21.26	47	0.04	
	Sample	VOCs, 1-4 dioxane,		Total Metals @ 1050						

SIGNATURE(S):

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC GW 2014
PROJECT NUMBER: 112I106247

WELL ID.: MRC-MW-14B
DATE: 6/5/14

Time (Hrs)	Water Level (Feet below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (% of pH)	Comments
0820	4.19	—	—	—	—	—	—	—	—	
0825	4.23	100	4.42	0.000	OVR	10.42	21.71	222	0.00	
0830	4.30	100	4.87	0.377	OVR	2.59	19.48	234	0.02	
0835	4.50	200	5.25	0.345	790AU	1.39	18.22	181	0.02	
0840	4.52	200	5.27	0.341	677AU	1.08	17.17	169	0.02	
0845	4.54	200	5.24	0.342	67	1.12	16.44	166	0.02	
0850	4.54	200	5.20	0.342	32	0.90	16.03	166	0.02	
0855	4.54	200	5.10	0.342	30	0.63	15.74	181	0.02	
0900	4.54	200	5.18	0.342	12	0.46	15.53	169	0.02	
0905	4.54	200	5.14	0.343	11.4	0.29	15.39	168	0.02	
	Sample	VOCs, 8-4 dioxane, Total metals, MEE + NAA								

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER:

WELL ID.: MRC-MW-15A-052014
DATE: 5-20-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1334	Top of PVC	—	—	—	—	—	—	—	—	Initial, pre calon.
1335	0.60	300	6.16	2.12	16.5	0.37	23.48	-44	1.1	Clear water
1340	0.60		6.14	2.16	13.2	0.33	22.62	-45	1.1	
1345	0.60		6.08	2.20	5.2	0.30	21.59	-45	1.1	
1350	0.60		5.98	2.25	0.0	0.27	20.70	-43	1.2	
1405	0.60		5.93	2.27	0.0	0.25	20.26	-42	1.2	
1410	0.60		5.93	2.28	0.0	0.24	20.04	-41	1.2	
1415	0.60		5.92	2.27	0.0	0.27	20.00	-40	1.2	
1420	0.60	↓	5.91	2.27	0.0	0.26	19.91	-38	1.2	↓
			Well parameters Stabilize							
			Sampling Begins							

SIGNATURE(S): Matt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-16A-052014
DATE: 5-20-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1448	2.00	—	—	—	—	—	—	—	—	Initial, no odor.
1449	2.65	300	4.55	1.11	38.6	0.46	20.97	128	0.5	Slightly Cloudy
1454	3.40	300	4.37	1.13	20.3	0.36	20.41	145	0.6	↓
1459	3.60	200	4.25	1.16	23.1	0.28	20.19	163	0.6	↓
1509	3.85	100	3.90	1.15	8.7	0.27	20.25	202	0.6	Clean water
1519	4.23	100	3.69	1.14	10.7	0.24	20.36	228	0.6	↓
1524	4.40	100	3.68	1.14	7.5	0.24	20.37	233	0.6	↓
1529	4.42	100	3.67	1.15	7.4	0.24	20.25	237	0.6	↓
1534	4.44	100	3.66	1.14	7.4	0.25	20.27	240	0.6	↓

Well Parameter Stabilize →

Sampling Begins →

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-17A-060514
DATE: 6-5-14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (ppt)	Comments
0829	6.50	—	—	—	—	—	—	—	—	Initial, no odor
0830	7.10	300	6.21	2.73	487	1.45	15.91	24	1.4	Cloudy water
0835	7.10	200	6.26	2.66	415	1.07	15.89	3	1.4	↓
0840	7.10	200	6.30	2.66	76.4	0.74	15.72	-16	1.4	↓
0850	7.30	180	6.32	2.57	1.9	0.53	15.58	-25	1.3	Clear water
0900	7.30	180	6.34	2.57	0.8	0.45	15.73	-31	1.3	↓
0905	7.30	180	6.38	2.62	9.7	0.44	15.78	-36	1.4	↓
0910	7.30	180	6.42	2.63	9.5	0.43	15.86	-42	1.4	↓
0915	7.30	180	6.44	2.64	9.6	0.42	15.76	-45	1.4	↓

Well Parameters Stabilize

Sampling Begins

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 1627C0247

WELL ID.: MRC-MW-19A-060514
DATE: 6-5-14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
										Initial no odor
0824	6.95	—	—	—	—	—	—	—	—	
0830	7.66	300	4.23	0.563	1.7	2.10	19.65	275	0.3	Clear Water
0835	7.72	300	4.01	0.555	0.7	1.37	18.69	308	0.3	
0840	7.82	200	3.85	0.556	5.4	1.23	18.76	320	0.3	
0845	8.65	150	3.83	0.557	15.6	1.07	18.71	346	0.3	
0900	9.02	100	3.76	0.555	10.5	1.04	18.49	356	0.3	
0905	9.32	100	3.77	0.559	5.6	1.04	18.50	354	0.3	
0910	9.60	100	3.75	0.574	4.3	1.07	18.47	361	0.3	
0920	10.20	100	3.71	0.611	2.0	1.06	18.44	367	0.3	
0930	10.70	100	3.64	0.615	0.0	1.03	18.55	366	0.3	
0940	11.25	100	3.56	0.602	0.0	1.00	18.66	375	0.3	
0950	11.90	100	3.54	0.561	0.0	0.98	18.71	378	0.3	
1000	12.30	100	3.54	0.517	0.0	0.93	18.65	381	0.3	
			All Parameters did not Stabilize							
			after 90 min Max purge time							
			Move to Sampling							

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: B112EC06247

WELL ID.: MRC-MW-19A-061814
DATE: 6-18-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0755	10.90	—	—	—	—	—	—	—	—	Initial pump clear water
0756	11.22	300	4.13	0.524	0.0	1.35	24.35	244	0.3	
0901	11.50	200	3.95	0.530	0.0	1.00	22.93	272	0.3	
0806	11.71	100	3.94	0.529	0.0	1.35	22.33	288	0.3	
0811	11.90	100	3.89	0.535	0.0	2.10	22.03	300	0.3	
0816	12.00	100	3.88	0.539	0.0	2.04	21.91	308	0.3	
0821	12.05	100	3.88	0.538	0.0	2.10	22.06	313	0.3	
0826	12.10	100	3.86	0.537	0.0	2.10	22.04	318	0.3	
				New Parameters Stabilized						
				Sampling Begins						

SIGNATURE(S): Matt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112FC06247

WELL ID.: MRC-MW-21A-060314
DATE: 6-3-14

Time	Water Level (Below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (‰ or ppt)	Comments
0827	2.90	—	—	—	—	—	—	—		Initial, no color
0828	4.50	300	6.53	0.725	115	1.71	16.65	-3	0.4	Cloudy water
0833	5.00	250	7.06	0.747	92.5	0.88	15.71	-35	0.4	↓
0838	5.60	150	7.20	0.746	45.6	0.67	16.01	-66	0.4	↓
0848	6.20	100	7.28	0.754	30.1	0.49	15.44	-83	0.4	Slightly cloudy
0858	6.40	100	7.30	0.756	15.4	0.43	15.54	-89	0.4	↓
0903	6.70	100	7.32	0.751	18.0	0.41	15.58	-90	0.4	↓
0909	6.75	100	7.33	0.750	18.2	0.42	15.60	-90	0.4	↓
0913	6.80	100	7.37	0.749	18.5	0.43	15.54	-91	0.4	↓
				PH Parameters		Stabilize				
				Sampling		Begins				

SIGNATURE(S): Walt Pe

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-21B-060314
DATE: 6-3-14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (‰ or ppt)	Comments
0951	9.20	—	—	—	—	—	—	—	—	Initially moderately cloudy water
0952	9.90	300	6.91	0.254	975	3.19	16.16	-35	0.1	
0957	10.30	200	6.21	0.263	351	0.60	16.62	-1	0.1	
1002	10.35	150	6.20	0.264	198	0.53	16.45	-1	0.1	
1012	10.65	150	6.19	0.271	27.6	0.43	16.47	-2	0.1	
1022	10.70	100	6.15	0.280	14.6	0.41	16.54	-1	0.1	
1027	10.72	100	6.09	0.286	5.5	0.42	16.52	1	0.1	Clear water
1032	10.73	100	6.06	0.287	5.3	0.41	16.54	4	0.1	
1037	10.74	100	6.02	0.288	5.5	0.42	16.57	6	0.1	
				Well Parameters Stabilized						
				Sampling Begins						

SIGNATURE(S): Walter Pa

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-22A-060314
DATE: 6-3-14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (% or ppt)	Comments
1125	13.00	—	—	—	—	—	—	—	—	Initial, no odor
1126	13.73	300	5.83	0.093	13.6	2.90	18.52	87	0.0	Clear water
1131	14.52	300	5.76	0.092	18.0	2.39	18.48	103	0.0	
1136	15.30	150	5.66	0.092	11.3	2.14	18.85	122	0.0	
1146	16.60	100	5.43	0.091	4.3	2.03	19.23	146	0.0	
1156	18.15	100	5.09	0.090	0.4	2.00	19.43	176	0.0	
1206	19.00	100	4.98	0.090	0.0	1.87	19.59	186	0.0	
1216	20.00	100	4.84	0.090	0.0	1.87	19.76	195	0.0	
1226	21.30	100	4.72	0.090	0.0	1.80	19.74	200	0.0	
1236	22.50	100	4.70	0.089	0.0	1.70	20.28	198	0.0	
1246	23.70	100	4.68	0.090	0.0	1.63	20.61	191	0.0	
1256	24.90	100	4.64	0.090	0.0	1.56	21.04	189	0.0	

Well parameters did not stabilize
after 90 min max purge pump
Workplan sampling begins

SIGNATURE(S): Walt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRL-MW-22B
DATE: 6/17/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1250	10.51	–	–	–	–	–	–	–	–	
1255	11.21	300	5.49	0.123	58.7	0.58	29.97	246	0.01	
1300	11.89	300	5.47	0.126	41.3	0.41	28.53	169	0.01	
1305	12.63	300	5.44	0.130	25.3	0.40	26.82	142	0.01	
1310	13.40	300	5.43	0.129	21.0	0.29	26.18	134	0.01	
1315	14.06	300	5.49	0.131	20.4	0.21	25.60	125	0.01	
1320	14.92	300	5.42	0.132	19.1	0.13	25.21	122	0.01	
1325	15.71	300	5.45	0.133	18.0	0.05	25.09	120	0.01	
1330	16.48	300	5.47	0.132	17.5	0.00	24.98	114	0.01	
1335	17.23	300	5.48	0.130	16.0	0.00	25.25	112	0.01	
	Sample Total Metals, vol, 1,4 dioxane @ 1335									

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 — WELL ID.: MRL-MW-24A
PROJECT NUMBER: 112106247 — DATE: 5/29/14

Time (Hrs.)	Water Level (Ft. Below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (ppt)	Comments
1305	7.43	-	-	-	-	-	-	-	-	
1310	7.44	100	5.28	0.002	26.7	2.78	20.09	202	0.0	
1315	7.44	100	4.46	1.01	20.6	0.57	19.60	263	0.3	
1320	7.55	100	4.38	1.02	10.96	0.06	19.27	274	0.3	
1325	7.61	100	4.35	1.03	9.07	0.00	19.17	276	0.3	
1330	7.65	100	4.32	1.04	8.19	0.00	19.10	273	0.3	
1335	7.65	100	4.31	1.04	6.62	0.00	19.04	270	0.3	
1340	7.67	100	4.30	1.04	5.43	0.00	18.97	269	0.3	
1345	7.69	100	4.29	1.04	6.12	0.00	18.92	268	0.3	
1350	7.70	100	4.28	1.03	4.78	0.00	18.89	267	0.3	
	Sampl. Total Metals + MEE + NA# @ 1350									

SIGNATURE(S): _____

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-25A-061714
DATE: 6-17-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0857	12.50	—	—	—	—	—	—	—	—	Initial, MW after clean jacket
0858	13.15	300	6.87	0.314	0.0	3.55	23.24	154	0.1	
0903	13.90	200	9.96	0.291	0.0	2.74	22.74	64	0.1	
0908	14.10	100	10.13	0.290	0.0	2.70	22.60	49	0.1	
0913	14.80	100	10.07	0.288	0.0	2.42	22.48	-1	0.1	
0918	15.15	100	9.72	0.290	0.0	2.35	22.53	-16	0.1	
0923	15.45	100	8.85	0.292	0.0	2.21	22.67	4	0.1	
0938	15.90	100	7.61	0.295	0.0	1.93	22.81	16	0.1	
0948	15.90	100	6.81	0.296	0.0	1.71	22.93	33	0.1	
0958	15.90	100	6.19	0.297	0.0	1.49	22.99	47	0.1	
1008	16.10	100	5.75	0.300	0.0	1.27	23.06	60	0.1	
1018	16.20	100	5.49	0.302	0.0	1.11	23.09	69	0.1	
1028	16.30	100								
				Well parameters did not						
				Stabilize after 60 min max						
				Purge MRC Work Plan & Sampling						
				Begins						

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247

WELL ID.: MRC-MW-~~26~~ 26A-052114
DATE: 5-21-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1345	9.90	—	—	—	—	—	—	—	—	Initial water color
1346	10.95	300	4.63	0.284	119	0.54	21.86	222	0.1	Cloudy water
1351	9.95	250	4.64	0.288	86.5	0.61	20.82	203	0.1	↓
1356	9.95	250	4.91	0.295	100	0.70	20.22	198	0.1	↓
1406	9.95	250	4.89	0.316	99.0	0.48	19.34	179	0.1	↓
1416	9.95	250	4.83	0.331	11.8	0.42	18.90	170	0.1	↓
1421	9.95	250	4.79	0.333	8.25	0.42	18.83	168	0.2	Clean water
1426	9.95	250	4.77	0.334	8.19	0.43	18.79	165	0.2	↓
1431	9.95	250	4.77	0.335	8.19	0.42	18.73	163	0.2	↓
					Well Parameters Stable					
					Sampling Begins					

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL GW 2014 ann 1
PROJECT NUMBER: 112IC06247

WELL ID.: MRL-MW 27C
DATE: 5/29/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (% or ppt)	Comments
1100	12.93	–	–	–	–	–	–	–	–	
1105	12.99	200	5.13	0.032	OVR	2.44	17.62	191	0.0	
1110	13.00	200	5.28	0.068	OVR	0.00	18.28	109	0.0	
1115	13.00	200	5.35	0.067	OVR	0.00	18.43	112	0.0	
1120	13.00	200	5.31	0.063	OVR	0.00	18.47	121	0.0	
1125	13.00	200	5.27	0.061	059	0.00	18.45	127	0.0	
1130	13.00	200	5.24	0.058	27	0.00	18.54	133	0.0	
1135	13.00	200	5.24	0.056	24	0.00	18.59	135	0.0	
1140	13.00	200	5.25	0.055	26	0.00	18.65	140	0.0	
1145	13.00	200	5.24	0.054	223	0.00	18.73	142	0.0	
	Sample VOCs @ 1145									

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-27A
DATE: 5/29/14

Time (HRS)	Water Level (ft below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (% or ppt)	Comments
0825	9.15	–	–	–	–	–	–	–		
0830	9.25	100	4.96	1.72	17.7	0.32	21.65	24	0.5	
0835	9.29	100	5.44	1.73	14.5	0.00	20.41	-17	0.5	
0840	9.30	100	5.42	1.73	12.9	0.00	19.82	-21	0.5	
0845	9.30	100	5.40	1.75	15.0	0.00	19.28	-22	0.5	
0850	9.30	100	5.39	1.75	12.7	0.00	18.91	-23	0.5	
0855	9.30	100	5.39	1.75	11.14	0.00	18.71	-26	0.5	
0900	9.30	100	5.42	1.76	8.54	0.00	18.63	-27	0.5	
0905	9.30	100	5.43	1.77	6.64	0.00	18.51	-27	0.5	
0910	9.30	100	5.43	1.78	4.95	0.00	18.41	-27	0.5	
0915	9.30	100	5.43	1.78	3.86	0.00	18.41	-27	0.5	
	Sample Logs, Total Metals, MEE + MEE						0915			

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual LW 2014
PROJECT NUMBER: 112T06247
WELL ID.: MRL-MW-27B
DATE: 05/29/14

Time (Hr.)	Water Level (ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (ppt)	Comments
0945	12.80	—	—	—	—	—	—	—	—	
0950	13.72	300	5.36	0.381	23.5	1.00	17.50	81	0.1	
0955	14.33	300	5.26	0.309	18.1	0.53	17.50	113	0.1	
1000	14.84	300	5.21	0.292	13.4	0.52	17.51	132	0.1	
1005	15.42	300	5.18	0.276	12.2	~~17.50~~ 0.52	17.51	145	0.1	
1010	16.31	300	5.16	0.265	10.26	0.98	17.50	160	0.1	
1015	16.93	300	5.14	0.259	10.32	0.53	17.55	169	0.1	
1020	17.96	300	5.10	0.255	8.12	0.43	17.68	187	0.1	
1025	19.11	300	5.11	0.255	6.33	0.40	17.68	190	0.1	
1030	20.02	300	5.12	0.255	6.12	0.41	17.68	191	0.1	
	sample	VOCs, Total Metals, MEE + NAA @ 1032								

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-29A-052114
DATE: 5-21-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1108	5.41	—	—	—	—	—	—	—	—	Initial pre-purge
1109	5.41	300	5.10	1.22	35.5	0.85	16.58	98	0.6	Slightly Cloudy
1114	5.41	300	4.42	1.23	14.0	0.46	16.54	153	0.6	〃
1119	5.41	300	4.32	1.23	10.8	0.40	16.72	169	0.6	Clear water
1129	5.41	300	4.26	1.11	5.7	0.36	16.87	204	0.6	〃
1139	5.41	300	4.17	1.06	5.6	0.34	16.91	229	0.6	〃
1144	5.41	300	4.14	1.04	4.8	0.34	16.85	240	0.5	〃
1149	5.41	300	4.15	1.03	4.8	0.33	16.99	245	0.6	〃
1154	5.41	300	4.17	1.03	4.7	0.32	17.07	250	0.5	〃
				Well parameters Stabilize						
				Sampling Begins						

SIGNATURE(S): Matt A

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW30A-050814
DATE: 5-8-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0805	0.93	—	—	—	—	—	—	—	—	Initial, Pump on
0806	1.46	300	6.43	2.60	0.0	5.16	13.25	206	1.3	Clean water
0811	1.45	300	6.85	2.63	0.0	4.27	13.16	196	1.3	
0816	1.50	300	6.94	2.57	0.0	3.60	13.07	187	1.3	
0821	1.50	300	6.93	2.52	0.0	3.24	13.47	175	1.3	
0836	1.50	300	6.90	2.48	0.0	3.11	13.42	176	1.3	
0841	1.50	300	6.91	2.46	0.0	3.13	13.46	174	1.3	
0846	1.50	300	6.92	2.46	0.0	3.17	13.47	172	1.3	
0851	1.50	300	6.93	2.46	0.0	3.23	13.44	170	1.3	
				Well parameters Stabilize						
				Sampling Begins						

SIGNATURE(S): Matt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112Ic06247
WELL ID.: MRC-MW-31A-050814
DATE: 5-8-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0905	2.65	—	—	—	—	—	—	—	—	Initial, no color
0906	3.15	300	6.31	0.216	0.0	4.58	13.86	216	0.1	Clear water
0911	3.55	300	4.75	0.208	0.0	4.07	13.52	273	0.1	
0916	3.52	200	4.49	0.216	0.0	3.91	13.62	305	0.1	
0926	3.48	200	4.38	0.231	0.0	3.54	14.01	329	0.1	
0936	3.40	200	4.35	0.241	0.0	3.52	14.05	336	0.1	
0941	3.40	200	4.33	0.248	0.0	3.36	14.07	340	0.1	
0946	3.40	200	4.31	0.250	0.0	3.28	14.06	346	0.1	
0951	3.40	200	4.30	0.250	0.0	3.24	14.04	350	0.1	
			Well parameters Stabilized							
			Sampling Begins							

SIGNATURE(S): Matt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-32A-050814
DATE: 5-8-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1007	3.40	—	—	—	—	—	—	—	—	Initial, no color
1008	4.15	300	5.77	0.492	52.3	6.62	13.65	266	0.2	Slightly cloudy
1013	4.80	300	6.38	0.404	10.3	6.29	13.35	248	0.2	Clear water
1018	4.75	200	6.43	0.394	9.2	6.13	13.55	243	0.2	
1028	4.75	200	6.47	0.369	0.0	5.99	14.31	228	0.2	
1038	4.75	200	6.55	0.330	0.0	6.10	15.27	210	0.2	
1043	4.75	200	6.53	0.326	0.0	6.02	15.45	205	0.2	
1048	4.75	200	6.49	0.321	0.0	5.90	15.78	200	0.2	
1053	4.75	200	6.40	0.317	0.0	5.79	16.14	197	0.2	
1103	4.75	200	6.30	0.311	0.0	5.68	16.82	194	0.2	
1113	4.75	200	6.20	0.306	0.0	5.55	17.27	198	0.1	
1118	4.75	200	6.15	0.304	0.0	5.44	17.50	202	0.1	
1128	4.75	200	6.09	0.302	0.0	5.47	17.61	203	0.1	
1138	4.75	200	6.04	0.297	0.0	5.50	17.72	205	0.1	

Well did not stabilize
after 90 min max purge pure
Workplan Sampling Begins

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 162DC06247
WELL ID.: MRC-MW-33A-050814
DATE: 5-8-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1357	2.22	—	—	—	—	—	—	—	—	Initial, no odor
1358	2.82	300	5.74	0.165	17.5	3.39	15.44	180	0.1	Slightly cloudy
1403	3.20	300	5.63	0.165	0.0	2.58	14.75	189	0.1	Clear water
1408	3.13	200	5.55	0.165	0.0	2.39	15.04	195	0.1	
1418	3.15	200	5.36	0.170	0.0	2.53	14.97	209	0.1	
1428	3.15	200	5.35	0.177	0.0	3.06	14.96	213	0.1	
1438	3.15	200	5.40	0.183	0.0	3.43	14.96	212	0.1	
1443	3.15	200	5.39	0.182	0.0	3.63	14.92	214	0.1	
1448	3.15	200	5.33	0.177	0.0	3.66	14.94	216	0.1	
1453	3.15	200	5.26	0.174	0.0	3.67	14.90	219	0.1	
1503	3.15	200	5.08	0.167	0.0	3.64	14.86	229	0.1	
1513	3.15	200	4.92	0.162	0.0	3.57	14.91	239	0.1	
1523	3.15	200	4.84	0.159	0.0	3.56	14.86	246	0.1	
1528	3.15	200	4.82	0.158	0.0	3.51	14.86	248	0.1	

Well Parameters did not Stabilize after 90 min Max
Purge Rate Match plan Sampling Begins

SIGNATURE(S): Matt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112Ic6247
WELL ID.: MRC-MW-34c-051214
DATE: 5-12-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1101	3.20	—	—	—	—	—	—	—	—	Initial, no odor
1102	3.41	300	4.58	0.115	0.0	1.30	19.66	313	0.1	Clear water
1107	3.41	300	4.69	0.114	0.0	1.12	19.44	307	0.1	
1112	3.41	300	4.67	0.114	0.0	1.04	19.18	300	0.1	
1122	3.41	300	4.48	0.115	0.0	0.95	18.70	285	0.1	
1132	3.41	300	4.31	0.114	0.0	0.93	18.71	276	0.1	
1137	3.41	300	4.26	0.114	0.0	0.92	18.66	272	0.1	
1142	3.41	300	4.23	0.115	0.0	0.91	18.41	267	0.1	
1147	3.41	300	4.20	0.115	0.0	0.91	18.45	264	0.1	
			Well parameters stabilize							
			Sampling Begins							

SIGNATURE(S): Matt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle Risen Center
PROJECT NUMBER: 112F06247
WELL ID.: MRC-MW-34A-051214
DATE: 5-12-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0749	3.45	—	—	—	—	—	—	—	—	Initial, no color
0750	3.62	300	6.17	0.191	0.0	10.83	14.64	208	0.1	Clear water
0755	3.62	300	6.43	0.172	0.0	9.55	14.53	207	0.1	
0800	3.62	300	6.45	0.163	0.0	9.21	14.48	211	0.1	
0810	3.62	300	6.29	0.158	0.0	9.04	14.57	221	0.1	
0820	3.62	300	6.11	0.150	0.0	8.86	14.77	228	0.1	
0830	3.62	300	5.86	0.157	0.0	9.06	14.81	242	0.1	
0840	3.62	300	5.71	0.160	0.0	9.01	14.79	251	0.1	
0845	3.62	300	5.67	0.162	0.0	9.06	14.79	255	0.1	
0850	3.62	300	5.69	0.162	0.0	9.01	14.80	254	0.1	
			Well parameters Stabilize							
			Sampling Begins							

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-34B-051214
DATE: 5-12-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0912	3.30	—	—	—	—	—	—	—	—	Initial no odor
0913	3.60	300	4.26	0.501	0.0	2.63	15.75	303	0.2	clear / water
0918	3.60	300	4.05	0.504	0.0	1.41	15.48	313	0.2	
0923	3.60	300	4.03	0.504	0.0	1.16	15.43	320	0.2	
0933	3.60	300	3.89	0.510	0.0	0.89	15.40	333	0.2	
0943	3.60	300	3.66	0.523	0.0	0.74	15.44	348	0.2	
0953	3.60	300	3.46	0.529	0.0	0.64	15.44	362	0.3	
1003	3.60	300	3.26	0.533	0.0	0.59	15.46	374	0.3	
1013	3.60	300	3.06	0.533	0.0	0.54	15.63	385	0.3	
1023	3.60	300	2.85	0.535	0.0	0.52	15.65	393	0.3	
1033	3.60	300	2.53	0.535	0.0	0.50	15.74	408	0.3	
1043	3.60	300	2.37	0.534	0.0	0.49	15.70	416	0.3	

Well parameters did not stabilize
after 90 min max purge pure
Workplan sampling Begins

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112Ic6247

WELL ID.: MRC-MW-37A-061814
DATE: 6.18.14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1132	6.35	—	—	—	—	—	—	—	—	Initial, no odor
1132	7.10	300	4.12	0.517	0.0	2.43	26.57	242	0.3	Cloudy Water
1137	7.70	300	4.21	0.528	571	1.94	26.45	240	0.3	
1142	7.90	200	4.30	0.539	408	2.19	27.09	234	0.3	
1147	7.70	100	4.29	0.564	288	7.31	26.93	232	0.3	
1152	7.70	100	4.28	0.563	160.0	2.34	26.90	230	0.3	
1157	7.70	100	4.28	0.562	58.3	2.31	26.79	230	0.3	
1202	7.70	100	4.26	0.561	58.4	2.28	26.72	229	0.3	
			Well Parameters Stabilize							
			Sampling Begins							

SIGNATURE(S): Walt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual LW 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRL-MW-37C-060514
DATE: 6/5/14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1100	4.92	–	–	–	–	–	–	–		
1105	5.79	200	6.63	0.170	50.4	8.65	18.73	163	0.01	
1110	6.28	200	6.66	0.193	37.9	0.80	18.43	-6	0.01	
1115	7.21	200	6.76	0.201	19.4	0.00	18.01	-33	0.01	
1120	8.21	200	6.84	0.198	15.0	0.00	17.77	-42	0.01	
1125	9.18	200	6.84	0.189	15.2	0.00	17.71	-41	0.01	
1130	10.08	200	6.75	0.160	12.6	0.00	17.78	-22	0.01	
1135	11.04	200	6.61	0.117	10.98	0.00	17.82	12	0.01	
1140	12.01	200	6.53	0.097	9.16	0.00	17.88	41	0.00	
1145	0.01	200	6.48	0.091	9.52	0.00	17.94	60	0.00	
1150	13.44	200	6.47	0.088	8.43	0.00	18.07	72	0.00	
1155	14.88	200	6.46	0.086	10.38	0.00	18.21	83	0.00	
1200	15.83	200	6.46	0.085	8.77	0.00	18.23	87	0.00	
	Sample	VOCs @ 1200		DUP-04-060514						

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW. WELL ID.: MRL MW-37A
PROJECT NUMBER: 117IC06247 DATE: 6/2/14 6/3/14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
1315	6.09	-	-	-	-	-	-	-	-	
1320	6.74	300	5.76	0.448	OVR	2.37	23.70	205	0.02	
1325	6.95	300	5.83	0.475	OVR	1.67	21.44	208	0.02	
1330	7.04	300	5.79	0.478	OVR	1.34	21.06	211	0.02	
1335	7.10	300	5.68	0.478	OVR	1.13	21.16	225	0.02	
1340	7.10	300	5.62	0.482	965 NTU	1.14	20.91	221	0.02	
1345	7.10	300	5.81	0.480	778 NTU	0.99	20.95	223	0.02	
1350										
1355										
1400										
	Sample @ 1400									

SIGNATURE(S):

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112IL06297

WELL ID.: MRL-MW-37B
DATE: 6/5/24

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1000	4.71	—	—	—	—	—	—	—	—	
1005	5.36	200	6.30	0.216	27.4	2.53	16.85	110	0.01	
1010	5.48	200	6.52	0.225	16.4	1.48	16.52	99	0.01	
1015	5.52	200	6.64	0.229	13.2	0.72	16.29	101	0.01	
1020	5.52	200	6.67	0.230	12.93	0.37	16.27	103	0.01	
1025	5.53	200	6.67	0.229	12.07	0.03	16.35	105	0.01	
1030	5.53	200	6.66	0.230	10.79	0.01	16.44	106	0.01	
1035	5.53	200	6.64	0.229	8.56	0.00	16.61	108	0.01	
1040	5.53	200	6.64	0.226	8.52	0.00	16.82	109	0.01	
1045	5.53	200	6.63	0.225	8.61	0.00	16.89	111	0.01	
	Sample	VOCs, MOE+NPA		@ 1045						

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-38A-052214
DATE: 5-12-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1323	4.85	—	—	—	—	—	—	—	—	Initial, no odor
1324	5.50	300	3.99	0.055	66.9	4.69	16.59	294	0.0	Slightly Cloudy
1329	5.70	250	3.83	0.103	41.3	3.72	15.55	306	0.0	↓
1334	5.61	200	3.82	0.103	32.5	3.23	15.26	316	0.0	↓
1344	5.55	200	3.59	0.104	19.2	3.24	14.74	335	0.0	↓
1354	5.55	200	3.36	0.104	10.2	3.31	14.29	357	0.0	↓
1404	5.55	200	3.11	0.104	0.3	3.31	14.35	377	0.0	Clean Water
1414	5.55	200	3.07	0.105	0.0	3.25	14.05	383	0.0	↓
1424	5.55	200	3.04	0.107	0.0	3.08	13.54	389	0.0	↓
1429	5.55	200	3.04	0.108	0.0	3.03	13.53	390	0.0	↓
1434	5.55	200	3.05	0.109	0.0	3.00	13.58	392	0.0	↓
1439	5.55	200	3.05	0.109	0.0	2.96	13.66	394	0.0	↓
				Well parameters Stabilize						
				Sampling Begins						

SIGNATURE(S): Watt

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River center
PROJECT NUMBER: K2IC06247

WELL ID.: MRC-MW-38B-061014
DATE: 6-10-14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1429	4.90	—	—	—	—	—	—	—	—	Initial, no odor
1430	5.45	300	4.65	0.046	23.6	4.00	21.87	150	0.0	Slightly Cloudy
1435	5.81	250	4.53	0.033	21.5	3.75	21.57	159	0.0	
1440	5.93	200	4.44	0.027	45.3	3.93	19.23	174	0.0	
1450	5.90	200	4.23	0.024	45.4	3.58	19.55	204	0.0	
1500	5.90	200	4.11	0.024	31.8	3.48	18.57	221	0.0	
1510	5.90	200	3.96	0.030	23.3	3.64	17.77	235	0.0	
1515	5.90	200	3.87	0.033	23.5	4.07	16.12	243	0.0	
1520	5.90	200	3.82	0.035	23.1	3.95	16.00	249	0.0	
1525	5.90	200	3.78	0.036	23.1	3.90	15.92	253	0.0	

Well Parameters Stabilize

Sampling Begins

SIGNATURE(S): Walt Pe

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-38A-061814
DATE: 6-18-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1332	4.35	—	—	—	—	—	—	—	—	Initial pump order
1339	5.05	3000	5.02	0.107	733	2.12	29.64	239	0.0	Cloudy water
1344	5.35	300	4.53	0.096	401	1.77	27.32	247	0.0	
1349	5.55	100	4.26	0.094	116	1.76	25.70	268	0.0	
1354	5.65	100	4.05	0.095	60.6	1.68	24.54	275	0.0	
1359	5.70	100	3.95	0.096	57.2	1.56	24.01	285	0.0	
1404	5.70	100	3.94	0.096	51.3	1.50	23.98	291	0.0	
1409	5.70	100	3.90	0.096	52.0	1.49	23.90	295	0.0	
				Well parameters stabilized						
					Sampling Begins					

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112I106747

WELL ID.: MRC-MW-4/4A
DATE: 6/13/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0740	8.14	—	—	—	—	—	—	—	—	
0745	8.40	100	5.47	3.10	26.2	0.74	18.09	49	0.16	
0750	8.56	100	6.36	3.13	10.06	0.00	16.98	-20	0.16	
0755	8.70	100	6.39	3.10	8.09	0.00	16.88	-28	0.16	
0800	8.90	100	6.42	3.05	7.13	0.00	16.91	-33	0.16	
0805	9.10	100	6.45	2.93	6.47	0.00	16.96	-36	0.15	
0810	9.23	100	6.51	1.80	9.16	0.00	17.01	-40	0.09	
0815	9.30	100	6.48	6.32	8.45	0.00	17.07	-39	0.06	
0820	9.34	100	6.42	1.22	8.13	0.00	17.18	-37	0.06	
0825	9.49	100	6.42	1.25	7.88	0.00	17.25	-39	0.06	
	Sample VOCs, 1-4 dioxane, Perchlorate, Total Metals @ 0825									

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 **WELL ID.:** MRL-MW-42A
PROJECT NUMBER: 117106247 **DATE:** 6/13/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0900	8.74	-	-	-	-	-	-	-	-	
0905	9.39	100	5.49	2.27	44.7	0.58	19.14	71	0.12	
0910	9.73	100	5.51	2.29	23.2	0.00	18.76	68	0.12	
0915	~~9.1~~ 10.15	100	5.81	2.92	15.3	0.00	18.55	35	0.10	
0920	10.52	100	5.91	1.79	12.1	0.00	18.27	16	0.09	
0925	~~11.15~~	100	5.86	1.74	8.80	0.00	18.31	17	0.09	
0930	11.48	100	5.80	1.71	9.51	0.00	18.68	22	0.09	
0935	11.69	100	5.79	1.65	10.27	0.00	18.71	27	0.08	
0940	11.91	100	5.74	1.46	12.9	0.00	18.76	30	0.07	
0945	12.11	100	5.74	1.45	11.6	0.00	18.75	33	0.07	
	Sample Total Metals @ 0945									
				FD-05						

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW
PROJECT NUMBER: 112G06247
WELL ID.: MRL-MW-46A
DATE: 5/12/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0800	4.34	—	—	—	—	—	—	—	—	
0805	4.89	100	6.45	0.443	85	0.35	22.27	-1	0.1	
0810	5.02	100	6.58	0.440	89.7	0.30	22.02	27	0.1	
0815	5.11	100	6.59	0.436	56.6	0.21	22.23	52	0.1	
0820	5.21	100	6.58	0.432	42.9	0.05	22.46	68	0.1	
0825	5.31	100	6.61	0.423	32.9	0.10	22.78	79	0.1	
0830	5.41	100	6.57	0.415	24.4	0.36	23.08	91	0.1	
0835	5.51	100	6.58	0.410	21.0	0.42	23.12	94	0.1	
0840	5.60	100	6.57	0.408	17.6	0.10	23.12	93	0.1	
0845	5.71	100	6.54	0.408	14.4	0.11	23.12	89	0.1	
0850	5.81	100	6.47	0.481	14.3	0.10	23.12	90	0.1	
		Sample Total Metals @ 0850								

SIGNATURE(S):

PAGE___OF___

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual Gw 2014
PROJECT NUMBER: 112IL06247

WELL ID.: MRL-MW-48A
DATE: 6/18/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0835	6.76	~	—	—	—	—	—	—	—	
0840	7.40	300	6.17	0.476	31.5	0.80	22.11	4	0.02	
0845	7.70	300	5.94	0.424	17.2	0.00	20.16	15	0.02	
0850	7.89	300	5.84	0.414	11.0	0.00	19.76	17	0.02	
0855	7.97	300	5.81	0.410	9.71	0.00	19.59	18	0.02	
0900	8.02	300	5.86	0.409	8.64	0.00	19.45	15	0.02	
0905	8.05	300	5.86	0.410	6.60	0.00	19.45	15	0.02	
	Sample NO_3, NO_2, OP04 @ 0905									

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Complex
PROJECT NUMBER: 112EC0247
WELL ID.: MRC-MW-49A-051914
DATE: 5-19-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1356	10.30	—	—	—	—	—	—	—	—	Initial, readings
1358	10.80	300	5.42	11.6	63.0	2.42	24.93	157	6.7	Slightly cloudy
1403	11.20	300	5.50	12.8	54.2	1.75	22.78	193	7.4	↓
1408	11.40	250	5.40	13.2	79.5	1.65	22.01	204	7.6	↓
1413	11.60	150	5.11	13.4	87.3	1.55	21.38	227	7.7	↓
1428	11.85	100	4.94	13.5	1.64	1.63	20.80	241	7.7	Clear water
1438	12.10	100	4.86	13.1	1.54	1.64	21.40	247	7.5	↓
1448	12.35	100	4.86	12.7	15.7	1.66	21.29	246	7.2	↓
1458	12.60	100	5.26	12.5	3.82	1.46	20.40	227	7.3	↓
1508	12.90	100	5.61	12.1	3.54	2.13	20.46	202	6.9	↓
1518	13.20	100	5.62	11.7	2.40	1.48	21.55	200	6.7	↓
1528	13.50	100	5.49	11.7	3.20	1.64	21.70	206	6.7	↓
			PeN parameters did not stabilize							
			after 90 min max purge time							
			~~Water~~ Work plan Sampling Begins							

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247

WELL ID.: MRC-MW-50A-051914
DATE: 5-19-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1121	13.70	—	—	—	—	—	—	—	—	Initial, no color.
1122	14.00	300	5.40	5.22	11.9	2.24	21.41	144	2.8	Clear water
1127	13.80	250	5.09	5.55	7.1	1.83	20.83	169	3.0	
1132	13.70	250	4.98	5.65	9.7	1.70	20.53	181	3.1	
1142	13.70	250	4.85	5.70	17.0	1.54	20.24	195	3.1	Slightly cloudy
1152	13.70	250	4.86	5.68	14.8	1.49	19.99	204	3.1	
1157	13.70	250	4.80	5.70	14.5	1.49	19.86	203	3.1	
1202	13.70	250	4.80	5.69	14.3	1.41	19.84	203	3.1	
1207	13.70	250	4.79	5.68	14.5	1.41	19.82	202	3.1	
			~~4.79~~	~~5.68~~	~~14.5~~					

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MAL Annual GW 2014 **WELL ID.:** MAL-MW-52A-
PROJECT NUMBER: 112116247 **DATE:** 6/3/14

Time (Hrs)	Water Level (ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP (mV)	Salinity (ppt)	Comments
0935	5.56	—	—	—	—	—	—	—	—	
0940	5.91	100 6.04	0.002	N/A	N/A	7.69	26.71	256	0.20	
0945	5.91	100 6.05	0.002		N/A	7.42	26.41	255	0.20	
0950	5.96	100 ~~6.05~~	~~6.76~~ 6.75	4.16	17	1.79	26.40	252	0.22	
0955	6.02	100	5.06	3.87	27.2	0.75	25.06	207	0.20	
1000	6.11	100	4.93	3.90	17.1	0.57	27.85	216	0.21	
1005	6.19	100	4.92	3.92	17.7	0.44	23.46	216	0.21	
1010	6.26	100	4.92	3.94	16.0	0.33	22.98	215	0.21	
1015	6.26	100	4.92	3.94	14.0	0.24	22.96	213	0.21	
1020	6.45	100	4.97	3.93	12.9	0.18	22.34	211	0.21	
		Sample Parameters + Total Metals								

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual tw 2014
PROJECT NUMBER: 112IL06247
WELL ID.: MRC MW53A
DATE: 5/23/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1205	4.56	—	—	—	—	—	—	—	—	
1210	4.61	100	5.75	2.06	OVR	0.13	21.78	86	0.6	
1215	4.71	100	5.47	1.24	858AV	0.00	20.38	124	0.3	
1220	4.85	100	5.29	0.688	43	0.00	20.15	152	0.2	
1225	4.96	100	5.22	0.574	47.3	0.00	19.85	168	0.1	
1230	5.07	100	5.21	0.527	29.3	0.00	19.64	177	0.1	
1235	5.19	100	5.16	0.511	14.7	0.00	19.76	177	0.1	
1240	5.25	100	5.22	0.511	11.2	0.00	19.91	184	0.1	
1245	5.32	100	5.28	0.519	11.85	0.00	19.90	183	0.1	
1250	5.39	100	5.28	0.524	11.86	0.00	19.87	186	0.1	
~~[illegible]~~	Sample	VOCs, 1-4 dioxane, Total Metals, perchlorate								

SIGNATURE(S): [signature]

PAGE___OF___

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MNE Annual GW 2014 **WELL ID.:** MNE-MW 533
PROJECT NUMBER: 117IC06247 **DATE:** 5/27/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1310	3.91	–	–	–	–	–	–	–	–	
1715	4.0	100	6.33	315	71.0	1.42	23.27	147	1.1	
1320	4.01	100	6.01	3.24	33.8	0.49	22.74	146	1.2	
1325	4.01	100	5.94	3.29	15.5	0.00	22.56	144	1.2	
1330	4.01	100	5.92	3.29	11.7	0.00	22.50	144	1.2	
1335	4.01	100	5.90	3.27	10.62	0.00	22.57	145	1.2	
1340	4.01	100	5.89	3.24	9.74	0.00	22.45	147	1.2	
1345	4.01	100	5.89	3.23	9.97	0.00	22.45	147	1.1	
1350	4.01	100	5.89	3.22	10.93	0.00	22.25	148	1.1	
1355	4.01	100	5.88	3.21	9.87	0.00	22.19	148	1.1	
	Sample VOCs, Total Metals, 1-4 dioxane, Perchlorate @ 1355									

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PAGE

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112FL06183
WELL ID.: MRL-MW54A
DATE: 5/22/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0850	3.46	—	—	—	—	—	—	—	—	
0855	3.75	100	4.62	0.206	90	6.16	20.05	200	0.0	
0900	3.81	100	4.85	0.157	66	0.00	19.04	179	0.0	
0905	3.86	100	4.87	0.132	55	0.00	18.77	168	0.0	
0910	3.86	100	4.87	0.120	79.7	0.00	18.71	171	0.0	
0915	3.86	100	4.90	0.111	66.9	0.00	18.65	169	0.0	
0920	3.86	100	4.85	0.107	38.2	0.00	18.65	173	0.0	
0925	3.86	100	4.79	0.105	28.8	0.00	18.73	178	0.0	
0930	3.86	100	4.78	0.103	18.9	0.00	18.71	182	0.0	
0935	3.86	100	4.83	0.103	18.3	0.00	18.75	182	0.0	
	Sample	1-4 dioxane and		Perchlorate	@ 0935			FM 0945		

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112FC06247

WELL ID.: MRCC MW-57A-061214
DATE: 6-12-14

Time (Military)	Water Level (Feet below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (ppt)	Comments
1331	7.75	—	—	—	—	—	—	—	—	Started, no odor, clear water
1332	8.00	300	6.46	3.42	0.0	1.20	17.93	-73	1.8	
1337	8.40	200	6.74	3.43	0.0	0.48	18.32	-100	1.8	
1342	8.60	100	6.80	3.44	0.0	0.54	18.58	-108	1.8	
1352	9.00	100	6.82	3.45	0.0	0.39	18.57	-112	1.8	
1402	9.50	100	6.75	3.39	0.0	0.35	18.42	-102	1.8	
1407	9.70	100	6.73	3.36	0.0	0.34	18.38	-100	1.8	
1412	9.75	100	6.73	3.35	0.0	0.33	18.30	-100	1.8	
1417	9.90	100	6.74	3.36	0.0	0.33	18.29	-101	1.8	
			Well Parameters Stabilized							
				Sampling Begins						

SIGNATURE(S): Walt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-58A-051914
DATE: 5-19-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0907	4.25	—	—	—	—	—	—	—	—	Initial pre dev.
0908	5.00	300	6.99	0.589	34.1	1.40	16.61	-50	0.3	Slightly cloudy
0913	5.60	250	6.73	0.538	94.8	0.88	16.74	-42	0.3	
0918	6.30	100	6.68	0.525	92.6	0.52	17.11	-44	0.3	
0928	7.40	100	6.65	0.496	79.6	0.38	17.70	-48	0.2	
0938	8.35	100	6.58	0.481	29.9	0.33	18.19	-46	0.2	
0948	8.70	100	6.27	0.465	16.5	0.31	18.56	-32	0.2	
0958	8.90	100	6.14	0.440	8.4	0.32	18.83	-27	0.2	Clean Water
1008	9.20	100	6.09	0.396	2.4	0.53	19.11	-24	0.2	
1018	9.50	100	5.91	0.399	3.2	0.66	19.35	-15	0.2	
1028	9.75	100	5.86	0.434	2.3	0.55	19.68	-12	0.2	
1038	10.00	100	5.69	0.464	1.5	0.47	19.94	-10	0.2	
			Well parameters did not							
			stabilize after 90 min							
			Max purge per Work Plan							
			Sampling Begins							

SIGNATURE(S): Walt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247

WELL ID.: MW-MW-59A-051914
DATE: 5-19-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0755	8.42	—	—	—	—	—	—	—	—	Initial, no odor
0800	8.60	300	6.24	2.50	5.8	4.90	16.62	53	1.3	Clear water
0805	8.85	300	6.55	2.48	5.6	0.90	16.01	-64	1.3	
0810	9.00	200	6.62	2.42	0.0	0.71	15.71	-86	1.2	
0820	9.33	150	6.77	2.36	0.0	0.55	15.67	-97	1.2	
0830	9.70	100	6.83	2.36	0.0	0.54	15.69	-101	1.2	
0835	9.75	100	6.83	2.36	0.0	0.44	15.73	-102	1.2	
0840	9.80	100	6.83	2.38	0.0	0.44	15.73	-104	1.2	
0845	9.92	100	6.82	2.38	0.0	0.44	15.71	-103	1.2	
				Well Parameters Stabilized						
				Samples Begins						

SIGNATURE(S): WAR

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112ICU6247
WELL ID.: MRC-MW
DATE: 5-13-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0744	18.90	—	—	—	—	—	—	—	—	Initial pre purge
0745	19.60	300	3.24	4.66	0.0	1.35	21.05	332	2.5	Clear water
0750	20.03	200	3.30	4.66	0.0	0.84	20.61	375	2.5	
0755	20.55	150	3.26	4.70	0.0	0.80	20.49	390	2.5	
0805	21.35	100	3.18	4.76	0.0	0.77	19.95	399	2.5	
0815	21.55	100	3.15	4.76	0.0	0.71	19.95	403	2.5	
0825	21.95	100	3.13	4.77	0.0	0.67	20.07	404	2.5	
0835	22.28	100	3.15	4.72	0.0	0.64	20.15	404	2.5	
0845	22.60	100	3.17	4.76	0.0	0.62	20.02	402	2.5	
0855	22.90	100	3.17	4.76	0.0	0.58	19.92	400	2.5	
0905	23.15	100	3.18	4.77	0.0	0.56	20.09	397	2.5	
0915	23.49	100	3.23	4.75	0.0	0.54	19.97	392	2.5	4
			Well did not stabilize							
			after 90 min of max purge							
			Proceed with plan. Sampling Begins							

SIGNATURE(S): Walker

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River center
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-60A-061114
DATE: 6-11-14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
0913	12.70	—	—	—	—	—	—	—	—	Initial, pre odor
0914	12.85	300	5.74	0.384	836	1.47	19.22	57	0.2	Cloudy water
0919	12.85	300	6.04	0.283	198	0.57	18.22	-7	0.1	
0924	13.05	300	6.13	0.261	108	0.40	17.77	-41	0.1	
0934	13.10	200	6.16	0.259	23.3	0.39	18.05	-57	0.1	
0944	13.15	100	6.19	0.259	2.4	0.36	18.27	-66	0.1	Clean water
0949	13.20	100	6.21	0.260	0.8	0.35	18.30	-70	0.1	
0954	13.22	100	6.24	0.261	0.9	0.35	18.44	-73	0.1	
0959	13.22	100	6.24	0.262	1.0	0.34	18.46	-73	0.1	

Well Parameters Stabilize

Sampling Begins

SIGNATURE(S): Walt P

PAGE 2 OF 2

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247

WELL ID.: MRC-MW-60B-061113
DATE: 6-11-13

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
1026	11.70	—	—	—	—	—	—	—	—	Initial, no odor
1027	12.35	300	6.07	0.210	729	1.10	18.26	-2	0.1	cloudy water
1032	12.30	200	6.08	0.205	194	0.67	18.54	-2	0.1	
1037	12.30	200	6.08	0.203	107	0.53	18.69	-3	0.1	
1047	12.30	200	6.10	0.199	0.2	0.38	18.42	-4	0.1	Clear water
1057	12.30	200	6.10	0.197	0.0	0.33	18.35	-5	0.1	
1102	12.30	200	6.09	0.197	0.0	0.31	18.31	-5	0.1	
1107	12.30	200	6.07	0.197	0.0	0.31	18.32	-4	0.1	
1112	12.30	200	6.04	0.197	0.0	0.30	18.27	-3	0.1	

Well Parameters Stabilize

Sampling Begins

SIGNATURE(S): Walt Ryan

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112IL06249

WELL ID.: MRL-MW-60B
DATE: 6/18/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1010	12.01	–	–	–	–	–	–	–	–	
1015	12.51	300	5.88	0.139	74	0.09	21.49	20	0.01	
1020	12.65	300	5.87	0.135	32	0.00	20.84	22	0.01	
1025	12.79	300	5.89	0.134	18	0.00	20.55	20	0.01	
1030	12.84	300	5.84	0.134	40.4	0.00	20.49	23	0.01	
1035	12.88	300	5.87	0.133	31.1	0.00	20.43	22	0.01	
1040	12.92	300	5.88	0.132	26.4	0.00	20.28	22	0.01	
1045	12.95	300	5.90	0.131	19.2	0.00	20.24	22	0.01	
1050	12.95	300	5.86	0.130	18.2	0.00	20.21	25	0.01	
1055	12.95	300	5.91	0.129	16.6	0.00	20.21	24	0.01	
	Sample	LOCS, RSK-175, NO3 NO2 OPO4 @ 1055								

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual Gw 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRL-MW-60A
DATE: 6/18/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0925	12.87	—	—	—	—	—	—	—	—	
0930	12.96	300	5.92	0.258	47.5	0.88	19.51	4	0.01	
0935	13.08	300	5.88	0.223	28.4	0.00	18.93	5	0.01	
0940	13.16	300	5.81	0.205	19.7	0.00	19.10	6	0.01	
0945	13.22	300	5.83	0.200	17.2	0.00	19.09	2	0.01	
0950	13.28	300	5.88	0.196	15.0	0.00	19.18	-2	0.01	
0955	13.32	300	5.90	0.195	14.7	0.00	19.10	-4	0.01	
1000	13.38	300	5.92	0.194	13.2	0.00	19.25	-8	0.01	
		Sample vols @ 1000								

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MSA Annual GW 2014
PROJECT NUMBER: 112G06247

WELL ID.: MRL-MW-61A
DATE: 6/6/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1330	4.76	—	—		—		—		—	
1335	5.00	100	4.85	2.31	15.7	1.58	28.64	333	0.12	
1340	5.07	100	4.84	2.22	11.1	0.71	27.27	331	0.11	
1345	5.14	100	4.83	2.18	11.18	0.74	26.13	329	0.11	
1350	5.21	100	4.84	2.18	11.77	0.47	25.40	327	0.11	
1355	5.29	100	4.83	2.18	10.87	0.35	24.84	325	0.11	
1400	5.37	100	4.85	2.19	9.91	0.24	24.47	322	0.11	
1405	5.42	100	4.86	2.19	10.55	0.18	24.24	320	0.11	
1410	5.49	100	4.89	2.18	11.85	0.11	23.99	318	0.11	
1415	5.56	100	4.90	2.17	10.91	0.06	23.83	317	0.11	
	Sample Total Metals @ 1415									

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112G06247

WELL ID.: MRL-MW ~~70A~~ 63A
DATE: 5/22/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1005	3.75	–	–	–	–	–	–	–	–	
1010	3.93	100	4.96	0.816	36.9	3.09	~~23.25~~	166	~~0.6~~ 0.8	
1015	4.06	100	5.48	2.48	83.0	0.00	18.97	81	0.8	
1020	4.25	100	5.34	2.64	84.2	0.00	18.40	90	0.9	
1025	4.35	100	5.33	2.67	40.2	0.00	18.18	90	0.9	
1030	4.46	100	5.32	2.66	36.3	0.00	18.12	89	0.9	
1035	4.89	100	5.32	2.69	30.2	0.00	18.12	88	0.9	
1040	4.69	100	5.32	2.69	28.1	0.00	18.02	88	0.9	
1045	4.81	100	5.33	2.70	26.7	0.00	18.07	85	0.9	
1050	4.89	100	5.34	2.69	26.6	0.00	18.11	83	0.9	
	Sample	1005, 14 Dissolved, Total Metals @ 1050								

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-68A-051314
DATE: 5-13-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1427	11.56	—	—	—	—	—	—	—	—	Initial, no odor
1428	12.40	300	3.27	2.99	0.0	1.45	21.36	278	1.6	Clear water
1433	13.65	300	2.84	3.11	0.0	0.57	19.96	358	1.6	
1438	14.30	100	2.75	3.10	0.0	0.47	20.46	382	1.6	
1443	15.40	100	2.58	3.05	0.0	0.41	21.48	430	1.6	
1448	16.35	100	2.45	3.05	0.0	0.37	21.69	451	1.6	
1504	17.30	100	2.41	3.08	0.0	0.37	21.44	462	1.6	
1516	18.25	100	2.44	3.07	0.0	0.33	21.37	468	1.6	
1528	19.60	100	2.45	3.04	0.0	0.31	21.26	465	1.6	
1538	18.85	100	2.50	3.11	0.0	0.31	20.52	473	1.6	
1548	19.10	100	2.49	3.00	0.0	0.31	20.16	476	1.6	
1558	19.75	100	2.49	3.10	0.0	0.31	20.16	477	1.6	
			Well parameters did not stabilize after 90 min max purge time: Work plan Sampling Begins							

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IL06247
WELL ID.: MRC-MW-69B-051314
DATE: 5-13-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1010	10.52	—	—	—	—	—	—	—	—	Initial, no odor
1011	11.43	300	5.25	0.627	0.0	0.85	17.68	220	0.3	Clean Water
1016	12.53	250	5.08	0.610	0.0	0.77	17.68	223	0.3	
1021	13.45	150	4.93	0.541	0.0	1.38	17.61	244	0.3	
1031	15.30	100	4.96	0.522	0.0	1.62	17.66	276	0.3	
1041	16.21	100	5.00	0.523	0.0	1.68	17.81	283	0.3	
1051	18.20	100	4.95	0.513	0.0	1.56	19.03	298	0.3	
1101	18.51	100	4.92	0.513	0.0	1.52	19.10	301	0.3	
1111	19.80	100	4.85	0.509	0.0	1.42	19.91	305	0.3	
1121	21.00	100	4.71	0.502	0.0	1.36	20.35	311	0.2	
1131	22.22	100	4.67	0.503	0.0	1.35	20.48	311	0.2	
1141	23.65	100	4.61	0.496	0.0	1.34	21.14	310	0.2	
			Well parameters did not							
			Stabilize after 90 min Max							
			Purge per Workplan Sampling Reqs.							

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-69A-051314
DATE: 5-13-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1206	9.85	—	—	—	—	—	—	—	—	Initial, no color
1207	9.25	300	5.44	1.03	1.9	1.90	18.16	132	0.5	clear water
1212	9.52	300	5.80	1.01	0.0	0.56	16.40	47	0.5	
1217	9.73	250	5.89	0.861	0.0	0.41	16.65	25	0.4	
1227	10.03	150	5.74	1.10	0.0	0.36	17.66	17	0.5	
1237	10.13	100	5.58	1.19	0.0	0.35	18.23	19	0.6	
1242	10.20	100	5.33	1.23	0.0	0.32	18.35	30	0.6	
1252	10.27	100	4.80	1.24	0.0	0.31	18.51	52	0.6	
1302	10.33	100	4.49	1.25	0.0	0.29	18.61	66	0.6	
1312	10.45	100	4.32	1.24	0.0	0.29	18.63	74	0.6	
1317	10.45	100	4.30	1.28	0.0	0.29	18.52	74	0.6	
1322	10.45	100	4.29	1.28	0.0	0.28	18.37	75	0.6	
1327	10.45	100	4.27	1.28	0.0	0.28	18.22	76	0.6	
			WQ Parameters Stabilized							
			Sampling Begins							

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW
PROJECT NUMBER: 112C06277

WELL ID: MRC-MW-70R
DATE: 8/7/14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
		HORIBA U-52 NOT WORKING, PURGE for 60 mins and Sample -								

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112IC0E247

WELL ID.: MRC-MW-70B
DATE: 6/2/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
		HORIBA U-52 NOT WORKING, PURGE 60 MINS and Sample								

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112501247

WELL ID.: MRC-MW-71B-052014
DATE: 5-20-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0917	0.90	—	—	—	—	—	—	—	—	Initial, water
0918	1.55	300	6.14	0.384	96.3	3.38	18.16	205	0.2	Slightly cloudy
0923	2.50	300	6.63	0.317	18.5	2.63	18.14	182	0.1	↓
0928	3.00	200	6.66	0.345	5.4	2.46	18.33	158	0.1	Clear water
0938	3.50	100	6.56	0.294	7.6	2.29	18.73	143	0.1	
0948	3.70	100	6.42	0.287	3.7	2.09	19.16	127	0.1	
0958	3.70	100	6.32	0.283	2.9	1.87	19.42	123	0.1	
1003	3.70	100	6.29	0.282	2.8	1.95	19.53	120	0.1	
1008	3.70	100	6.26	0.281	2.9	1.81	19.66	117	0.1	↓
				Well Parameters Stabilize						
					Sample Begins					

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-71A-05-2014
DATE: 5-20-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1037	1.30	—	—	—	—	—	—	—	—	Initial, no odor.
1038	1.85	300	6.48	0.338	139	3.69	22.13	144	0.2	Cloudy water
1043	2.00	300	6.48	0.326	133	3.00	21.19	134	0.2	
1048	2.30	200	6.58	0.317	76.5	3.27	20.41	138	0.1	
1058	2.45	100	6.97	0.288	25.5	3.40	20.07	133	0.1	
1108	2.60	100	7.03	0.292	15.1	3.32	19.90	131	0.1	
1113	2.65	100	6.94	0.305	11.3	2.97	19.82	132	0.1	Clear water
1118	2.70	100	6.83	0.319	6.2	2.68	19.74	131	0.1	
1128	2.85	100	6.62	0.340	3.2	2.40	19.67	127	0.1	
1138	3.00	100	6.39	0.353	1.2	2.21	19.66	131	0.1	
1148	3.10	100	6.23	0.363	0.0	2.11	19.71	136	0.1	
1158	3.15	100	6.05	0.376	0.0	2.04	19.75	143	0.2	
1208	3.20	100	5.84	0.389	0.0	1.94	19.79	151	0.2	

Well parameters did not stabilize
after 90 min max purge pure workplan
Sampling Begins

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MLL Annual GW 2014
PROJECT NUMBER: 112IL06247

WELL ID.: MLL-MW-72B
DATE: 6/17/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1055	4.77	–	–	–	–	–	–	–	–	
1100	5.06	300	5.44	0.079	42	1.35	22.15	195	0.00	
1105	5.13	300	5.51	0.080	14	1.01	23.75	202	0.00	
1110	5.15	300	5.50	0.079	20	0.90	22.72	207	0.00	
1115	5.15	300	5.49	0.078	25	0.82	22.80	210	0.00	
1120	5.15	300	5.47	0.078	24	0.76	22.64	212	0.00	
1125	5.15	300	5.42	0.077	12	0.73	22.72	215	0.00	
1130	5.15	300	5.42	0.076	0.00	0.66	22.76	217	0.00	
1135	5.15	300	5.39	0.075	0.00	0.61	22.59	220	0.00	
1140	5.15	300	5.40	0.074	0.00	0.58	22.52	220	0.00	
		Sample collected @ 1140								

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Mal Annual Gw 2014
PROJECT NUMBER: 117106247

WELL ID.: Mal-MW-73B
DATE: 6/6/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1055	6.31	—	—	—	—	—	—	—	—	
1100	6.69	100	5.14	0.081	37.0	1.57	20.09	313	0.00	
1105	6.71	100	5.04	0.085	22.7	0.52	19.46	317	0.00	
1110	6.71	100	5.01	0.085	20.1	0.29	19.24	318	0.00	
1115	6.71	100	4.96	0.084	16.4	0.00	19.07	320	0.00	
1120	6.71	100	4.98	0.083	13.5	0.00	18.90	317	0.00	
1125	6.71	100	4.94	0.082	13.4	0.00	18.82	319	0.00	
1130	6.71	100	4.93	0.081	12.0	0.00	19.15	320	0.00	
1135	6.71	100	4.93	0.080	12.3	0.00	19.18	320	0.00	
1140	6.71	100	4.93	0.080	12.65	0.00	19.21	318	0.00	
	Sample	VOCs @	1140							

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-74B
DATE: 6/6/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0925	7.14	–	–	–	–	–	–	–	–	
0930	7.43	300	6.81	0.122	673AV	3.44	14.32	222	0.01	
0935	7.70	300	6.72	0.085	644AV	2.23	14.00	221	0.00	
0940	7.89	300	6.69	0.071	83	2.00	14.01	226	0.00	
0945	8.07	300	6.60	0.064	76	1.82	13.93	233	0.00	
0950	8.28	300	6.61	0.061	65	1.66	13.98	234	0.00	
0955	8.36	300	6.58	0.060	70	1.55	14.05	235	0.00	
1000	8.49	300	6.60	0.060	63	1.44	14.08	236	0.00	
1005	8.60	300	6.57	0.060	67	1.39	14.12	237	0.00	
1010	8.70	300	6.58	0.060	65	1.37	14.09	237	0.00	
1015	8.73	300	6.60	0.061	63	1.29	14.12	237	0.00	
	Sample VOCs, Perchlorate @ 1015									

SIGNATURE(S): [signature]

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LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112IL06247
WELL ID.: MRL-MW-74A
DATE: 6/6/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0820	6.80	–	–	–	–	–	–	–	–	
0825	6.94	100	4.35	0.003	26.3	10.13	20.34	345	0.00	
0830	6.95	100	5.78	0.659	10	0.87	17.17	281	0.03	
0835	7.01	100	6.12	0.666	5	0.25	15.49	266	0.03	
0840	7.09	100	6.21	0.663	53.1	0.00	15.08	261	0.03	
0845	7.14	100	6.21	0.661	55.2	0.00	14.91	260	0.03	
0850	7.16	100	6.19	0.661	49.8	0.00	14.81	261	0.03	
0855	7.21	100	6.27	0.662	43.7	0.00	14.73	256	0.03	
0900	7.22	100	6.24	0.661	38.1	0.00	14.79	254	0.03	
0905	7.24	100	6.26	0.663	37.6	0.00	14.66	251	0.03	
	Sample	vols, perchlorate	@ 0905							

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 117I06287

WELL ID.: MRC-MW-76B-061814
DATE: 6/18/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1315	9.62	-	-	-	-	-	-	-	-	
1320	10.00	300	5.67	0.362	OVR	0.16	26.70	78	0.02	
1325	10.12	300	5.58	0.349	OVR	0.00	23.83	74	0.02	
1330	10.20	300	5.66	0.336	32	0.00	23.26	67	0.02	
1335	10.21	300	5.65	0.334	13	0.00	23.08	68	0.02	
1340	10.21	300	5.72	0.331	1	0.00	22.92	63	0.02	
1345	10.21	300	5.68	0.330	0.0	0.00	22.98	64	0.02	
1350	10.21	300	5.72	0.329	0.0	0.00	22.96	61	0.02	
1355	10.21	300	5.72	0.328	0.0	0.00	22.86	59	0.02	
1400	10.21	300	5.73	0.327	0.0	0.00	22.73	59	0.02	
	Sample WCS @ 1400									

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014 WELL ID.: MRC MW-96A
PROJECT NUMBER: 112106247 DATE: 6/18/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1220	9.82	-	-	-	-	-	-	-	-	
1225	10.21	300	5.47	0.550	26	0.36	29.64	95	0.03	
1230	10.26	300	5.41	0.649	30.8	0.04	25.84	93	0.03	
1235	10.41	300	5.44	0.686	15.9	0.00	23.19	92	0.03	
1240	10.53	300	5.43	0.691	0.0	0.00	22.41	95	0.03	
1245	10.63	300	5.42	0.683	0.0	0.00	22.39	98	0.03	
1250	10.68	300	5.43	0.667	0.0	0.00	22.23	101	0.03	
1255	10.70	300	5.43	0.690	0.0	0.00	22.24	102	0.03	
1300	10.70	300	5.42	0.669	0.0	0.00	22.23	103	0.03	
	Sample	vols @	1300							

SIGNATURE(S): [signature]

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LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle Raven Center
PROJECT NUMBER: 112Ic0624?

WELL ID.: mrc-mw-76A-061114
DATE: 6-11-14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
										Initial, no odor, clear water
1404	9.65	—	—	—	—	—	—	—	—	
1405	10.20	300	5.69	0.986	0.0	1.60	22.52	31	0.4	
1410	10.25	250	5.83	0.933	0.0	0.70	19.70	5	0.5	
1415	10.25	250	5.77	0.962	0.0	0.58	19.02	6	0.5	
1425	10.35	250	5.49	0.975	0.0	0.44	18.26	22	0.5	
1435	10.40	200	5.26	0.973	0.0	0.40	18.14	40	0.5	
1440	10.40	200	5.16	0.972	0.0	0.40	18.35	46	0.5	
1445	10.40	200	5.11	0.973	0.0	0.40	18.32	50	0.5	
1450	10.40	200	5.09	0.972	0.0	0.40	18.34	52	0.5	
			0	Well	Parameters		Stabilized			
				Sampling	Begins					

PAGE 2 OF 2

SIGNATURE(S): Will B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-76B-061114
DATE: 6-11-14

Time	Water Level (ft)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Salinity (ppt)	Comments
1154	9.40	—	—	—	—	—	—	—	—	Initial, pre pump
1155	10.10	300	5.41	0.420	228	1.36	18.36	54	0.2	Cloudy Water
1200	10.29	300	5.41	0.469	196	0.83	18.25	60	0.2	↓
1205	10.22	200	5.39	0.532	55.4	0.56	18.29	65	0.3	↓
1215	10.22	200	5.32	0.566	19.4	0.42	18.14	71	0.3	Slightly cloudy
1225	10.22	200	5.24	0.583	0.0	0.39	18.30	75	0.3	clear water
1230	10.22	200	5.19	0.577	0.0	0.38	18.45	76	0.3	↓
1235	10.22	200	5.19	0.576	0.0	0.37	18.56	79	0.3	↓
1240	10.22	200	5.10	0.575	0.0	0.36	18.62	79	0.3	
			Well Parameters Stabilize							
			Sampling Begins							

SIGNATURE(S): Vale R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-77A-060214
DATE: 6-2-14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1319	6.60	—	—	—	—	—	—	—	—	Initial, no odor
1320	6.60	300	5.97	1.93	177	0.98	18.83	6	1.0	
1325	6.60	300	5.45	1.99	161	0.49	18.13	30	1.0	
1330	6.60	300	5.26	2.05	149	0.39	17.72	46	1.0	
1340	6.60	300	4.86	2.17	161	0.34	17.60	69	1.1	
1350	6.60	300	4.53	2.29	147	0.30	17.70	92	1.2	
1400	6.60	300	4.27	2.37	128	0.27	17.75	111	1.2	
1410	6.60	300	4.13	2.42	6.21	0.28	17.97	122	1.2	clear water
1415	6.60	300	4.10	2.43	6.18	0.28	17.95	124	1.2	
1420	6.60	300	4.08	2.44	6.22	0.27	17.90	125	1.2	

Well Parameters Stabilize

Sampling Begins

SIGNATURE(S): Walt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC08247-

WELL ID.: MRC-MW-78B-061714
DATE: 6-17-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1125	6.95	—	—	—	—	—	—	—	—	Initial, no odor
1126	7.80	300	7.01	0.365	32.1	1.55	28.05	78	0.2	Slightly Cloudy
1131	8.70	250	8.08	0.284	80.9	1.21	26.47	48	0.1	↓
1136	9.70	200	8.48	0.281	55.2	1.10	25.58	31	0.1	↓
1146	10.60	100	8.38	0.266	14.2	1.04	25.35	25	0.1	↓
1156	11.70	100	8.24	0.267	1.1	0.97	25.19	26	0.1	Clear water
1201	11.75	100	8.13	0.272	2.4	0.90	25.12	30	0.1	↓
1206	11.80	100	8.10	0.273	2.5	0.89	25.04	35	0.1	↓
1211	11.85	100	8.05	0.274	2.5	0.88	25.03	40	0.1	↓

Well Parameters Stabilize →

Sampling Begins →

SIGNATURE(S): Walt P

PAGE 2 OF 2

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-79B-060214
DATE: 6-2-14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/min)	pH S.U.	S. Cond. mS/cm	Turb. (NTU)	DO mg/L	Temp. Celcius	ORP mV	Salinity ppt or pH	Comments
1447	9.95	—	—	—	—	—	—	—	—	Initial, pump water
1448	9.75	300	4.76	1.38	674	7.29	17.91	94	0.7	Cloudy water
1453	9.91	200	4.74	1.34	418	0.76	17.43	87	0.7	
1458	10.00	150	4.67	1.28	104	0.49	18.11	91	0.6	
1503	10.00	150	4.59	1.22	58.8	0.44	18.33	95	0.6	
1513	10.00	150	4.28	1.08	23.1	0.39	18.01	118	0.5	Slightly cloudy
1523	10.00	150	4.23	1.14	11.4	0.36	18.25	108	0.6	
1528	10.00	150	4.21	1.18	12.9	0.35	18.40	104	0.6	
1533	10.00	150	4.20	1.19	13.0	0.34	18.77	102	0.6	
1538	10.00	150	4.21	1.20	13.1	0.33	18.72	101	0.6	
			PH Parameters Stabilized							
				Sampling Begins						

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Complex
PROJECT NUMBER: 112106247
WELL ID.: MRC-MW-90A-061224
DATE: 6-12-24

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
										Initial, no odor
0957	4.90	—	—	—	—	—	—	—	—	
0958	5.10	300	6.06	1.31	75.6	2.63	17.86	170	0.7	Slightly cloudy
1003	5.30	300	6.67	1.29	63.2	0.86	17.01	149	0.6	↓
1008	5.50	200	6.74	1.23	50.7	1.42	17.04	126	0.6	↓
1013	5.85	200	6.83	1.19	4.1	2.05	16.56	124	0.6	Clear water
1028	6.12	200	6.87	1.13	0.0	2.62	16.57	126	0.6	↓
1033	6.20	100	6.89	1.00	0.0	2.84	17.10	126	0.5	↓
1038	6.25	100	6.90	0.999	0.0	2.95	17.20	128	0.4	↓
1043	6.30	100	6.99	0.998	0.0	3.00	17.24	129	0.4	
				Field Parameters Stabilized						
					Sampling Begin					

PAGE 2 OF 2

SIGNATURE(S): Walt Pu

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247

WELL ID: MRC-MW-20B-061214
DATE: 6-12-14

Time	Water Level	Flow	pH	S. Cond.	Turb.	DO	Temp.	ORP	Salinity	Comments
										Initial reading slightly cloudy
1119	7.75	—	—	—	—	—	—	—	—	
1120	8.95	300	6.58	0.417	43.5	1.34	15.95	135	0.2	
1125	9.75	300	6.31	0.386	48.6	0.77	16.09	127	0.2	
1130	10.60	200	6.23	0.384	34.2	0.62	16.23	131	0.2	
1140	13.40	100	6.19	0.371	27.6	0.54	15.35	137	0.2	
1150	15.60	100	6.19	0.366	12.2	0.50	15.91	136	0.2	
1155	17.70	100	6.21	0.364	0.0	0.40	15.99	129	0.2	Clean water
1200	17.75	100	6.21	0.364	0.4	0.47	16.09	124	0.2	
1205	17.80	100	6.21	0.364	0.0	0.48	16.11	121	0.2	
				Well Parameters			Stab.			
				Sampling Begins						

PAGE 2 OF 2

SIGNATURE(S): Fabian

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 **WELL ID.:** MRL-MW-8/A

PROJECT NUMBER: 117106247 **DATE:** 6/11/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0903	9.06	-	-	-	-	-	-	-	-	
0910	9.31	300	6.05	1.21	18.9	2.10	19.34	-10	0.06	
0915	9.45	300	6.27	1.28	11.2	0.33	18.00	-45	0.06	
0920	9.46	300	6.35	1.27	6.83	0.00	18.03	-53	0.06	
0925	9.46	300	6.40	1.26	5.61	0.00	18.07	-58	0.06	
0930	9.46	300	6.43	1.26	5.24	0.00	17.92	-61	0.06	
0935	9.46	300	6.43	1.25	5.47	0.00	17.81	-62	0.06	
0940	9.46	300	6.45	1.23	8.34	0.00	17.89	-63	0.06	
0945	9.46	300	6.46	1.23	7.65	0.00	17.87	-64	0.06	
0950	9.46	300	6.46	1.22	7.60	0.00	18.22	-64	0.06	
	Sample	Total Metals @	0950							

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MAL Annual Gw 2014
PROJECT NUMBER: 112IL06247

WELL ID.: MALMW-BIB
DATE: 8/18/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0750	8.52	—	—	—	—	—	—	—	—	
0755	8.95	300	6.29	0.667	50.0	3.59	19.54	-24	0.03	
0800	9.27	300	6.44	0.689	29.7	0.39	19.25	-55	0.03	
0805	9.54	300	6.54	0.693	23.6	0.00	18.90	-67	0.03	
0810	9.66	300	6.54	0.698	17.5	0.00	18.72	-70	0.03	
0815	9.76	300	6.56	0.701	14.5	0.00	18.75	-74	0.03	
0820	9.78	300	6.56	0.702	11.3	0.00	18.64	-74	0.03	
0825	Sampl	NO3, NO2	0804 & 0820							
0830										
0835										

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014.
PROJECT NUMBER: 112I106247

WELL ID.: MRL MW-81B
DATE: 6/11/14.

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1000	6.35	300	–	–	–	–	–	–	–	
1005	7.29	300	6.49	0.794	32.5	1.41	20.37	-66	0.04	
1010	7.96	300	6.52	0.795	25.0	0.83	20.34	-76	0.04	
1015	8.55	300	6.52	0.796	21.2	0.13	19.78	-80	0.04	
1020	8.80	300	6.58	0.795	14.3	0.00	19.81	-85	0.04	
1025	8.83	300	6.62	0.793	12.2	0.00	20.00	-89	0.04	
1030	9.14	300	6.66	0.794	11.7	0.00	19.69	-92	0.04	
1035	9.34	300	6.65	0.787	12.5	0.00	19.67	-92	0.04	
1040	9.45	300	6.65	0.786	11.3	0.00	19.59	-93	0.04	
1045	9.55	300	6.66	0.784	11.2	0.00	19.66	-94	0.04	
	Sample vols, total metals, MEE, +NAA @ 1045									

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-87B-052814
DATE: 5-28-14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. Celcius	ORP mV	Salinity % or ppt	Comments
0959	10.90	—	—	—	—	—	—	—	—	Initial pre-dev
1000	11.73	300	5.08	1.96	223	2.61	19.07	54	1.0	Cloudy water
1005	12.35	200	5.30	1.64	162	1.70	19.33	21	0.8	↓
1010	13.30	150	5.51	1.35	122	1.56	19.54	5	0.7	↓
1020	15.25	100	5.70	1.13	18.0	1.65	19.88	5	0.6	↓
1030	16.55	100	5.70	1.05	8.5	1.64	20.27	15	0.5	Clean water
1040	18.00	100	5.55	1.04	9.5	1.59	20.45	23	0.5	↓
1050	19.73	100	5.41	1.05	8.3	1.53	20.52	27	0.5	↓
1100	21.00	100	5.32	1.05	7.2	1.50	20.68	32	0.5	↓
1110	22.30	100	5.21	1.05	6.5	1.48	20.92	41	0.5	↓
1120	23.70	100	5.00	1.06	5.5	1.43	21.04	50	0.5	↓
1130	24.60	100	4.87	1.07	4.8	1.37	20.97	58	0.5	↓
			Well parameters did not stabilize							
			after 40 min max purge plan							
			Multiplane Sampling Begins							

SIGNATURE(S): Will B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MAC-MW-87A-05-28-14
DATE: 5-28-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1144	10.70	—	—	—	—	—	—	—	—	Initial, purge slightly cloudy
1145	11.00	200	4.94	1.23	14.2	2.30	20.94	58	0.7	
1150	11.35	100	4.70	1.42	46.8	0.56	20.46	110	0.7	
1155	11.60	100	4.67	1.43	38.7	0.44	20.46	124	0.7	
1205	12.20	100	4.52	1.44	24.7	1.04	20.51	157	0.7	
1215	12.55	100	4.46	1.47	21.5	0.79	20.58	169	0.7	
1225	13.90	100	4.41	1.53	18.7	0.77	20.78	118	0.8	
1230	←	—	—	—	Dry	—	—	—	—	Let recharge 90%

SIGNATURE(S): Matt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247
WELL ID.: MRC-MW-88B-05-2914
DATE: 5-29-14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0913	4.21	—	—	—	—	—	—	—	—	Initial, no odor
0914	4.80	300	5.55	0.211	31.0	8.52	15.79	202	0.1	Slightly cloudy
0919	4.90	300	6.26	0.139	19.6	3.33	16.11	189	0.1	↓
0924	4.90	300	6.36	0.111	4.0	2.99	16.18	192	0.1	clean water
0934	4.90	300	6.10	0.092	2.7	1.62	16.18	144	0.0	↓
0944	4.90	300	5.97	0.071	1.9	1.30	16.15	119	0.0	↓
0954	4.90	300	5.94	0.056	2.0	1.30	16.11	116	0.0	↓
1004	4.90	300	5.75	0.049	1.5	1.44	16.10	126	0.0	↓
1014	4.90	300	5.67	0.047	1.7	1.50	16.09	130	0.0	↓
1019	4.90	300	5.69	0.045	1.6	1.51	16.08	131	0.0	↓
1024	4.90	300	5.67	0.044	1.7	1.49	16.08	133	0.0	↓
				Well Parameters Stabilized						
				Sampling Begins						

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Complex
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-90B-060914
DATE: 6-9-14

Time	Water Level (ft)	Flow (mL/min)	pH	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Salinity (ppt)	Comments
1030	6.95	—	—	—	—	—	—	—	—	Initial measurement
1031	7.78	300	9.15	2.27	11.9	1.20	19.57	175	1.2	Clear water
1036	8.10	300	11.21	2.08	0.0	0.64	19.20	93	1.1	
1041	8.30	180	11.54	2.09	0.0	0.48	19.77	55	1.0	
1051	8.45	180	11.39	1.93	0.0	0.37	20.36	8	1.0	
1101	8.45	180	11.16	1.91	0.0	0.37	20.34	-12	1.0	
1106	8.45	180	11.09	1.98	0.0	0.35	20.25	-26	1.0	
1111	8.45	180	11.05	1.97	0.0	0.35	20.37	-30	0.9	
1116	8.45	180	11.00	1.96	0.0	0.35	20.41	-36	0.9	
			Well parameters Stabilized							
			Sampling Begins							

SIGNATURE(S): Matt P

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle Rivers Center
PROJECT NUMBER: 12IC06247

WELL ID.: MRC-MW-90B-061814
DATE: 6-18-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0903	6.66	—	—	—	—	—	—	—	—	Initial, no odor clear water
0904	7.40	300	6.28	1.71	0.0	1.60	23.68	222	0.9	
0909	7.85	250	10.87	1.78	0.0	0.47	22.84	102	0.9	
0914	8.25	100	11.46	1.81	0.0	0.39	22.05	46	0.9	
0919	8.35	100	11.57	1.80	0.0	0.32	21.98	17	0.9	
0924	8.45	100	11.45	1.74	0.0	0.28	21.97	-12	0.9	
0929	8.50	100	11.40	1.72	0.0	0.28	22.01	-21	0.9	
0934	8.55	100	11.37	1.70	0.0	0.28	22.09	-26	0.9	
				Well parameters Stabilize						
				Sampling Begins						

SIGNATURE(S): Walt B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-91A-052914
DATE: 5-29-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1352	9.01	—	—	—	—	—	—	—	—	Initial, no odor.
1353	9.55	300	6.71	2.15	466	2.14	16.18	150	1.1	cloudy water
1358	9.95	300	6.64	2.30	194	0.88	16.52	148	1.2	
1403	10.10	100	6.65	2.32	84.1	0.75	16.66	146	1.2	
1413	10.30	100	6.66	2.35	76.5	0.58	16.69	145	1.2	
1423	10.50	100	6.68	2.39	22.6	0.65	16.77	144	1.2	Slightly cloudy
1428	10.52	100	6.68	2.43	28.6	0.69	16.85	141	1.2	
1433	10.54	100	6.68	2.54	35.1	0.80	16.83	139	1.2	
1438	10.56	100	6.69	2.62	25.2	0.91	16.89	136	1.4	
1448	10.82	100	6.73	2.75	24.4	0.99	16.88	122	1.4	
1458	10.90	100	6.74	2.93	23.1	1.07	16.85	105	1.5	
1508	10.80	100	6.76	2.99	27.1	1.03	16.89	95	1.6	
1513 ~~1518~~	10.80	100	6.77	3.00	28.0	1.07	16.85	89	1.6	
1518 ~~1528~~	10.80	100	6.77	3.00	28.6	1.08	16.87	87	1.6	

Well Parameters Stabilize

Sampling Begins

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014
PROJECT NUMBER: 112IC06247
WELL ID.: MRL-MW-92C
DATE: 6/11/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1130	11.05	–	–	–	–	–	–	–	–	
1135	11.85	100	6.64	0.359	57.1	2.87	21.41	8	0.02	
1140	12.61	100	6.59	0.360	51.2	0.76	19.73	4	0.02	
1145	13.18	100	6.59	0.356	53.9	0.21	19.53	3	0.02	
1150	13.95	100	6.52	0.355	56.2	0.00	19.17	7	0.02	
1155	14.74	100	6.61	0.354	67.2	0.00	18.99	6	0.02	
1200	15.51	100	6.60	0.353	52	0.00	19.08	8	0.02	
1205	16.15	100	6.59	0.353	65	0.00	19.13	13	0.02	
1210	16.88	100	6.64	0.353	67	0.00	18.99	13	0.02	
1215	17.64	100	6.64	0.353	48	0.00	18.82	16	0.02	
	Sample VOCs + Total metals @ 1215									

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EL06247
WELL ID.: MRC-MW-93A-0529
DATE: 5-29-14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0822	9.40	—	—	—	—	—	—	—	—	Initial, no odor
0823	10.40	300	4.75	4.49	48.2	3.21	17.94	255	2.4	Slightly Cloudy
0828	10.40	100	4.86	4.71	46.0	2.11	17.35	276	2.5	
0833	10.70	100	4.55	4.91	51.3	1.55	16.81	316	2.6	
0843	11.30	100	4.37	5.13	49.3	1.65	16.14	338	2.8	
0853	12.15	100	4.37	5.24	47.0	1.42	16.71	315	2.8	
0858	←	—	—	—	D.T.	—	—	—	→	1st recharge 80%

SIGNATURE(S): Matt P

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112ECO6247
WELL ID.: MRC-MW-94B-052814
DATE: 5-28-14

Time (Hrs)	Water Level (Ft below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0816	4.65	—	—	—	—	—	—	—	—	Initial, pump start
0817	5.05	300	7.16	0.250	0.0	2.30	18.30	50	0.1	Clear Water
0822	5.00	300	7.16	0.204	0.0	0.81	18.13	31	0.1	
0827	5.00	300	7.34	0.147	0.0	0.76	17.46	-3	0.1	
0832	5.00	300	6.28	0.090	0.0	1.77	16.79	39	0.1	
0837	5.00	300	5.80	0.076	15.5	1.90	16.57	57	0.1	
0842	5.00	300	5.57	0.077	12.3	1.87	16.89	67	0.1	
0847	5.00	300	5.40	0.066	7.4	1.89	17.04	74	0.1	
0852	5.00	300	5.23	0.061	3.4	1.90	17.38	80	0.1	
0857	5.00	300	5.01	0.057	3.7	2.06	17.08	86	0.1	
0902	5.00	300	5.01	0.055	3.8	2.09	17.05	87	0.1	
0907	5.00	300	5.00	0.055	3.8	2.11	17.02	87	0.1	
0912										
0917										
0922										
0927			Well parameters Stabilized							
0932			Sampling Begins							
0937										

SIGNATURE(S): Matt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 11IC06247
WELL ID.: MRC-MW-95B-052914
DATE: 5-29-14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. Celcius	ORP mV	Salinity or ppt	Comments
1100	3.65	—	—	—	—	—	—	—	—	Initial, water clear
1101	4.49	300	5.64	0.341	11.5	3.55	15.65	125	0.2	
1106	6.25	300	7.25	0.275	3.9	0.63	16.13	53	0.1	
1111	6.30	150	7.40	0.273	4.9	0.57	16.11	46	0.1	
1121	6.30	150	7.72	0.256	3.4	0.45	16.14	30	0.1	
1131	6.30	150	7.91	0.248	2.9	0.37	16.12	16	0.1	
1141	6.30	150	7.91	0.247	2.7	0.37	16.13	13	0.1	
1146	6.30	150	7.92	0.245	2.5	0.36	16.11	8	0.1	
1151	6.30	150	7.88	0.244	2.5	0.35	16.13	6	0.1	
				Well parameters stabilized						
				Sampling Begins						

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-96A-051414
DATE: 5-14-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0822	10.40	—	—	—	—	—	—	—	—	Initial, no odor
0825	10.70	300	3.75	0.834	0.0	2.15	16.06	312	0.4	Clear water
0830	11.22	300	3.49	0.828	0.0	1.06	14.86	431	0.4	
0835	11.50	200	3.44	0.831	0.0	0.92	14.55	446	0.4	
0845	11.60	150	3.41	0.828	0.0	0.97	14.37	442	0.4	
0855	11.90	100	3.41	0.831	0.0	0.92	14.35	428	0.4	
0900	11.90	100	3.43	0.833	0.0	0.89	14.34	385	0.4	
0905	11.90	100	3.44	0.834	0.0	0.90	14.32	390	0.4	
0910	11.90	100	3.45	0.835	0.0	0.91	14.30	385	0.4	
				Well parameters stabilize						
				Sampling Begins						

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-96B-051414
DATE: 5-14-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0934	15.10	—	—	—	—	—	—	—	—	Initial, pre-pump
0935	15.35	300	4.92	3.13	6.5	1.35	15.91	308	1.6	Clean water
0940	15.30	300	5.19	3.20	6.2	0.83	15.94	300	1.7	
0945	15.30	300	5.20	3.18	4.5	0.62	16.03	300	1.7	
0955	15.30	300	5.35	3.14	0.0	0.49	16.15	295	1.6	
1005	15.30	300	5.35	3.11	0.0	0.45	16.22	293	1.6	
1010	15.30	300	5.33	3.10	0.0	0.43	16.26	292	1.6	
1015	15.30	300	5.29	3.09	0.0	0.42	16.26	292	1.6	
1020	15.30	300	5.24	3.08	0.0	0.41	16.27	292	1.6	
				Well	Parameters		Stabilize	→		
					Sampling	Begins				

SIGNATURE(S): Walt R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112B00624?

WELL ID.: MRC-MW-98A-061714
DATE: 6-17-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1353	3.80	—	—	—	—	—	—	—	—	Initial, no odor
1354	4.75	300	6.62	0.483	183	4.35	29.54	143	0.2	Cloudy water
1359	4.90	300	6.22	0.493	117	4.72	27.39	154	0.2	
1404	4.93	200	6.15	0.492	82.2	4.76	27.67	156	0.2	
1414	4.90	200	5.82	0.502	62.2	4.84	26.26	162	0.2	
1424	4.90	200	5.55	0.504	15.9	4.90	25.91	169	0.2	
1429	4.90	200	5.53	0.514	10.0	6.03	25.76	170	0.2	Clean water
1434	4.90	200	5.49	0.515	9.9	5.94	25.63	171	0.2	
1439	4.90	200	5.46	0.516	9.9	5.90	25.51	172	0.2	
				Well parameters stabilize						
				Sampling Begins						

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112560247

WELL ID.: MRC-MW-988-061714
DATE: 6-17-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1454	11.20	—	—	—	—	—	—	—	—	Initial, pre odor
1455	12.25	300	4.00	0.748	0.0	0.58	25.30	145	0.4	Clear water
1500	12.65	200	3.78	0.777	0.0	0.58	25.65	158	0.4	
1505	13.55	100	3.70	0.772	0.0	0.52	23.47	165	0.4	
1510	14.90	100	3.63	0.772	0.0	0.46	24.00	171	0.4	
1525	15.96	100	3.57	0.779	0.0	0.45	23.43	176	0.4	
1530	16.00	100	3.56	0.782	0.0	0.45	23.11	178	0.4	
1535	16.03	100	3.56	0.782	0.0	0.44	23.61	178	0.4	
1540	16.05	100	3.56	0.782	0.0	0.44	23.65	179	0.4	
			Final Parameters Stabilized							
			Sampling Begins							

SIGNATURE(S): Matt P

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112TC06241

WELL ID.: MRC-MW-100B
DATE: 6/12/14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (%/ppt)	Comments
1015	9.77	—	—	—	—	—	—	—	—	
1020	10.49	100	5.84	0.259	38	0.00	17.93	283	0.01	
1025	11.19	100	5.72	0.258	21	0.00	17.71	197	0.01	
1030	11.94	100	5.68	0.257	6	0.00	17.65	61	0.01	
1035	12.62	100	5.67	0.256	54.8	0.00	17.62	59	0.01	
1040	13.21	100	5.67	0.256	39.0	0.00	17.61	58	0.01	
1045	13.90	100	5.66	0.256	31.1	0.00	17.57	57	0.01	
1050	14.53	100	5.64	0.256	26.8	0.00	17.60	58	0.01	
1055	~~14~~ 15.08	100	5.71	0.256	20.8	0.00	17.61	54	0.01	
1100	15.51	100	5.70	0.256	20.8	0.00	17.59	54	0.01	
	Sample vols, ~~[illegible]~~, & 1-4 dioxin → @ 1100									
			Total metals							

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual Gw 2014
PROJECT NUMBER: 112EC06247

WELL ID.: MRC-MW-100A
DATE: 6/12/14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (%) or ppt	Comments
0920	9.15	—	—	—	—	—	—	—	—	
0925	9.48	100	6.10	0.386	640AV	0.00	21.12	243	0.02	
0930	9.69	100	6.14	0.385	5	0.00	19.97	239	0.02	
0935	9.91	100	6.13	0.392	33.7	0.00	19.31	236	0.02	
0940	10.10	100	6.15	0.401	18.3	0.00	18.58	234	0.02	
0945	10.28	100	6.20	0.408	12.3	0.00	18.16	230	0.02	
0950	10.46	100	6.18	0.413	11.31	0.00	17.77	230	0.02	
0955	10.65	100	6.20	0.419	10.50	0.00	17.52	228	0.02	
1000	10.78	100	6.24	0.417	8.89	0.00	17.53	225	0.02	
1005	10.97	100	6.21	0.427	7.94	0.00	17.37	225	0.02	
	Sample vols, 1-4 drawn @ 1005									

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL GW 2014 **WELL ID.:** MRL-MW-101B
PROJECT NUMBER: 112106247 **DATE:** 5/6/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1200	14.53	—	—	—	—	—	—	—	—	
1205	15.55	100	4.92	0.088	70	0.00	22.76	232	0.0	
1210	16.13	100	4.93	0.088	73.3	0.00	22.86	245	0.0	
1215	16.85	100	4.79	0.087	59.0	0.00	22.95	259	0.0	
1220	17.59	100	4.78	0.086	51.2	0.00	23.04	314	0.0	
1225	18.31	100	4.77	0.086	52.0	0.00	23.05	328	0.0	
1230	19.19	100	4.77	0.085	50.6	0.00	23.28	333	0.0	
1235	20.09	100	4.77	0.085	49.7	0.00	23.47	337	0.0	
1240	20.99	100	4.76	0.085	49.1	0.00	23.69	342	0.0	
1245	21.64	100	4.76	0.085	48.9	0.00	23.74	344	0.0	
	Sample Collected									

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 **WELL ID.:** MRL-MW-101A-
PROJECT NUMBER: 112G06247 **DATE:** 3/5/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1125	14.76	100	—	—	—	—	—	—	—	
1130	14.81	100	5.58	0.089	31.7	2.17	24.83	130	0.0	
1135	14.80	100	5.45	0.087	27.7	0.73	24.42	164	0.0	
1140	15.01	100	5.53	0.085	21.6	0.51	24.08	171	0.0	
1145	15.29	100	5.46	0.082	12.9	0.28	23.93	189	0.0	
1150	15.62	100	5.48	0.080	10.2	1.00	23.86	192	0.0	
~~1155~~										
~~1200~~		DCY @ 1152, allow recharge and then pull VOC samples @ 1430								
~~1205~~										
~~1210~~										

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 **WELL ID.:** 1028 MRL-MW-1028-050814

PROJECT NUMBER: 112G06247 **DATE:** 5/8/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0900	10.89	-	-	-	-	-	-	-	-	
0905	11.39	200	4.18	0.087	6.68	7.48	21.16	274	0.0	
0910	12.19	200	4.50	0.152	5.90	0.98	19.33	282	0.0	
0915	13.00	200	4.47	0.127	5.46	0.127	19.08	247	0.0	
0920	13.88	200	4.49	0.118	5.33	0.117	18.99	307	0.0	
0925	12.94	200	4.39	0.113	5.09	0.00	18.93	320	0.0	
0930	14.48	200	4.35	0.110	5.35	0.00	18.82	333	0.0	
0935	15.21	200	~~4.30~~ 4.25	0.108	4.30	0.00	18.75	351	0.0	
0940	15.71	200	4.17	0.104	4.65	0.00	18.78	363	0.0	
0945	16.42	200	4.15	~~0.102~~ 0.102	4.30	0.00	18.78	370	0.0	
0950	17.21	200	4.14	0.101	4.26	0.00	18.78	375	0.0	
			Sample	VOCs, Total metals						

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 **WELL ID.:** MRL-MW-102A
PROJECT NUMBER: 112IL06247 **DATE:** 5/8/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1010	10.38	-	-	-	-	-	-	-	-	
1015	10.68	100	5.74	0.735	12.1	1.27	19.03	-17	0.2	
1020	10.84	100	6.01	0.793	11.3	0.71	18.73	-59	0.2	
1025	11.02	100	6.11	0.807	11.52	0.53	18.52	-70	0.2	
1030	11.26	100	6.18	0.809	9.41	0.45	18.45	-74	0.2	
1035	11.44	100	6.14	0.771	10.94	0.00	18.58	-75	0.2	
1040	11.59	100	6.16	0.634	12.07	0.00	18.64	-77	0.2	
1045	11.76	100	6.19	0.519	12.07	0.00	18.88	-78	0.1	
1050	11.93	100	6.19	0.432	13.7	0.00	19.12	-80	0.1	
1055	12.11	100	6.20	0.397	12.0	0.00	19.23	-84	0.1	
1100	12.21	100	6.21	0.391	12.7	0.00	19.34	-85	0.1	
	Sample VOCs									

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC GW 2014 **WELL ID.:** MRC-MW-104B
PROJECT NUMBER: 112ICB6247 **DATE:** 5/12/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1045	5.20	—	—	✓	—	~~0.00~~ ~~2.04~~	✓	✓	—	
1050	5.49	100	5.12	1.86	46	0.00	20.46	264	0.6	
1055	5.50	100	5.11	2.00	49.5	0.00	18.50	269	0.6	
1100	5.50	100	5.05	2.04	28.6	0.00	18.46	276	0.6	
1105	5.50	100	5.00	2.05	22.1	0.00	18.49	280	0.7	
1110	5.50	100	4.99	2.06	17.0	0.00	18.48	280	0.7	
1115	5.50	100	5.06	2.05	16.5	0.00	18.38	276	0.7	
1120	5.50	100	5.03	2.05	14.7	0.00	18.35	281	0.7	
1125	5.50	100	5.03	2.05	14.2	0.00	18.38	281	0.7	
1130	5.50	100	5.04	2.04	13.8	0.00	18.39	281	0.7	
	Sample Total Metals and VOCs @ 1130									

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 WELL ID.: MRL-MW-104A
PROJECT NUMBER: 112106247 DATE: 5/12/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0935	4.87	—	—	—	—	—	—	—	—	
0940	5.42	100	5.44	1.78	OVR	0.00	21.58	135	0.6	
0945	5.73	100	5.42	1.82	OVR	0.00	21.28	172	0.6	
0950	6.03	100	5.37	1.80	71	0.00	21.65	209	0.6	
0955	6.34	100	5.37	1.78	63.1	0.00	21.94	222	0.6	
~~0959~~ 1000	6.68	100	5.40	1.76	49.9	0.00	22.10	230	0.5	
1005	6.99	100	5.39	1.72	36.8	0.00	22.36	236	0.5	
1010	7.31	100	5.41	1.63	29.2	0.00	22.53	242	0.5	
1015	7.57	100	5.39	1.56	25.1	0.00	22.67	247	0.5	
~~1020~~	7.85	100	5.37	1.45	17.2	0.00	22.81	255	0.4	
1025	8.19	100	5.35	1.43	14.4	0.00	22.93	257	0.4	
		Sample	VOCs							

SIGNATURE(S): _____

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual Gw 2014 **WELL ID.:** MRL-MW-105A
PROJECT NUMBER: 117106247 **DATE:** ~~5/12/14~~ 5/12/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1300	4.59	—	—		—	—	—	—	—	
1305	5.26	100	5.23	0.571	51.5	2.63	26.25	243	0.1	
1310	5.48	100	5.12	0.575	19.7	1.37	25.24	268	0.1	
1315	5.63	100	5.16	0.580	12.4	1.21	24.56	280	0.1	
1320	5.74	100	5.18	0.594	12.2	1.10	24.19	286	0.1	
1325	5.83	100	5.20	0.600	11.04	0.77	23.80	290	0.1	
1330	5.87	100	5.19	0.617	10.10	0.73	23.55	293	0.2	
1335	5.89	100	5.19	0.610	8.54	1.02	23.36	294	0.2	
1340	5.91	100	5.18	0.613	7.80	1.12	23.26	296	0.2	
1345	5.92	100	5.18	0.612	7.91	1.13	23.34	297	0.2	
		Sample	Total Metals @		1345					

SIGNATURE(S):

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW 2014 **WELL ID.:** MRL-MW06B/C
PROJECT NUMBER: 117160627 **DATE:** 5/2-3/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0825	4.40	—	—	—	—	—	—	—	—	
0830	5.61	200	5.69	0.206	24.8	0.74	19.15	43	0.0	
0835	6.51	200	5.65	0.163	18.6	0.00	18.77	11	0.0	
0840	7.41	200	5.61	0.140	14.8	0.00	18.69	11	0.0	
0845	8.49	200	5.65	0.129	15.7	0.00	18.61	11	0.0	
0850	9.23	200	5.62	0.126	13.6	0.00	18.62	16	0.0	
0855	10.02	200	5.63	0.122	13.2	0.00	18.61	20	0.0	
0900	10.79	200	5.55	0.119	11.7	0.00	18.80	38	0.0	
0905	11.55	200	5.51	0.117	10.9	0.00	18.80	40	0.0	
0910	12.31	200	5.50	0.117	12.84	0.00	18.80	41	0.0	
	Sample	VOCs @	0910							

SIGNATURE(S): _____

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL GW Annual 2014
PROJECT NUMBER: 112IC06247

WELL ID.: MRL-MW-1079/2
DATE: 6/2/14

Time (HRS)	Water Level (Ft below TOC)	Flow (mL/Min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
0940	0.4	—	—	—	—	—	—	—	—	
0945	0.72	200	6.87	0.151	OVR	3.70	22.88	143	0.0	
0950	1.38	300	5.43	0.060	OVR	0.00	22.58	28	0.0	
0955	2.23	300	5.37	0.055	765AV	0.00	22.27	49	0.0	
1000	3.09	300	5.36	0.052	38	0.00	22.29	53	0.0	
1005	3.81	300	5.36	0.051	57.5	0.00	22.52	55	0.0	
1010	4.58	300	5.36	0.050	26.3	0.00	22.77	56	0.0	
1015	5.76	300	5.36	0.051	23.4	0.00	22.63	57	0.0	
1020	5.91	300	5.36	0.049	17.1	0.00	22.70	57	0.0	
1025	6.89	300	5.36	0.049	15.1	0.00	22.69	58	0.0	
	Sample	VOCs, Total Metals @			1025					

SIGNATURE(S): [signature]

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LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID: MRC-MW-109A-060514
DATE: 6-5-14

Time	Water Level (ft)	Flow (mL)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Salinity (ppt)	Comments
0945	11.00	—	—	—	—	—	—	—	—	Initial, no odor
0946	11.23	300	6.58	0.744	126	1.20	15.96	-49	0.4	Cloudy water
0951	11.51	200	6.55	0.709	117	0.53	15.94	-56	0.4	↓
0956	11.70	100	6.53	0.689	40.6	0.45	16.32	-57	0.4	↓
1006	12.15	100	6.49	0.691	10.1	0.37	16.50	-58	0.4	Clear water
1011	12.60	100	6.42	0.654	1.2	0.33	16.51	-53	0.3	↓
1021	12.71	100	6.42	0.648	2.6	0.33	16.56	-53	0.3	↓
1026	12.75	100	6.44	0.647	3.0	0.33	16.54	-55	0.3	↓
1031	12.78	100	6.46	0.646	3.0	0.33	16.55	-57	0.3	↓
				Well parameters stabilized						
				Sampling						

SIGNATURE(S): Will P

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Complex
PROJECT NUMBER: 112EC06247

WELL ID: MRC-MW-109B-060514
DATE: 6-5-14

Time	Water Level (ft)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (°C)	ORP (mV)	Salinity (ppt)	Comments
1041	15.90	—	—	—	—	—	—	—	—	Initial pre purge
1042	16.00	300	6.15	1.21	10.5	4.73	17.21	-24	0.6	Clear Water
1047	16.00	300	5.52	1.66	0.6	1.85	17.31	55	0.9	
1052	16.00	300	6.38	0.726	0.0	2.46	17.40	24	0.3	
1102	16.00	300	7.41	0.293	0.0	3.07	17.41	-38	0.1	
1112	16.00	300	7.53	0.281	0.0	3.06	17.45	-39	0.1	
1117	16.00	300	7.56	0.281	0.0	3.06	17.54	-38	0.1	
1122	16.00	300	7.55	0.282	0.0	2.95	17.60	-35	0.1	
1127	16.00	300	7.53	0.282	0.0	2.90	17.63	-34	0.1	
				Well Parameters Stabilized						
				Sampling Begins						

SIGNATURE(S): WW B

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MAC Annual GW
PROJECT NUMBER: 112IC06247

WELL ID.: MAC MW-110B
DATE: 6/3/14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (% or ppt)	Comments
1305	2.15	—	—	—	—	—	—	—	—	
1310	2.49	300	5.58	3.82	19.9	0.89	26.17	111	0.21	
1315	2.52	300	5.78	4.93	33.4	0.36	24.75	86	0.26	
1320	2.52	300	5.80	4.80	25.9	0.18	24.39	86	0.26	
1325	2.52	300	5.75	4.43	22.1	0.12	24.11	92	0.23	
1330	2.52	300	5.70	4.15	23.2	0.05	23.85	98	0.22	
1335	2.52	300	5.65	3.91	19.1	0.00	23.57	103	0.20	
1340	2.52	300	5.61	3.59	12.2	0.00	23.30	107	0.19	
1345	2.52	300	5.60	3.55	10.68	0.00	23.15	109	0.18	
1350	2.52	300	5.60	3.54	10.35	0.00	23.00	109	0.18	
	Sample	VOCs, 1-4 dioxane,		Perchlorate,	Total	Metals	@ 1350			

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRL Annual GW
PROJECT NUMBER: 112IC06247

WELL ID.: MRL-MW-110A
DATE: 6/3/14

Time (Hrs)	Water Level (Ft. below TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1200	2.74	–	–	–	–	–	–	–	–	
1205	3.49	100	5.34	1.72	25.6	2.23	28.07	152	0.09	
1210	4.02	100	5.34	1.65	16.5	0.98	25.16	142	0.08	
1215	4.28	100	5.30	1.65	18.9	0.95	24.81	138	0.08	
1220	4.46	100	5.30	1.67	17.7	0.92	24.59	137	0.08	
1225	4.65	100	5.31	1.65	0.0	0.37	24.62	136	0.08	
1230	4.77	100	5.31	1.64	0.0	0.28	24.73	135	0.08	
1235	4.89	100	5.31	1.64	0.0	0.20	24.41	135	0.08	
1240	4.96	100	5.29	1.64	0.0	0.13	24.27	134	0.08	
1245	5.03	100	5.30	1.65	0.0	0.10	24.23	134	0.08	
	Sample	VOCs, Perchlorate, 1-4 dioxane, Total metals.								

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-111A-061614
DATE: 6-16-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1323	4.40	—	—	—	—	—	—	—	—	Initial, MS color
1328	4.55	300	6.41	0.660	35.5	0.92	22.03	-86	0.3	Slightly cloudy
1330	4.62	300	6.60	0.680	36.9	0.76	25.67	-112	0.3	
1335	4.75	250	6.68	0.700	49.5	0.60	24.52	-124	0.3	
1345	4.80	200	6.72	0.711	53.3	0.57	24.20	-130	0.3	
1355	4.80	200	6.75	0.718	53.0	0.57	24.04	-133	0.3	
1400	4.80	200	6.75	0.717	52.6	0.57	24.04	-134	0.3	
1405	4.80	200	6.75	0.716	51.0	0.56	24.02	-135	0.3	
1410	4.80	200	6.74	0.716	52.2	0.56	23.99	-136	0.3	
				Well parameters stabilized						
				Samplers Begins						

SIGNATURE(S): Nate R

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112EC06247
WELL ID.: MRC-MW-111B-061614
DATE: 6-16-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or ppt	Comments
1425	12.42	—	—	—	—	—	—	—	—	Initial, pre-purge
1426	12.80	300	6.29	0.228	1.5	0.92	26.09	-6	0.1	Clean Water
1431	13.00	300	5.85	0.231	0.0	0.53	25.73	6	0.1	
1436	13.10	250	5.75	0.235	2.5	0.47	25.34	10	0.1	
1446	13.30	200	5.76	0.243	18.3	0.32	24.92	-4	0.1	
1456	13.40	100	5.68	0.253	21.6	0.30	25.01	0	0.1	
1501	13.42	100	5.67	0.256	10.0	0.29	24.55	2	0.1	
1506	13.44	100	5.67	0.258	10.0	0.28	24.90	1	0.1	
1511	13.44	100	5.66	0.258	9.9	0.29	24.66	3	0.1	
			Well Parameters Stabilize →							
			Sampling Begins →							

SIGNATURE(S): Walt Pa

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: MRC Annual GW 2014
PROJECT NUMBER: 112IC06747

WELL ID.: MRC-MW-112A
DATE: 6/5/14

Time (HRS)	Water Level (Percent of TOC)	Flow (mL/min)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP (mV)	Salinity (% or ppt)	Comments
1255	2.56	—	—	—	—	—	—	—	—	
1300	2.94	100	5.03	0.618	55.3	1.43	20.63	230	0.03	
1305	3.06	100	5.13	0.691	55.2	0.04	18.56	221	0.03	
1310	3.09	100	5.15	0.705	39.4	0.00	17.62	217	0.03	
1315	3.10	100	5.15	0.707	22.5	0.00	17.18	216	0.03	
1320	3.10	100	5.12	0.706	17.5	0.00	17.00	215	0.03	
1325	3.10	100	5.09	0.703	15.9	0.00	16.92	216	0.03	
1330	3.10	100	5.09	0.698	16.0	0.00	16.72	216	0.03	
1335	3.10	100	5.09	0.694	14.9	0.00	16.47	217	0.03	
1340	3.10	100	5.09	0.693	11.7	0.00	16.17	217	0.03	
Z	Sample	VOCs, Total metals @ 1340								

SIGNATURE(S): [signature]

PAGE 1 OF 1

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247

WELL ID.: MRC-MW-115A-060214
DATE: 6-2-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celsius)	ORP mV	Salinity % or ppt	Comments
1023	6.41	—	—	—	—	—	—	—	—	Initial, no odor.
1024	7.20	300	7.82	1.40	75.9	1.14	19.50	-160	0.7	Slightly cloudy
1029	8.00	250	7.71	1.44	53.2	0.61	19.04	-142	0.7	
1034	8.80	150	7.60	1.43	44.6	0.45	19.73	-132	0.7	
1044	10.02	100	7.51	1.43	41.4	0.36	19.18	-125	0.7	
1054	10.95	100	7.45	1.43	28.8	0.30	19.49	-122	0.7	
1104	12.02	100	7.37	1.42	16.7	0.31	19.65	-119	0.7	
1114	12.55	100	7.26	1.41	0.0	0.28	20.33	-113	0.7	Clean water
1124	13.20	100	7.20	1.40	0.0	0.30	20.61	-111	0.7	
1134	15.0	100	7.15	1.40	0.0	0.28	20.55	-109	0.7	
1144	15.82	100	7.13	1.39	0.0	0.22	20.86	-107	0.7	
1154	16.60	100	7.12	1.38	0.0	0.20	21.00	-105	0.7	
1204	17.52	100	7.07	1.37	0.0	0.26	21.08	-101	0.7	

Well parameters did not stabilize
after 90 min max purge time
workplan sampling begins

SIGNATURE(S): [signature]

LOW FLOW PURGE DATA SHEET

PROJECT SITE NAME: Middle River Center
PROJECT NUMBER: 112IC06247
WELL ID.: MRC-MW-116A-060214
DATE: 6-2-14

Time (Hrs.)	Water Level (Ft. below TOC)	Flow (mL/Min.)	pH (S.U.)	S. Cond. (mS/cm)	Turb. (NTU)	DO (mg/L)	Temp. (Celcius)	ORP mV	Salinity % or PPT	Comments
0802	5.45	—	—	—	—	—	—	—	—	Initial pump depth
0803	6.20	300	6.82	0.665	27.9	10.16	16.40	62	0.3	Slightly cloudy
0808	7.00	200	7.58	0.636	4.6	8.44	15.78	-111	0.3	Clear water
0813	7.55	150	8.30	0.639	10.9	7.40	16.42	-158	0.3	
0823	8.65	100	8.60	0.621	5.5	6.27	16.17	-190	0.3	
0833	9.55	100	8.76	0.605	0.0	5.02	16.34	-204	0.3	
0843	10.40	100	8.90	0.600	0.0	4.13	16.19	-209	0.3	
0853	11.90	100	8.77	0.596	0.0	3.64	16.31	-206	0.3	
0903	12.70	100	8.59	0.589	0.0	3.07	16.34	-199	0.3	
0913	13.52	100	8.41	0.585	0.0	2.51	16.62	-194	0.3	
0923	14.40	100	8.25	0.581	0.0	2.05	16.56	-179	0.3	
0933	15.20	100	8.09	0.575	0.0	1.90	16.40	-160	0.3	
			Well Parameters did not Stabilize							
			after 50 min max Purge Done Workplan							
			Sampling Begins							

SIGNATURE(S): WMK

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MW **PROJECT NO.:** 112IC06247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5/27/14	Horiba U-52	21243	JAM			pH 6.91	4.01		
↓	↓	↓	↓			Stand 0.003	4.57		
						Turb 0.0	0.0		
	↓	↓				DO 9.28	7.84		
↓	LaMotte	025109	↓			Turb 0/9.45	0/10.00		
5/28/14	Horiba U-52	21243	JAM			pH 6.35	4.01		
↓	↓	↓	↓			Stand 0.003	4.50		
						Turb 0.0	0.0		
	↓	↓				DO 7.20	7.81		
↓	La Motte	025109	↓			Turb 0/10.10	0/10.00		
5/29/14	Horiba U-52	21243	JAM			pH 4.95	4.01		
↓	↓	↓	↓			Stand 0.003	4.47		
						Turb 0.0	0.0		
↓	↓	~~0251~~	↓			DO 9.47	7.65		
↓	Lamotte	025109	↓			Turb 0/9.83	0/10.0		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MRL **PROJECT NO.:** 112106247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
6/4/14	Horiba U-52	R19193	JAM			pH 6.00	3.98		
↓	↓	↓	↓	↓	↓	Stand 0.002	4.50	↓	↓
↓	↓	↓	↓	↓	↓	Turb 324	0.0	↓	↓
↓	↓	↓	↓	↓	↓	DO 8.59	9.56	↓	↓
↓	La Motte	025109	↓	↓	↓	Turb 9/8.19	0/10.0	↓	↓
6/5/14	Horiba U-52	R19193	JAM	↓	↓	pH 5.32	3.99	↓	↓
↓	↓	↓	↓	↓	↓	Stand 2.00	~~3.99~~ 4.48	↓	↓
↓	↓	↓	↓	↓	↓	Turb 397	0.0	↓	↓
↓	↓	↓	↓	↓	↓	DO 10.44	9.47	↓	↓
↓	La Motte	025109	↓	↓	↓	Turb 0/9.23	0/10.0	↓	↓
6/6/14	Horiba U-52	R19193	JAM	↓	↓	pH 4.97	3.96	↓	↓
↓	↓	↓	↓	↓	↓	Stand 2.01	4.49	↓	↓
↓	↓	↓	↓	↓	↓	Turb 264	0.0	↓	↓
↓	↓	↓	↓	↓	↓	DO 9.99	9.28	↓	↓
↓	La Motte	025109	↓	↓	↓	Turb 0/9.3	0/10.0	↓	↓

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MRL Annual GW 2014 **PROJECT NO.:** 112IC06247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5/30/14	Horiba U-52	21243	JAM			pH 5.59	4.00		
↓	↓	↓	↓			Stand 0.003	4.51		
↓	↓	↓	↓			Turb 8.0	0.0		
↓	↓	↓	↓			DO 9.73	7.84		
↓	La Motte	025109	↓			Turb 0/8.97	0/10.0		
6/2/14	Horiba U-52	21243	JAM			pH 5.50	4.01		
↓	↓	↓	↓			Stand 0.004	4.48		
↓	↓	↓	↓			Turb 0.0	0.0		
↓	↓	↓	↓			DO 7.86	7.79		
↓	La Motte	025109	↓			Turb 0/8.009	0/10.0		
6/3/14	Horiba U-52	21943	JAM			pH 7.44	4.00		
↓	↓	↓	↓			Stand 0.000	4.51		
↓	↓	↓	↓			Turb 342	2 1.6		
↓	↓	↓	↓			DO 12.42	9.72		
↓	La Motte	025109	↓			Turb 9/6.17	9/7.98		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MRC **PROJECT NO.:** 1112CD 6247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5/8/14	Horiba U-52	21241	JAM	pH 4.24	3.99				
↓	↓	↓	↓	Stand 5.12	4.48				
				Turb 803	0.0				
	↓	↓		DO 10.25	8.39				
↓	La Motte	024771	↓	Turb 0/8.42	0/10				
5/12/14	Horiba U-52	21241	JAM	pH 5.33	4.01				
↓	↓	↓	↓	Stand 0.001	4.38				
				Turb 108	7.0				
	↓	↓		DO 10.22	7.94				
↓	La Motte	024771	↓	Turb 0/8.60	0/average at 8.60				
5/16/14	Horiba U-52	21241	JAM	pH 6.33	4.00				
↓	↓	↓	↓	Stand 0.001	4.53				
				Turb 0.0	0.0				
	↓	↓		DO 9.13	7.61				
↓	La Motte	024771	↓	Turb 0/663	0/8.27				

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MRC GW 2014 **PROJECT NO.:** 112ICO6247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
6/17/14	Horiba U-52	R19193	JAM			pH 5.71	4.00		
↓	↓	↓	↓			Stand 0.002	4.51		
						Turb 263	3.8		
	↓	↓				DO 14.39	8.83		
↓	LaMotte	025109	↓			Turb 0/10.34	0/10.0		
6/18/14	Horiba U-52	R19193	JAM			pH 5.92	4.02		
↓	↓	↓	↓			Stand 0.000	4.64		
						Turb 260	7.5		
	↓	↓				DO 7.01	6.85		
↓	LaMotte	025109	↓			Turb 0/10.32	0/10.0		
6/20/14	Horiba U-52	R19193	JAM			pH 5.65	4.01		
↓	↓	↓	↓			Stand 0.000	4.50		
						Turb 261	0.0		
	↓	↓				DO 10.38	9.22		
	LaMotte	025109				Turb 0/9.85	0/10.0		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: Middle River Center **PROJECT NO.:** 112IC0624

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
6-18-14	Hanby-52	018458	WEP	pH	4.03		4.01	C467883	Cal OK
				cond	4.61		4.50		
				Turb	0.0		0.0		
				DO	8.48		8.67		
6-20-14				pH	4.21		4.01		
				cond	4.66		4.49		
				Turb	9.2		0.0		
				DO	9.02		8.80		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: Middle River Center **PROJECT NO.:** 112IC0624

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
6-18-14	Horiba U-52	018458	WEP	pH	4.03		4.01	C467883	Cal OK
				cond	4.61		4.50		
				Turb	0.0		0.0		
				DO	8.48		8.67		
6-20-14				pH	4.21		4.01		
				cond	4.66		4.49		
				Turb	9.2		0.0		
				DO	9.02		8.80		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: MRC - Middle River Complex **PROJECT NO.:** 112IC06247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5-27-14	Horiba U-52	018458	WEP	pH	4.09		4.01	C467883	Cal OK
				Cond	4.23		4.49		
				Turb	1.6		0.1		
				DO	10.56		8.70		
5-28-14				pH	4.01		4.01		
				Cond	4.54		4.49		
				Turb	0.0		0.1		
				DO	8.02		9.05		
5-29-14				pH	3.99		4.01		
				Cond	4.63		4.49		
				Turb	3.5		0.3		
				DO	10.32		9.14		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: Middle River Center **PROJECT NO.:** 112C6247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5-19-14	Horiba U-52	018458	WP	pH	4.00		4.00	C467883	Cal OK
				Cond	3.54		4.49		
				Turb	0.0		0.3		
				DO	10.01		9.16		
↓									
5-20-14				pH	4.02		4.00		
				Cond	4.78		4.49		
				Turb	0.0		0.0		
				DO	9.68		9.64		
↓									
5-21-14				pH	3.94		4.00		
				Cond	4.60		4.48		
				Turb	0.0		0.2		
↓	↓	↓	↓	DO	10.50		9.18	↓	↓

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: Middle River Center **PROJECT NO.:** 112IC06247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5-14-14	Horiba U52	018458	WEP	pH	4.01		4.00	C467883	Cal OK
↓	↓	↓	↓	Cond	4.66		4.49		
				Turb	0.0		0.0		
				DO	9.42		9.18		
↓									
5-15-14				pH	4.02		4.01		
↓				Cond	4.62		4.49		
				Turb	0.0		0.3		
				DO	9.44		9.16		
↓									
5-16-14				pH	3.98		4.00		
↓				Cond	4.50		4.49		
				Turb	4.6		0.2		
↓	↓	↓	↓	DO	8.63		9.05		

FIGURE 7-1

DOCUMENTATION OF FIELD CALIBRATION

SITE NAME: Middle River Centein **PROJECT NO.:** 112IC06247

Date of Calibration	Instrument Name and Model	Instrument I.D. Number	Person Performing Calibration	Instrument Settings		Instrument Readings		Calibration Standard (Lot Number)	Remarks/ Comments
				Pre-Calibration	Post-Calibration	Pre-Calibration	Post-Calibration		
5-8-14	Horiba U52	018458	WEP	pH	4.04		4.00	# C467883	Cal OK
				Cond	4.73		4.49		
				Turb	3.9		0.0		
				DO	11.07		9.81		
5-12-14				pH	4.03		4.00		
				Cond	5.07		4.49		
				Turb	2.3		0.0		
				DO	8.77		9.39		
5-13-14			WEP	pH	3.97		4.01		
				Cond	4.44		4.49		
				Turb	3.9		1.1		
				DO	9.25		9.07		

APPENDIX C—DATA-VALIDATION REPORTS

Tetra Tech **INTERNAL CORRESPONDENCE**

TO: **T. APANAVAGE** **DATE:** **MAY 8, 2014**

FROM: **A. COGNETTI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC AND INORGANIC DATA VALIDATION- VOC / 1,4-DIOXANE / METALS**
MIDDLE RIVER CENTER (MRC) – FULL REVIEW
SAMPLE DELIVERY GROUP (SDG) R1402011

SAMPLES: 5/Aqueous/VOC

MRC-MW113A-032014	MRC-MW114A-032014	MRC-MW43A-032014
MRC-MWDUP01-032014	TB-032014	

3/Aqueous/1,4-dioxane/Metals

MRC-MW113A-032014	MRC-MW114A-032014	MRC-MWDUP01-032014

Overview

The sample set for MRC, SDG R1402011 consists of four (4) aqueous environmental samples and one trip blank. All samples were analyzed for volatile organic compounds (VOCs). Three (3) aqueous environmental samples were analyzed for 1,4-dioxane, perchlorate and select metals. The select metals were beryllium, cobalt, mercury and nickel. There is one (1) field duplicate pair included in this SDG: MRC-MWDUP01-032014 and MRC-MW114A-032014.

The samples were collected on March 20, 2014 and analyzed by ALS Environmental, Inc. Volatile organic compound analyses were conducted in accordance to SW-846 Method 8260C. The analyses for 1,4-dioxane followed EPA Method 522. Metals were analyzed in accordance with SW-846 Methods 6020A and 7470A. Pechlorate analyses followed SW-846 method 6850.

Summary

The data contained in this SDG were validated with regard to the following parameters: data completeness, system performance, holding times, GC/MS tuning, initial / continuing calibrations, laboratory method blank results, surrogate spike/internal standard recoveries, laboratory control sample results, matrix spike/matrix spike duplicate results, ICP Interference, serial dilution, compound identification, compound quantitation, and detection limits.

Areas of concern with respect to data quality are listed below.

Major Problems

- No issues were identified.

Minor Problems

- According to the case narrative, the temperature of the cooler upon receipt at the laboratory was 8.2°C. The samples were stored in a refrigerator between 1-6°C. The VOC fraction samples were analyzed 11 to 12 days after collection. The detected and nondetected results in the VOC fraction were qualified as estimated (J) and (UJ), respectively because the temperature exceedance was greater than 6°C.

- The continuing calibration percent differences (%Ds) for 2-hexanone, tert-butyl alcohol and acetone were greater than the 20% quality control limit on April 1, 2014 @ 14:14 on instrument R-MS-12. The nondetected 2-hexanone, tert-butyl alcohol and acetone results were qualified as estimated (UJ).

- Contamination was detected in the laboratory method blank associated with batch 386023 analyzed on March 31, 2014.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
1,2,4-trichlorobenzene	0.28	1.4
Hexachlorobutadiene	0.64	3.2
Naphthalene	0.3	1.5

Contamination was detected in the laboratory method blank associated with batch 386290 analyzed on April 1, 2014.

Contaminant	Maximum Concentration (ug/L)
1,2,4-trichlorobenzene	0.81
Hexachlorobutadiene	0.88
Naphthalene	0.47

An action level of 5X the maximum concentration of contaminant was established in order to evaluate samples for blank contamination. Sample aliquot and dilution factors were taken into account when applying the action level. Detected results less than the action level were qualified as (U).

- Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

Notes

The chain of custody lists the samples to be analyzed for polychlorinated biphenyls. The results of these analyses are not included in this SDG.

The following samples were diluted in the VOC fraction resulting in elevated detection limits:

Sample	Dilution Factor
MRC-MW113A-032914	10X
MRC-MW43A-032014	50X

Nondetected results were reported to the MDL.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Contamination was detected in the VOC method blanks.

Other Factors Affecting Data Quality: Temperature of cooler upon receipt at the laboratory was 8.2°C.

The data for these analyses were reviewed with reference to the USEPA National Functional Guidelines for Organic Data Validation (June 2008) and USEPA National Functional Guidelines for Inorganic Data Validation (January 2010). The text of this report has been formulated to address only those problem areas affecting data quality.

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Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW113A-032014			MRC-MW114A-032014			MRC-MW114A-032014-DL			MRC-MW43A-032014		
SDG: R1402011	LAB_ID	R1402011-003			R1402011-002			R1402011-002			R1402011-004		
FRACTION: OV	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	2.2	UJ	M	0.22	UJ	M				11	UJ	M
1,1,1-TRICHLOROETHANE	3.6	UJ	M	0.36	UJ	M				18	UJ	M
1,1,2,2-TETRACHLOROETHANE	2.5	UJ	M	0.25	UJ	M				13	UJ	M
1,1,2-TRICHLOROTRIFLUOROETHANE	3.1	UJ	M	0.31	UJ	M				16	UJ	M
1,1-DICHLOROETHANE	2.2	J	MP	0.2	UJ	M				10	UJ	M
1,1-DICHLOROETHENE	5.7	UJ	M	0.57	UJ	M				29	UJ	M
1,1-DICHLOROPROPENE	2.9	UJ	M	0.29	UJ	M				15	UJ	M
1,2,3-TRICHLOROBENZENE	60	J	M	120	J	M				1700	J	M
1,2,3-TRICHLOROPROPANE	7	UJ	M	0.7	UJ	M				35	UJ	M
1,2,4-TRICHLOROBENZENE	270	J	M				530	J	M	8000	J	M
1,2,4-TRIMETHYLBENZENE	2	UJ	M	0.2	UJ	M				10	UJ	M
1,2-DIBROMO-3-CHLOROPROPANE	7.4	UJ	M	0.74	UJ	M				37	UJ	M
1,2-DIBROMOETHANE	2.4	UJ	M	0.24	UJ	M				12	UJ	M
1,2-DICHLOROBENZENE	15	J	M	30	J	M				400	J	M
1,2-DICHLOROETHANE	3.6	UJ	M				960	J	M	18	UJ	M
1,2-DICHLOROPROPANE	2	UJ	M	7.7	J	M				10	UJ	M
1,3-DICHLOROBENZENE	14	J	M	4.7	J	M				10	UJ	M
1,3-DICHLOROPROPANE	2.7	UJ	M	0.27	UJ	M				14	UJ	M
1,4-DICHLOROBENZENE	36	J	M	49	J	M				480	J	M
2,2-DICHLOROPROPANE	2.7	UJ	M	0.27	UJ	M				14	UJ	M
2-BUTANONE	8.2	UJ	M	0.81	UJ	M				41	UJ	M
2-CHLOROETHYL VINYL ETHER	4.4	UJ	M	0.44	UJ	M				22	UJ	M
2-CHLOROTOLUENE	2	UJ	M	0.2	UJ	M				10	UJ	M
2-HEXANONE	17	UJ	CM	1.7	UJ	M				83	UJ	CM
4-CHLOROTOLUENE	2.4	UJ	M	0.24	UJ	M				12	UJ	M
4-ISOPROPYLTOLUENE	2	UJ	M	0.2	UJ	M				10	UJ	M
4-METHYL-2-PENTANONE	6.7	UJ	M	0.67	UJ	M				34	UJ	M
ACETONE	13	UJ	CM	1.3	UJ	M				62	UJ	CM
BENZENE	2	UJ	M	0.2	UJ	M				10	UJ	M
BROMOBENZENE	2.9	UJ	M	0.28	UJ	M				15	UJ	M
BROMOCHLOROMETHANE	3.2	UJ	M	0.32	UJ	M				16	UJ	M
BROMODICHLOROMETHANE	3.2	UJ	M	0.32	UJ	M				16	UJ	M
BROMOFORM	4.2	UJ	M	0.42	UJ	M				21	UJ	M
BROMOMETHANE	2.9	UJ	M	0.29	UJ	M				15	UJ	M
CARBON DISULFIDE	2.2	UJ	M	0.48	J	MP				11	UJ	M
CARBON TETRACHLORIDE	4.5	UJ	M	0.45	UJ	M				23	UJ	M

PROJ_NO: 06247	NSAMPLE	MRC-MWDUP01-032014			MRC-MWDUP01-032014-DL			TB-032014		
SDG: R1402011	LAB_ID	R1402011-005			R1402011-005			R1402011-001		
FRACTION: OV	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	MRC-MW114A-032014			MRC-MW114A-032014					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	UJ	M				0.22	UJ	M
1,1,1-TRICHLOROETHANE		0.36	UJ	M				0.36	UJ	M
1,1,2,2-TETRACHLOROETHANE		0.25	UJ	M				0.25	UJ	M
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	UJ	M				0.31	UJ	M
1,1-DICHLOROETHANE		0.2	UJ	M				0.2	UJ	M
1,1-DICHLOROETHENE		0.57	UJ	M				0.57	UJ	M
1,1-DICHLOROPROPENE		0.29	UJ	M				0.29	UJ	M
1,2,3-TRICHLOROBENZENE					120	J	M	0.82	UJ	M
1,2,3-TRICHLOROPROPANE		0.7	UJ	M				0.7	UJ	M
1,2,4-TRICHLOROBENZENE					600	J	M	0.23	UJ	M
1,2,4-TRIMETHYLBENZENE		0.2	UJ	M				0.2	UJ	M
1,2-DIBROMO-3-CHLOROPROPANE		0.74	UJ	M				0.74	UJ	M
1,2-DIBROMOETHANE		0.24	UJ	M				0.24	UJ	M
1,2-DICHLOROBENZENE		32	J	M				0.21	UJ	M
1,2-DICHLOROETHANE					1100	J	M	0.36	UJ	M
1,2-DICHLOROPROPANE		7.9	J	M				0.2	UJ	M
1,3-DICHLOROBENZENE		4.7	J	M				0.2	UJ	M
1,3-DICHLOROPROPANE		0.27	UJ	M				0.27	UJ	M
1,4-DICHLOROBENZENE		49	J	M				0.2	UJ	M
2,2-DICHLOROPROPANE		0.27	UJ	M				0.27	UJ	M
2-BUTANONE		0.81	UJ	M				0.81	UJ	M
2-CHLOROETHYL VINYL ETHER		0.44	UJ	M				0.44	UJ	M
2-CHLOROTOLUENE		0.2	UJ	M				0.2	UJ	M
2-HEXANONE		1.7	UJ	M				1.7	UJ	M
4-CHLOROTOLUENE		0.24	UJ	M				0.24	UJ	M
4-ISOPROPYLTOLUENE		0.2	UJ	M				0.2	UJ	M
4-METHYL-2-PENTANONE		0.67	UJ	M				0.67	UJ	M
ACETONE		1.3	UJ	M				1.3	UJ	M
BENZENE		0.2	UJ	M				0.2	UJ	M
BROMOBENZENE		0.28	UJ	M				0.28	UJ	M
BROMOCHLOROMETHANE		0.32	UJ	M				0.32	UJ	M
BROMODICHLOROMETHANE		0.32	UJ	M				0.32	UJ	M
BROMOFORM		0.42	UJ	M				0.42	UJ	M
BROMOMETHANE		0.29	UJ	M				0.29	UJ	M
CARBON DISULFIDE		0.43	J	MP				0.22	UJ	M
CARBON TETRACHLORIDE		0.45	UJ	M				0.45	UJ	M

PROJ_NO: 06247	NSAMPLE	MRC-MW113A-032014			MRC-MW114A-032014			MRC-MW114A-032014-DL			MRC-MW43A-032014		
SDG: R1402011	LAB_ID	R1402011-003			R1402011-002			R1402011-002			R1402011-004		
FRACTION: OV	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		23	J	M				510	J	M	15	UJ	M
CHLORODIBROMOMETHANE		3.1	UJ	M	0.31	UJ	M				16	UJ	M
CHLOROETHANE		2.4	UJ	M	0.24	UJ	M				12	UJ	M
CHLOROFORM		2.6	J	MP	0.25	UJ	M				13	UJ	M
CHLOROMETHANE		2.1	UJ	M	0.21	UJ	M				11	UJ	M
CIS-1,2-DICHLOROETHENE		8.4	J	MP	0.95	J	MP				15	UJ	M
CIS-1,3-DICHLOROPROPENE		2.4	UJ	M	0.24	UJ	M				12	UJ	M
DIBROMOMETHANE		3.2	UJ	M	0.32	UJ	M				16	UJ	M
DICHLORODIFLUOROMETHANE		4.7	UJ	M	0.46	UJ	M				23	UJ	M
DIISOPROPYL ETHER		2	UJ	M	0.2	UJ	M				10	UJ	M
ETHYL TERT-BUTYL ETHER		2	UJ	M	0.2	UJ	M				10	UJ	M
ETHYLBENZENE		2	UJ	M	0.2	UJ	M				10	UJ	M
HEXACHLOROBUTADIENE		6.2	UJ	M	0.62	UJ	M				31	UJ	M
ISOPROPYLBENZENE		2	UJ	M	0.2	UJ	M				10	UJ	M
M+P-XYLENES		3.4	UJ	M	0.33	UJ	M				17	UJ	M
METHYL TERT-BUTYL ETHER		2.9	UJ	M	0.29	UJ	M				15	UJ	M
METHYLENE CHLORIDE		3.2	UJ	M	1.6	J	M				16	UJ	M
NAPHTHALENE		2.5	U	A	0.2	UJ	M				12	U	A
N-BUTYLBENZENE		2.1	UJ	M	0.21	UJ	M				11	UJ	M
N-PROPYLBENZENE		2	UJ	M	0.2	UJ	M				10	UJ	M
O-XYLENE		2	UJ	M	0.2	UJ	M				10	UJ	M
SEC-BUTYLBENZENE		2.7	UJ	M	0.27	UJ	M				14	UJ	M
STYRENE		2	UJ	M	0.2	UJ	M				10	UJ	M
TERT-AMYL METHYL ETHER		2	UJ	M	0.2	UJ	M				10	UJ	M
TERT-BUTYLBENZENE		2	UJ	M	0.2	UJ	M				10	UJ	M
TERTIARY-BUTYL ALCOHOL		110	UJ	CM	11	UJ	M				540	UJ	CM
TETRACHLOROETHENE		43	J	M	2.1	J	M				15	UJ	M
TOLUENE		2	UJ	M	0.2	UJ	M				10	UJ	M
TOTAL XYLENES		5.4	UJ	M	0.53	UJ	M				27	UJ	M
TRANS-1,2-DICHLOROETHENE		3.4	UJ	M	0.33	UJ	M				17	UJ	M
TRANS-1,3-DICHLOROPROPENE		2	UJ	M	0.2	UJ	M				10	UJ	M
TRICHLOROETHENE		24	J	M	4.5	J	M				11	UJ	M
TRICHLOROFLUOROMETHANE		1500	J	M	140	J	M				10	UJ	M
VINYL ACETATE		11	UJ	M	1.1	UJ	M				51	UJ	M
VINYL CHLORIDE		3.2	UJ	M	5.3	J	M				16	UJ	M

PROJ_NO: 06247	NSAMPLE	MRC-MWDUP01-032014			MRC-MWDUP01-032014-DL			TB-032014		
SDG: R1402011	LAB_ID	R1402011-005			R1402011-005			R1402011-001		
FRACTION: OV	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	MRC-MW114A-032014			MRC-MW114A-032014					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE					570	J	M	0.29	UJ	M
CHLORODIBROMOMETHANE		0.31	UJ	M				0.31	UJ	M
CHLOROETHANE		0.24	UJ	M				0.24	UJ	M
CHLOROFORM		0.25	UJ	M				0.25	UJ	M
CHLOROMETHANE		0.21	UJ	M				0.21	UJ	M
CIS-1,2-DICHLOROETHENE		0.81	J	MP				0.3	UJ	M
CIS-1,3-DICHLOROPROPENE		0.24	UJ	M				0.24	UJ	M
DIBROMOMETHANE		0.32	UJ	M				0.32	UJ	M
DICHLORODIFLUOROMETHANE		0.46	UJ	M				0.46	UJ	M
DIISOPROPYL ETHER		0.2	UJ	M				0.2	UJ	M
ETHYL TERT-BUTYL ETHER		0.2	UJ	M				0.2	UJ	M
ETHYLBENZENE		0.2	UJ	M				0.2	UJ	M
HEXACHLOROBUTADIENE		0.62	UJ	M				0.62	UJ	M
ISOPROPYLBENZENE		0.2	UJ	M				0.2	UJ	M
M+P-XYLENES		0.33	UJ	M				0.33	UJ	M
METHYL TERT-BUTYL ETHER		0.29	UJ	M				0.29	UJ	M
METHYLENE CHLORIDE		1.3	J	M				0.32	UJ	M
NAPHTHALENE		0.58	U	A				0.2	UJ	M
N-BUTYLBENZENE		0.21	UJ	M				0.21	UJ	M
N-PROPYLBENZENE		0.2	UJ	M				0.2	UJ	M
O-XYLENE		0.2	UJ	M				0.2	UJ	M
SEC-BUTYLBENZENE		0.27	UJ	M				0.27	UJ	M
STYRENE		0.2	UJ	M				0.2	UJ	M
TERT-AMYL METHYL ETHER		0.2	UJ	M				0.2	UJ	M
TERT-BUTYLBENZENE		0.2	UJ	M				0.2	UJ	M
TERTIARY-BUTYL ALCOHOL		11	UJ	M				11	UJ	M
TETRACHLOROETHENE		2.1	J	M				0.3	UJ	M
TOLUENE		0.2	UJ	M				0.2	UJ	M
TOTAL XYLENES		0.53	UJ	M				0.53	UJ	M
TRANS-1,2-DICHLOROETHENE		0.33	UJ	M				0.33	UJ	M
TRANS-1,3-DICHLOROPROPENE		0.2	UJ	M				0.2	UJ	M
TRICHLOROETHENE		4.5	J	M				0.22	UJ	M
TRICHLOROFLUOROMETHANE		140	J	M				0.2	UJ	M
VINYL ACETATE		1.1	UJ	M				1.1	UJ	M
VINYL CHLORIDE		5.2	J	M				0.32	UJ	M

PROJ_NO: 06183	NSAMPLE	MRC-MW113A-032014			MRC-MW114A-032014			MRC-MWDUP01-032014		
SDG: R1402011	LAB_ID	R1402011-003			R1402011-002			R1402011-005		
FRACTION: OS	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF							MRC-MW114A-032014		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		6.86			0.709			0.855		

PROJ_NO: 06183	NSAMPLE	MRC-MW113A-032014			MRC-MW114A-032014			MRC-MWDUP01-032014		
SDG: R1402011	LAB_ID	R1402011-003			R1402011-002			R1402011-005		
FRACTION: MISC	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF							MRC-MW114A-032014		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		0.69			0.76			0.81		

PROJ_NO: 06183	NSAMPLE	MRC-MW113A-032014			MRC-MW114A-032014			MRC-MWDUP01-032014		
SDG: R1402011	LAB_ID	R1402011-003			R1402011-002			R1402011-005		
FRACTION: M	SAMP_DATE	3/20/2014			3/20/2014			3/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF							MRC-MW114A-032014		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
BERYLLIUM		0.98	J	P	6.8			7		
COBALT		34.4			28.8			29.4		
MERCURY		0.024	U		0.024	U		0.024	U	
NICKEL		54.8			67.1			68.9		

Appendix B

Results as Reported by the Laboratory

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1259
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 16:56
Sample Name:	MRC-MW113A-032014	**Units:**	µg/L
Lab Code:	R1402011-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4359.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.2	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	3.6	U	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	3.1	U	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**2.2**	J	10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.7	U	10	5.7	
563-58-6	1,1-Dichloropropene	2.9	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	**60**		10	8.2	
96-18-4	1,2,3-Trichloropropane	7.0	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	**270**		10	2.4	
95-63-6	1,2,4-Trimethylbenzene	2.0	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	7.4	U	20	7.4	
106-93-4	1,2-Dibromoethane	2.4	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	**15**		10	2.1	
107-06-2	1,2-Dichloroethane	3.6	U	10	3.6	
78-87-5	1,2-Dichloropropane	2.0	U	10	2.0	
541-73-1	1,3-Dichlorobenzene	**14**		10	2.0	
142-28-9	1,3-Dichloropropane	2.7	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	**36**		10	2.0	
594-20-7	2,2-Dichloropropane	2.7	U	10	2.7	
78-93-3	2-Butanone (MEK)	8.2	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	4.4	U	10	4.4	
95-49-8	2-Chlorotoluene	2.0	U	10	2.0	
591-78-6	2-Hexanone	17	U	50	17	
75-65-0	tert-Butyl Alcohol	110	U	400	110	
106-43-4	4-Chlorotoluene	2.4	U	10	2.4	
99-87-6	4-Isopropyltoluene	2.0	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	6.7	U	50	6.7	
67-64-1	Acetone	13	U	50	13	
71-43-2	Benzene	2.0	U	10	2.0	
108-86-1	Bromobenzene	2.9	U	10	2.9	
74-97-5	Bromochloromethane	3.2	U	10	3.2	
75-27-4	Bromodichloromethane	3.2	U	10	3.2	
75-25-2	Bromoform	4.2	U	10	4.2	
74-83-9	Bromomethane	2.9	U	10	2.9	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1259
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 16:56
Sample Name:	MRC-MW113A-032014	**Units:**	µg/L
Lab Code:	R1402011-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4359.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.2	U	10	2.2	
56-23-5	Carbon Tetrachloride	4.5	U	10	4.5	
108-90-7	Chlorobenzene	**23**		10	2.9	
75-00-3	Chloroethane	2.4	U	10	2.4	
67-66-3	Chloroform	**2.6**	J	10	2.5	
74-87-3	Chloromethane	2.1	U	10	2.1	
124-48-1	Dibromochloromethane	3.1	U	10	3.1	
74-95-3	Dibromomethane	3.2	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.7	U	10	4.7	
75-09-2	Methylene Chloride	3.2	U	10	3.2	
108-20-3	Diisopropyl Ether	2.0	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	10	2.0	
100-41-4	Ethylbenzene	2.0	U	10	2.0	
87-68-3	Hexachlorobutadiene	6.2	U	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	2.0	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	2.9	U	10	2.9	
91-20-3	Naphthalene	**2.5**	J	10	2.0	
100-42-5	Styrene	2.0	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	**43**		10	3.0	
108-88-3	Toluene	2.0	U	10	2.0	
79-01-6	Trichloroethene (TCE)	**24**		10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	**1500**		10	2.0	
108-05-4	Vinyl Acetate	11	U	20	11	
75-01-4	Vinyl Chloride	3.2	U	10	3.2	
1330-20-7	Xylenes, Total	5.4	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	**8.4**	J	10	3.0	
10061-01-5	cis-1,3-Dichloropropene	2.4	U	10	2.4	
179601-23-1	m,p-Xylenes	3.4	U	20	3.4	
104-51-8	n-Butylbenzene	2.1	U	10	2.1	
103-65-1	n-Propylbenzene	2.0	U	10	2.0	
95-47-6	o-Xylene	2.0	U	10	2.0	
135-98-8	sec-Butylbenzene	2.7	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	2.0	U	10	2.0	
98-06-6	tert-Butylbenzene	2.0	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	3.4	U	10	3.4	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1259
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 16:56
Sample Name:	MRC-MW113A-032014	**Units:**	µg/L
Lab Code:	R1402011-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4359.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	4/1/14 16:56	
Dibromofluoromethane	99	89-119	4/1/14 16:56	
Toluene-d8	98	87-121	4/1/14 16:56	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 19:12
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4321.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	0.22	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	0.36	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.31	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	0.20	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	0.57	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	0.29	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	120		1.0	0.82	
96-18-4	1,2,3-Trichloropropane	0.70	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	610	E	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	0.20	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.74	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	0.24	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	30		1.0	0.21	
107-06-2	1,2-Dichloroethane	960	E	1.0	0.36	
78-87-5	1,2-Dichloropropane	7.7		1.0	0.20	
541-73-1	1,3-Dichlorobenzene	4.7		1.0	0.20	
142-28-9	1,3-Dichloropropane	0.27	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	49		1.0	0.20	
594-20-7	2,2-Dichloropropane	0.27	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	0.81	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	0.44	U	1.0	0.44	
95-49-8	2-Chlorotoluene	0.20	U	1.0	0.20	
591-78-6	2-Hexanone	1.7	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	11	U	40	11	
106-43-4	4-Chlorotoluene	0.24	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	0.20	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	0.67	U	5.0	0.67	
67-64-1	Acetone	1.3	U	5.0	1.3	
71-43-2	Benzene	0.20	U	1.0	0.20	
108-86-1	Bromobenzene	0.28	U	1.0	0.28	
74-97-5	Bromochloromethane	0.32	U	1.0	0.32	
75-27-4	Bromodichloromethane	0.32	U	1.0	0.32	
75-25-2	Bromoform	0.42	U	1.0	0.42	
74-83-9	Bromomethane	0.29	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 19:12
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\U4321.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**0.48**	J	1.0	0.22	
56-23-5	Carbon Tetrachloride	0.45	U	1.0	0.45	
108-90-7	Chlorobenzene	**470**	E	1.0	0.29	
75-00-3	Chloroethane	0.24	U	1.0	0.24	
67-66-3	Chloroform	0.25	U	1.0	0.25	
74-87-3	Chloromethane	0.21	U	1.0	0.21	
124-48-1	Dibromochloromethane	0.31	U	1.0	0.31	
74-95-3	Dibromomethane	0.32	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	0.46	U	1.0	0.46	
75-09-2	Methylene Chloride	**1.6**		1.0	0.32	
108-20-3	Diisopropyl Ether	0.20	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	0.20	U	1.0	0.20	
100-41-4	Ethylbenzene	0.20	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.62	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	0.20	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	0.29	U	1.0	0.29	
91-20-3	Naphthalene	0.20	U	1.0	0.20	
100-42-5	Styrene	0.20	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**2.1**		1.0	0.30	
108-88-3	Toluene	0.20	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**4.5**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	**140**		1.0	0.20	
108-05-4	Vinyl Acetate	1.1	U	2.0	1.1	
75-01-4	Vinyl Chloride	**5.3**		1.0	0.32	
1330-20-7	Xylenes, Total	0.53	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.95**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	0.24	U	1.0	0.24	
179601-23-1	m,p-Xylenes	0.33	U	2.0	0.33	
104-51-8	n-Butylbenzene	0.21	U	1.0	0.21	
103-65-1	n-Propylbenzene	0.20	U	1.0	0.20	
95-47-6	o-Xylene	0.20	U	1.0	0.20	
135-98-8	sec-Butylbenzene	0.27	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	0.20	U	1.0	0.20	
98-06-6	tert-Butylbenzene	0.20	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	0.33	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 19:12
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4321.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	0.20	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	3/31/14 19:12	
Dibromofluoromethane	99	89-119	3/31/14 19:12	
Toluene-d8	90	87-121	3/31/14 19:12	

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 16:24
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4358.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.2	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	3.6	U	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	3.1	U	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2.0	U	10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.7	U	10	5.7	
563-58-6	1,1-Dichloropropene	2.9	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	110	D	10	8.2	
96-18-4	1,2,3-Trichloropropane	7.0	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	530	D	10	2.4	
95-63-6	1,2,4-Trimethylbenzene	2.0	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	7.4	U	20	7.4	
106-93-4	1,2-Dibromoethane	2.4	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	28	D	10	2.1	
107-06-2	1,2-Dichloroethane	960	D	10	3.6	
78-87-5	1,2-Dichloropropane	7.1	DJ	10	2.0	
541-73-1	1,3-Dichlorobenzene	4.6	DJ	10	2.0	
142-28-9	1,3-Dichloropropane	2.7	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	44	D	10	2.0	
594-20-7	2,2-Dichloropropane	2.7	U	10	2.7	
78-93-3	2-Butanone (MEK)	8.2	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	4.4	U	10	4.4	
95-49-8	2-Chlorotoluene	2.0	U	10	2.0	
591-78-6	2-Hexanone	17	U	50	17	
75-65-0	tert-Butyl Alcohol	110	U	400	110	
106-43-4	4-Chlorotoluene	2.4	U	10	2.4	
99-87-6	4-Isopropyltoluene	2.0	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	6.7	U	50	6.7	
67-64-1	Acetone	13	U	50	13	
71-43-2	Benzene	2.0	U	10	2.0	
108-86-1	Bromobenzene	2.9	U	10	2.9	
74-97-5	Bromochloromethane	3.2	U	10	3.2	
75-27-4	Bromodichloromethane	3.2	U	10	3.2	
75-25-2	Bromoform	4.2	U	10	4.2	
74-83-9	Bromomethane	3.3	DJ	10	2.9	

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 16:24
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4358.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.2	U	10	2.2	
56-23-5	Carbon Tetrachloride	4.5	U	10	4.5	
108-90-7	Chlorobenzene	**510**	D	10	2.9	
75-00-3	Chloroethane	2.4	U	10	2.4	
67-66-3	Chloroform	2.5	U	10	2.5	
74-87-3	Chloromethane	2.1	U	10	2.1	
124-48-1	Dibromochloromethane	3.1	U	10	3.1	
74-95-3	Dibromomethane	3.2	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.7	U	10	4.7	
75-09-2	Methylene Chloride	3.2	U	10	3.2	
108-20-3	Diisopropyl Ether	2.0	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	10	2.0	
100-41-4	Ethylbenzene	2.0	U	10	2.0	
87-68-3	Hexachlorobutadiene	**7.1**	DJ	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	2.0	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	2.9	U	10	2.9	
91-20-3	Naphthalene	**2.9**	DJ	10	2.0	
100-42-5	Styrene	2.0	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	3.0	U	10	3.0	
108-88-3	Toluene	2.0	U	10	2.0	
79-01-6	Trichloroethene (TCE)	**4.4**	DJ	10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	**120**	D	10	2.0	
108-05-4	Vinyl Acetate	11	U	20	11	
75-01-4	Vinyl Chloride	**4.6**	DJ	10	3.2	
1330-20-7	Xylenes, Total	5.4	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	3.0	U	10	3.0	
10061-01-5	cis-1,3-Dichloropropene	2.4	U	10	2.4	
179601-23-1	m,p-Xylenes	3.4	U	20	3.4	
104-51-8	n-Butylbenzene	2.1	U	10	2.1	
103-65-1	n-Propylbenzene	2.0	U	10	2.0	
95-47-6	o-Xylene	2.0	U	10	2.0	
135-98-8	sec-Butylbenzene	2.7	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	2.0	U	10	2.0	
98-06-6	tert-Butylbenzene	2.0	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	3.4	U	10	3.4	

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 16:24
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4358.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	4/1/14 16:24	
Dibromofluoromethane	101	89-119	4/1/14 16:24	
Toluene-d8	99	87-121	4/1/14 16:24	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 0000
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 18:00
Sample Name:	MRC-MW43A-032014	**Units:**	µg/L
Lab Code:	R1402011-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4361.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	11	U	50	11	
71-55-6	1,1,1-Trichloroethane (TCA)	18	U	50	18	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	50	13	
76-13-1	1,1,2-Trichlorotrifluoroethane	16	U	50	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	10	U	50	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	29	U	50	29	
563-58-6	1,1-Dichloropropene	15	U	50	15	
87-61-6	1,2,3-Trichlorobenzene	**1700**		50	41	
96-18-4	1,2,3-Trichloropropane	35	U	50	35	
120-82-1	1,2,4-Trichlorobenzene	**8000**		50	12	
95-63-6	1,2,4-Trimethylbenzene	10	U	50	10	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	37	U	100	37	
106-93-4	1,2-Dibromoethane	12	U	50	12	
95-50-1	1,2-Dichlorobenzene	**400**		50	11	
107-06-2	1,2-Dichloroethane	18	U	50	18	
78-87-5	1,2-Dichloropropane	10	U	50	10	
541-73-1	1,3-Dichlorobenzene	10	U	50	10	
142-28-9	1,3-Dichloropropane	14	U	50	14	
106-46-7	1,4-Dichlorobenzene	**480**		50	10	
594-20-7	2,2-Dichloropropane	14	U	50	14	
78-93-3	2-Butanone (MEK)	41	U	250	41	
110-75-8	2-Chloroethyl Vinyl Ether	22	U	50	22	
95-49-8	2-Chlorotoluene	10	U	50	10	
591-78-6	2-Hexanone	83	U	250	83	
75-65-0	tert-Butyl Alcohol	540	U	2000	540	
106-43-4	4-Chlorotoluene	12	U	50	12	
99-87-6	4-Isopropyltoluene	10	U	50	10	
108-10-1	4-Methyl-2-pentanone	34	U	250	34	
67-64-1	Acetone	62	U	250	62	
71-43-2	Benzene	10	U	50	10	
108-86-1	Bromobenzene	15	U	50	15	
74-97-5	Bromochloromethane	16	U	50	16	
75-27-4	Bromodichloromethane	16	U	50	16	
75-25-2	Bromoform	21	U	50	21	
74-83-9	Bromomethane	15	U	50	15	

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 0000
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 18:00
Sample Name:	MRC-MW43A-032014	**Units:**	µg/L
Lab Code:	R1402011-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4361.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	11	U	50	11	
56-23-5	Carbon Tetrachloride	23	U	50	23	
108-90-7	Chlorobenzene	15	U	50	15	
75-00-3	Chloroethane	12	U	50	12	
67-66-3	Chloroform	13	U	50	13	
74-87-3	Chloromethane	11	U	50	11	
124-48-1	Dibromochloromethane	16	U	50	16	
74-95-3	Dibromomethane	16	U	50	16	
75-71-8	Dichlorodifluoromethane (CFC 12)	23	U	50	23	
75-09-2	Methylene Chloride	16	U	50	16	
108-20-3	Diisopropyl Ether	10	U	50	10	
637-92-3	Ethyl tert-Butyl Ether	10	U	50	10	
100-41-4	Ethylbenzene	10	U	50	10	
87-68-3	Hexachlorobutadiene	31	U	100	31	
98-82-8	Isopropylbenzene (Cumene)	10	U	50	10	
1634-04-4	Methyl tert-Butyl Ether	15	U	50	15	
91-20-3	Naphthalene	12	J	50	10	
100-42-5	Styrene	10	U	50	10	
127-18-4	Tetrachloroethene (PCE)	15	U	50	15	
108-88-3	Toluene	10	U	50	10	
79-01-6	Trichloroethene (TCE)	11	U	50	11	
75-69-4	Trichlorofluoromethane (CFC 11)	10	U	50	10	
108-05-4	Vinyl Acetate	51	U	100	51	
75-01-4	Vinyl Chloride	16	U	50	16	
1330-20-7	Xylenes, Total	27	U	150	27	
156-59-2	cis-1,2-Dichloroethene	15	U	50	15	
10061-01-5	cis-1,3-Dichloropropene	12	U	50	12	
179601-23-1	m,p-Xylenes	17	U	100	17	
104-51-8	n-Butylbenzene	11	U	50	11	
103-65-1	n-Propylbenzene	10	U	50	10	
95-47-6	o-Xylene	10	U	50	10	
135-98-8	sec-Butylbenzene	14	U	50	14	
994-05-8	tert-Amyl Methyl Ether	10	U	50	10	
98-06-6	tert-Butylbenzene	10	U	50	10	
156-60-5	trans-1,2-Dichloroethene	17	U	50	17	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 0000
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 18:00
Sample Name:	MRC-MW43A-032014	**Units:**	µg/L
Lab Code:	R1402011-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4361.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	10	U	50	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	4/1/14 18:00	
Dibromofluoromethane	99	89-119	4/1/14 18:00	
Toluene-d8	98	87-121	4/1/14 18:00	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 20:49
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\U4324.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	0.22	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	0.36	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.31	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	0.20	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	0.57	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	0.29	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	**270**	E	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	0.70	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**900**	E	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	0.20	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.74	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	0.24	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	**32**		1.0	0.21	
107-06-2	1,2-Dichloroethane	**970**	E	1.0	0.36	
78-87-5	1,2-Dichloropropane	**7.9**		1.0	0.20	
541-73-1	1,3-Dichlorobenzene	**4.7**		1.0	0.20	
142-28-9	1,3-Dichloropropane	0.27	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	**49**		1.0	0.20	
594-20-7	2,2-Dichloropropane	0.27	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	0.81	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	0.44	U	1.0	0.44	
95-49-8	2-Chlorotoluene	0.20	U	1.0	0.20	
591-78-6	2-Hexanone	1.7	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	11	U	40	11	
106-43-4	4-Chlorotoluene	0.24	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	0.20	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	0.67	U	5.0	0.67	
67-64-1	Acetone	1.3	U	5.0	1.3	
71-43-2	Benzene	0.20	U	1.0	0.20	
108-86-1	Bromobenzene	0.28	U	1.0	0.28	
74-97-5	Bromochloromethane	0.32	U	1.0	0.32	
75-27-4	Bromodichloromethane	0.32	U	1.0	0.32	
75-25-2	Bromoform	0.42	U	1.0	0.42	
74-83-9	Bromomethane	0.29	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 20:49
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4324.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**0.43**	J	1.0	0.22	
56-23-5	Carbon Tetrachloride	0.45	U	1.0	0.45	
108-90-7	Chlorobenzene	**470**	E	1.0	0.29	
75-00-3	Chloroethane	0.24	U	1.0	0.24	
67-66-3	Chloroform	0.25	U	1.0	0.25	
74-87-3	Chloromethane	0.21	U	1.0	0.21	
124-48-1	Dibromochloromethane	0.31	U	1.0	0.31	
74-95-3	Dibromomethane	0.32	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	0.46	U	1.0	0.46	
75-09-2	Methylene Chloride	**1.3**		1.0	0.32	
108-20-3	Diisopropyl Ether	0.20	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	0.20	U	1.0	0.20	
100-41-4	Ethylbenzene	0.20	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.62	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	0.20	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	0.29	U	1.0	0.29	
91-20-3	Naphthalene	**0.58**	BJ	1.0	0.20	
100-42-5	Styrene	0.20	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**2.1**		1.0	0.30	
108-88-3	Toluene	0.20	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**4.5**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	**140**		1.0	0.20	
108-05-4	Vinyl Acetate	1.1	U	2.0	1.1	
75-01-4	Vinyl Chloride	**5.2**		1.0	0.32	
1330-20-7	Xylenes, Total	0.53	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.81**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	0.24	U	1.0	0.24	
179601-23-1	m,p-Xylenes	0.33	U	2.0	0.33	
104-51-8	n-Butylbenzene	0.21	U	1.0	0.21	
103-65-1	n-Propylbenzene	0.20	U	1.0	0.20	
95-47-6	o-Xylene	0.20	U	1.0	0.20	
135-98-8	sec-Butylbenzene	0.27	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	0.20	U	1.0	0.20	
98-06-6	tert-Butylbenzene	0.20	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	0.33	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 20:49
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4324.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	0.20	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	3/31/14 20:49	
Dibromofluoromethane	100	89-119	3/31/14 20:49	
Toluene-d8	89	87-121	3/31/14 20:49	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 17:28
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4360.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.2	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	3.6	U	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	3.1	U	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2.0	U	10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.7	U	10	5.7	
563-58-6	1,1-Dichloropropene	2.9	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	**120**	D	10	8.2	
96-18-4	1,2,3-Trichloropropane	7.0	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	**600**	D	10	2.4	
95-63-6	1,2,4-Trimethylbenzene	2.0	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	7.4	U	20	7.4	
106-93-4	1,2-Dibromoethane	2.4	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	**30**	D	10	2.1	
107-06-2	1,2-Dichloroethane	**1100**	D	10	3.6	
78-87-5	1,2-Dichloropropane	**8.1**	DJ	10	2.0	
541-73-1	1,3-Dichlorobenzene	**5.1**	DJ	10	2.0	
142-28-9	1,3-Dichloropropane	2.7	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	**50**	D	10	2.0	
594-20-7	2,2-Dichloropropane	2.7	U	10	2.7	
78-93-3	2-Butanone (MEK)	8.2	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	4.4	U	10	4.4	
95-49-8	2-Chlorotoluene	2.0	U	10	2.0	
591-78-6	2-Hexanone	17	U	50	17	
75-65-0	tert-Butyl Alcohol	110	U	400	110	
106-43-4	4-Chlorotoluene	2.4	U	10	2.4	
99-87-6	4-Isopropyltoluene	2.0	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	6.7	U	50	6.7	
67-64-1	Acetone	13	U	50	13	
71-43-2	Benzene	2.0	U	10	2.0	
108-86-1	Bromobenzene	2.9	U	10	2.9	
74-97-5	Bromochloromethane	3.2	U	10	3.2	
75-27-4	Bromodichloromethane	3.2	U	10	3.2	
75-25-2	Bromoform	4.2	U	10	4.2	
74-83-9	Bromomethane	2.9	U	10	2.9	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 17:28
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4360.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.2	U	10	2.2	
56-23-5	Carbon Tetrachloride	4.5	U	10	4.5	
108-90-7	Chlorobenzene	**570**	D	10	2.9	
75-00-3	Chloroethane	2.4	U	10	2.4	
67-66-3	Chloroform	**2.6**	DJ	10	2.5	
74-87-3	Chloromethane	2.1	U	10	2.1	
124-48-1	Dibromochloromethane	3.1	U	10	3.1	
74-95-3	Dibromomethane	3.2	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.7	U	10	4.7	
75-09-2	Methylene Chloride	3.2	U	10	3.2	
108-20-3	Diisopropyl Ether	2.0	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	10	2.0	
100-41-4	Ethylbenzene	2.0	U	10	2.0	
87-68-3	Hexachlorobutadiene	6.2	U	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	2.0	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	2.9	U	10	2.9	
91-20-3	Naphthalene	2.0	U	10	2.0	
100-42-5	Styrene	2.0	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	3.0	U	10	3.0	
108-88-3	Toluene	2.0	U	10	2.0	
79-01-6	Trichloroethene (TCE)	**5.4**	DJ	10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	**140**	D	10	2.0	
108-05-4	Vinyl Acetate	11	U	20	11	
75-01-4	Vinyl Chloride	**6.2**	DJ	10	3.2	
1330-20-7	Xylenes, Total	5.4	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	3.0	U	10	3.0	
10061-01-5	cis-1,3-Dichloropropene	2.4	U	10	2.4	
179601-23-1	m,p-Xylenes	3.4	U	20	3.4	
104-51-8	n-Butylbenzene	2.1	U	10	2.1	
103-65-1	n-Propylbenzene	2.0	U	10	2.0	
95-47-6	o-Xylene	2.0	U	10	2.0	
135-98-8	sec-Butylbenzene	2.7	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	2.0	U	10	2.0	
98-06-6	tert-Butylbenzene	2.0	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	3.4	U	10	3.4	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 17:28
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4360.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	4/1/14 17:28	
Dibromofluoromethane	100	89-119	4/1/14 17:28	
Toluene-d8	96	87-121	4/1/14 17:28	

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 18:40
Sample Name:	TB-032014	**Units:**	µg/L
Lab Code:	R1402011-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\U4320.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	0.22	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	0.36	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.31	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	0.20	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	0.57	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	0.29	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	0.82	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	0.70	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.23	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	0.20	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.74	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	0.24	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	0.21	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	0.36	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	0.20	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	0.20	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	0.27	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	0.20	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	0.27	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	0.81	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	0.44	U	1.0	0.44	
95-49-8	2-Chlorotoluene	0.20	U	1.0	0.20	
591-78-6	2-Hexanone	1.7	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	11	U	40	11	
106-43-4	4-Chlorotoluene	0.24	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	0.20	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	0.67	U	5.0	0.67	
67-64-1	Acetone	1.3	U	5.0	1.3	
71-43-2	Benzene	0.20	U	1.0	0.20	
108-86-1	Bromobenzene	0.28	U	1.0	0.28	
74-97-5	Bromochloromethane	0.32	U	1.0	0.32	
75-27-4	Bromodichloromethane	0.32	U	1.0	0.32	
75-25-2	Bromoform	0.42	U	1.0	0.42	
74-83-9	Bromomethane	0.29	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 18:40
Sample Name:	TB-032014	**Units:**	µg/L
Lab Code:	R1402011-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4320.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	0.22	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	0.45	U	1.0	0.45	
108-90-7	Chlorobenzene	0.29	U	1.0	0.29	
75-00-3	Chloroethane	0.24	U	1.0	0.24	
67-66-3	Chloroform	0.25	U	1.0	0.25	
74-87-3	Chloromethane	0.21	U	1.0	0.21	
124-48-1	Dibromochloromethane	0.31	U	1.0	0.31	
74-95-3	Dibromomethane	0.32	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	0.46	U	1.0	0.46	
75-09-2	Methylene Chloride	0.32	U	1.0	0.32	
108-20-3	Diisopropyl Ether	0.20	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	0.20	U	1.0	0.20	
100-41-4	Ethylbenzene	0.20	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.62	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	0.20	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	0.29	U	1.0	0.29	
91-20-3	Naphthalene	0.20	U	1.0	0.20	
100-42-5	Styrene	0.20	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	0.30	U	1.0	0.30	
108-88-3	Toluene	0.20	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	0.22	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	0.20	U	1.0	0.20	
108-05-4	Vinyl Acetate	1.1	U	2.0	1.1	
75-01-4	Vinyl Chloride	0.32	U	1.0	0.32	
1330-20-7	Xylenes, Total	0.53	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	0.24	U	1.0	0.24	
179601-23-1	m,p-Xylenes	0.33	U	2.0	0.33	
104-51-8	n-Butylbenzene	0.21	U	1.0	0.21	
103-65-1	n-Propylbenzene	0.20	U	1.0	0.20	
95-47-6	o-Xylene	0.20	U	1.0	0.20	
135-98-8	sec-Butylbenzene	0.27	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	0.20	U	1.0	0.20	
98-06-6	tert-Butylbenzene	0.20	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	0.33	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	3/31/14 18:40
Sample Name:	TB-032014	**Units:**	µg/L
Lab Code:	R1402011-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4320.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	0.20	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	3/31/14 18:40	
Dibromofluoromethane	99	89-119	3/31/14 18:40	
Toluene-d8	98	87-121	3/31/14 18:40	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1259
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/28/14
		Date Analyzed:	3/31/14 11:03
Sample Name:	MRC-MW113A-032014	**Units:**	µg/L
Lab Code:	R1402011-003	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	386159
Prep Method:	Method	**Extraction Lot:**	202786
Data File Name:	I:\ACQUDATA\5975E\data\033114\Af350.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**6.86**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	80	70-130	3/31/14 11:03	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/28/14
		Date Analyzed:	3/31/14 10:44
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	386159
Prep Method:	Method	**Extraction Lot:**	202786
Data File Name:	I:\ACQUDATA\5975E\data\033114\Af349.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.709**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	80	70-130	3/31/14 10:44	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/28/14
		Date Analyzed:	3/31/14 11:21
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	386159
Prep Method:	Method	**Extraction Lot:**	202786
Data File Name:	I:\ACQUDATA\5975E\data\033114\Af351.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.855**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	85	70-130	3/31/14 11:21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1259
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/26/14
		Date Analyzed:	3/26/14 13:08
Sample Name:	MRC-MW113A-032014	**Units:**	µg/L
Lab Code:	R1402011-003	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	385469
Prep Method:	Method	**Extraction Lot:**	204911
Data File Name:	I:\ACQUDATA\HPLC02\DATA\032614\B0030844.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.69**		0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/26/14
		Date Analyzed:	3/26/14 12:55
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	385469
Prep Method:	Method	**Extraction Lot:**	204911
Data File Name:	I:\ACQUDATA\HPLC02\DATA\032614\B0030843.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.76		0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/26/14
		Date Analyzed:	3/26/14 13:22
Sample Name:	MRC-MWDUP01-032014	**Units:**	µg/L
Lab Code:	R1402011-005	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	385469
Prep Method:	Method	**Extraction Lot:**	204911
Data File Name:	I:\ACQUDATA\HPLC02\DATA\032614\B0030845.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.81**		0.20	0.026	

ALS Environmental

METALS

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW113A-032014

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Matrix (soil/water): WATER Lab Sample ID: R1402011-003

Level (low/med): LOW Date Received: 3/22/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-41-7	Beryllium	0.980	J		MS
7440-48-4	Cobalt	34.4			MS
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	54.8			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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ALS Environmental

METALS

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW114A-032014

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Matrix (soil/water): WATER Lab Sample ID: R1402011-002

Level (low/med): LOW Date Received: 3/22/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-41-7	Beryllium	6.8			MS
7440-48-4	Cobalt	28.8			MS
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	67.1			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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ALS Environmental

METALS

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MWDUP01-032014

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Matrix (soil/water): WATER Lab Sample ID: R1402011-005

Level (low/med): LOW Date Received: 3/22/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-41-7	Beryllium	7.0			MS
7440-48-4	Cobalt	29.4			MS
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	68.9			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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Appendix C

Support Documentation

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 3507 V | PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112IC06183	MRC	Tony Apanavage	301 528-3021	
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
Walt Pe		Walt Pryor	301 991-3514	
		CARRIER/WAYBILL NUMBER		CITY, STATE

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

DATE YEAR 2014	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	CONTAINER TYPE PLASTIC (P) or GLASS (G)	PRESERVATIVE USED	TYPE OF ANALYSIS: VOCs	Total metals	PCBs	1,4 Dioxane	Perchlorate				COMMENTS
									G	HCl									
									P	HNO3									
									G	—									
									G	NaOH									
									P	—									
3-20	—	TB-032014				GW	G	2			X								
	1026	MRC-MW114A-032014						7			X	X	X	X	X				
	1259	MRC-MW113A-032014						7			X	X	X	X	X				* PCBs
	1539	MRC-MW43A-032014						4			X		X						Only
	0000	MRC-MWDup01-032014						7			X	X	X	X	X				
																			5-7 day
																			TAT

	Y	N	Initials	Cooler
Custody Seals Present?				
(if present) Seals Intact?				Cooler
Received on Ice?				
COC/Lbls Complete/Accurate				
Cont in Good Cond?				Therm
Correct Containers?				
Correct Sample Volumes?				Ship C
Correct Preservation?				FedE
Headspace/Volatiles?				DHL

R1402011 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
Walt Pe	3-20-14	1700		03-20-14	1612
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
	3-20-14	2245		3/20	2048
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME
FedEx	3/20/14	1545	J. Seward	3/22/14	0915

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

CASE NARRATIVE

Client:	Tetra Tech NUS	**Service Request No.:**	R1402011
Project:	Middle River	**Project No.:**	112IC06182
Sample Matrix:	Water	**Date Received:**	3/22/14

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV deliverables. When appropriate to the method, method blank results, and LCS recoveries have been reported with each analytical test.

Sample Receipt

Water samples were collected on 3/20/14 and received at ALS in good condition at a cooler temperature 8.2°C as noted on the cooler receipt and preservation check form. The samples were stored in a refrigerator at 1 - 6 °C upon receipt at the laboratory. See the second page of the Case Narrative for a cross-reference between Client ID and ALS Job #.

Metals

The Initial and Continuing Calibration criteria were met.

Laboratory Control Sample (LCS) recoveries were within acceptable.

The metals Method Blank contained low level hits and has been flagged with a "J".

Volatile Organics

Six water samples were analyzed for 8260C.

The Initial Calibration (ICAL) criteria were met.

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for 2-Hexanone, tert-Butyl Alcohol and Acetone.

Laboratory Control Sample (LCS) recoveries were within acceptable.

The Method Blank contained a low level hit of 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 3/31/14 and 4/1/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

Extractable Organics

Three water samples were analyzed for 522 and 6850.

The Initial Calibration (ICAL) and Continuing Calibration criteria were met.

Laboratory Control Sample (LCS) recoveries were within acceptable.

The Method Blanks were free of contamination.

Site QC was not requested but was analyzed for Method 6850. All QC was within limits.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package, has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

4/14/14
Date

Cooler Receipt and Preservation Check Form

Project/Client _____ Folder Number 414-2011.

Cooler received on 3/22 by: JFS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO	
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO	
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	N/A
5.	Were **Ice or Ice packs** present?	YES	NO	
6.	Where did the bottles originate?	ALS/ROC, CLIENT		
7.	Soil VOA samples received as:	Bulk Jar	Encore	TerraCore Lab5035set N/A
8.	Temperature of cooler(s) upon receipt:	8.2		
	Is the temperature within 0° - 6° C?:	Y N	Y N	Y N Y N Y N
	If No, Explain Below Date/Time Temperatures Taken:	3/22/14 0942		
	Thermometer ID: IR GUN#3 / IR GUN#4 Reading From:	Temp Blank / Sample Bottle		

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: _____

All Samples held in storage location ROOM by JFS on 3/22 at 0942

5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 3/24/14 Time: 1117 by: JFS

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated N/A

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		client					
≤2	H_2SO_4								
<4	$NaHSO_4$	✓	✓	client					
Residual Chlorine (-)	For TCN Phenol and 522	✓		If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*	client					

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: client

Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

HOLDTIME

SDG R1402011

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	UG/L	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/26/2014	03/27/2014	6	1	7
HG	UG/L	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/26/2014	03/27/2014	6	1	7
HG	UG/L	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	03/26/2014	03/27/2014	6	1	7
M	UG/L	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/25/2014	03/26/2014	5	1	6
M	UG/L	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	03/25/2014	03/26/2014	5	1	6
M	UG/L	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/25/2014	03/26/2014	5	1	6
PCL	UG/L	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/26/2014	03/26/2014	6	0	6
PCL	UG/L	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	03/26/2014	03/26/2014	6	0	6
PCL	UG/L	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/26/2014	03/26/2014	6	0	6
OS	PERCENT	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/28/2014	03/31/2014	8	3	11
OS	PERCENT	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	03/28/2014	03/31/2014	8	3	11
OS	PERCENT	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/28/2014	03/31/2014	8	3	11
OS	UG/L	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	03/28/2014	03/31/2014	8	3	11
OS	UG/L	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/28/2014	03/31/2014	8	3	11
OS	UG/L	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/28/2014	03/31/2014	8	3	11

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	PERCENT	MRC-MW43A-032014	R1402011-004	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	PERCENT	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	PERCENT	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	PERCENT	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/31/2014	03/31/2014	11	0	11
OV	PERCENT	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	PERCENT	TB-032014	R1402011-001	NM	03/20/2014	03/31/2014	03/31/2014	11	0	11
OV	PERCENT	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/31/2014	03/31/2014	11	0	11
OV	UG/L	MRC-MW113A-032014	R1402011-003	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	UG/L	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	03/31/2014	03/31/2014	11	0	11
OV	UG/L	MRC-MW114A-032014	R1402011-002	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	UG/L	MRC-MW43A-032014	R1402011-004	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	UG/L	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	03/31/2014	03/31/2014	11	0	11
OV	UG/L	MRC-MWDUP01-032014	R1402011-005	NM	03/20/2014	04/01/2014	04/01/2014	12	0	12
OV	UG/L	TB-032014	R1402011-001	NM	03/20/2014	03/31/2014	03/31/2014	11	0	11

Field Duplicate Precision

ANALYTE	MRC-MWDUP01-032014	MRC-MW114A-032014	RPD	DIFFERENCE
1,2,3-TRICHLOROBENZENE	120	120	0.00	0
1,2,4-TRICHLOROBENZENE	530	600	12.39	70
1,2-DICHLOROBENZENE	30	32	6.45	2
1,2-DICHLOROETHANE	960	1100	13.59	140
1,2-DICHLOROPROPANE	7.7	7.9	2.56	0.2
1,3-DICHLOROBENZENE	4.7	4.7	0.00	0
1,4-DICHLOROBENZENE	49	49	0.00	0
CARBON DISULFIDE	0.48	0.43	10.99	0.05
CHLOROBENZENE	510	570	11.11	60
CIS-1,2-DICHLOROETHENE	0.95	0.81	15.91	0.14
METHYLENE CHLORIDE	1.6	1.3	20.69	0.3
TETRACHLOROETHENE	2.1	2.1	0.00	0
TRICHLOROETHENE	4.5	4.5	0.00	0
TRICHLOROFLUOROMETHANE	140	140	0.00	0
VINYL CHLORIDE	5.3	5.2	1.90	0.1

Field Duplicate Precision

ANALYTE	MRC-MWDUP01-032014	MRC-MW114A-032014	RPD	DIFFERENCE
1,4-DIOXANE	0.855	0.709	18.67	0.146

Field Duplicate Precision

ANALYTE	MRC-MWDUP01-032014	MRC-MW114A-032014	RPD	DIFFERENCE
PERCHLORATE	0.81	0.76	6.37	0.05

Field Duplicate Precision

ANALYTE	MRC-MWDUP01-032014	MRC-MW114A-032014	RPD	DIFFERENCE
BERYLLIUM	7	6.8	2.90	0.2
COBALT	29.4	28.8	2.06	0.6
NICKEL	68.9	67.1	2.65	1.8

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/12/14 09:41

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\031214\J3873.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	18.96	83285	Pass
75	95	30	60	49.54	217600	Pass
95	95	100	100	100.00	439232	Pass
96	95	5	9	6.84	30035	Pass
173	174	0	2	1.18	3907	Pass
174	95	50	120	75.24	330475	Pass
175	174	5	9	7.57	25003	Pass
176	174	95	101	100.37	331712	Pass
177	176	5	9	6.54	21696	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3875.D\	3/12/14 10:45	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3876.D\	3/12/14 11:17	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3877.D\	3/12/14 11:49	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3878.D\	3/12/14 12:21	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3879.D\	3/12/14 12:53	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3880.D\	3/12/14 13:26	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3881.D\	3/12/14 13:58	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3882.D\	3/12/14 14:30	

Initial Calibration - Summary Report

3/13/14

Calibration ID:	RC1400023 W031214 8260 Waters	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3058	<=20	7.3
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7112	<=20	2.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5726	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2220	<=20	5.6
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.3971	<=20	1.9
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8461	<=20	3.1
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3628	<=20	3.7
1,1-Dichloropropene	T	Average RF			0.3693	<=20	4.9
1,2,3-Trichlorobenzene	T	Average RF			0.6036	<=20	8.2
1,2,3-Trichloropropane	T	Average RF			0.1713	<=20	7.2
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7372	<=20	6.4
1,2,4-Trimethylbenzene	T	Average RF			2.167	<=20	7.0
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.08773	<=20	12.9
1,2-Dibromoethane	T	Average RF		0.100	0.2312	<=20	5.1
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5388	<=20	4.7
1,2-Dichlorobenzene	T	Average RF		0.400	1.206	<=20	3.3
1,2-Dichloroethane	T	Average RF		0.100	0.3737	<=20	3.9
1,2-Dichloropropane	T	Average RF		0.100	0.3148	<=20	4.5
1,3,5-Trichlorobenzene	T	Average RF			0.8315	<=20	4.0
1,3,5-Trimethylbenzene	T	Average RF			2.106	<=20	6.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.252	<=20	4.2
1,3-Dichloropropane	T	Average RF			0.4501	<=20	2.3
1,4-Dichlorobenzene	T	Average RF		0.500	1.332	<=20	8.0
1,4-Dioxane	T	Average RF			0.002062	<=20	6.8
1-Butanol	T	Average RF			0.004645	<=20	18.2
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.3856	<=20	7.0
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6154	<=20	3.4
2,2-Dichloropropane	T	Average RF			0.6713	<=20	3.9
2,3,6-Trichlorotoluene	T	Average RF			0.3641	<=20	7.5
2,4,5-Trichlorotoluene	T	Average RF			0.3978	<=20	7.2
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			0.9535	<=20	5.8
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5359	<=20	4.0
2,5-Dichlorobenzotrifluoride	T	Average RF			0.6128	<=20	3.4
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1390	<=20	1.9
2-Chloro-1,3-butadiene	T	Average RF			0.7288	<=20	7.9
2-Chlorobenzotrifluoride	T	Average RF			0.8330	<=20	4.8
2-Chloroethyl Vinyl Ether	T	Average RF			0.1412	<=20	5.8
2-Chlorotoluene	T	Average RF			1.896	<=20	5.7
2-Hexanone	T	Average RF		0.05	0.1416	<=20	9.6
2-Methyl-1-propanol	T	Average RF			0.008458	<=20	8.6
2-Methyl-2-propanol	T	Average RF			0.02773	<=20	8.6
2-Nitropropane	T	Average RF			0.03954	<=20	10.8
2-Propanol	T	Average RF			0.01610	<=20	13.7
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.010	<=20	7.1
3,4-Dichlorobenzotrifluoride	T	Average RF			0.6160	<=20	4.0
3-Chloro-1-propene	T	Average RF			0.2488	<=20	4.3
3-Chlorobenzotrifluoride	T	Average RF			0.4304	<=20	7.2
3-Chlorotoluene	T	Average RF			1.973	<=20	5.3
4-Chlorotoluene	T	Average RF			2.236	<=20	8.4
4-Isopropyltoluene	T	Average RF			2.086	<=20	6.7
4-Methyl-2-pentanone	T	Average RF		0.05	0.1899	<=20	6.0

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09920	<=20	6.0
Acetonitrile	T	Average RF			0.01622	<=20	13.2
Acrolein	T	Quadratic	1/X2		0.01717	>=0.99	0.9978
Acrylonitrile	T	Average RF			0.1111	<=20	5.0
Benzene	T	Average RF		0.500	1.231	<=20	2.6
Bromobenzene	T	Average RF			0.7355	<=20	3.3
Bromochloromethane	T	Average RF			0.2832	<=20	8.2
Bromodichloromethane	T	Average RF		0.200	0.3677	<=20	5.4
Bromoform	T	Average RF		0.100	0.2840	<=20	15.6
Bromomethane	T	Average RF		0.100	0.2881	<=20	6.8
Carbon Disulfide	T	Average RF		0.100	1.262	<=20	4.8
Carbon Tetrachloride	T	Average RF		0.05	0.1199	<=20	6.9
Chlorobenzene	T	Average RF		0.500	0.8701	<=20	2.8
Chloroethane	T	Average RF		0.100	0.2851	<=20	8.6
Chloroform	T	Average RF		0.200	0.8292	<=20	4.7
Chloromethane	T	Average RF		0.100	0.5146	<=20	2.8
Cyclohexane	T	Average RF		0.100	0.2705	<=20	5.1
Cyclohexanone	T	Average RF			0.04011	<=20	5.9
Dibromochloromethane	T	Average RF		0.100	0.2588	<=20	11.9
Dibromomethane	T	Average RF			0.1497	<=20	3.1
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5939	<=20	7.1
Dichlorofluoromethane (CFC 21)	T	Average RF			0.7211	<=20	4.4
Dichloromethane	T	Average RF		0.100	0.4753	<=20	5.4
Diethyl Ether	T	Average RF			0.3614	<=20	6.8
Diisopropyl Ether	T	Average RF			1.648	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.2861	<=20	15.5
Ethyl tert-Butyl Ether	T	Average RF			1.379	<=20	4.3
Ethylbenzene	T	Average RF		0.100	0.4636	<=20	3.9
Hexachlorobutadiene	T	Average RF			0.3218	<=20	5.3
Iodomethane	T	Average RF			0.4820	<=20	15.6
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.581	<=20	6.3
Methacrylonitrile	T	Average RF			0.1295	<=20	10.3
Methyl Acetate	T	Average RF		0.100	0.2234	<=20	6.0
Methyl Methacrylate	T	Average RF			0.1481	<=20	9.0
Methyl tert-Butyl Ether	T	Average RF		0.100	1.153	<=20	3.5
Methylcyclohexane	T	Average RF		0.100	0.3206	<=20	5.3
Naphthalene	T	Average RF			1.327	<=20	6.2
Propionitrile	T	Average RF			0.04013	<=20	8.9
Styrene	T	Average RF		0.300	0.8888	<=20	9.8
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2583	<=20	7.1
Tetrahydrofuran (THF)	T	Average RF			0.09716	<=20	4.0
Toluene	T	Average RF		0.400	1.269	<=20	4.0
Trichloroethene (TCE)	T	Average RF		0.200	0.2982	<=20	2.1
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7340	<=20	4.6
Vinyl Acetate	T	Average RF			0.07534	<=20	7.4
Vinyl Chloride	T	Average RF		0.100	0.4781	<=20	2.7
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5073	<=20	2.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.4363	<=20	8.8
m,p-Xylenes	T	Average RF		0.100	0.5448	<=20	5.7
n-Butyl Acetate	T	Average RF			0.3502	<=20	8.0
n-Butylbenzene	T	Average RF			1.881	<=20	7.7
n-Heptane	T	Average RF			0.3075	<=20	4.6

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.020	<=20	7.6
o-Xylene	T	Average RF		0.300	0.5559	<=20	4.6
sec-Butylbenzene	T	Average RF			2.467	<=20	7.2
tert-Amyl Methyl Ether	T	Average RF			1.164	<=20	4.4
tert-Butylbenzene	T	Average RF			1.773	<=20	4.3
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4546	<=20	2.9
trans-1,3-Dichloropropene	T	Average RF		0.100	0.3517	<=20	12.9
trans-1,4-Dichloro-2-butene	T	Average RF			0.1346	<=20	13.1
1,2-Dichloroethane-d4	S	Average RF			0.3297	<=20	1.6
4-Bromofluorobenzene	S	Average RF			0.4538	<=20	1.8
Dibromofluoromethane	S	Average RF			0.2895	<=20	0.8
Toluene-d8	S	Average RF			1.216	<=20	0.5

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Signal ID:	1

Analyte

1,1,1,2-Tetrachloroethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.49	-2.4	02	1.000	0.89	-11.2	03	2.000	1.87	-6.5
04	5.000	4.83	-3.4	05	20.000	20.81	4.1	06	50.000	51.10	2.2
07	100.000	105.88	5.9	08	200.000	223.01	11.5				

1,1,1-Trichloroethane (TCA)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.7	02	1.000	0.97	-3.4	03	2.000	1.98	-1.2
04	5.000	4.98	-0.5	05	20.000	20.43	2.2	06	50.000	49.34	-1.3
07	100.000	103.32	3.3	08	200.000	203.25	1.6				

1,1,2,2-Tetrachloroethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.8	02	1.000	1.10	10.5	03	2.000	1.93	-3.7
04	5.000	5.15	3.0	05	20.000	20.56	2.8	06	50.000	49.40	-1.2
07	100.000	96.23	-3.8	08	200.000	186.37	-6.8				

1,1,2-Trichloroethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.54	7.6	02	1.000	0.95	-5.3	03	2.000	1.81	-9.7
04	5.000	5.00	0.0	05	20.000	21.22	6.1	06	50.000	50.13	0.3
07	100.000	99.52	-0.5	08	200.000	203.16	1.6				

1,1,2-Trichlorotrifluoroethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	0.4	02	1.000	1.01	1.1	03	2.000	2.00	0.0
04	5.000	5.03	0.5	05	20.000	20.41	2.1	06	50.000	47.94	-4.1
07	100.000	101.02	1.0	08	200.000	198.05	-1.0				

1,1-Dichloroethane (1,1-DCA)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.49	-2.6	02	1.000	0.99	-0.9	03	2.000	2.03	1.7
04	5.000	5.10	2.0	05	20.000	21.11	5.6	06	50.000	48.75	-2.5
07	100.000	100.42	0.4	08	200.000	192.67	-3.7				

1,1-Dichloroethene (1,1-DCE)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-6.9	02	1.000	0.96	-3.5	03	2.000	2.05	2.3
04	5.000	5.11	2.3	05	20.000	20.53	2.6	06	50.000	49.15	-1.7
07	100.000	103.36	3.4	08	200.000	203.15	1.6				

1,1-Dichloropropene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	3.4	02	1.000	0.91	-9.0	03	2.000	1.89	-5.7
04	5.000	5.13	2.5	05	20.000	21.07	5.4	06	50.000	49.56	-0.9
07	100.000	101.88	1.9	08	200.000	204.71	2.4				

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Signal ID:	1

Analyte

1,2,3-Trichlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.59	17.9	02	1.000	0.98	-2.3	03	2.000	2.00	0.2
04	5.000	5.10	1.9	05	20.000	20.17	0.8	06	50.000	47.75	-4.5
07	100.000	96.28	-3.7	08	200.000	179.15	-10.4				

1,2,3-Trichloropropane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-7.0	02	1.000	1.14	13.9	03	2.000	2.11	5.3
04	5.000	5.00	-0.1	05	20.000	20.51	2.5	06	50.000	48.51	-3.0
07	100.000	95.69	-4.3	08	200.000	185.19	-7.4				

1,2,4-Trichlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.57	13.7	02	1.000	0.98	-2.4	03	2.000	1.95	-2.4
04	5.000	5.13	2.6	05	20.000	20.24	1.2	06	50.000	49.15	-1.7
07	100.000	97.49	-2.5	08	200.000	183.13	-8.4				

1,2,4-Trimethylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.45	-9.8	02	1.000	0.97	-2.9	03	2.000	1.98	-0.8
04	5.000	5.38	7.7	05	20.000	21.87	9.3	06	50.000	51.22	2.4
07	100.000	102.65	2.7	08	200.000	182.67	-8.7				

1,2-Dibromo-3-chloropropane (DBCP)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.97	-2.8	03	2.000	1.58	-20.9	04	5.000	4.34	-13.3
05	20.000	21.09	5.4	06	50.000	54.02	8.0	07	100.000	113.65	13.7
08	200.000	219.74	9.9								

1,2-Dibromoethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.46	-8.3	02	1.000	0.94	-6.3	03	2.000	1.99	-0.5
04	5.000	4.94	-1.2	05	20.000	21.19	5.9	06	50.000	51.38	2.8
07	100.000	103.39	3.4	08	200.000	208.54	4.3				

1,2-Dichloro-1,1,2-trifluoroethane (CFC

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	4.1	02	1.000	0.98	-1.9	03	2.000	2.13	6.4
04	5.000	5.16	3.3	05	20.000	20.53	2.7	06	50.000	47.16	-5.7
07	100.000	95.58	-4.4	08	200.000	191.07	-4.5				

1,2-Dichlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.3	02	1.000	0.97	-3.2	03	2.000	1.93	-3.5
04	5.000	5.18	3.7	05	20.000	21.00	5.0	06	50.000	49.72	-0.6
07	100.000	102.13	2.1	08	200.000	199.61	-0.2				

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Signal ID:	1

Analyte

1,2-Dichloroethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.53	5.5	02	1.000	1.04	4.3	03	2.000	1.97	-1.5
04	5.000	4.97	-0.7	05	20.000	20.72	3.6	06	50.000	48.43	-3.1
07	100.000	95.88	-4.1	08	200.000	192.18	-3.9				

1,2-Dichloroethane-d4

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
05	50.000	50.24	0.5	01	50.000	50.69	1.4	04	50.000	50.11	0.2
02	50.000	51.17	2.3	03	50.000	50.20	0.4	08	50.000	48.80	-2.4
06	50.000	49.71	-0.6	07	50.000	49.07	-1.9				

1,2-Dichloropropane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.53	6.5	02	1.000	0.93	-6.6	03	2.000	2.06	3.0
04	5.000	4.80	-4.0	05	20.000	21.01	5.0	06	50.000	49.23	-1.5
07	100.000	98.93	-1.1	08	200.000	197.23	-1.4				

1,3,5-Trichlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.51	1.4	02	1.000	0.96	-3.5	03	2.000	2.03	1.7
04	5.000	5.07	1.3	05	20.000	21.02	5.1	06	50.000	51.48	3.0
07	100.000	98.60	-1.4	08	200.000	184.97	-7.5				

1,3,5-Trimethylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.46	-7.4	02	1.000	0.96	-4.5	03	2.000	1.99	-0.7
04	5.000	5.31	6.3	05	20.000	21.82	9.1	06	50.000	50.45	0.9
07	100.000	103.05	3.1	08	200.000	186.29	-6.9				

1,3-Dichlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-4.9	02	1.000	0.97	-3.3	03	2.000	1.93	-3.3
04	5.000	5.22	4.4	05	20.000	21.37	6.9	06	50.000	49.50	-1.0
07	100.000	102.83	2.8	08	200.000	196.81	-1.6				

1,3-Dichloropropane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.49	-1.3	02	1.000	1.02	2.3	03	2.000	1.97	-1.7
04	5.000	5.08	1.7	05	20.000	20.80	4.0	06	50.000	49.33	-1.3
07	100.000	98.06	-1.9	08	200.000	196.34	-1.8				

1,4-Dichlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.59	18.4	02	1.000	0.96	-3.7	03	2.000	1.92	-3.8
04	5.000	5.00	0.0	05	20.000	20.55	2.7	06	50.000	47.54	-4.9
07	100.000	97.81	-2.2	08	200.000	187.07	-6.5				

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Signal ID:	1

Analyte

1,4-Dioxane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
03	40.000	35.12	-12.2	04	100.000	104.49	4.5	05	400.000	418.98	4.7
06	1000.000	959.13	-4.1	07	2000.000	2,058.38	2.9	08	4000.000	4,165.10	4.1

1-Butanol

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	50.000	42.23	-15.5	03	100.000	78.84	-21.2	04	250.000	202.55	-19.0
05	1000.000	1,050.85	5.1	06	2500.000	2,788.88	11.6	07	5000.000	5,867.93	17.4
08	10000.000	12,167.14	21.7								

1-Chloro-4-(trifluoromethyl)benzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.54	8.1	02	1.000	0.90	-10.2	03	2.000	1.80	-10.2
04	5.000	4.89	-2.3	05	20.000	21.19	5.9	06	50.000	51.46	2.9
07	100.000	101.37	1.4	08	200.000	208.77	4.4				

2,2-Dichloro-1,1,1-trifluoroethane (CFC

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	0.9	02	1.000	1.03	2.9	03	2.000	2.06	2.8
04	5.000	5.06	1.2	05	20.000	20.64	3.2	06	50.000	46.95	-6.1
07	100.000	96.38	-3.6	08	200.000	197.61	-1.2				

2,2-Dichloropropane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.6	02	1.000	0.96	-3.9	03	2.000	1.91	-4.3
04	5.000	4.80	-4.0	05	20.000	20.76	3.8	06	50.000	49.91	-0.2
07	100.000	105.49	5.5	08	200.000	207.38	3.7				

2,3,6-Trichlorotoluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	1.06	6.4	03	2.000	1.88	-6.2	04	5.000	5.37	7.5
05	20.000	20.56	2.8	06	50.000	52.24	4.5	07	100.000	97.93	-2.1
08	200.000	174.22	-12.9								

2,4,5-Trichlorotoluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	1.09	8.8	03	2.000	1.98	-0.8	04	5.000	5.13	2.5
05	20.000	20.94	4.7	06	50.000	50.79	1.6	07	100.000	97.07	-2.9
08	200.000	172.15	-13.9								

2,4-, 2,5-, and 2,6-Dichlorotoluene Coelut

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	1.500	1.54	2.5	02	3.000	2.84	-5.5	03	6.000	5.81	-3.2
04	15.000	15.52	3.5	05	60.000	64.35	7.3	06	150.000	157.11	4.7
07	300.000	302.05	0.7	08	600.000	540.19	-10.0				

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
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Analyte

2,4-Dichlorobenzotrifluoride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-4.7	02	1.000	1.00	-0.4	03	2.000	1.90	-5.1
04	5.000	5.05	0.9	05	20.000	21.25	6.2	06	50.000	51.68	3.4
07	100.000	102.08	2.1	08	200.000	195.09	-2.5				

2,5-Dichlorobenzotrifluoride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-6.7	02	1.000	1.02	1.9	03	2.000	1.97	-1.5
04	5.000	5.08	1.6	05	20.000	20.76	3.8	06	50.000	50.93	1.9
07	100.000	101.64	1.6	08	200.000	194.66	-2.7				

2-Butanone (MEK)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
03	2.000	1.95	-2.7	04	5.000	5.09	1.8	05	20.000	20.35	1.7
06	50.000	50.79	1.6	07	100.000	99.04	-1.0	08	200.000	197.13	-1.4

2-Chloro-1,3-butadiene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-5.1	02	1.000	0.85	-14.6	03	2.000	2.01	0.3
04	5.000	5.04	0.8	05	20.000	22.09	10.4	06	50.000	54.71	9.4
07	100.000	99.07	-0.9	08	200.000	199.45	-0.3				

2-Chlorobenzotrifluoride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.55	9.2	02	1.000	0.93	-6.7	03	2.000	1.99	-0.5
04	5.000	5.05	1.1	05	20.000	20.58	2.9	06	50.000	49.93	-0.1
07	100.000	98.59	-1.4	08	200.000	191.05	-4.5				

2-Chloroethyl Vinyl Ether

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.94	-6.3	03	2.000	1.86	-7.1	04	5.000	4.78	-4.3
05	20.000	20.79	4.0	06	50.000	52.70	5.4	07	100.000	101.53	1.5
08	200.000	213.74	6.9								

2-Chlorotoluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.49	-2.5	02	1.000	0.95	-5.0	03	2.000	2.10	5.2
04	5.000	5.39	7.9	05	20.000	21.04	5.2	06	50.000	49.16	-1.7
07	100.000	99.77	-0.2	08	200.000	182.32	-8.8				

2-Hexanone

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
03	2.000	1.77	-11.4	04	5.000	4.38	-12.4	05	20.000	20.62	3.1
06	50.000	53.96	7.9	07	100.000	103.46	3.5	08	200.000	218.80	9.4

Initial Calibration - Detailed Report

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		Signal ID:	1

Analyte

2-Methyl-1-propanol

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	20.000	20.26	1.3	03	40.000	36.19	-9.5	04	100.000	86.55	-13.5
05	400.000	402.89	0.7	06	1000.000	1,035.32	3.5	07	2000.000	2,147.81	7.4
08	4000.000	4,402.14	10.1								

2-Methyl-2-propanol

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	10.000	9.01	-9.9	02	20.000	18.28	-8.6	03	40.000	35.99	-10.0
04	100.000	98.27	-1.7	05	400.000	434.45	8.6	06	1000.000	1,056.46	5.6
07	2000.000	2,171.61	8.6	08	4000.000	4,298.58	7.5				

2-Nitropropane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	2.000	1.87	-6.5	03	4.000	3.79	-5.3	04	10.000	8.60	-14.0
05	40.000	37.61	-6.0	06	100.000	105.09	5.1	07	200.000	221.31	10.7
08	400.000	464.07	16.0								

2-Propanol

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	20.000	17.73	-11.3	03	40.000	30.98	-22.6	04	100.000	95.25	-4.8
05	400.000	413.14	3.3	06	1000.000	1,064.76	6.5	07	2000.000	2,281.69	14.1
08	4000.000	4,592.40	14.8								

3,4- and 2,3-Dichlorotoluene Coelution

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	1.000	0.91	-9.2	02	2.000	2.02	1.2	03	4.000	4.10	2.4
04	10.000	10.39	3.9	05	40.000	42.72	6.8	06	100.000	106.06	6.1
07	200.000	203.02	1.5	08	400.000	349.39	-12.7				

3,4-Dichlorobenzotrifluoride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.53	6.5	02	1.000	0.95	-5.3	03	2.000	1.93	-3.3
04	5.000	4.83	-3.3	05	20.000	20.80	4.0	06	50.000	50.85	1.7
07	100.000	100.73	0.7	08	200.000	197.96	-1.0				

3-Chloro-1-propene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.51	2.3	02	1.000	0.99	-0.6	03	2.000	1.97	-1.4
04	5.000	5.05	1.0	05	20.000	21.22	6.1	06	50.000	50.37	0.7
07	100.000	100.89	0.9	08	200.000	182.08	-9.0				

3-Chlorobenzotrifluoride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.57	14.5	02	1.000	0.94	-6.2	03	2.000	1.83	-8.4
04	5.000	4.78	-4.3	05	20.000	20.35	1.8	06	50.000	49.26	-1.5
07	100.000	100.49	0.5	08	200.000	207.26	3.6				

Initial Calibration - Detailed Report

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		Signal ID:	1

Analyte

3-Chlorotoluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.51	1.4	02	1.000	0.98	-2.2	03	2.000	2.00	0.0
04	5.000	5.31	6.3	05	20.000	21.30	6.5	06	50.000	50.29	0.6
07	100.000	97.29	-2.7	08	200.000	180.14	-9.9				

4-Bromofluorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
06	50.000	50.57	1.1	03	50.000	48.55	-2.9	08	50.000	51.50	3.0
07	50.000	50.78	1.6	04	50.000	49.74	-0.5	05	50.000	49.96	-0.1
02	50.000	49.40	-1.2	01	50.000	49.50	-1.0				

4-Chlorotoluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.44	-11.8	02	1.000	0.99	-1.2	03	2.000	2.12	5.9
04	5.000	5.50	10.1	05	20.000	21.77	8.8	06	50.000	49.53	-0.9
07	100.000	100.78	0.8	08	200.000	176.70	-11.6				

4-Isopropyltoluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-6.9	02	1.000	0.94	-5.7	03	2.000	1.97	-1.3
04	5.000	5.34	6.9	05	20.000	22.04	10.2	06	50.000	50.51	1.0
07	100.000	103.87	3.9	08	200.000	184.01	-8.0				

4-Methyl-2-pentanone

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
03	2.000	1.85	-7.3	04	5.000	4.63	-7.3	05	20.000	19.96	-0.2
06	50.000	52.83	5.7	07	100.000	103.54	3.5	08	200.000	211.20	5.6

Acetone

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
04	5.000	5.47	9.3	05	20.000	20.11	0.6	06	50.000	47.31	-5.4
07	100.000	100.57	0.6	08	200.000	189.81	-5.1				

Acetonitrile

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
03	10.000	7.57	-24.3	04	25.000	25.55	2.2	05	100.000	113.23	13.2
06	250.000	244.00	-2.4	07	500.000	549.38	9.9	08	1000.000	1,014.22	1.4

Acrolein

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	5.000	5.14	2.8	03	10.000	10.02	0.2	04	25.000	21.92	-12.3
05	100.000	100.21	0.2	06	250.000	243.13	-2.7	07	500.000	528.00	5.6
08	1000.000	986.83	-1.3								

Initial Calibration - Detailed Report

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Analyte

Acrylonitrile

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	2.500	2.42	-3.1	02	5.000	5.05	1.0	03	10.000	9.02	-9.8
04	25.000	24.98	-0.1	05	100.000	107.48	7.5	06	250.000	256.05	2.4
07	500.000	514.53	2.9	08	1000.000	991.85	-0.8				

Benzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.8	02	1.000	0.99	-1.1	03	2.000	1.99	-0.5
04	5.000	5.09	1.9	05	20.000	21.13	5.6	06	50.000	49.18	-1.6
07	100.000	99.46	-0.5	08	200.000	194.13	-2.9				

Bromobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.1	02	1.000	1.01	0.8	03	2.000	2.10	4.8
04	5.000	5.20	4.1	05	20.000	20.28	1.4	06	50.000	47.78	-4.4
07	100.000	98.85	-1.1	08	200.000	195.22	-2.4				

Bromochloromethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.58	16.8	02	1.000	1.01	1.1	03	2.000	2.05	2.5
04	5.000	5.15	3.0	05	20.000	19.83	-0.9	06	50.000	46.72	-6.6
07	100.000	93.36	-6.6	08	200.000	181.24	-9.4				

Bromodichloromethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-4.2	02	1.000	0.91	-8.5	03	2.000	1.91	-4.3
04	5.000	4.94	-1.1	05	20.000	21.21	6.0	06	50.000	50.92	1.8
07	100.000	104.18	4.2	08	200.000	212.04	6.0				

Bromoform

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.39	-22.1	02	1.000	0.94	-5.9	03	2.000	1.60	-19.8
04	5.000	4.75	-4.9	05	20.000	21.70	8.5	06	50.000	55.02	10.0
07	100.000	115.90	15.9	08	200.000	236.66	18.3				

Bromomethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.54	8.1	02	1.000	1.08	8.0	03	2.000	2.15	7.3
04	5.000	4.77	-4.7	05	20.000	19.09	-4.5	06	50.000	45.43	-9.1
07	100.000	96.11	-3.9	08	200.000	197.68	-1.2				

Carbon Disulfide

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	4.7	02	1.000	0.97	-2.6	03	2.000	1.99	-0.6
04	5.000	4.96	-0.9	05	20.000	21.31	6.6	06	50.000	52.12	4.2
07	100.000	96.23	-3.8	08	200.000	184.69	-7.7				

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
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Analyte

Carbon Tetrachloride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.56	12.9	02	1.000	0.94	-6.3	03	2.000	1.94	-3.1
04	5.000	4.62	-7.7	05	20.000	19.97	-0.1	06	50.000	47.92	-4.2
07	100.000	102.86	2.9	08	200.000	211.15	5.6				

Chlorobenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	3.4	02	1.000	0.96	-4.2	03	2.000	2.04	2.1
04	5.000	5.06	1.3	05	20.000	20.61	3.0	06	50.000	48.45	-3.1
07	100.000	99.14	-0.9	08	200.000	196.84	-1.6				

Chloroethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.59	17.3	02	1.000	0.98	-1.8	03	2.000	2.12	6.0
04	5.000	4.57	-8.7	05	20.000	20.71	3.6	06	50.000	47.20	-5.6
07	100.000	95.98	-4.0	08	200.000	186.51	-6.7				

Chloroform

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.55	9.7	02	1.000	0.99	-1.4	03	2.000	2.05	2.7
04	5.000	4.95	-1.0	05	20.000	20.16	0.8	06	50.000	47.09	-5.8
07	100.000	98.76	-1.2	08	200.000	192.36	-3.8				

Chloromethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.8	02	1.000	0.97	-2.9	03	2.000	2.03	1.5
04	5.000	4.95	-0.9	05	20.000	20.96	4.8	06	50.000	49.21	-1.6
07	100.000	101.97	2.0	08	200.000	201.99	1.0				

Cyclohexane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.54	7.5	02	1.000	1.02	1.8	03	2.000	2.06	2.9
04	5.000	5.15	3.0	05	20.000	20.37	1.8	06	50.000	46.44	-7.1
07	100.000	93.29	-6.7	08	200.000	193.68	-3.2				

Cyclohexanone

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	10.000	9.80	-2.0	02	20.000	21.63	8.2	03	40.000	36.06	-9.9
04	100.000	100.61	0.6	05	400.000	432.04	8.0	06	1000.000	987.46	-1.3
07	2000.000	1,964.96	-1.8	08	4000.000	3,921.50	-2.0				

Dibromochloromethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.42	-15.9	02	1.000	0.84	-15.6	03	2.000	1.87	-6.6
04	5.000	4.90	-2.0	05	20.000	21.34	6.7	06	50.000	53.71	7.4
07	100.000	111.12	11.1	08	200.000	229.69	14.8				

Initial Calibration - Detailed Report

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		Signal ID:	1

Analyte

Dibromofluoromethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	50.000	49.49	-1.0	04	50.000	50.59	1.2	05	50.000	50.53	1.1
03	50.000	49.68	-0.6	07	50.000	50.04	0.1	06	50.000	49.90	-0.2
02	50.000	49.59	-0.8	08	50.000	50.18	0.4				

Dibromomethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.51	1.7	02	1.000	1.03	3.3	03	2.000	1.88	-6.0
04	5.000	4.86	-2.9	05	20.000	20.44	2.2	06	50.000	49.91	-0.2
07	100.000	99.77	-0.2	08	200.000	204.16	2.1				

Dichlorodifluoromethane (CFC 12)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.55	10.5	02	1.000	0.94	-6.2	03	2.000	1.92	-4.1
04	5.000	4.46	-10.8	05	20.000	21.53	7.7	06	50.000	50.65	1.3
07	100.000	103.38	3.4	08	200.000	196.42	-1.8				

Dichlorofluoromethane (CFC 21)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	4.8	02	1.000	0.96	-3.6	03	2.000	2.10	5.2
04	5.000	5.15	3.0	05	20.000	20.65	3.2	06	50.000	47.66	-4.7
07	100.000	96.32	-3.7	08	200.000	191.44	-4.3				

Dichloromethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.53	7.0	02	1.000	1.07	7.2	03	2.000	2.05	2.4
04	5.000	5.00	0.1	05	20.000	20.07	0.3	06	50.000	46.73	-6.5
07	100.000	96.09	-3.9	08	200.000	187.03	-6.5				

Diethyl Ether

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.57	13.1	02	1.000	1.06	6.0	03	2.000	2.00	-0.1
04	5.000	4.79	-4.2	05	20.000	20.40	2.0	06	50.000	47.40	-5.2
07	100.000	96.03	-4.0	08	200.000	184.99	-7.5				

Diisopropyl Ether

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	4.9	02	1.000	0.97	-3.4	03	2.000	1.99	-0.7
04	5.000	5.13	2.6	05	20.000	21.50	7.5	06	50.000	50.17	0.3
07	100.000	97.38	-2.6	08	200.000	182.91	-8.5				

Ethyl Methacrylate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.39	-22.6	02	1.000	0.91	-9.3	03	2.000	1.67	-16.7
04	5.000	4.68	-6.5	05	20.000	22.25	11.3	06	50.000	56.19	12.4
07	100.000	115.22	15.2	08	200.000	232.41	16.2				

Initial Calibration - Detailed Report

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Analyte

Ethyl tert-Butyl Ether

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.5	02	1.000	0.96	-3.8	03	2.000	1.92	-4.2
04	5.000	5.17	3.4	05	20.000	21.53	7.6	06	50.000	51.19	2.4
07	100.000	100.82	0.8	08	200.000	194.19	-2.9				

Ethylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.3	02	1.000	0.94	-6.0	03	2.000	1.92	-4.0
04	5.000	5.14	2.8	05	20.000	20.67	3.4	06	50.000	49.88	-0.2
07	100.000	103.42	3.4	08	200.000	207.95	4.0				

Hexachlorobutadiene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.53	5.2	02	1.000	1.01	0.7	03	2.000	1.97	-1.7
04	5.000	5.16	3.3	05	20.000	21.51	7.6	06	50.000	48.95	-2.1
07	100.000	96.30	-3.7	08	200.000	181.73	-9.1				

Iodomethane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.79	-20.7	03	2.000	1.70	-15.0	04	5.000	4.34	-13.2
05	20.000	22.28	11.4	06	50.000	58.48	17.0	07	100.000	111.66	11.7
08	200.000	217.63	8.8								

Isopropylbenzene (Cumene)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.1	02	1.000	0.97	-3.3	03	2.000	2.04	2.1
04	5.000	5.34	6.8	05	20.000	21.58	7.9	06	50.000	50.35	0.7
07	100.000	100.68	0.7	08	200.000	176.21	-11.9				

Methacrylonitrile

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.78	-22.3	03	2.000	2.16	7.8	04	5.000	4.87	-2.7
05	20.000	21.02	5.1	06	50.000	52.02	4.0	07	100.000	104.67	4.7
08	200.000	206.57	3.3								

Methyl Acetate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.99	-0.8	03	2.000	1.86	-7.1	04	5.000	5.62	12.5
05	20.000	20.07	0.4	06	50.000	49.71	-0.6	07	100.000	98.72	-1.3
08	200.000	193.74	-3.1								

Methyl Methacrylate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.5	02	1.000	1.03	2.8	03	2.000	1.63	-18.6
04	5.000	4.62	-7.7	05	20.000	20.83	4.1	06	50.000	52.44	4.9
07	100.000	106.30	6.3	08	200.000	217.30	8.7				

Initial Calibration - Detailed Report

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		Signal ID:	1

Analyte

Methyl tert-Butyl Ether

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	4.7	02	1.000	1.00	0.0	03	2.000	1.96	-1.9
04	5.000	5.15	3.0	05	20.000	20.75	3.7	06	50.000	48.54	-2.9
07	100.000	98.35	-1.7	08	200.000	190.27	-4.9				

Methylcyclohexane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.55	9.1	02	1.000	0.99	-1.2	03	2.000	2.07	3.4
04	5.000	5.08	1.6	05	20.000	20.46	2.3	06	50.000	46.09	-7.8
07	100.000	95.15	-4.8	08	200.000	195.02	-2.5				

Naphthalene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.4	02	1.000	0.91	-9.0	03	2.000	1.94	-2.8
04	5.000	5.04	0.8	05	20.000	21.59	7.9	06	50.000	53.18	6.4
07	100.000	105.76	5.8	08	200.000	188.67	-5.7				

Propionitrile

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	2.500	2.32	-7.0	02	5.000	4.49	-10.1	03	10.000	9.00	-10.0
04	25.000	23.60	-5.6	05	100.000	109.63	9.6	06	250.000	268.54	7.4
07	500.000	548.49	9.7	08	1000.000	1,059.97	6.0				

Styrene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.44	-11.1	02	1.000	0.87	-13.3	03	2.000	1.82	-9.0
04	5.000	4.99	-0.2	05	20.000	21.98	9.9	06	50.000	53.57	7.1
07	100.000	109.72	9.7	08	200.000	213.85	6.9				

Tetrachloroethene (PCE)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.58	15.7	02	1.000	0.97	-3.4	03	2.000	2.03	1.6
04	5.000	4.67	-6.5	05	20.000	20.09	0.5	06	50.000	46.76	-6.5
07	100.000	97.11	-2.9	08	200.000	203.04	1.5				

Tetrahydrofuran (THF)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
03	2.000	2.08	4.2	04	5.000	5.08	1.6	05	20.000	20.78	3.9
06	50.000	49.74	-0.5	07	100.000	95.07	-4.9	08	200.000	191.44	-4.3

Toluene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-5.0	02	1.000	1.00	0.1	03	2.000	2.07	3.3
04	5.000	5.15	3.0	05	20.000	21.05	5.3	06	50.000	49.96	-0.1
07	100.000	99.46	-0.5	08	200.000	187.96	-6.0				

Initial Calibration - Detailed Report

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Analyte

Toluene-d8

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	50.000	49.50	-1.0	06	50.000	50.17	0.3	08	50.000	50.19	0.4
07	50.000	49.84	-0.3	05	50.000	50.14	0.3	03	50.000	50.08	0.2
02	50.000	50.18	0.4	04	50.000	49.89	-0.2				

Trichloroethene (TCE)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.49	-2.0	02	1.000	1.00	0.4	03	2.000	2.05	2.7
04	5.000	4.91	-1.9	05	20.000	20.16	0.8	06	50.000	48.46	-3.1
07	100.000	100.49	0.5	08	200.000	204.93	2.5				

Trichlorofluoromethane (CFC 11)

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.54	7.5	02	1.000	0.95	-5.0	03	2.000	2.01	0.5
04	5.000	5.13	2.6	05	20.000	20.91	4.6	06	50.000	48.23	-3.5
07	100.000	97.79	-2.2	08	200.000	191.27	-4.4				

Vinyl Acetate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.95	-4.5	03	2.000	1.84	-8.1	04	5.000	4.71	-5.9
05	20.000	19.18	-4.1	06	50.000	54.60	9.2	07	100.000	104.19	4.2
08	200.000	218.41	9.2								

Vinyl Chloride

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.51	2.0	02	1.000	0.96	-4.0	03	2.000	1.99	-0.4
04	5.000	5.00	0.1	05	20.000	20.92	4.6	06	50.000	49.26	-1.5
07	100.000	101.54	1.5	08	200.000	195.46	-2.3				

cis-1,2-Dichloroethene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.5	02	1.000	1.04	3.9	03	2.000	1.91	-4.7
04	5.000	4.97	-0.6	05	20.000	20.74	3.7	06	50.000	49.00	-2.0
07	100.000	101.10	1.1	08	200.000	198.26	-0.9				

cis-1,3-Dichloropropene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.48	-3.8	02	1.000	0.88	-11.6	03	2.000	1.80	-10.2
04	5.000	4.72	-5.7	05	20.000	21.64	8.2	06	50.000	53.07	6.1
07	100.000	108.11	8.1	08	200.000	217.79	8.9				

m,p-Xylenes

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	1.000	0.94	-5.8	02	2.000	1.79	-10.7	03	4.000	3.95	-1.3
04	10.000	10.24	2.4	05	40.000	42.53	6.3	06	100.000	102.56	2.6
07	200.000	210.55	5.3	08	400.000	404.74	1.2				

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Signal ID:	1

Analyte

n-Butyl Acetate

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
02	1.000	0.94	-6.4	03	2.000	1.76	-12.2	04	5.000	4.73	-5.3
05	20.000	20.64	3.2	06	50.000	53.63	7.3	07	100.000	104.33	4.3
08	200.000	218.28	9.1								

n-Butylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.45	-10.1	02	1.000	0.91	-8.7	03	2.000	2.08	4.1
04	5.000	5.29	5.8	05	20.000	22.12	10.6	06	50.000	50.75	1.5
07	100.000	104.42	4.4	08	200.000	184.71	-7.6				

n-Heptane

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.53	6.2	02	1.000	1.02	1.8	03	2.000	2.03	1.5
04	5.000	4.82	-3.6	05	20.000	21.23	6.1	06	50.000	47.40	-5.2
07	100.000	97.34	-2.7	08	200.000	191.82	-4.1				

n-Propylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.50	-0.6	02	1.000	0.98	-1.7	03	2.000	2.12	5.8
04	5.000	5.37	7.4	05	20.000	21.42	7.1	06	50.000	49.69	-0.6
07	100.000	98.92	-1.1	08	200.000	167.40	-16.3				

o-Xylene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.46	-7.9	02	1.000	1.01	1.3	03	2.000	1.88	-5.8
04	5.000	5.03	0.7	05	20.000	20.97	4.8	06	50.000	50.01	0.0
07	100.000	103.24	3.2	08	200.000	207.27	3.6				

sec-Butylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.47	-5.6	02	1.000	0.98	-2.0	03	2.000	2.07	3.5
04	5.000	5.46	9.2	05	20.000	21.65	8.3	06	50.000	49.21	-1.6
07	100.000	100.74	0.7	08	200.000	174.91	-12.5				

tert-Amyl Methyl Ether

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.46	-7.9	02	1.000	0.97	-3.0	03	2.000	1.94	-2.8
04	5.000	5.02	0.3	05	20.000	21.17	5.9	06	50.000	51.52	3.0
07	100.000	103.19	3.2	08	200.000	202.60	1.3				

tert-Butylbenzene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.49	-2.0	02	1.000	1.00	0.0	03	2.000	2.06	2.8
04	5.000	5.23	4.7	05	20.000	20.95	4.8	06	50.000	48.91	-2.2
07	100.000	100.05	0.1	08	200.000	183.63	-8.2				

00145

Initial Calibration - Detailed Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Signal ID:	1

Analyte

trans-1,2-Dichloroethene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.52	3.7	02	1.000	1.00	-0.1	03	2.000	1.95	-2.5
04	5.000	4.85	-3.1	05	20.000	20.79	3.9	06	50.000	48.44	-3.1
07	100.000	101.89	1.9	08	200.000	198.42	-0.8				

trans-1,3-Dichloropropene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.42	-16.3	02	1.000	0.87	-13.2	03	2.000	1.79	-10.6
04	5.000	4.68	-6.4	05	20.000	21.87	9.3	06	50.000	54.50	9.0
07	100.000	113.32	13.3	08	200.000	229.69	14.8				

trans-1,4-Dichloro-2-butene

#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D	#	Amount	Calculated Conc	%D
01	0.500	0.44	-12.8	02	1.000	0.79	-20.6	03	2.000	1.89	-5.3
04	5.000	4.64	-7.2	05	20.000	22.12	10.6	06	50.000	56.13	12.3
07	100.000	111.21	11.2	08	200.000	223.88	11.9				

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14 10:37

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\033114\U4305.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 386023

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.91	77595	Pass
75	95	30	60	47.68	206571	Pass
95	95	100	100	100.00	433280	Pass
96	95	5	9	6.84	29624	Pass
173	174	0	2	0.88	3068	Pass
174	95	50	120	80.10	347051	Pass
175	174	5	9	7.55	26197	Pass
176	174	95	101	95.46	331307	Pass
177	176	5	9	7.08	23473	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1403003-02	I:\ACQUDATA\MSVOA12\DATA\033114\U4306.D\	3/31/14 11:10	
Lab Control Sample	RQ1403003-03	I:\ACQUDATA\MSVOA12\DATA\033114\U4307.D\	3/31/14 11:42	
Method Blank	RQ1403003-04	I:\ACQUDATA\MSVOA12\DATA\033114\U4309.D\	3/31/14 12:46	
TB-032014	R1402011-001	I:\ACQUDATA\MSVOA12\DATA\033114\U4320.D\	3/31/14 18:40	
MRC-MW114A-032014	R1402011-002	I:\ACQUDATA\MSVOA12\DATA\033114\U4321.D\	3/31/14 19:12	
MRC-MWDUP01-032014	R1402011-005	I:\ACQUDATA\MSVOA12\DATA\033114\U4324.D\	3/31/14 20:49	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\033114\J4306.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 386023
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	48.7	0.3058	0.2980	-2.5	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	46.5	0.7112	0.6613	-7.0	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	50.3	0.5726	0.5764	0.7	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	47.1	0.3971	0.3744	-5.7	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	46.9	0.8461	0.7944	-6.1	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	48.7	0.3628	0.3537	-2.5	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	47.9	0.3693	0.3538	-4.2	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	48.3	0.6036	0.5834	-3.3	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	49.4	0.1713	0.1692	-1.2	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	48.3	0.7372	0.7116	-3.5	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	50.1	2.167	2.170	0.2	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	56.3	0.08773	0.09872	12.5	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	52.5	0.2312	0.2426	4.9	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	50.2	1.206	1.209	0.3	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	45.7	0.3737	0.3416	-8.6	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	46.8	0.3148	0.2949	-6.3	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	50.1	1.252	1.255	0.2	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	49.1	0.4501	0.4416	-1.9	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	48.1	1.332	1.282	-3.7	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	50.1	0.6713	0.6725	0.2	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	56.8	0.1390	0.1578	13.5	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	49.8	0.1412	0.1407	-0.4	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	48.0	1.896	1.820	-4.0	NA	± 20 %	Average RF
2-Hexanone	50.0	57.1	0.1416	0.1618	14.2	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1140	0.02773	0.03155	13.8	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	48.1	2.236	2.152	-3.7	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	51.2	2.086	2.135	2.3	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	53.9	0.1899	0.2046	7.7	NA	± 20 %	Average RF
Acetone	50.0	58.2	0.09920	0.1155	16.4	NA	± 20 %	Average RF
Benzene	50.0	48.0	1.231	1.181	-4.1	NA	± 20 %	Average RF
Bromobenzene	50.0	48.1	0.7355	0.7079	-3.8	NA	± 20 %	Average RF
Bromochloromethane	50.0	47.2	0.2832	0.2671	-5.7	NA	± 20 %	Average RF
Bromodichloromethane	50.0	49.5	0.3677	0.3640	-1.0	NA	± 20 %	Average RF
Bromoform	50.0	56.3	0.2840	0.3195	12.5	NA	± 20 %	Average RF
Bromomethane	50.0	47.1	0.2881	0.2711	-5.9	NA	± 20 %	Average RF
Carbon Disulfide	50.0	48.2	1.262	1.216	-3.6	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	46.5	0.1199	0.1115	-7.0	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.6	0.8701	0.8465	-2.7	NA	± 20 %	Average RF
Chloroethane	50.0	51.4	0.2851	0.2932	2.8	NA	± 20 %	Average RF
Chloroform	50.0	46.0	0.8292	0.7627	-8.0	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\033114\J4306.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 386023
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	47.7	0.5146	0.4907	-4.7	NA	± 20 %	Average RF
Dibromochloromethane	50.0	54.1	0.2588	0.2798	8.1	NA	± 20 %	Average RF
Dibromomethane	50.0	49.6	0.1497	0.1487	-0.7	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	40.8	0.5939	0.4843	-18.5	NA	± 20 %	Average RF
Methylene Chloride	50.0	46.2	0.4753	0.4389	-7.7	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	47.3	1.648	1.560	-5.4	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	49.4	1.379	1.364	-1.1	NA	± 20 %	Average RF
Ethylbenzene	50.0	49.0	0.4636	0.4540	-2.1	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	49.8	0.3218	0.3201	-0.5	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	49.5	2.581	2.558	-0.9	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	48.6	1.153	1.120	-2.9	NA	± 20 %	Average RF
Naphthalene	50.0	52.5	1.327	1.393	5.0	NA	± 20 %	Average RF
Styrene	50.0	53.0	0.8888	0.9428	6.1	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	47.4	0.2583	0.2446	-5.3	NA	± 20 %	Average RF
Toluene	50.0	48.6	1.269	1.234	-2.8	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	49.2	0.2982	0.2932	-1.7	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	46.1	0.7340	0.6759	-7.9	NA	± 20 %	Average RF
Vinyl Acetate	50.0	54.3	0.07534	0.08186	8.6	NA	± 20 %	Average RF
Vinyl Chloride	50.0	52.7	0.4781	0.5036	5.3	NA	± 20 %	Average RF
Xylenes, Total	150	153	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	49.2	0.5073	0.4990	-1.6	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	51.1	0.4363	0.4458	2.2	NA	± 20 %	Average RF
m,p-Xylenes	100	103	0.5448	0.5592	2.7	NA	± 20 %	Average RF
n-Butylbenzene	50.0	51.4	1.881	1.935	2.9	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.3	3.020	2.976	-1.4	NA	± 20 %	Average RF
o-Xylene	50.0	50.0	0.5559	0.5562	0.0	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	50.3	2.467	2.484	0.7	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	51.3	1.164	1.195	2.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	49.1	1.773	1.742	-1.7	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	49.9	0.4546	0.4538	-0.2	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	53.5	0.3517	0.3760	6.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	49.1	0.4538	0.4457	-1.8	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	49.1	0.2895	0.2839	-1.9	NA	± 20 %	Average RF
Toluene-d8	50.0	49.3	1.216	1.199	-1.4	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/31/14 12:46

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1403003-04
Instrument ID: R-MS-12
File ID: I:\ACQUDATA\MSVOA12\DATA\033114\U4309.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1403003-03	I:\ACQUDATA\MSVOA12\DATA\033114\U4307.D\	3/31/14 11:42
TB-032014	R1402011-001	I:\ACQUDATA\MSVOA12\DATA\033114\U4320.D\	3/31/14 18:40
MRC-MW114A-032014	R1402011-002	I:\ACQUDATA\MSVOA12\DATA\033114\U4321.D\	3/31/14 19:12
MRC-MWDUP01-032014	R1402011-005	I:\ACQUDATA\MSVOA12\DATA\033114\U4324.D\	3/31/14 20:49

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	3/31/14 12:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1403003-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\U4309.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	0.22	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	0.36	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.31	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	0.20	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	0.57	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	0.29	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	0.82	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	0.70	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.28	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	0.20	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.74	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	0.24	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	0.21	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	0.36	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	0.20	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	0.20	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	0.27	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	0.20	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	0.27	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	0.81	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	0.44	U	1.0	0.44	
95-49-8	2-Chlorotoluene	0.20	U	1.0	0.20	
591-78-6	2-Hexanone	1.7	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	11	U	40	11	
106-43-4	4-Chlorotoluene	0.24	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	0.20	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	0.67	U	5.0	0.67	
67-64-1	Acetone	1.3	U	5.0	1.3	
71-43-2	Benzene	0.20	U	1.0	0.20	
108-86-1	Bromobenzene	0.28	U	1.0	0.28	
74-97-5	Bromochloromethane	0.32	U	1.0	0.32	
75-27-4	Bromodichloromethane	0.32	U	1.0	0.32	
75-25-2	Bromoform	0.42	U	1.0	0.42	
74-83-9	Bromomethane	0.29	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	3/31/14 12:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1403003-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4309.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	0.22	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	0.45	U	1.0	0.45	
108-90-7	Chlorobenzene	0.29	U	1.0	0.29	
75-00-3	Chloroethane	0.24	U	1.0	0.24	
67-66-3	Chloroform	0.25	U	1.0	0.25	
74-87-3	Chloromethane	0.21	U	1.0	0.21	
124-48-1	Dibromochloromethane	0.31	U	1.0	0.31	
74-95-3	Dibromomethane	0.32	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	0.46	U	1.0	0.46	
75-09-2	Methylene Chloride	0.32	U	1.0	0.32	
108-20-3	Diisopropyl Ether	0.20	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	0.20	U	1.0	0.20	
100-41-4	Ethylbenzene	0.20	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.64	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	0.20	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	0.29	U	1.0	0.29	
91-20-3	Naphthalene	0.30	J	1.0	0.20	
100-42-5	Styrene	0.20	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	0.30	U	1.0	0.30	
108-88-3	Toluene	0.20	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	0.22	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	0.20	U	1.0	0.20	
108-05-4	Vinyl Acetate	1.1	U	2.0	1.1	
75-01-4	Vinyl Chloride	0.32	U	1.0	0.32	
1330-20-7	Xylenes, Total	0.53	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	0.24	U	1.0	0.24	
179601-23-1	m,p-Xylenes	0.33	U	2.0	0.33	
104-51-8	n-Butylbenzene	0.21	U	1.0	0.21	
103-65-1	n-Propylbenzene	0.20	U	1.0	0.20	
95-47-6	o-Xylene	0.20	U	1.0	0.20	
135-98-8	sec-Butylbenzene	0.27	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	0.20	U	1.0	0.20	
98-06-6	tert-Butylbenzene	0.20	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	0.33	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	3/31/14 12:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1403003-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386023
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\033114\J4309.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	0.20	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	3/31/14 12:46	
Dibromofluoromethane	98	89-119	3/31/14 12:46	
Toluene-d8	98	87-121	3/31/14 12:46	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 4/1/14 13:38

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\040114\J4353.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 386290

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	18.39	77147	Pass
75	95	30	60	50.00	209731	Pass
95	95	100	100	100.00	419499	Pass
96	95	5	9	6.45	27046	Pass
173	174	0	2	1.08	3966	Pass
174	95	50	120	87.16	365632	Pass
175	174	5	9	7.07	25832	Pass
176	174	95	101	96.18	351680	Pass
177	176	5	9	6.21	21845	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1403063-02	I:\ACQUDATA\msvoa12\Data\040114\J4354.D\	4/1/14 14:14	
Lab Control Sample	RQ1403063-03	I:\ACQUDATA\msvoa12\Data\040114\J4355.D\	4/1/14 14:47	
Method Blank	RQ1403063-04	I:\ACQUDATA\msvoa12\Data\040114\J4357.D\	4/1/14 15:51	
MRC-MW114A-032014DL	R1402011-002	I:\ACQUDATA\msvoa12\Data\040114\J4358.D\	4/1/14 16:24	
MRC-MW113A-032014	R1402011-003	I:\ACQUDATA\msvoa12\Data\040114\J4359.D\	4/1/14 16:56	
MRC-MWDUP01-032014DL	R1402011-005	I:\ACQUDATA\msvoa12\Data\040114\J4360.D\	4/1/14 17:28	
MRC-MW43A-032014	R1402011-004	I:\ACQUDATA\msvoa12\Data\040114\J4361.D\	4/1/14 18:00	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 4/ 1/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\040114\J4354.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 386290
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	50.2	0.3058	0.3068	0.3	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	51.4	0.7112	0.7309	2.8	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	52.0	0.5726	0.5960	4.1	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	51.2	0.3971	0.4065	2.4	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	50.1	0.8461	0.8476	0.2	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	49.3	0.3628	0.3576	-1.4	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	51.5	0.3693	0.3807	3.1	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	50.8	0.6036	0.6134	1.6	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	51.8	0.1713	0.1774	3.5	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.7	0.7372	0.7469	1.3	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	52.7	2.167	2.281	5.3	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	59.0	0.08773	0.1035	18.0	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	54.1	0.2312	0.2500	8.1	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	51.9	1.206	1.252	3.9	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	52.6	0.3737	0.3935	5.3	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	50.1	0.3148	0.3153	0.2	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	51.6	1.252	1.292	3.2	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	50.7	0.4501	0.4565	1.4	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	50.0	1.332	1.332	0.0	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	54.9	0.6713	0.7369	9.8	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	58.4	0.1390	0.1623	16.8	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	49.9	0.1412	0.1409	-0.2	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	51.2	1.896	1.943	2.5	NA	± 20 %	Average RF
2-Hexanone	50.0	60.1	0.1416	0.1702	20.2 *	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1300	0.02773	0.03614	30.4 *	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	51.9	2.236	2.321	3.8	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	53.8	2.086	2.243	7.5	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	57.2	0.1899	0.2172	14.4	NA	± 20 %	Average RF
Acetone	50.0	61.5	0.09920	0.1220	23.0 *	NA	± 20 %	Average RF
Benzene	50.0	50.1	1.231	1.232	0.1	NA	± 20 %	Average RF
Bromobenzene	50.0	49.8	0.7355	0.7323	-0.4	NA	± 20 %	Average RF
Bromochloromethane	50.0	48.8	0.2832	0.2765	-2.4	NA	± 20 %	Average RF
Bromodichloromethane	50.0	53.1	0.3677	0.3908	6.3	NA	± 20 %	Average RF
Bromoform	50.0	58.2	0.2840	0.3305	16.4	NA	± 20 %	Average RF
Bromomethane	50.0	55.4	0.2881	0.3194	10.9	NA	± 20 %	Average RF
Carbon Disulfide	50.0	48.9	1.262	1.233	-2.3	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	49.9	0.1199	0.1197	-0.1	NA	± 20 %	Average RF
Chlorobenzene	50.0	50.3	0.8701	0.8748	0.5	NA	± 20 %	Average RF
Chloroethane	50.0	57.1	0.2851	0.3254	14.1	NA	± 20 %	Average RF
Chloroform	50.0	49.5	0.8292	0.8202	-1.1	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 4/ 1/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\040114\J4354.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 386290
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	55.1	0.5146	0.5670	10.2	NA	± 20 %	Average RF
Dibromochloromethane	50.0	55.7	0.2588	0.2882	11.4	NA	± 20 %	Average RF
Dibromomethane	50.0	53.2	0.1497	0.1592	6.3	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	54.5	0.5939	0.6476	9.0	NA	± 20 %	Average RF
Methylene Chloride	50.0	47.5	0.4753	0.4513	-5.0	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	50.2	1.648	1.655	0.4	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	52.3	1.379	1.444	4.7	NA	± 20 %	Average RF
Ethylbenzene	50.0	50.1	0.4636	0.4649	0.3	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	52.5	0.3218	0.3378	5.0	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	52.3	2.581	2.700	4.6	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	52.4	1.153	1.208	4.8	NA	± 20 %	Average RF
Naphthalene	50.0	54.1	1.327	1.435	8.1	NA	± 20 %	Average RF
Styrene	50.0	54.9	0.8888	0.9763	9.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	49.1	0.2583	0.2534	-1.9	NA	± 20 %	Average RF
Toluene	50.0	51.0	1.269	1.295	2.0	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	50.4	0.2982	0.3002	0.7	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	52.6	0.7340	0.7723	5.2	NA	± 20 %	Average RF
Vinyl Acetate	50.0	54.6	0.07534	0.08228	9.2	NA	± 20 %	Average RF
Vinyl Chloride	50.0	58.9	0.4781	0.5630	17.8	NA	± 20 %	Average RF
Xylenes, Total	150	156	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	50.0	0.5073	0.5073	0.0	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	54.9	0.4363	0.4790	9.8	NA	± 20 %	Average RF
m,p-Xylenes	100	105	0.5448	0.5714	4.9	NA	± 20 %	Average RF
n-Butylbenzene	50.0	54.1	1.881	2.033	8.1	NA	± 20 %	Average RF
n-Propylbenzene	50.0	51.9	3.020	3.136	3.8	NA	± 20 %	Average RF
o-Xylene	50.0	51.3	0.5559	0.5700	2.5	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	52.6	2.467	2.594	5.2	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	52.8	1.164	1.229	5.5	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	51.5	1.773	1.825	3.0	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	50.0	0.4546	0.4541	-0.1	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	58.2	0.3517	0.4093	16.4	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	50.3	0.4538	0.4568	0.7	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	50.4	0.2895	0.2919	0.8	NA	± 20 %	Average RF
Toluene-d8	50.0	49.7	1.216	1.208	-0.7	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Analyzed:**	4/1/14 15:51
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1403063-04	**File ID:**	I:\ACQUDATA\msvoa12\Data\040114\J4357.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1403063-03	I:\ACQUDATA\msvoa12\Data\040114\J4355.D\	4/1/14 14:47
MRC-MW114A-032014DL	R1402011-002	I:\ACQUDATA\msvoa12\Data\040114\J4358.D\	4/1/14 16:24
MRC-MW113A-032014	R1402011-003	I:\ACQUDATA\msvoa12\Data\040114\J4359.D\	4/1/14 16:56
MRC-MWDUP01-032014DL	R1402011-005	I:\ACQUDATA\msvoa12\Data\040114\J4360.D\	4/1/14 17:28
MRC-MW43A-032014	R1402011-004	I:\ACQUDATA\msvoa12\Data\040114\J4361.D\	4/1/14 18:00

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Collected: NA
Date Received: NA
Date Analyzed: 4/1/14 15:51

Sample Name: Method Blank
Lab Code: RQ1403063-04

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\msvoa12\Data\040114\J4357.D\

Analysis Lot: 386290
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	0.22	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	0.36	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	0.25	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	0.31	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	0.20	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	0.57	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	0.29	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	0.82	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	0.70	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.81	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	0.20	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	0.74	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	0.24	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	0.21	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	0.36	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	0.20	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	0.20	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	0.27	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	0.20	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	0.27	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	0.81	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	0.44	U	1.0	0.44	
95-49-8	2-Chlorotoluene	0.20	U	1.0	0.20	
591-78-6	2-Hexanone	1.7	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	11	U	40	11	
106-43-4	4-Chlorotoluene	0.24	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	0.20	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	0.67	U	5.0	0.67	
67-64-1	Acetone	1.3	U	5.0	1.3	
71-43-2	Benzene	0.20	U	1.0	0.20	
108-86-1	Bromobenzene	0.28	U	1.0	0.28	
74-97-5	Bromochloromethane	0.32	U	1.0	0.32	
75-27-4	Bromodichloromethane	0.32	U	1.0	0.32	
75-25-2	Bromoform	0.42	U	1.0	0.42	
74-83-9	Bromomethane	0.29	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/1/14 15:51
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1403063-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4357.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	0.22	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	0.45	U	1.0	0.45	
108-90-7	Chlorobenzene	0.29	U	1.0	0.29	
75-00-3	Chloroethane	0.24	U	1.0	0.24	
67-66-3	Chloroform	0.25	U	1.0	0.25	
74-87-3	Chloromethane	0.21	U	1.0	0.21	
124-48-1	Dibromochloromethane	0.31	U	1.0	0.31	
74-95-3	Dibromomethane	0.32	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	0.46	U	1.0	0.46	
75-09-2	Methylene Chloride	0.32	U	1.0	0.32	
108-20-3	Diisopropyl Ether	0.20	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	0.20	U	1.0	0.20	
100-41-4	Ethylbenzene	0.20	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.88	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	0.20	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	0.29	U	1.0	0.29	
91-20-3	Naphthalene	0.47	J	1.0	0.20	
100-42-5	Styrene	0.20	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	0.30	U	1.0	0.30	
108-88-3	Toluene	0.20	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	0.22	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	0.20	U	1.0	0.20	
108-05-4	Vinyl Acetate	1.1	U	2.0	1.1	
75-01-4	Vinyl Chloride	0.32	U	1.0	0.32	
1330-20-7	Xylenes, Total	0.53	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	0.30	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	0.24	U	1.0	0.24	
179601-23-1	m,p-Xylenes	0.33	U	2.0	0.33	
104-51-8	n-Butylbenzene	0.21	U	1.0	0.21	
103-65-1	n-Propylbenzene	0.20	U	1.0	0.20	
95-47-6	o-Xylene	0.20	U	1.0	0.20	
135-98-8	sec-Butylbenzene	0.27	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	0.20	U	1.0	0.20	
98-06-6	tert-Butylbenzene	0.20	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	0.33	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	4/1/14 15:51
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1403063-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4357.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	0.20	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	4/1/14 15:51	
Dibromofluoromethane	100	89-119	4/1/14 15:51	
Toluene-d8	99	87-121	4/1/14 15:51	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/31/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 386023

Lab Control Sample
RQ1403003-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	20.2	20.0	101	80 - 120
1,1,1-Trichloroethane (TCA)	20.1	20.0	100	67 - 121
1,1,2,2-Tetrachloroethane	21.5	20.0	108	72 - 124
1,1,2-Trichlorotrifluoroethane	21.1	20.0	105	60 - 123
1,1-Dichloroethane (1,1-DCA)	20.1	20.0	101	76 - 128
1,1-Dichloroethene (1,1-DCE)	23.5	20.0	118	74 - 135
1,1-Dichloropropene	23.3	20.0	117	72 - 122
1,2,3-Trichlorobenzene	23.9	20.0	120	67 - 135
1,2,3-Trichloropropane	21.1	20.0	105	72 - 123
1,2,4-Trichlorobenzene	23.1	20.0	116	70 - 130
1,2,4-Trimethylbenzene	21.6	20.0	108	72 - 127
1,2-Dibromo-3-chloropropane (DBCP)	23.9	20.0	120	64 - 131
1,2-Dibromoethane	21.9	20.0	109	81 - 118
1,2-Dichlorobenzene	21.7	20.0	108	80 - 119
1,2-Dichloroethane	19.6	20.0	98	72 - 130
1,2-Dichloropropane	20.7	20.0	103	80 - 119
1,3-Dichlorobenzene	21.7	20.0	109	79 - 121
1,3-Dichloropropane	20.8	20.0	104	81 - 115
1,4-Dichlorobenzene	20.9	20.0	105	79 - 119
2,2-Dichloropropane	21.1	20.0	105	54 - 137
2-Butanone (MEK)	21.1	20.0	105	60 - 133
2-Chloroethyl Vinyl Ether	21.4	20.0	107	60 - 136
2-Chlorotoluene	21.3	20.0	107	71 - 125
2-Hexanone	22.0	20.0	110	61 - 131
tert-Butyl Alcohol	454	400	114	59 - 155
4-Chlorotoluene	21.5	20.0	107	73 - 127
4-Isopropyltoluene	22.8	20.0	114	71 - 130
4-Methyl-2-pentanone	21.9	20.0	109	61 - 132
Acetone	17.8	20.0	89	61 - 138
Benzene	21.0	20.0	105	76 - 118
Bromobenzene	21.2	20.0	106	79 - 118
Bromochloromethane	20.5	20.0	103	83 - 123
Bromodichloromethane	21.7	20.0	108	79 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/31/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 386023

Lab Control Sample
RQ1403003-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	22.6	20.0	113	72 - 128
Bromomethane	21.6	20.0	108	46 - 157
Carbon Disulfide	20.5	20.0	102	61 - 144
Carbon Tetrachloride	20.4	20.0	102	64 - 129
Chlorobenzene	20.9	20.0	104	80 - 121
Chloroethane	22.1	20.0	111	69 - 128
Chloroform	19.9	20.0	100	75 - 123
Chloromethane	20.9	20.0	104	55 - 139
Dibromochloromethane	21.9	20.0	110	78 - 127
Dibromomethane	21.2	20.0	106	79 - 120
Dichlorodifluoromethane (CFC 12)	18.7	20.0	94	45 - 147
Methylene Chloride	20.2	20.0	101	73 - 122
Diisopropyl Ether	19.0	20.0	95	72 - 130
Ethyl tert-Butyl Ether	20.0	20.0	100	70 - 126
Ethylbenzene	21.2	20.0	106	75 - 123
Hexachlorobutadiene	22.5	20.0	112	51 - 150
Isopropylbenzene (Cumene)	22.1	20.0	110	75 - 139
Methyl tert-Butyl Ether	21.4	20.0	107	75 - 116
Naphthalene	24.9	20.0	124	71 - 139
Styrene	22.2	20.0	111	80 - 121
Tetrachloroethene (PCE)	20.8	20.0	104	71 - 127
Toluene	21.3	20.0	107	77 - 120
Trichloroethene (TCE)	21.3	20.0	106	75 - 122
Trichlorofluoromethane (CFC 11)	19.6	20.0	98	64 - 134
Vinyl Acetate	19.9	20.0	99	13 - 161
Vinyl Chloride	23.0	20.0	115	68 - 139
Xylenes, Total	65.5	60.0	109	77 - 122
cis-1,2-Dichloroethene	20.8	20.0	104	77 - 123
cis-1,3-Dichloropropene	20.8	20.0	104	77 - 125
m,p-Xylenes	44.2	40.0	110	77 - 124
n-Butylbenzene	22.4	20.0	112	65 - 135
n-Propylbenzene	21.9	20.0	109	69 - 132
o-Xylene	21.4	20.0	107	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/31/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 386023

Analyte Name	Lab Control Sample RQ1403003-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	22.1	20.0	111	67 - 131
tert-Amyl Methyl Ether	20.7	20.0	103	71 - 124
tert-Butylbenzene	21.2	20.0	106	70 - 126
trans-1,2-Dichloroethene	21.1	20.0	106	72 - 120
trans-1,3-Dichloropropene	21.8	20.0	109	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 4/ 1/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 386290

Analyte Name	Lab Control Sample RQ1403063-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	20.3	20.0	101	80 - 120
1,1,1-Trichloroethane (TCA)	21.0	20.0	105	67 - 121
1,1,2,2-Tetrachloroethane	21.2	20.0	106	72 - 124
1,1,2-Trichlorotrifluoroethane	21.4	20.0	107	60 - 123
1,1-Dichloroethane (1,1-DCA)	21.4	20.0	107	76 - 128
1,1-Dichloroethene (1,1-DCE)	23.7	20.0	118	74 - 135
1,1-Dichloropropene	23.8	20.0	119	72 - 122
1,2,3-Trichlorobenzene	24.2	20.0	121	67 - 135
1,2,3-Trichloropropane	21.0	20.0	105	72 - 123
1,2,4-Trichlorobenzene	23.6	20.0	118	70 - 130
1,2,4-Trimethylbenzene	22.0	20.0	110	72 - 127
1,2-Dibromo-3-chloropropane (DBCP)	24.0	20.0	120	64 - 131
1,2-Dibromoethane	21.8	20.0	109	81 - 118
1,2-Dichlorobenzene	21.8	20.0	109	80 - 119
1,2-Dichloroethane	20.6	20.0	103	72 - 130
1,2-Dichloropropane	20.7	20.0	103	80 - 119
1,3-Dichlorobenzene	21.8	20.0	109	79 - 121
1,3-Dichloropropane	20.7	20.0	103	81 - 115
1,4-Dichlorobenzene	20.9	20.0	105	79 - 119
2,2-Dichloropropane	21.9	20.0	110	54 - 137
2-Butanone (MEK)	22.1	20.0	111	60 - 133
2-Chloroethyl Vinyl Ether	19.8	20.0	99	60 - 136
2-Chlorotoluene	21.7	20.0	108	71 - 125
2-Hexanone	21.7	20.0	108	61 - 131
tert-Butyl Alcohol	495	400	124	59 - 155
4-Chlorotoluene	22.0	20.0	110	73 - 127
4-Isopropyltoluene	22.9	20.0	115	71 - 130
4-Methyl-2-pentanone	20.1	20.0	100	61 - 132
Acetone	20.5	20.0	103	61 - 138
Benzene	21.0	20.0	105	76 - 118
Bromobenzene	21.3	20.0	107	79 - 118
Bromochloromethane	20.9	20.0	105	83 - 123
Bromodichloromethane	21.8	20.0	109	79 - 123

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 4/ 1/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 386290

Analyte Name	Lab Control Sample RQ1403063-03 Result	Spike Amount	% Rec	% Rec Limits
Bromoform	21.6	20.0	108	72 - 128
Bromomethane	22.2	20.0	111	46 - 157
Carbon Disulfide	18.9	20.0	94	61 - 144
Carbon Tetrachloride	20.1	20.0	100	64 - 129
Chlorobenzene	20.7	20.0	103	80 - 121
Chloroethane	22.5	20.0	113	69 - 128
Chloroform	20.8	20.0	104	75 - 123
Chloromethane	22.3	20.0	112	55 - 139
Dibromochloromethane	21.6	20.0	108	78 - 127
Dibromomethane	21.1	20.0	105	79 - 120
Dichlorodifluoromethane (CFC 12)	19.3	20.0	97	45 - 147
Methylene Chloride	20.1	20.0	100	73 - 122
Diisopropyl Ether	17.8	20.0	89	72 - 130
Ethyl tert-Butyl Ether	18.9	20.0	95	70 - 126
Ethylbenzene	21.3	20.0	107	75 - 123
Hexachlorobutadiene	22.0	20.0	110	51 - 150
Isopropylbenzene (Cumene)	22.3	20.0	111	75 - 139
Methyl tert-Butyl Ether	21.9	20.0	109	75 - 116
Naphthalene	24.3	20.0	122	71 - 139
Styrene	21.9	20.0	110	80 - 121
Tetrachloroethene (PCE)	20.4	20.0	102	71 - 127
Toluene	20.8	20.0	104	77 - 120
Trichloroethene (TCE)	21.6	20.0	108	75 - 122
Trichlorofluoromethane (CFC 11)	20.7	20.0	103	64 - 134
Vinyl Acetate	16.6	20.0	83	13 - 161
Vinyl Chloride	23.6	20.0	118	68 - 139
Xylenes, Total	64.9	60.0	108	77 - 122
cis-1,2-Dichloroethene	20.8	20.0	104	77 - 123
cis-1,3-Dichloropropene	20.9	20.0	104	77 - 125
m,p-Xylenes	43.7	40.0	109	77 - 124
n-Butylbenzene	22.8	20.0	114	65 - 135
n-Propylbenzene	22.1	20.0	110	69 - 132
o-Xylene	21.2	20.0	106	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 4/ 1/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 386290

Analyte Name	Lab Control Sample RQ1403063-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	22.5	20.0	112	67 - 131
tert-Amyl Methyl Ether	19.3	20.0	96	71 - 124
tert-Butylbenzene	22.0	20.0	110	70 - 126
trans-1,2-Dichloroethene	20.8	20.0	104	72 - 120
trans-1,3-Dichloropropene	21.8	20.0	109	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14 11:10

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\033114\J4306.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1403003-02
Analysis Lot: 386023
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	667,576	10.75	1,450,095	5.44	1,317,867	8.74
	Upper Limit ==>	1,335,152	11.25	2,900,190	5.94	2,635,734	9.24
	Lower Limit ==>	333,788	10.25	725,048	4.94	658,934	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1403003-03	643,749	10.75	1,427,225	5.44	1,306,133	8.74
Method Blank	RQ1403003-04	606,749	10.75	1,393,512	5.45	1,264,542	8.74
TB-032014	R1402011-001	542,153	10.75	1,266,884	5.45	1,142,718	8.74
MRC-MW114A-032014	R1402011-002	562,778	10.75	1,288,906	5.45	1,182,788	8.74
MRC-MWDUP01-032014	R1402011-005	553,642	10.75	1,230,424	5.45	1,137,404	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14 11:10

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\033114\J4306.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1403003-02
Analysis Lot: 386023
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	935,974	4.24
	Upper Limit ==>	1,871,948	4.74
	Lower Limit ==>	467,987	3.74
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1403003-03	929,683	4.25
Method Blank	RQ1403003-04	905,679	4.25
TB-032014	R1402011-001	820,809	4.25
MRC-MW114A-032014	R1402011-002	838,541	4.25
MRC-MWDUP01-032014	R1402011-005	808,773	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 4/1/14 14:14

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\040114\J4354.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1403063-02
Analysis Lot: 386290
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	643,577	10.75	1,394,264	5.45	1,284,324	8.74
	Upper Limit ==>	1,287,154	11.25	2,788,528	5.95	2,568,648	9.24
	Lower Limit ==>	321,789	10.25	697,132	4.95	642,162	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1403063-03	628,831	10.75	1,419,948	5.45	1,281,536	8.74
Method Blank	RQ1403063-04	603,566	10.75	1,397,412	5.45	1,253,857	8.74
MRC-MW114A-032014	R1402011-002	594,147	10.75	1,386,496	5.45	1,269,698	8.74
MRC-MW113A-032014	R1402011-003	578,255	10.75	1,387,809	5.45	1,261,856	8.74
MRC-MWDUP01-032014	R1402011-005	577,066	10.75	1,391,141	5.45	1,266,290	8.74
MRC-MW43A-032014	R1402011-004	584,629	10.75	1,389,603	5.45	1,240,123	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 4/1/14 14:14

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\040114\J4354.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1403063-02
Analysis Lot: 386290
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	898,818	4.25
	Upper Limit ==>	1,797,636	4.75
	Lower Limit ==>	449,409	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1403063-03	903,679	4.25
Method Blank	RQ1403063-04	903,313	4.25
MRC-MW114A-032014	R1402011-002	899,914	4.25
MRC-MW113A-032014	R1402011-003	898,709	4.25
MRC-MWDUP01-032014	R1402011-005	918,257	4.25
MRC-MW43A-032014	R1402011-004	907,079	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech
Project: Middle River-Lockhead Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 1/27/14 09:04

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\012714\AE959.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 378022

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	81.12	19723	Pass
175	174	5	9	7.83	1544	Pass
176	174	95	101	96.12	18957	Pass
177	176	5	9	6.76	1282	Pass
50	95	15	40	15.28	3715	Pass
75	95	30	60	41.90	10187	Pass
95	95	100	100	100.00	24312	Pass
96	95	5	9	6.76	1643	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	RQ1400907-02	I:\ACQUDATA\5975E\data\012714\AE962.D\	1/27/14 11:22	
Initial CalibrationICAL	RQ1400907-03	I:\ACQUDATA\5975E\data\012714\AE963.D\	1/27/14 12:03	
Initial CalibrationICAL	RQ1400907-04	I:\ACQUDATA\5975E\data\012714\AE964.D\	1/27/14 12:22	
Initial CalibrationICAL	RQ1400907-05	I:\ACQUDATA\5975E\data\012714\AE965.D\	1/27/14 12:41	
Initial CalibrationICAL	RQ1400907-06	I:\ACQUDATA\5975E\data\012714\AE966.D\	1/27/14 13:01	
Initial CalibrationICAL	RQ1400907-07	I:\ACQUDATA\5975E\data\012714\AE967.D\	1/27/14 13:20	
Initial CalibrationICAL	RQ1400907-08	I:\ACQUDATA\5975E\data\012714\AE968.D\	1/27/14 13:40	
Initial CalibrationICAL	RQ1400907-09	I:\ACQUDATA\5975E\data\012714\AE969.D\	1/27/14 13:59	

Response Factor Report 7975 E

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX012714.M
Title : 8270 BNA ANALYSIS
Last Update : Mon Jan 27 18:02:40 2014
Response Via : Initial Calibration

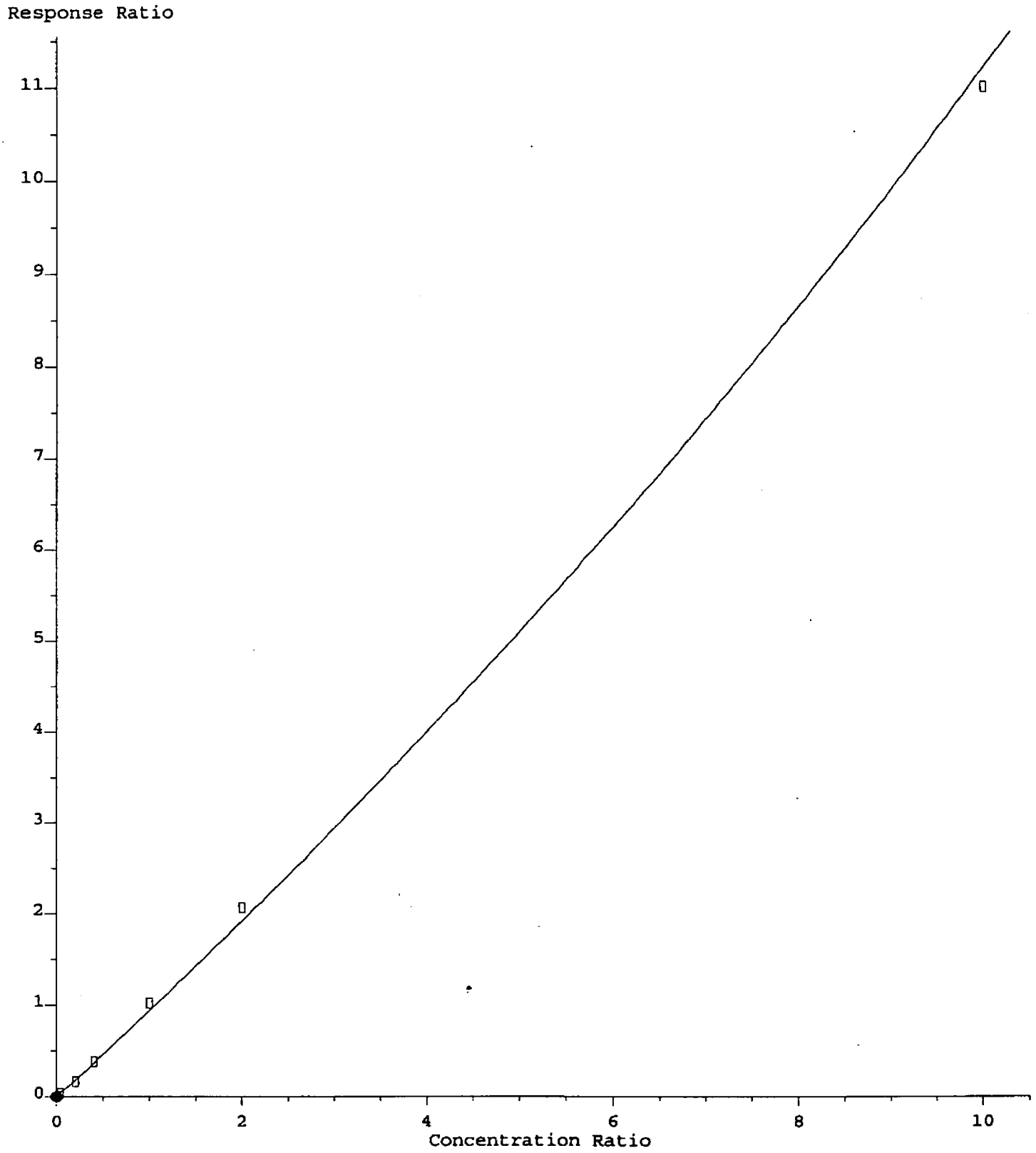
Calibration Files
2 =AE962.D 10 =AE963.D 20 =AE964.D 100 =AE965.D 200 =AE966.D 500 =AE967.D 1000=AE968.D 5000=AE969.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1) IR	d8-THF	----------ISTD----------									
2) T	1,4-Dioxane	0.419	0.764	0.870	0.807	0.955	1.022	1.034	1.101	0.872	24.87
3) S	SURR,1,4-DIOXA...	0.613	0.783	0.825	0.760	0.880	0.935	0.937	0.975	0.838	14.23

(#) = Out of Range

5975E 0935

1,4-Dioxane



R = 1.98e-002 A*A + 9.24e-001 A - 2.07e-003
Coef of Det (r^2) = 0.995 Curve Fit: Quadratic w(1/a^2)
Method Name: I:\ACOUDATA\5975E\METHODS\SDIOX012714.M

00336

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14 08:53

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\033114\Af344.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 386159

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	71.86	3274	Pass
175	174	5	9	8.37	274	Pass
176	174	95	101	99.14	3246	Pass
177	176	5	9	7.67	249	Pass
50	95	15	40	15.61	711	Pass
75	95	30	60	49.34	2248	Pass
95	95	100	100	100.00	4556	Pass
96	95	5	9	7.09	323	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1403015-02	I:\ACQUDATA\5975E\data\033114\Af345.D\	3/31/14 09:16	
Method Blank	RQ1402903-01	I:\ACQUDATA\5975E\data\033114\Af346.D\	3/31/14 09:50	
Lab Control Sample	RQ1402903-02	I:\ACQUDATA\5975E\data\033114\Af347.D\	3/31/14 10:09	
Duplicate Lab Control Sample	RQ1402903-03	I:\ACQUDATA\5975E\data\033114\Af348.D\	3/31/14 10:27	
MRC-MW114A-032014	R1402011-002	I:\ACQUDATA\5975E\data\033114\Af349.D\	3/31/14 10:44	
MRC-MW113A-032014	R1402011-003	I:\ACQUDATA\5975E\data\033114\Af350.D\	3/31/14 11:03	
MRC-MWDUP01-032014	R1402011-005	I:\ACQUDATA\5975E\data\033114\Af351.D\	3/31/14 11:21	
Continuing Cal. VerificationCCVA	RQ1403015-03	I:\ACQUDATA\5975E\data\033114\Af356.D\	3/31/14 12:53	

Data Path : I:\ACQUDATA\5975E\data\033114\
Data File : Af345.D
Acq On : 31 Mar 2014 9:16 am
Operator : m.pedro
Sample : ccv
Misc : cal check 2ppb
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Mar 31 09:36:17 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX012714.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jan 27 18:02:40 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	85	0.00
2	T	1,4-Dioxane	2.000	2.344	-17.2	114	0.01
3	S	SURR,1,4-DIOXANE-d8	2.000	2.108	-5.4	90	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

LP 3/31

00372

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\033114\
Data File : Af356.D
Acq On : 31 Mar 2014 12:53 pm
Operator : m.pedro
Sample : ccv
Misc : ccv 200ppb
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Mar 31 13:15:34 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX012714.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jan 27 18:02:40 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	101	-0.02
2 T	1,4-Dioxane	200.000	192.703	3.6	94	-0.04
3 S	SURR,1,4-DIOXANE-d8	200.000	185.295	7.4	91	-0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00378

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Analyzed:**	3/31/14 09:50
Sample Matrix:	Water	**Date Extracted:**	3/28/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1402903-01	**File ID:**	I:\ACQUDATA\5975E\data\033114\Af346.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1402903-02	I:\ACQUDATA\5975E\data\033114\Af347.D\	3/31/14 10:09
Duplicate Lab Control Sample	RQ1402903-03	I:\ACQUDATA\5975E\data\033114\Af348.D\	3/31/14 10:27
MRC-MW114A-032014	R1402011-002	I:\ACQUDATA\5975E\data\033114\Af349.D\	3/31/14 10:44
MRC-MW113A-032014	R1402011-003	I:\ACQUDATA\5975E\data\033114\Af350.D\	3/31/14 11:03
MRC-MWDUP01-032014	R1402011-005	I:\ACQUDATA\5975E\data\033114\Af351.D\	3/31/14 11:21

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Analyzed:**	3/26/14 10:27
Sample Matrix:	Water	**Date Extracted:**	3/26/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1402802-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\032614\B0030832.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1402802-04	I:\ACQUDATA\HPLC02\DATA\032614\B0030833.D\	3/26/14 10:40
Lab Control Sample	RQ1402802-02	I:\ACQUDATA\HPLC02\DATA\032614\B0030834.D\	3/26/14 10:54
Duplicate Lab Control Sample	RQ1402802-03	I:\ACQUDATA\HPLC02\DATA\032614\B0030835.D\	3/26/14 11:07
Interference Check StandardICS	RQ1402802-05	I:\ACQUDATA\HPLC02\DATA\032614\B0030836.D\	3/26/14 11:21
MRC-MW114A-032014	R1402011-002	I:\ACQUDATA\HPLC02\DATA\032614\B0030843.D\	3/26/14 12:55
MRC-MW113A-032014	R1402011-003	I:\ACQUDATA\HPLC02\DATA\032614\B0030844.D\	3/26/14 13:08
MRC-MWDUP01-032014	R1402011-005	I:\ACQUDATA\HPLC02\DATA\032614\B0030845.D\	3/26/14 13:22
MRC-MWDUP01-032014DMS	RQ1402802-07	I:\ACQUDATA\HPLC02\DATA\032614\B0030847.D\	3/26/14 13:49
Limit of Detection VerificationLODV	RQ1402802-04	I:\ACQUDATA\HPLC02\DATA\032614\B0030848.D\	3/26/14 14:02
MRC-MWDUP01-032014MS	RQ1402802-06	I:\ACQUDATA\HPLC02\DATA\032614\B0030850.D\	3/26/14 15:17
Limit of Detection VerificationLODV	RQ1402802-04	I:\ACQUDATA\HPLC02\DATA\032614\B0030851.D\	3/26/14 15:30

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	3/28/14
		Date Analyzed:	3/31/14 09:50
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1402903-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	386159
Prep Method:	Method	**Extraction Lot:**	202786
Data File Name:	I:\ACQUDATA\5975E\data\033114\Af346.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.0200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	75	70-130	3/31/14 09:50	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/31/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 202786

Analyte Name	Lab Control Sample RQ1402903-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1402903-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,4-Dioxane	7.49	10.1	74	7.90	10.1	78	70 - 130	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Collected: 3/20/14
Date Received: 3/22/14
Date Analyzed: 3/26/14

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name: MRC-MWDUP01-032014
Lab Code: R1402011-005

Units: µg/L
Basis: NA

Analytical Method: 6850
Prep Method: Method

		MRC-MWDUP01-032014MS Matrix Spike RQ1402802-06			MRC-MWDUP01-032014DMS Duplicate Matrix Spike RQ1402802-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.81	1.15	0.400	85	1.25	0.400	110	80 - 120	8	15

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/26/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 204911

	Lab Control Sample RQ1402802-02			Duplicate Lab Control Sample RQ1402802-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.200	0.200	100	0.180	0.200	90	80 - 120	11	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/31/14 09:16

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\033114\Af345.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1403015-02
Analysis Lot: 386159
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	46,021	2.91
	Upper Limit ==>	59,827	3.41
	Lower Limit ==>	32,215	2.41
	ICAL Result ==>	48,475	2.89
Associated Analyses			
Method Blank	RQ1402903-01	54,887	2.93
Lab Control Sample	RQ1402903-02	58,328	2.93
Duplicate Lab Control Sample	RQ1402903-03	54,909	2.91
MRC-MW114A-032014	R1402011-002	56,505	2.91
MRC-MW113A-032014	R1402011-003	58,611	2.92
MRC-MWDUP01-032014	R1402011-005	54,907	2.90
Continuing Cal. Verification	RQ1403015-03	48,819	2.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/26/14 10:14

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\032614\B0030831.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1402837-01
Analysis Lot: 385469
Signal ID:

		Sodium Perchlorate	
		Area	RT
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1402837-01	233,978	8.29
Method Blank	RQ1402802-01	201,921	8.33
Limit of Detection Verification	RQ1402802-04	206,805	8.36
Lab Control Sample	RQ1402802-02	205,105	8.33
Duplicate Lab Control Sample	RQ1402802-03	222,739	8.33
Interference Check Standard	RQ1402802-05	220,347	8.08
Continuing Cal. Verification	RQ1402837-02	234,990	8.26
MRC-MW114A-032014	R1402011-002	213,149	8.26
MRC-MW113A-032014	R1402011-003	213,587	8.22
MRC-MWDUP01-032014	R1402011-005	199,400	8.26
MRC-MWDUP01-032014DMS	RQ1402802-07	196,531	8.26
Limit of Detection Verification	RQ1402802-04	200,992	8.29
Continuing Cal. Verification	RQ1402837-03	232,173	8.26
MRC-MWDUP01-032014MS	RQ1402802-06	175,022	8.33
Limit of Detection Verification	RQ1402802-04	181,853	8.29
Continuing Cal. Verification	RQ1402837-04	216,525	8.26

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Analyzed:**	3/26/14 10:27
Sample Matrix:	Water	**Date Extracted:**	3/26/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1402802-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\032614\B0030832.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1402802-04	I:\ACQUDATA\HPLC02\DATA\032614\B0030833.D\	3/26/14 10:40
Lab Control Sample	RQ1402802-02	I:\ACQUDATA\HPLC02\DATA\032614\B0030834.D\	3/26/14 10:54
Duplicate Lab Control Sample	RQ1402802-03	I:\ACQUDATA\HPLC02\DATA\032614\B0030835.D\	3/26/14 11:07
Interference Check StandardICS	RQ1402802-05	I:\ACQUDATA\HPLC02\DATA\032614\B0030836.D\	3/26/14 11:21
MRC-MW114A-032014	R1402011-002	I:\ACQUDATA\HPLC02\DATA\032614\B0030843.D\	3/26/14 12:55
MRC-MW113A-032014	R1402011-003	I:\ACQUDATA\HPLC02\DATA\032614\B0030844.D\	3/26/14 13:08
MRC-MWDUP01-032014	R1402011-005	I:\ACQUDATA\HPLC02\DATA\032614\B0030845.D\	3/26/14 13:22
MRC-MWDUP01-032014DMS	RQ1402802-07	I:\ACQUDATA\HPLC02\DATA\032614\B0030847.D\	3/26/14 13:49
Limit of Detection VerificationLODV	RQ1402802-04	I:\ACQUDATA\HPLC02\DATA\032614\B0030848.D\	3/26/14 14:02
MRC-MWDUP01-032014MS	RQ1402802-06	I:\ACQUDATA\HPLC02\DATA\032614\B0030850.D\	3/26/14 15:17
Limit of Detection VerificationLODV	RQ1402802-04	I:\ACQUDATA\HPLC02\DATA\032614\B0030851.D\	3/26/14 15:30

Response Factor Report Instrumen

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00420

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

M 1/29

00455

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030535.D PERC0129.M Wed Jan 29 13:54:02 2014 Page 1

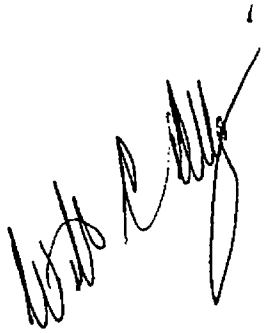
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\032614\B0030842.D Vial: 6
Acq On : 26 Mar 2014 12:41 pm Operator: b.allgeier
Sample : ccv 1.0ppb Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	117	0.42
2	Perchlorate	1.085	1.133	-4.4	114	0.45
3	#2 perc ion	0.366	0.360	1.6	112	0.42



00463

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030842.D PERC0129.M Wed Mar 26 15:03:19 2014 Page 1

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\032614\B0030849.D Vial: 6
Acq On : 26 Mar 2014 2:15 pm Operator: b.allgeier
Sample : ccv 1.0ppb Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	115	0.42
2	Perchlorate	1.085	1.140	-5.1	114	0.45
3	#2 perc ion	0.366	0.364	0.5	112	0.42



00467

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030849.D PERC0129.M Wed Mar 26 15:08:37 2014 Page 1

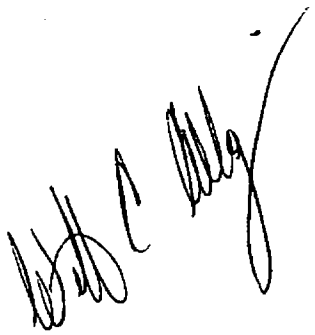
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\032614\B0030852.D Vial: 6
Acq On : 26 Mar 2014 3:44 pm Operator: b.allgeier
Sample : ccv 1.0ppb Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	108	0.42
2	Perchlorate	1.085	1.166	-7.5	109	0.45
3	#2 perc ion	0.366	0.376	-2.7	108	0.42



00471

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030852.D PERC0129.M Wed Mar 26 16:01:36 2014 Page 1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	3/26/14
		Date Analyzed:	3/26/14 10:27
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1402802-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	385469
Prep Method:	Method	**Extraction Lot:**	204911
Data File Name:	I:\ACQUDATA\HPLC02\DATA\032614\B0030832.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.026	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Collected: 3/20/14
Date Received: 3/22/14
Date Analyzed: 3/26/14

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name: MRC-MWDUP01-032014
Lab Code: R1402011-005

Units: µg/L
Basis: NA

Analytical Method: 6850
Prep Method: Method

		MRC-MWDUP01-032014MS Matrix Spike RQ1402802-06			MRC-MWDUP01-032014DMS Duplicate Matrix Spike RQ1402802-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.81	1.15	0.400	85	1.25	0.400	110	80 - 120	8	15

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183
Sample Matrix: Water

Service Request: R1402011
Date Analyzed: 3/26/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 204911

	Lab Control Sample RQ1402802-02			Duplicate Lab Control Sample RQ1402802-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.200	0.200	100	0.180	0.200	90	80 - 120	11	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Perchlorate LODV Summary

Lab Name: ALS Environmental *Client:* tetra tech

Lab Code: 10145 *Case.No.:* R1402011 *SAS No.:* _____ *SDG No.:*

Lab File ID: ICAL_____

Instrument ID: HPLC02

GC Column(1) K'Prime 250x4.6

File #	*Extraction Date*	*Analysis Date*	*Analysis Time*	*Spike Amt (ppb)*	*Spike Recovery*	*% Recovery*
B0030833.D		3/26/2014	10:40	0.10	0.10	100
B0030848.D		3/26/2014	14:02	0.10	0.10	100
B0030851.D		3/26/2014	15:30	0.10	0.10	100

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06183

Service Request: R1402011
Date Analyzed: 3/26/14 10:14

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\032614\B0030831.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1402837-01
Analysis Lot: 385469
Signal ID:

		Sodium Perchlorate	
		Area	RT
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1402837-01	233,978	8.29
Method Blank	RQ1402802-01	201,921	8.33
Limit of Detection Verification	RQ1402802-04	206,805	8.36
Lab Control Sample	RQ1402802-02	205,105	8.33
Duplicate Lab Control Sample	RQ1402802-03	222,739	8.33
Interference Check Standard	RQ1402802-05	220,347	8.08
Continuing Cal. Verification	RQ1402837-02	234,990	8.26
MRC-MW114A-032014	R1402011-002	213,149	8.26
MRC-MW113A-032014	R1402011-003	213,587	8.22
MRC-MWDUP01-032014	R1402011-005	199,400	8.26
MRC-MWDUP01-032014DMS	RQ1402802-07	196,531	8.26
Limit of Detection Verification	RQ1402802-04	200,992	8.29
Continuing Cal. Verification	RQ1402837-03	232,173	8.26
MRC-MWDUP01-032014MS	RQ1402802-06	175,022	8.33
Limit of Detection Verification	RQ1402802-04	181,853	8.29
Continuing Cal. Verification	RQ1402837-04	216,525	8.26

Results flagged with an asterisk (*) indicate values outside control criteria

ALS Environmental

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1402011 SDG No.: MRC-MW114A-

Lab Code: Case No.: SAS No.:

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW114A-032014	R1402011-002
MRC-MW113A-032014	R1402011-003
MRC-MWDUP01-032014	R1402011-005

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: Name: Deb Roth

Date: 4/14/14 Title: Project Manager

00522

METALS
-14-

ANALYSIS RUN LOG

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW114A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 3/26/2014 End Date: 3/26/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	11:49						X				X							X								
Standard 1	1.00	11:56						X				X							X								
Standard 2	1.00	12:02						X				X							X								
Standard 3	1.00	12:09						X				X							X								
ICV1	1.00	12:15						X				X							X								
ICB1	1.00	12:21						X				X							X								
CRDL1	1.00	12:28						X				X							X								
ICS-A1	1.00	12:34						X				X							X								
ICS-AB1	1.00	12:41						X				X							X								
CCV1	1.00	12:47						X				X							X								
CCB1	1.00	12:54						X				X							X								
ZZZZZZ	1.00	13:00																									
PBW	1.00	13:06						X				X							X								
LCSW	1.00	13:13						X				X							X								
ZZZZZZ	1.00	13:19																									
ZZZZZZ	1.00	13:26																									
ZZZZZZ	5.00	13:32																									
ZZZZZZ	1.00	13:39																									
ZZZZZZ	1.00	13:45																									
CCV2	1.00	13:51						X				X							X								
CCB2	1.00	13:58						X				X							X								
MRC-MW114A-032014	1.00	14:04						X				X							X								
MRC-MW113A-032014	1.00	14:11						X				X							X								
MRC-MWDUP01-032014	1.00	14:17						X				X							X								
ZZZZZZ	1.00	14:23																									
CRDL3	1.00	14:30						X				X							X								
CCV3	1.00	14:36						X				X							X								
CCB3	1.00	14:42						X				X							X								

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW114A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 3/27/2014 End Date: 3/27/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	05:10																X									
0.2ppb std	1.00	05:11																X									
0.5ppb std	1.00	05:13																X									
1.0ppb std	1.00	05:15																X									
2.0ppb std	1.00	05:16																X									
5.0ppb std	1.00	05:18																X									
10.0ppb std	1.00	05:19																X									
ICV1	1.00	05:21																X									
ICB1	1.00	05:23																X									
CRDL1	1.00	05:24																X									
CCV1	1.00	05:26																X									
CCB1	1.00	05:28																X									
PBW	1.00	05:29																X									
LCSW	1.00	05:31																X									
ZZZZZZ	1.00	05:32																									
ZZZZZZ	1.00	05:34																									
ZZZZZZ	1.00	05:36																									
ZZZZZZ	1.00	05:37																									
ZZZZZZ	1.00	05:39																									
ZZZZZZ	1.00	05:41																									
ZZZZZZ	1.00	05:42																									
ZZZZZZ	1.00	05:44																									
CCV2	1.00	05:46																X									
CCB2	1.00	05:47																X									
ZZZZZZ	1.00	05:49																									
MRC-MW114A-032014	1.00	05:50																X									
MRC-MW113A-032014	1.00	05:52																X									
MRC-MWDUP01-032014	1.00	05:54																X									
ZZZZZZ	1.00	05:55																									
ZZZZZZ	1.00	05:57																									
ZZZZZZ	1.00	05:59																									
ZZZZZZ	1.00	06:00																									
ZZZZZZ	1.00	06:02																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW114A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 3/27/2014 End Date: 3/27/2014

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	06:04																									
CCV3	1.00	06:05																X									
CCB3	1.00	06:07																X									
ZZZZZZ	1.00	06:08																									
ZZZZZZ	1.00	06:10																									
CRDL2	1.00	06:12																X									
CCV4	1.00	06:13																X									
CCB4	1.00	06:15																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Beryllium	50	51	102	50	49	98	48	96	MS
Cobalt	50	51	102	50	50	100	50	100	MS
Mercury	3.00	3.15	105	3.00	3.16	105	3.12	104	CV
Nickel	50	51	102	50	51	102	49	98	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Beryllium				50	51	102			MS
Cobalt				50	50	100			MS
Mercury				3.00	3.09	103	3.01	100	CV
Nickel				50	50	100			MS

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW114A-0

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Beryllium				1.0	1.00	100	1.05	105
Cobalt				1.0	1.04	104	1.04	104
Mercury	0.200	0.178	89					
Nickel				1.0	0.99	99	0.98	98

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW114A-0

AA CRDL Standard Source: CPI

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.200	0.190	95					

Comments:

METALS

-3-

BLANKS

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cobalt	0.008	U	0.008	U	0.008	U	0.008	U	-0.012	J	MS
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS

Comments:

00530

METALS

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BLANKS

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Mercury			0.024	U							CV

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Beryllium	0.00	20.00	0.01	17.21	86			
Cobalt	0.00	20.00	0.11	19.34	97			
Nickel	0.00	20.00	0.47	18.97	95			

METALS

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LABORATORY CONTROL SAMPLE

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Beryllium	20	20.10	100					
Cobalt	20	20.80	104					
Mercury	1.000	0.989	99					
Nickel	20	20.60	103					

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Beryllium	9		1.00	0.020	MS
Cobalt	59		1.00	0.008	MS
Nickel	60		1.00	0.236	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Mercury	253.70	BD	0.200	0.024	CV

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

ICP ID Number: PE ICPMS Date: 10/17/2013

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Beryllium	0.100	200	MS
Cobalt	0.100	200	MS
Nickel	0.100	200	MS

Comments: _____

METALS

-13-

PREPARATION LOG

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-032014

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	3/25/2014	50.0	50.0
PBW	3/25/2014	50.0	50.0
MRC-MW114A-032014	3/25/2014	50.0	50.0
MRC-MW113A-032014	3/25/2014	50.0	50.0
MRC-MWDUP01-032014	3/25/2014	50.0	50.0

Comments:

METALS

-13-

PREPARATION LOG

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-032014

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	3/26/2014	25.0	25.0
PBW	3/26/2014	25.0	25.0
MRC-MW114A-032014	3/26/2014	25.0	25.0
MRC-MW113A-032014	3/26/2014	25.0	25.0
MRC-MWDUP01-032014	3/26/2014	25.0	25.0

Comments:

SAMPLE ID MRC-MW43A-032014

SAMPLE CALC for 1,2,4-trichlorobenzene

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (ug/L)	Final Extract Volume (mL)	AVE RRF	CONCENTRATION PPB
584629	50	1376635	50	5	0.7372	7985.33
				Sample Volume (mL)		
				5		

SAMPLE ID MRC-MW113A-032014

SAMPLE CALC for 1,4-dioxane

IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (ug/L)	Final Extract Volume (mL)	AVE RRF	CONCENTRATION PPB
58611	1	37598	500	2	0.8720	7.36
				Sample Volume (mL)		
				100		

ALS Group USA, Corp. dba ALS Environmental Sample Calculation

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 0000
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Analyzed:	4/1/14 18:00
Sample Name:	MRC-MW43A-032014	**Units:**	µg/L
Lab Code:	R1402011-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	386290
Data File Name:	I:\ACQUDATA\msvoa12\Data\040114\J4361.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	11	U	50	11	
71-55-6	1,1,1-Trichloroethane (TCA)	18	U	50	18	
79-34-5	1,1,2,2-Tetrachloroethane	13	U	50	13	
76-13-1	1,1,2-Trichlorotrifluoroethane	16	U	50	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	10	U	50	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	29	U	50	29	
563-58-6	1,1-Dichloropropene	15	U	50	15	
87-61-6	1,2,3-Trichlorobenzene	**1700**		50	41	
96-18-4	1,2,3-Trichloropropane	35	U	50	35	
120-82-1	1,2,4-Trichlorobenzene	**8000**		50	12	
95-63-6	1,2,4-Trimethylbenzene	10	U	50	10	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	37	U	100	37	
106-93-4	1,2-Dibromoethane	12	U	50	12	
95-50-1	1,2-Dichlorobenzene	**400**		50	11	
107-06-2	1,2-Dichloroethane	18	U	50	18	
78-87-5	1,2-Dichloropropane	10	U	50	10	
541-73-1	1,3-Dichlorobenzene	10	U	50	10	
142-28-9	1,3-Dichloropropane	14	U	50	14	
106-46-7	1,4-Dichlorobenzene	**480**		50	10	
594-20-7	2,2-Dichloropropane	14	U	50	14	
78-93-3	2-Butanone (MEK)	41	U	250	41	
110-75-8	2-Chloroethyl Vinyl Ether	22	U	50	22	
95-49-8	2-Chlorotoluene	10	U	50	10	
591-78-6	2-Hexanone	83	U	250	83	
75-65-0	tert-Butyl Alcohol	540	U	2000	540	
106-43-4	4-Chlorotoluene	12	U	50	12	
99-87-6	4-Isopropyltoluene	10	U	50	10	
108-10-1	4-Methyl-2-pentanone	34	U	250	34	
67-64-1	Acetone	62	U	250	62	
71-43-2	Benzene	10	U	50	10	
108-86-1	Bromobenzene	15	U	50	15	
74-97-5	Bromochloromethane	16	U	50	16	
75-27-4	Bromodichloromethane	16	U	50	16	
75-25-2	Bromoform	21	U	50	21	
74-83-9	Bromomethane	15	U	50	15	

Sample Calculation

Quantitation Report (Not Reviewed)

Sample : R1402011-004|50 MRC-MW93A-032014
Data File: I:\ACQUDATA\MSVOA12\DATA\040114\J4361.D
Misc : TETRA 11423 T4
Acq On : 1 Apr 2014 6:00 pm
Operator : K.Ruest
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Apr 01 18:16:05 2014
QLast Update : Thu Mar 13 11:21:13 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.249	168	907079	50.00	ppb		0.00
43) 1,4-Difluorobenzene	5.450	114	1389603	50.00	ppb		0.00
71) d5-Chlorobenzene	8.742	117	1240123	50.00	ppb		0.00
86) 1,4-Dichlorobenzene-d4	10.748	152	584629	50.00	ppb		0.00
System Monitoring Compounds							
45) surr4,Dibrflmethane	4.152	113	396727	49.32	ppb		0.00
Spiked Amount 50.000	Range 89 - 119		Recovery = 98.64%				
48) surr1,1,2-dichloroetha...	4.658	65	464082	50.64	ppb		0.00
Spiked Amount 50.000	Range 65 - 130		Recovery = 101.28%				
65) SURR3,Toluene-d8	7.322	98	1650675	48.83	ppb		0.00
Spiked Amount 50.000	Range 87 - 121		Recovery = 97.66%				
70) SURR2,BFB	9.785	95	605780	48.03	ppb		0.00
Spiked Amount 50.000	Range 85 - 122		Recovery = 96.06%				
Target Compounds							Qvalue
~~15) Acetone~~	~~2.067~~	~~43~~	~~1062~~	~~0.59~~	~~ppb~~		~~81~~
~~16) 2-Propanol~~	~~2.067~~	~~45~~	~~214~~	~~0.73~~	~~ppb~~	~~#~~	~~1~~
~~20) Allyl Chloride~~	~~2.207~~	~~76~~	~~1122~~	~~0.25~~	~~ppb~~	~~#~~	~~1~~
~~39) Tetrahydrofuran~~	~~3.902~~	~~42~~	~~425~~	~~0.24~~	~~ppb~~	~~#~~	~~45~~
78) Chlorobenzene	8.773	112	4857	0.23	ppb		94
~~90) Cyclohexanone~~	~~9.785~~	~~55~~	~~1348~~	~~2.87~~	~~ppb~~	~~#~~	~~25~~
106) 1,4-Dclbenz	10.766	146	150071	9.63	ppb		100
110) 1,2-Dclbenz	11.065	146	113949	8.08	ppb		97
115) 1,2,4-Tcbenzene	12.156	180	1376635	159.70	ppb		98
116) Hexachlorobt	12.266	225	897	0.24	ppb	#	82
117) Naphthalen	12.303	128	3575	0.23	ppb		96
118) 1,2,3-Tclbenzene	12.437	180	239023	33.86	ppb		98

(#) = qualifier out of range (m) = manual integration (+) = signals summed

KP 4/2/14

Sample Calculation
JF 3/13/14

Initial Calibration - Summary Report

Calibration ID: RC1400023 W031214 8260 Waters
Instrument ID: R-MS-12
Column Name: 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3058	<=20	7.3
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7112	<=20	2.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5726	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2220	<=20	5.6
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.3971	<=20	1.9
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8461	<=20	3.1
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3628	<=20	3.7
1,1-Dichloropropene	T	Average RF			0.3693	<=20	4.9
1,2,3-Trichlorobenzene	T	Average RF			0.6036	<=20	8.2
1,2,3-Trichloropropane	T	Average RF			0.1713	<=20	7.2
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7372	<=20	6.4
1,2,4-Trimethylbenzene	T	Average RF			2.167	<=20	7.0
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.08773	<=20	12.9
1,2-Dibromoethane	T	Average RF		0.100	0.2312	<=20	5.1
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5388	<=20	4.7
1,2-Dichlorobenzene	T	Average RF		0.400	1.206	<=20	3.3
1,2-Dichloroethane	T	Average RF		0.100	0.3737	<=20	3.9
1,2-Dichloropropane	T	Average RF		0.100	0.3148	<=20	4.5
1,3,5-Trichlorobenzene	T	Average RF			0.8315	<=20	4.0
1,3,5-Trimethylbenzene	T	Average RF			2.106	<=20	6.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.252	<=20	4.2
1,3-Dichloropropane	T	Average RF			0.4501	<=20	2.3
1,4-Dichlorobenzene	T	Average RF		0.500	1.332	<=20	8.0
1,4-Dioxane	T	Average RF			0.002062	<=20	6.8
1-Butanol	T	Average RF			0.004645	<=20	18.2
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.3856	<=20	7.0
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6154	<=20	3.4
2,2-Dichloropropane	T	Average RF			0.6713	<=20	3.9
2,3,6-Trichlorotoluene	T	Average RF			0.3641	<=20	7.5
2,4,5-Trichlorotoluene	T	Average RF			0.3978	<=20	7.2
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			0.9535	<=20	5.8
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5359	<=20	4.0
2,5-Dichlorobenzotrifluoride	T	Average RF			0.6128	<=20	3.4
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1390	<=20	1.9
2-Chloro-1,3-butadiene	T	Average RF			0.7288	<=20	7.9
2-Chlorobenzotrifluoride	T	Average RF			0.8330	<=20	4.8
2-Chloroethyl Vinyl Ether	T	Average RF			0.1412	<=20	5.8
2-Chlorotoluene	T	Average RF			1.896	<=20	5.7
2-Hexanone	T	Average RF		0.05	0.1416	<=20	9.6
2-Methyl-1-propanol	T	Average RF			0.008458	<=20	8.6
2-Methyl-2-propanol	T	Average RF			0.02773	<=20	8.6
2-Nitropropane	T	Average RF			0.03954	<=20	10.8
2-Propanol	T	Average RF			0.01610	<=20	13.7
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.010	<=20	7.1
3,4-Dichlorobenzotrifluoride	T	Average RF			0.6160	<=20	4.0
3-Chloro-1-propene	T	Average RF			0.2488	<=20	4.3
3-Chlorobenzotrifluoride	T	Average RF			0.4304	<=20	7.2
3-Chlorotoluene	T	Average RF			1.973	<=20	5.3
4-Chlorotoluene	T	Average RF			2.236	<=20	8.4
4-Isopropyltoluene	T	Average RF			2.086	<=20	6.7
4-Methyl-2-pentanone	T	Average RF		0.05	0.1899	<=20	6.0

ALS Group USA, Corp. dba ALS Environmental Sample Calculation

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1259
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/28/14
		Date Analyzed:	3/31/14 11:03
Sample Name:	MRC-MW113A-032014	**Units:**	µg/L
Lab Code:	R1402011-003	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	386159
Prep Method:	Method	**Extraction Lot:**	202786
Data File Name:	I:\ACQUDATA\5975E\data\033114\Af350.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	6.86		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	80	70-130	3/31/14 11:03	

Quantitation Report (QT Reviewed) Sample Calculation

Data Path : I:\ACQUDATA\5975E\data\033114\
Data File : Af350.D
Acq On : 31 Mar 2014 11:03 am
Operator : m.pedro
Sample : ~~rq1402903-04~~ R1402011-003 MRC-MW113A-032014
Misc : 03/28/14 522
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Mar 31 13:17:54 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX012714.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon Jan 27 18:02:40 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d8-THF	2.922	46	58611	500.00	PPB	0.00
System Monitoring Compounds						
3) SURR,1,4-DIOXANE-d8	4.002	96	8002	79.96	PPB	-0.02
Spiked Amount 100.000	Range 70 - 130		Recovery = 79.96%			
Target Compounds						Qvalue
2) 1,4-Dioxane	4.051	88	37598	343.04	PPB	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

MP 4/1

00327

Response Factor Report 7975 E

Sample Calculation

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX012714.M
Title : 8270 BNA ANALYSIS
Last Update : Mon Jan 27 18:02:40 2014
Response Via : Initial Calibration

Calibration Files
2 =AE962.D 10 =AE963.D 20 =AE964.D 100 =AE965.D 200 =AE966.D 500 =AE967.D 1000=AE968.D 5000=AE969.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1) IR	d8-THF	----------ISTD----------									
2) T	1,4-Dioxane	0.419	0.764	0.870	0.807	0.955	1.022	1.034	1.101	0.872	24.87
3) S	SURR,1,4-DIOXA...	0.613	0.783	0.825	0.760	0.880	0.935	0.937	0.975	0.838	14.23

(#) = Out of Range

5E969

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Sample Calculation

Client:	Tetra Tech GEO	**Service Request:**	R1402011
Project:	Middle River- Lockheed Martin Corp/112IC06183	**Date Collected:**	3/20/14 1026
Sample Matrix:	Water	**Date Received:**	3/22/14
		Date Extracted:	3/26/14
		Date Analyzed:	3/26/14 12:55
Sample Name:	MRC-MW114A-032014	**Units:**	µg/L
Lab Code:	R1402011-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	385469
Prep Method:	Method	**Extraction Lot:**	204911
Data File Name:	I:\ACQUDATA\HPLC02\DATA\032614\B0030843.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.76		0.20	0.026	

$$\frac{174\,996}{213\,149} * \frac{1\ ug/L}{1.085} = 0.76$$

Quantitation Report (QT Reviewed) Sample Calculation

Data File : I:\ACQUDATA\HPLC02\DATA\032614\B0030843.D Vial: 21
Acq On : 26 Mar 2014 12:55 pm Operator: b.allgeier
Sample : r1402011-002 MRC-MW114A-0320A Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Mar 26 14:57 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	8.26	89	213149	1.00	ug/L	0.42
Target Compounds						Qvalue
2) Perchlorate	8.22	83	174996	0.76	ug/L	100
3) #2 perc ion	8.22	85	58047	0.74	ug/L	100

Ratio
3.01

BA 3/26

00408

(#) = qualifier out of range (m) = manual integration
B0030843.D PERC0129.M Wed Mar 26 15:03:36 2014 Page 1

Sample Calculation

Response Factor Report Instrumen

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	----------ISTD----------							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00420

(#) = Out of Range ### Number of calibration levels exceeded format ###
PERC0129.M Wed Jan 29 13:50:33 2014 Page 1

ALS Environmental

Sample Calculation

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW114A-032014

Contract: R1402011

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW114A-0

Matrix (soil/water): WATER Lab Sample ID: R1402011-002

Level (low/med): LOW Date Received: 3/22/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-41-7	Beryllium	6.8			MS
7440-48-4	Cobalt	28.8			MS
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	67.1			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

00523

Sample Calculation

Elan 9000 Method 6020A - Summary Report

Sample ID: R1402011-002

MRC-MW114A-032014

Sample Date/Time: Wednesday, March 26, 2014 14:04:42
Sample Description:
Number of Replicates: 3
Batch ID: 204848
Method File: c:\elandata\Method\6020a.mth
Dataset File: C:\elandata\Dataset\032614\R1402011-002.022

	Analyte	Mass	Meas. Intens.	Intens. RSD	Blank Intensity	Conc. Mean	Conc. SD	Conc. RSD	Units
>	Li	6	21662.630	1.3	20556.319				ug/L
	Be	9	4804.523	3.7	10.000	6.74708	0.315	4.7	ug/L
	Al	27	368108.452	1.0	2995.696	55.48605	0.417	0.8	ug/L
>	Sc	45	274895.430	0.5	274263.512				ug/L
	V	51	13913.289	20.9	4468.676	0.88846	0.269	30.3	ug/L
	Cr	52	26381.271	1.7	12267.058	1.57611	0.054	3.4	ug/L
	Cr	53	82874.065	9.9	3054.357	77.00698	8.227	10.7	ug/L
	Mn	55	5654767.824	1.2	718.359	446.11194	6.085	1.4	ug/L
	Co	59	256987.116	3.0	363.342	28.83330	0.810	2.8	ug/L
	Ni	60	129840.393	1.2	66.001	67.11358	0.735	1.1	ug/L
	Ni	62	19445.421	1.3	59.001	67.83324	1.014	1.5	ug/L
	Cu	63	3786.874	5.9	161.003	0.85750	0.051	5.9	ug/L
	Cu	65	1716.120	4.2	88.334	0.79242	0.034	4.3	ug/L
	Zn	66	161873.930	0.8	1447.429	109.62692	1.155	1.1	ug/L
	Zn	67	26789.388	3.9	727.693	110.04213	4.292	3.9	ug/L
	Zn	68	114235.852	2.0	1022.717	110.70492	2.425	2.2	ug/L
>	Ge	72	115204.472	0.2	121181.487				ug/L
	As	75	-230.719	236.7	15.266	-0.16544	0.367	222.0	ug/L
	Se	77	7746.971	5.6	152.867	59.82698	3.378	5.6	ug/L
	Se	82	39.528	23.1	4.481	0.21253	0.055	26.1	ug/L
	Kr	83	123.401	3.6	128.734				ug/L
	Sr	86	38964.167	1.0	2.174	21.66069	0.258	1.2	ug/L
	Sr	88	331171.442	2.2	241.671	21.89872	0.440	2.0	ug/L
	Y	89	192292.508	0.9	189546.782				ug/L
	Mo	95	299.673	0.2	20.000	0.11939	0.003	2.2	ug/L
	Mo	97	212.337	5.6	25.667	0.12819	0.008	6.5	ug/L
	Mo	98	444.694	5.3	14.795	0.11417	0.007	5.9	ug/L
	Rh	103	142480.279	2.1	151912.308				ug/L
	Ag	107	344.341	27.9	141.002	0.03587	0.016	43.4	ug/L
	Ag	109	225.671	33.2	39.334	0.03427	0.013	38.2	ug/L
	Cd	111	208.996	10.8	110.432	0.07092	0.018	25.6	ug/L
	Cd	114	288.183	12.5	47.160	0.07378	0.009	12.7	ug/L
>	In	115	162157.900	1.9	168579.256				ug/L
	Sb	121	1493.762	19.2	37.000	0.31990	0.060	18.8	ug/L
	Sb	123	1132.587	20.3	38.759	0.31573	0.065	20.4	ug/L
	Ba	135	43661.389	0.4	33.334	36.51530	1.296	3.6	ug/L
	Ba	137	76879.077	0.3	37.000	37.26019	1.082	2.9	ug/L
>	Tb	159	229032.859	3.2	233728.784				ug/L
>	Ho	165	236473.076	2.7	231826.380				ug/L
	Tl	203	251.338	10.6	122.002	0.02307	0.005	19.5	ug/L
	Tl	205	581.684	3.0	272.339	0.02388	0.001	4.6	ug/L
	Pb	208	4239.624	10.9	305.338	0.22149	0.026	11.9	ug/L
	Pb	206	1086.719	10.2	86.668	0.22444	0.025	11.2	ug/L
	Pb	207	914.705	8.3	68.668	0.21372	0.019	8.7	ug/L
>	Bi	209	150678.514	3.2	146083.541				ug/L

Tetra Tech INC **INTERNAL CORRESPONDENCE**

TO: **T. APANAVAGE** **DATE:** **MAY 8, 2014**

FROM: **J. KALINYAK** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – PCB HOMOLOGUES**
LOCKHEED MIDDLE RIVER COMPLEX (MRC)
SAMPLE DELIVERY GROUP (SDG) R1402795

SAMPLES: 16 / Aqueous / PCB Homologues (Total and Dissolved)

MRC-MW-103A-041814	MRC-MW-103A-041814 Dissol
MRC-MW-103B-041814	MRC-MW-103B-041814 Dissol
MRC-MW-113A-041814	MRC-MW-113A-041814 Dissol
MRC-MW-114A-041814	MRC-MW-114A-041814 Dissol
MRC-MW-43A-041714	MRC-MW-43A-041714 Dissolv
MRC-MW-44A-041714	MRC-MW-44A-041714 Dissolv
MRC-MW-62A-041714	MRC-MW-62A-041714 Dissolv
MRC-MW-62C-041714	MRC-MW-62C-041714 Dissolv

Overview

The sample set for Lockheed MRC, SDG R1402795, consisted of sixteen (16) aqueous samples. The aqueous samples were from eight locations with samples analyzed for total and dissolved polychlorinated biphenyls (PCB) homologues, as listed above. No field duplicate sample pairs were included in the sample delivery group (SDG).

The samples were collected by Tetra Tech on April 16 and 18, 2014 and analyzed by ALS Environmental for the analyses. All analyses were conducted in accordance with EPA Method 680 for PCBs analytical and reporting protocols.

The data contained in this SDG was validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, chromatographic resolution, compound identification, compound quantitation, and detection limits. Areas of concern are listed below.

Major Problems

No major problems were identified.

Minor Problems

- The PCB homologue continuing calibration verification (CCV) percent difference (%D) was greater than the 20% quality control limit for total nonachlorobiphenyls for instrument 5973-B on 04/24/14 @ 11:10, @ 14:06, and @ 18:00.

  Affected Samples:

MRC-MW-114A-041814	MRC-MW-114A-041814 Dissol
MRC-MW-103A-041814	MRC-MW-103A-041814 Dissol
MRC-MW-103B-041814	MRC-MW-103B-041814 Dissol

  Action: The non-detected sample nonachlorobiphenyls results were qualified estimated, (J).

Notes

The laboratory reported non-detected sample results to the Method Detection Limit (MDL).

EXECUTIVE SUMMARY

Laboratory Performance Issues: Sample non-detected nonachlorobiphenyl results were qualified for CCV %D non-compliances.

Other Factors Affecting Data Quality: Positive results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

The data for these analyses were reviewed with reference to EPA Method 680 and the USEPA National Functional Guidelines for Organic Data Validation (June 2008).

for

Tetra Tech
Joseph Kalinyak
Data Validator/Environmental Scientist

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 06247	NSAMPLE	MRC-MW-103A-041814			MRC-MW-103A-041814 Dissol			MRC-MW-103B-041814			MRC-MW-103B-041814 Dissol		
SDG: R1402795	LAB_ID	R1402795-013			R1402795-014			R1402795-015			R1402795-016		
FRACTION: PCBH	SAMP_DATE	4/18/2014			4/18/2014			4/18/2014			4/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLOROBIPHENYLS		0.0044	U		0.0044	U		0.0044	U		0.0044	U	
HEPTACHLOROBIPHENYLS		0.011	U		0.011	U		0.011	U		0.011	U	
HEXACHLOROBIPHENYL		0.01	U		0.01	U		0.01	U		0.01	U	
MONOCHLOROBIPHENYLS		0.0017	U		0.0017	U		0.0017	U		0.0017	U	
NONACHLOROBIPHENYLS		0.019	UJ	C	0.019	UJ	C	0.019	UJ	C	0.019	UJ	C
OCTACHLOROBIPHENYLS		0.0084	U		0.0084	U		0.0084	U		0.0084	U	
PCB-209		0.018	U		0.018	U		0.018	U		0.018	U	
PENTACHLOROBIPHENYLS		0.0088	U		0.0088	U		0.0088	U		0.0088	U	
TETRACHLOROBIPHENYLS		0.0054	U		0.0054	U		0.0054	U		0.0054	U	
TRICHLOROBIPHENYLS		0.0034	U		0.0034	U		0.0034	U		0.0034	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-113A-041814			MRC-MW-113A-041814 Dissol			MRC-MW-114A-041814			MRC-MW-114A-041814 Dissol		
SDG: R1402795	LAB_ID	R1402795-009			R1402795-010			R1402795-011			R1402795-012		
FRACTION: PCBH	SAMP_DATE	4/18/2014			4/18/2014			4/18/2014			4/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLOROBIPHENYLS		0.0044	U		0.0044	U		0.0044	U		0.0044	U	
HEPTACHLOROBIPHENYLS		0.011	U		0.011	U		0.011	U		0.011	U	
HEXACHLOROBIPHENYL		0.01	U		0.01	U		0.01	U		0.01	U	
MONOCHLOROBIPHENYLS		0.0017	U		0.0017	U		0.0066			0.0017	U	
NONACHLOROBIPHENYLS		0.019	U		0.019	U		0.019	UJ	C	0.019	UJ	C
OCTACHLOROBIPHENYLS		0.0084	U		0.0084	U		0.0084	U		0.0084	U	
PCB-209		0.018	U		0.018	U		0.018	U		0.018	U	
PENTACHLOROBIPHENYLS		0.0088	U		0.0088	U		0.0088	U		0.0088	U	
TETRACHLOROBIPHENYLS		0.0054	U		0.0054	U		0.0054	U		0.0054	U	
TRICHLOROBIPHENYLS		0.0034	U		0.0034	U		0.0034	U		0.0034	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-43A-041714			MRC-MW-43A-041714 Dissolv			MRC-MW-44A-041714			MRC-MW-44A-041714 Dissolv		
SDG: R1402795	LAB_ID	R1402795-001			R1402795-002			R1402795-003			R1402795-004		
FRACTION: PCBH	SAMP_DATE	4/17/2014			4/17/2014			4/17/2014			4/17/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLOROBIPHENYLS		0.034			0.0055			0.0044	U		0.0044	U	
HEPTACHLOROBIPHENYLS		0.012	J	P	0.011	U		0.011	U		0.011	U	
HEXACHLOROBIPHENYL		0.054			0.01	U		0.01	U		0.01	U	
MONOCHLOROBIPHENYLS		0.23			0.026			0.0017	U		0.0017	U	
NONACHLOROBIPHENYLS		0.019	U		0.019	U		0.019	U		0.019	U	
OCTACHLOROBIPHENYLS		0.0084	U		0.0084	U		0.0084	U		0.0084	U	
PCB-209		0.018	U		0.018	U		0.018	U		0.018	U	
PENTACHLOROBIPHENYLS		0.23			0.0088	U		0.0088	U		0.0088	U	
TETRACHLOROBIPHENYLS		0.048			0.0054	U		0.0054	U		0.0054	U	
TRICHLOROBIPHENYLS		0.012			0.0034	U		0.0034	U		0.0034	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-62A-041714			MRC-MW-62A-041714 Dissolv			MRC-MW-62C-041714			MRC-MW-62C-041714 Dissolv		
SDG: R1402795	LAB_ID	R1402795-005			R1402795-006			R1402795-007			R1402795-008		
FRACTION: PCBH	SAMP_DATE	4/17/2014			4/17/2014			4/17/2014			4/17/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLOROBIPHENYLS		0.0044	U		0.0052			0.0044	U		0.0044	U	
HEPTACHLOROBIPHENYLS		0.011	U		0.011	U		0.011	U		0.011	U	
HEXACHLOROBIPHENYL		0.01	U		0.01	U		0.01	U		0.01	U	
MONOCHLOROBIPHENYLS		0.0017	U		0.0017	U		0.0017	U		0.0017	U	
NONACHLOROBIPHENYLS		0.019	U		0.019	U		0.019	U		0.019	U	
OCTACHLOROBIPHENYLS		0.0084	U		0.0084	U		0.0084	U		0.0084	U	
PCB-209		0.018	U		0.018	U		0.018	U		0.018	U	
PENTACHLOROBIPHENYLS		0.0088	U		0.0088	U		0.0088	U		0.0088	U	
TETRACHLOROBIPHENYLS		0.0054	U		0.0054	U		0.0054	U		0.0054	U	
TRICHLOROBIPHENYLS		0.0034	U		0.0034	U		0.0034	U		0.0034	U	

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/18/14 1551
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/24/14 12:38
Sample Name:	MRC-MW-103A-041814	**Units:**	µg/L
Lab Code:	R1402795-013	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389812
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042414\DK062.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	97	63-119	4/24/14 12:38	
4,4'-DDT	109	62-181	4/24/14 12:38	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/18/14 1551
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/24/14 15:05
Sample Name:	MRC-MW-103A-041814 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-014	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389812
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042414\DK067.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	93	63-119	4/24/14 15:05	
4,4'-DDT	110	62-181	4/24/14 15:05	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/18/14 1721
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/24/14 15:34
Sample Name:	MRC-MW-103B-041814	**Units:**	µg/L
Lab Code:	R1402795-015	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389812
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042414\DK068.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	90	63-119	4/24/14 15:34	
4,4'-DDT	103	62-181	4/24/14 15:34	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	4/18/14 1721
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/24/14 16:03
Sample Name:	MRC-MW-103B-041814 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-016	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389812
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042414\DK069.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	77	63-119	4/24/14 16:03	
4,4'-DDT	88	62-181	4/24/14 16:03	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	4/18/14 0848
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 17:56
Sample Name:	MRC-MW-113A-041814	**Units:**	µg/L
Lab Code:	R1402795-009	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK043.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	101	63-119	4/23/14 17:56	
4,4'-DDT	108	62-181	4/23/14 17:56	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/18/14 0848
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 18:25
Sample Name:	MRC-MW-113A-041814 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-010	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK040.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	94	63-119	4/23/14 18:25	
4,4'-DDT	109	62-181	4/23/14 18:25	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/18/14 1131
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/24/14 11:40
Sample Name:	MRC-MW-114A-041814	**Units:**	µg/L
Lab Code:	R1402795-011	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389812
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042414\DK060.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	**0.0066**		0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	97	63-119	4/24/14 11:40	
4,4'-DDT	114	62-181	4/24/14 11:40	

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Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/18/14 1131
Sample Matrix:	Water	**Date Received:**	4/19/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/24/14 12:09
Sample Name:	MRC-MW-114A-041814 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-012	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389812
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042414\DK061.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	85	63-119	4/24/14 12:09	
4,4'-DDT	113	62-181	4/24/14 12:09	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 0907
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 11:09
Sample Name:	MRC-MW-43A-041714	**Units:**	µg/L
Lab Code:	R1402795-001	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK030.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	**0.23**		0.0050	0.0017	
25512-42-9	Dichlorobiphenyls, Total	**0.034**		0.0050	0.0044	
25323-68-6	Trichlorobiphenyls, Total	**0.012**		0.0050	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	**0.048**		0.010	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	**0.23**		0.010	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	**0.054**		0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	**0.012**	J	0.015	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.015	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.020	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.025	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	89	63-119	4/23/14 11:09	
4,4'-DDT	128	62-181	4/23/14 11:09	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 0907
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 11:38
Sample Name:	MRC-MW-43A-041714 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-002	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK031.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	**0.026**		0.0050	0.0017	
25512-42-9	Dichlorobiphenyls, Total	**0.0055**		0.0050	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0050	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.010	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.010	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.015	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.015	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.020	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.025	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	75	63-119	4/23/14 11:38	
4,4'-DDT	109	62-181	4/23/14 11:38	

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Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 1110
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 12:07
Sample Name:	MRC-MW-44A-041714	**Units:**	µg/L
Lab Code:	R1402795-003	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK032.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0050	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0050	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0050	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.010	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.010	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.015	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.015	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.020	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.025	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	106	63-119	4/23/14 12:07	
4,4'-DDT	106	62-181	4/23/14 12:07	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 1110
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 14:04
Sample Name:	MRC-MW-44A-041714 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-004	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK035.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0050	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0050	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0050	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.010	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.010	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.015	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.015	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.020	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.025	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	95	63-119	4/23/14 14:04	
4,4'-DDT	108	62-181	4/23/14 14:04	

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Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 1450
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 14:33
Sample Name:	MRC-MW-62A-041714	**Units:**	µg/L
Lab Code:	R1402795-005	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK036.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	103	63-119	4/23/14 14:33	
4,4'-DDT	93	62-181	4/23/14 14:33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 1450
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 15:02
Sample Name:	MRC-MW-62A-041714 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-006	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK037.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	**0.0052**		0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	86	63-119	4/23/14 15:02	
4,4'-DDT	102	62-181	4/23/14 15:02	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 1624
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 16:58
Sample Name:	MRC-MW-62C-041714	**Units:**	µg/L
Lab Code:	R1402795-007	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK041.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	90	63-119	4/23/14 16:58	
4,4'-DDT	76	62-181	4/23/14 16:58	

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 1624
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 17:27
Sample Name:	MRC-MW-62C-041714 Dissolved	**Units:**	µg/L
Lab Code:	R1402795-008	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK042.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0047	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0047	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0047	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.0094	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.0094	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.014	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.014	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.019	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.024	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	88	63-119	4/23/14 17:27	
4,4'-DDT	88	62-181	4/23/14 17:27	

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG R1402795

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.0034	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0034	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0034	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0034	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0034	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0034	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0034	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0034	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0034	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0034	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0034	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0034	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0034	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0034	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0034	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.0044	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0044	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0044	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0044	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0044	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0044	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0044	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0044	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0044	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0044	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0044	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0044	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0044	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0052	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.0054	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0054	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0054	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0054	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0054	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0054	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0054	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0054	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0054	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0055	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0084	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.0084	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0084	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0084	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0084	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0084	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0084	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0084	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0084	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0084	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.0088	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.0088	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0088	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.0088	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0088	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0088	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0088	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.0088	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.010	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.010	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.010	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.010	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.010	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.010	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.010	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.010	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.010	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.010	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.010	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.010	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.010	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.010	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.010	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.011	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.011	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.011	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.011	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.011	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.011	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.011	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.011	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.012	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.019	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.019	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.019	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.019	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.019	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.019	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	0.019	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.019	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	0.019	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	0.034	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.048	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.054	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	0.23	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	102	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	103	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	106	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	108	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	108	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	109	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	109	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	109	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	110	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	113	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	114	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	128	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	76	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	88	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	88	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	93	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	PERCENT	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	PERCENT	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	PERCENT	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	PERCENT	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	PERCENT	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	PERCENT	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	PERCENT	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	PERCENT	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
PCB	UG/L	MRC-MW-43A-041714 Dis	R1402795-002	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-44A-041714	R1402795-003	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-44A-041714 Dis	R1402795-004	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-62A-041714	R1402795-005	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-43A-041714	R1402795-001	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-62C-041714	R1402795-007	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-103B-041814	R1402795-015	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	UG/L	MRC-MW-62A-041714 Dis	R1402795-006	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-114A-041814 Di	R1402795-012	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	UG/L	MRC-MW-114A-041814	R1402795-011	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	UG/L	MRC-MW-113A-041814 Di	R1402795-010	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5
PCB	UG/L	MRC-MW-103B-041814 Di	R1402795-016	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	UG/L	MRC-MW-103A-041814 Di	R1402795-014	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	UG/L	MRC-MW-103A-041814	R1402795-013	NM	04/18/2014	04/21/2014	04/24/2014	3	3	6
PCB	UG/L	MRC-MW-62C-041714 Dis	R1402795-008	NM	04/17/2014	04/21/2014	04/23/2014	4	2	6
PCB	UG/L	MRC-MW-113A-041814	R1402795-009	NM	04/18/2014	04/21/2014	04/23/2014	3	2	5

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 14715

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC-Block E GW 2014	Project Number: 112IC06247
Project Manager: Tony Aparavage	Report CC:
Company/Address: 20251 Century Blvd STE 200, Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature:	Sampler's Printed Name: Walt Payon

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE

NUMBER OF CONTAINERS

GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP | GC/MS SVOAs ◦ 8270 ◦ 625 | GC VOAs ◦ 8021 ◦ 601/602 | PESTICIDES ◦ 8081 ◦ 608 | PCBs ◦ 8082 ◦ 608 | METALS, TOTAL (List in comments below) | METALS, DISSOLVED (List in comments below) | PCBs | PCBs Filtered | | |

R1402795 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Cooler Receipt and Preservation Check Form

Project/Client _____ Folder Number 114-2795

Cooler received on 4/18/14 by: SS **COURIER:** ALS UPS (FEDEX) VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	(YES)	NO
2.	Were custody papers properly filled out (ink, signed, etc.)?	(YES)	NO
3.	Did all bottles arrive in good condition (unbroken)?	(YES)	NO
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	(NO) N/A
5.	Were **Ice** or **Ice packs** present?	(YES)	NO
6.	Where did the bottles originate?		(ALS/ROC), CLIENT
7.	Soil VOA samples received as:	Bulk Jar	Encore TerraCore Lab5035set (N/A)
8.	Temperature of cooler(s) upon receipt:	1.4	1.8 3.2 1.2

Is the temperature within 0° - 6° C?: (Y) N (Y) N (Y) N (Y) N Y N

If No, Explain Below Date/Time Temperatures Taken: 4/18/14 1013

Thermometer ID: (IR GUN#3) / IR GUN#4 Reading From: Temp Blank / (Sample Bottle)

If out of Temperature, note packing/ice condition &Client Approval to Run Samples: _____

All Samples held in storage location room by JCS on 4/18 at 1013
5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: NA

Cooler Breakdown: Date: 4/18/14 Time: 1250 by: SS

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	(YES)	NO
2.	Did all bottle labels and tags agree with custody papers?	(YES)	NO
3.	Were correct containers used for the tests indicated?	(YES)	NO
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated (N/A)

Explain any discrepancies: _____

pH	Reagent	YES	NO	Lot Received	Exp
≥12	NaOH				
≤2	HNO_3				
≤2	H_2SO_4				
<4	$NaHSO_4$				
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)	
	$Na_2S_2O_3$	-	-		
	Zn Aceta	-	-		
	HCl	*	*		

Sample ID	Vol. Added	Lot Added	Final pH

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 021014-13LT
Other Comments:

PC Secondary Review: NA

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 14717

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC- Block E GW PCBs
Project Number: 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: Tetra Tech Inc
20251 Century Blvd STE 200
Germantown, MD 20874
Phone #: 301 528-3021
Email:
Sampler's Signature: [signature]
Sampler's Printed Name: Walt Payon

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: — —

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	PCBs	PCBs Filtered						REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-113A-041814		4-18-14	0848	GW	4								X	X						
MRC-MW-114A-041814		↓	1131	↓	4								X	X						
MRC-MW-103A-041814		↓	1551	↓	4								X	X						
MRC-MW-103B-041814		↓	1721	↓	4								X	X						

SPECIAL INSTRUCTIONS/COMMENTS
Metals
5 day TAT

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day X 5 day
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walter Pay	Signature: Daniel Ward	Signature	Signature	Signature	Signature
Printed Name: Walt Payon	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: TT Inc	Firm: 4/19/14/0930	Firm	Firm	Firm	Firm
Date/Time: 4-18-14	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

R1402795 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

R1402795 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Project/Client Tetra Tech Folder Number R14-2795

Cooler received on 4/19/14 by: DH COURIER: ALS UPS FEDEX VELOCITY CLIENT

1.	Were custody seals on outside of cooler?	YES	NO	
2.	Were custody papers properly filled out (ink, signed, etc.)?	YES	NO	
3.	Did all bottles arrive in good condition (unbroken)?	YES	NO	
4.	Did VOA vials, Alkalinity, or Sulfide have significant* air bubbles?	YES	NO	N/A
5.	Were Ice or **Ice packs** present?	YES	NO	
6.	Where did the bottles originate?	ALS/ROC, CLIENT		
7.	Soil VOA samples received as:	Bulk Jar	Encore	TerraCore Lab5035set N/A
8.	Temperature of cooler(s) upon receipt:	1.4°	1.7°	
	Is the temperature within 0° - 6° C?:	Y N	Y N	Y N Y N Y N
	If No, Explain Below Date/Time Temperatures Taken:	4/19/14/0952		

Thermometer ID: IR GUN#3 / IR GUN#4 Reading From: Temp Blank / Sample Bottle

If out of Temperature, note packing/ice condition &Client Approval to Run Samples:

All Samples held in storage location R-007 by DH on 4/19/14 at 0952
5035 samples placed in storage location _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 4/21/14 Time: 1020 by: [signature]

1.	Were all bottle labels complete (*i.e.* analysis, preservation, etc.)?	YES	NO
2.	Did all bottle labels and tags agree with custody papers?	YES	NO
3.	Were correct containers used for the tests indicated?	YES	NO
4.	Air Samples: Cassettes / Tubes Intact	Canisters Pressurized	Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	YES	NO	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For TCN Phenol and 522			If present, contact PM to add ascorbic acid Or sodium sulfite (522)					
	$Na_2S_2O_3$	-	-						
	Zn Aceta	-	-						
	HCl	*	*						

*Not to be tested before analysis – pH tested and recorded by VOAs or GenChem on a separate worksheet

Yes = All samples OK

No = Samples were preserved at lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 0210/14-1BLT
Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

CASE NARRATIVE

Client:	Tetra Tech	**Service Request No.:**	R1402795
Project:	Middle River	**Project No.:**	112IC06247
Sample Matrix:	Water	**Date Received:**	4/18-4/19/14

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV deliverables. When appropriate to the method, method blank results, and LCS recoveries have been reported with each analytical test.

Sample Receipt

Water samples were collected between 4/17-4/18/14 and received at ALS in good condition at cooler temperatures between 1.2-3.2°C as noted on the cooler receipt and preservation check form. The samples were stored in a refrigerator at 1 - 6 °C upon receipt at the laboratory. See the second page of the Case Narrative for a cross-reference between Client ID and ALS Job #.

Extractable Organics

Sixteen water samples were analyzed for 680.

The Initial Calibration (ICAL) criteria were met.

The Continuing Calibration Verification (CCV) (files DK034, DK046, DK065 and DK073) exceeded 20% difference for surrogate 4,4-DDT. All surrogates in the samples were within limits and no data was affected. Continuing Calbration Verification (files DK065 and DK073) exceeded 20% difference for Dichlorobiphenyls. All detected concentration for this compound in samples associated with a these CCV's should be considered as wstimated.

Laboratory Control Sample (LCS) recoveries were within acceptable.

The Method Blank was free of contamination.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package, has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

4/28/14
Date

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #:	112IC06247	Batch Complete:	Yes	Date Revised:	
Submission:	R1402795	Diskette Requested:	No	Date Due:	5/2/14
Client:	Tetra Tech	Date:	4/22/14	Protocol:	EPA
Client Rep:	DPATTON	Custody Seal: Present/Absent:		Shipping No.:	
Project:	Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:	

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1402795-001	MRC-MW-43A-041714	Water	680	4/17/14	4/18/14			
R1402795-002	MRC-MW-43A-041714 Dissolved	Water	680	4/17/14	4/18/14			
R1402795-003	MRC-MW-44A-041714	Water	680	4/17/14	4/18/14			
R1402795-004	MRC-MW-44A-041714 Dissolved	Water	680	4/17/14	4/18/14			
R1402795-005	MRC-MW-62A-041714	Water	680	4/17/14	4/18/14			
R1402795-006	MRC-MW-62A-041714 Dissolved	Water	680	4/17/14	4/18/14			
R1402795-007	MRC-MW-62C-041714	Water	680	4/17/14	4/18/14			
R1402795-008	MRC-MW-62C-041714 Dissolved	Water	680	4/17/14	4/18/14			
R1402795-009	MRC-MW-113A-041814	Water	680	4/18/14	4/19/14			
R1402795-010	MRC-MW-113A-041814 Dissolved	Water	680	4/18/14	4/19/14			
R1402795-011	MRC-MW-114A-041814	Water	680	4/18/14	4/19/14			
R1402795-012	MRC-MW-114A-041814 Dissolved	Water	680	4/18/14	4/19/14			
R1402795-013	MRC-MW-103A-041814	Water	680	4/18/14	4/19/14			
R1402795-014	MRC-MW-103A-041814 Dissolved	Water	680	4/18/14	4/19/14			
R1402795-015	MRC-MW-103B-041814	Water	680	4/18/14	4/19/14			
R1402795-016	MRC-MW-103B-041814 Dissolved	Water	680	4/18/14	4/19/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

Client: Tetra Tech
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1402795
Date Analyzed: 4/22/14 17:23

Tune Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

File ID: I:\ACQUDATA\5973B\DATA\042214\DK015.D\
Instrument ID: R-MS-52

Analytical Method: 680
Analysis Lot: 389630

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	60	41.96	150379	Pass
68	69	0.00	2	0.97	1953	Pass
69	198	0.00	100	56.19	201395	Pass
70	69	0.00	2	0.17	338	Pass
127	198	40	60	55.86	200195	Pass
197	198	0.00	1	0.00	0	Pass
198	198	100	100	100.00	358400	Pass
199	198	5	9	6.82	24459	Pass
275	198	10	30	21.95	78680	Pass
365	198	1	100	2.90	10379	Pass
441	443	0.01	100	81.35	39484	Pass
442	198	40	100	69.19	247965	Pass
443	442	17	23	19.57	48537	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
SSTD000	CAL STD 00	I:\ACQUDATA\5973B\DATA\042214\DK017.D\	4/22/14 18:05	
SSTD00.0	CAL STD 0	I:\ACQUDATA\5973B\DATA\042214\DK018.D\	4/22/14 18:35	
SSTD005	CAL STD 0.5	I:\ACQUDATA\5973B\DATA\042214\DK019.D\	4/22/14 19:04	
SSTD010	CAL STD 1.0	I:\ACQUDATA\5973B\DATA\042214\DK020.D\	4/22/14 19:33	
SSTD015	CAL STD 1.5	I:\ACQUDATA\5973B\DATA\042214\DK021.D\	4/22/14 20:02	
SSTD020	CAL STD 2.0	I:\ACQUDATA\5973B\DATA\042214\DK022.D\	4/22/14 20:31	
SSTD030	CAL STD 3.0	I:\ACQUDATA\5973B\DATA\042214\DK023.D\	4/22/14 21:00	

Response Factor Report 5973-B

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Initial Calibration

#13 calibrated from 0.1 - 2.0 ppm (6 points)

Calibration Files
00 =DK017.D 0 =DK018.D 0.5 =DK019.D
1.0 =DK020.D 1.5 =DK021.D 2.0 =DK022.D 3.0 = DK023.D

		Compound	00	0	0.5	1.0	1.5	2.0	Avg	%RSD
1)	IR	d10-Phenanthrene	ISTD							
2)	IR	d12-Chrysene	ISTD							
3)	TCM	Total Monochlorobip	1.008	0.878	0.849	0.882	0.887	0.827	0.872	8.29
4)	TCM	Total Dichlorobiphe	0.677	0.677	0.623	0.628	0.620	0.610	0.630	5.75
5)	SC	SURR1, gamma-BHC	0.151	0.138	0.132	0.143	0.150	0.150	0.144	4.81
6)	TCM	Total Trichlorobiph	0.485	0.446	0.429	0.437	0.423	0.427	0.433	6.95
7)	TCM	Total Tetrachlorobi	0.322	0.273	0.272	0.273	0.258	0.265	0.271	9.80
8)	TC	RT #104 (CL5)	0.195	0.174	0.254	0.178	0.182	0.172	0.188	16.24
9)	TCM	Total Pentachlorobi	0.227	0.184	0.201	0.194	0.196	0.203	0.200	6.74
10)	TCM	Total Hexachlorobip	0.200	0.174	0.177	0.183	0.218	0.182	0.191	8.59
11)	TC	RT #77 (CL4)	0.479	0.437	0.296	0.434	0.426	0.437	0.403	17.28
12)	TCM	Total Heptachlorobi	0.179	0.151	0.155	0.155	0.147	0.157	0.156	6.78
13)	SC	SURR2, 4-4'-DDT			0.246	0.278	0.300	0.343	0.307	15.90
14)	TCM	Total Octachlorobip	0.092	0.079	0.081	0.086	0.087	0.090	0.086	5.35
15)	TC	Total Nonachlorobip	0.059	0.052	0.053	0.056	0.055	0.059	0.056	4.94
16)	TCM	Total Decachlorobip	0.038	0.037	0.035	0.036	0.036	0.038	0.037	3.75
17)	L1	CL1 - #1							0.000	-1.00
18)	L1	CL1 - #2							0.000	-1.00
19)	L1	CL1 - #3							0.000	-1.00
20)	L1	CL1 - #4							0.000	-1.00
21)	L1	CL1 - #5							0.000	-1.00
22)	L1	CL1 - #6							0.000	-1.00
23)	L1	CL1 - #7							0.000	-1.00
24)	L1	CL1 - #8							0.000	-1.00
25)	L1	CL1 - #9							0.000	-1.00
26)	L1	CL1 - #10							0.000	-1.00
27)	L1	MonoCB - Total	1.008	0.878	0.849	0.882	0.887	0.827	0.872	8.29
28)	L2	CL2 - #1							0.000	-1.00
29)	L2	CL2 - #2							0.000	-1.00
30)	L2	CL2 - #3							0.000	-1.00
31)	L2	CL2 - #4							0.000	-1.00
32)	L2	CL2 - #5							0.000	-1.00
33)	L2	CL2 - #6							0.000	-1.00
34)	L2	CL2 - #7							0.000	-1.00
35)	L2	CL2 - #8							0.000	-1.00
36)	L2	CL2 - #9							0.000	-1.00
37)	L2	CL2 - #10							0.000	-1.00
38)	L2	DiCB - Total	0.677	0.677	0.623	0.628	0.620	0.610	0.630	5.75
39)	L3	CL3 - #1							0.000	-1.00
40)	L3	CL3 - #2							0.000	-1.00
41)	L3	CL3 - #3							0.000	-1.00
42)	L3	CL3 - #4							0.000	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report 5973-B

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Initial Calibration

Calibration Files
00 =DK017.D 0 =DK018.D 0.5 =DK019.D
1.0 =DK020.D 1.5 =DK021.D 2.0 =DK022.D

		Compound	00	0	0.5	1.0	1.5	2.0	Avg	%RSD
43)	L3	CL3 - #5							0.000	-1.00
44)	L3	CL3 - #6							0.000	-1.00
45)	L3	CL3 - #7							0.000	-1.00
46)	L3	CL3 - #8							0.000	-1.00
47)	L3	CL3 - #9							0.000	-1.00
48)	L3	CL3 - #10							0.000	-1.00
49)	L3	CL3 - #11							0.000	-1.00
50)	L3	CL3 - #12							0.000	-1.00
51)	L3	CL3 - #13							0.000	-1.00
52)	L3	TriCB - Total	0.485	0.446	0.429	0.437	0.423	0.427	0.433	6.95
53)	L4	CL4 - #1							0.000	-1.00
54)	L4	CL4 - #2							0.000	-1.00
55)	L4	CL4 - #3							0.000	-1.00
56)	L4	CL4 - #4							0.000	-1.00
57)	L4	CL4 - #5							0.000	-1.00
58)	L4	CL4 - #6							0.000	-1.00
59)	L4	CL4 - #7							0.000	-1.00
60)	L4	CL4 - #8							0.000	-1.00
61)	L4	CL4 - #9							0.000	-1.00
62)	L4	CL4 - #10							0.000	-1.00
63)	L4	CL4 - #11							0.000	-1.00
64)	L4	CL4 - #12							0.000	-1.00
65)	L4	CL4 - #13							0.000	-1.00
66)	L4	CL4 - #14							0.000	-1.00
67)	L4	CL4 - #15							0.000	-1.00
68)	L4	TetraCB - Total	0.322	0.273	0.272	0.273	0.258	0.265	0.271	9.80
69)	L5	CL5 - #1							0.000	-1.00
70)	L5	CL5 - #2							0.000	-1.00
71)	L5	CL5 - #3							0.000	-1.00
72)	L5	CL5 - #4							0.000	-1.00
73)	L5	CL5 - #5							0.000	-1.00
74)	L5	CL5 - #6							0.000	-1.00
75)	L5	CL5 - #7							0.000	-1.00
76)	L5	CL5 - #8							0.000	-1.00
77)	L5	CL5 - #9							0.000	-1.00
78)	L5	CL5 - #10							0.000	-1.00
79)	L5	CL5 - #11							0.000	-1.00
80)	L5	CL5 - #12							0.000	-1.00
81)	L5	CL5 - #13							0.000	-1.00
82)	L5	CL5 - #14							0.000	-1.00
83)	L5	CL5 - #15							0.000	-1.00
84)	L5	PentaCB - Total	0.227	0.184	0.201	0.194	0.196	0.203	0.200	6.74
85)	L6	CL6 - #1							0.000	-1.00
86)	L6	CL6 - #2							0.000	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Initial Calibration

Calibration Files
00 =DK017.D 0 =DK018.D 0.5 =DK019.D
1.0 =DK020.D 1.5 =DK021.D 2.0 =DK022.D

		Compound	00	0	0.5	1.0	1.5	2.0	Avg	%RSD
87)	L6	CL6 - #3							0.000	-1.00
88)	L6	CL6 - #4							0.000	-1.00
89)	L6	CL6 - #5							0.000	-1.00
90)	L6	CL6 - #6							0.000	-1.00
91)	L6	CL6 - #7							0.000	-1.00
92)	L6	CL6 - #8							0.000	-1.00
93)	L6	CL6 - #9							0.000	-1.00
94)	L6	CL6 - #10							0.000	-1.00
95)	L6	CL6 - #11							0.000	-1.00
96)	L6	CL6 - #12							0.000	-1.00
97)	L6	CL6 - #13							0.000	-1.00
98)	L6	CL6 - #14							0.000	-1.00
99)	L6	CL6 - #15							0.000	-1.00
100)	L6	HexaCB - Total	0.200	0.174	0.177	0.183	0.218	0.182	0.191	8.59
101)	L7	CL7 - #1							0.000	-1.00
102)	L7	CL7 - #2							0.000	-1.00
103)	L7	CL7 - #3							0.000	-1.00
104)	L7	CL7 - #4							0.000	-1.00
105)	L7	CL7 - #5							0.000	-1.00
106)	L7	CL7 - #6							0.000	-1.00
107)	L7	CL7 - #7							0.000	-1.00
108)	L7	CL7 - #8							0.000	-1.00
109)	L7	CL7 - #9							0.000	-1.00
110)	L7	CL7 - #10							0.000	-1.00
111)	L7	HeptaCB - Total	0.179	0.151	0.155	0.155	0.147	0.157	0.156	6.78
112)	L8	CL8 - #1							0.000	-1.00
113)	L8	CL8 - #2							0.000	-1.00
114)	L8	CL8 - #3							0.000	-1.00
115)	L8	CL8 - #4							0.000	-1.00
116)	L8	CL8 - #5							0.000	-1.00
117)	L8	CL8 - #6							0.000	-1.00
118)	L8	CL8 - #7							0.000	-1.00
119)	L8	CL8 - #8							0.000	-1.00
120)	L8	OctaCB - Total	0.092	0.079	0.081	0.086	0.087	0.090	0.086	5.35
121)	L9	CL9 - #1							0.000	-1.00
122)	L9	CL9 - #2							0.000	-1.00
123)	L9	CL9 - #3							0.000	-1.00
124)	L9	CL9 - #4							0.000	-1.00
125)	L9	CL9 - #5							0.000	-1.00
126)	L9	NonaCB - Total	0.059	0.052	0.053	0.056	0.055	0.059	0.056	4.94
127)	L10	CL10 - #1							0.000	-1.00
128)	L10	CL10 - #2							0.000	-1.00
129)	L10	CL10 - #3							0.000	-1.00
130)	L10	CL10 - #4							0.000	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

Response Factor Report 5973-B

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Initial Calibration

Calibration Files
00 =DK017.D 0 =DK018.D 0.5 =DK019.D
1.0 =DK020.D 1.5 =DK021.D 2.0 =DK022.D

Compound	00	0	0.5	1.0	1.5	2.0	Avg	%RSD
131) L10 CL10 - #5							0.000	-1.00
132) L10 DecaCB - Total	0.038	0.037	0.035	0.036	0.036	0.038	0.037	3.75

(#) = Out of Range ### Number of calibration levels exceeded format ###

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1402795
Date Analyzed: 4/23/14 08:49

Tune Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

File ID: I:\ACQUDATA\5973B\DATA\042314\DK025.D\
Instrument ID: R-MS-52

Analytical Method: 680
Analysis Lot: 389618

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	60	38.76	154957	Pass
68	69	0.00	2	0.00	0	Pass
69	198	0.00	100	52.70	210659	Pass
70	69	0.00	2	0.31	662	Pass
127	198	40	60	52.96	211698	Pass
197	198	0.00	1	0.00	0	Pass
198	198	100	100	100.00	399765	Pass
199	198	5	9	6.89	27525	Pass
275	198	10	30	23.81	95192	Pass
365	198	1	100	3.39	13565	Pass
441	443	0.01	100	77.79	51488	Pass
442	198	40	100	82.42	329472	Pass
443	442	17	23	20.09	66189	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1404131-02	I:\ACQUDATA\5973B\DATA\042314\DK026.D\	4/23/14 09:03	
Method Blank	RQ1403865-01	I:\ACQUDATA\5973B\DATA\042314\DK027.D\	4/23/14 09:41	
Lab Control Sample	RQ1403865-02	I:\ACQUDATA\5973B\DATA\042314\DK028.D\	4/23/14 10:10	
Duplicate Lab Control Sample	RQ1403865-03	I:\ACQUDATA\5973B\DATA\042314\DK029.D\	4/23/14 10:40	
MRC-MW-43A-041714	R1402795-001	I:\ACQUDATA\5973B\DATA\042314\DK030.D\	4/23/14 11:09	
MRC-MW-43A-041714 Dissolved	R1402795-002	I:\ACQUDATA\5973B\DATA\042314\DK031.D\	4/23/14 11:38	
MRC-MW-44A-041714	R1402795-003	I:\ACQUDATA\5973B\DATA\042314\DK032.D\	4/23/14 12:07	
Continuing Cal. VerificationCCVA	RQ1404131-03	I:\ACQUDATA\5973B\DATA\042314\DK034.D\	4/23/14 13:34	
MRC-MW-44A-041714 Dissolved	R1402795-004	I:\ACQUDATA\5973B\DATA\042314\DK035.D\	4/23/14 14:04	
MRC-MW-62A-041714	R1402795-005	I:\ACQUDATA\5973B\DATA\042314\DK036.D\	4/23/14 14:33	
MRC-MW-62A-041714 Dissolved	R1402795-006	I:\ACQUDATA\5973B\DATA\042314\DK037.D\	4/23/14 15:02	
Continuing Cal. VerificationCCVA	RQ1404131-04	I:\ACQUDATA\5973B\DATA\042314\DK039.D\	4/23/14 16:29	
MRC-MW-62C-041714	R1402795-007	I:\ACQUDATA\5973B\DATA\042314\DK041.D\	4/23/14 16:58	
MRC-MW-62C-041714 Dissolved	R1402795-008	I:\ACQUDATA\5973B\DATA\042314\DK042.D\	4/23/14 17:27	
MRC-MW-113A-041814	R1402795-009	I:\ACQUDATA\5973B\DATA\042314\DK043.D\	4/23/14 17:56	
MRC-MW-113A-041814 Dissolved	R1402795-010	I:\ACQUDATA\5973B\DATA\042314\DK040.D\	4/23/14 18:25	
Continuing Cal. VerificationCCVA	RQ1404131-05	I:\ACQUDATA\5973B\DATA\042314\DK046.D\	4/23/14 19:52	

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042314\DK026.D Vial: 2
Acq On : 23 Apr 2014 9:03 am Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL STD 1.0 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014 not R.
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	90	0.00
2	IR	d12-Chrysene	1.000	1.000	0.0	99	0.00
3	TCM	Total Monochlorobiphenyls	0.872	0.873	-0.1	98	0.00
4	TCM	Total Dichlorobiphenyls	0.630	0.625	0.8	98	0.00
5	SC	SURR1, gamma-BHC	0.144	0.144	0.0	100	0.00
6	TCM	Total Trichlorobiphenyls	0.433	0.400	7.6	90	0.00
7	TCM	Total Tetrachlorobiphenyls	0.271	0.254	6.3	92	0.00
8	TC	RT #104 (CL5)	0.188	0.172	8.5	95	0.00
9	TCM	Total Pentachlorobiphenyls	0.200	0.195	2.5	99	0.00
10	TCM	Total Hexachlorobiphenyls	0.191	0.173	9.4	93	-0.01
11	TC	RT #77 (CL4)	0.403	0.326	19.1	74	0.00
12	TCM	Total Heptachlorobiphenyls	0.156	0.159	-1.9	102	0.00
13	SC	SURR2, 4-4'-DDT	0.307	0.285	7.2	101	0.00
14	TCM	Total Octachlorobiphenyls	0.086	0.081	5.8	93	0.00
15	TC	Total Nonachlorobiphenyls R	0.056	0.053	5.4	94	0.00
16	TCM	Total Decachlorobiphenyl	0.037	0.036	2.7	99	0.00
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042314\DK034.D Vial: 10
Acq On : 23 Apr 2014 1:34 pm Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL. 1.0 STD 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	88	0.00
2	IR	d12-Chrysene	1.000	1.000	0.0	90	0.00
3	TCM	Total Monochlorobiphenyls	0.872	0.866	0.7	88	-0.01
4	TCM	Total Dichlorobiphenyls	0.630	0.646	-2.5	93	0.00
5	SC	SURR1, gamma-BHC	0.144	0.152	-5.6	96	0.00
6	TCM	Total Trichlorobiphenyls	0.433	0.388	10.4	80	0.00
7	TCM	Total Tetrachlorobiphenyls	0.271	0.246	9.2	81	0.00
8	TC	RT #104 (CL5)	0.188	0.163	13.3	82	0.00
9	TCM	Total Pentachlorobiphenyls	0.200	0.189	5.5	88	0.00
10	TCM	Total Hexachlorobiphenyls	0.191	0.155	18.8	76	-0.01
11	TC	RT #77 (CL4)	0.403	0.403	0.0	84	-0.01
12	TCM	Total Heptachlorobiphenyls	0.156	0.139	10.9	81	0.00
13	SC	SURR2, 4-4'-DDT	0.307	0.241	21.5#1	78	0.00
14	TCM	Total Octachlorobiphenyls	0.086	0.073	15.1	76	0.00
15	TC	Total Nonachlorobiphenyls R	0.056	0.046	17.9	75	0.00
16	TCM	Total Decachlorobiphenyl	0.037	0.032	13.5	80	0.00
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

JW

00283

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042314\DK039.D Vial: 15
Acq On : 23 Apr 2014 4:29 pm Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL. 1.0 STD 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	98	0.00
2	IR	d12-Chrysene	1.000	1.000	0.0	108	0.00
3	TCM	Total Monochlorobiphenyls	0.872	0.815	6.5	100	-0.01
4	TCM	Total Dichlorobiphenyls	0.630	0.619	1.7	107	0.00
5	SC	SURR1, gamma-BHC	0.144	0.146	-1.4	111	0.00
6	TCM	Total Trichlorobiphenyls	0.433	0.390	9.9	97	0.00
7	TCM	Total Tetrachlorobiphenyls	0.271	0.248	8.5	98	0.00
8	TC	RT #104 (CL5)	0.188	0.162	13.8	98	0.00
9	TCM	Total Pentachlorobiphenyls	0.200	0.189	5.5	106	0.00
10	TCM	Total Hexachlorobiphenyls	0.191	0.168	12.0	100	-0.02
11	TC	RT #77 (CL4)	0.403	0.417	-3.5	104	-0.01
12	TCM	Total Heptachlorobiphenyls	0.156	0.139	10.9	97	-0.02
13	SC	SURR2, 4-4'-DDT	0.307	0.274	10.7	107	0.00
14	TCM	Total Octachlorobiphenyls	0.086	0.078	9.3	98	0.00
15	TC	Total Nonachlorobiphenyls R	0.056	0.052	7.1	102	0.00
16	TCM	Total Decachlorobiphenyl	0.037	0.034	8.1	100	0.00
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

00186

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042314\DK046.D Vial: 20
Acq On : 23 Apr 2014 7:52 pm Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL. 1.0 STD 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	82	0.00
2	IR	d12-Chrysene	1.000	1.000	0.0	88	0.00
3	TCM	Total Monochlorobiphenyls	0.872	0.838	3.9	83	0.00
4	TCM	Total Dichlorobiphenyls	0.630	0.601	4.6	84	0.00
5	SC	SURR1, gamma-BHC	0.144	0.136	5.6	83	0.00
6	TCM	Total Trichlorobiphenyls	0.433	0.404	6.7	81	0.00
7	TCM	Total Tetrachlorobiphenyls	0.271	0.256	5.5	82	0.00
8	TC	RT #104 (CL5)	0.188	0.163	13.3	80	0.00
9	TCM	Total Pentachlorobiphenyls	0.200	0.209	-4.5	94	0.00
10	TCM	Total Hexachlorobiphenyls	0.191	0.183	4.2	88	-0.01
11	TC	RT #77 (CL4)	0.403	0.422	-4.7	85	-0.01
12	TCM	Total Heptachlorobiphenyls	0.156	0.147	5.8	83	0.00
13	SC	SURR2, 4-4'-DDT	0.307	0.244	20.5#	77	0.00
14	TCM	Total Octachlorobiphenyls	0.086	0.081	5.8	82	0.00
15	TC	Total Nonachlorobiphenyls R	0.056	0.057	-1.8	89	0.00
16	TCM	Total Decachlorobiphenyl	0.037	0.037	0.0	90	0.00
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1402795
Date Analyzed: 4/24/14 10:57

Tune Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

File ID: I:\ACQUDATA\5973B\DATA\042414\DK058.D\
Instrument ID: R-MS-52

Analytical Method: 680
Analysis Lot: 389812

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
51	198	30	60	44.20	155733	Pass
68	69	0.00	2	0.52	1045	Pass
69	198	0.00	100	57.24	201701	Pass
70	69	0.00	2	0.25	508	Pass
127	198	40	60	55.00	193805	Pass
197	198	0.00	1	0.00	0	Pass
198	198	100	100	100.00	352363	Pass
199	198	5	9	7.17	25257	Pass
275	198	10	30	22.78	80253	Pass
365	198	1	100	2.26	7963	Pass
441	443	0.01	100	79.98	37626	Pass
442	198	40	100	63.12	222403	Pass
443	442	17	23	21.15	47046	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
* Continuing Calibration Verification	RQ1404186-02	I:\ACQUDATA\5973B\DATA\042414\DK059.D\	4/24/14 11:10	
MRC-MW-114A-041814	R1402795-011	I:\ACQUDATA\5973B\DATA\042414\DK060.D\	4/24/14 11:40	
MRC-MW-114A-041814 Dissolved	R1402795-012	I:\ACQUDATA\5973B\DATA\042414\DK061.D\	4/24/14 12:09	
MRC-MW-103A-041814	R1402795-013	I:\ACQUDATA\5973B\DATA\042414\DK062.D\	4/24/14 12:38	
* Continuing Cal. VerificationCCVA	RQ1404186-03	I:\ACQUDATA\5973B\DATA\042414\DK065.D\	4/24/14 14:06	
MRC-MW-103A-041814 Dissolved	R1402795-014	I:\ACQUDATA\5973B\DATA\042414\DK067.D\	4/24/14 15:05	
MRC-MW-103B-041814	R1402795-015	I:\ACQUDATA\5973B\DATA\042414\DK068.D\	4/24/14 15:34	
MRC-MW-103B-041814 Dissolved	R1402795-016	I:\ACQUDATA\5973B\DATA\042414\DK069.D\	4/24/14 16:03	
* Continuing Cal. VerificationCCVA	RQ1404186-04	I:\ACQUDATA\5973B\DATA\042414\DK073.D\	4/24/14 18:00	

* Monochlorobiphenyl 2D > 20%

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042414\DK059.D Vial: 1
Acq On : 24 Apr 2014 11:10 am Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL STD 1.0 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	97	-0.04
2	IR	d12-Chrysene	1.000	1.000	0.0	101	-0.03
3	TCM	Total Monochlorobiphenyls	0.872	0.836	4.1	96	-0.04
4	TCM	Total Dichlorobiphenyls	0.630	0.634	-0.6	103	-0.03
5	SC	SURR1, gamma-BHC	0.144	0.151	-4.9	107	-0.03
6	TCM	Total Trichlorobiphenyls	0.433	0.422	2.5	98	-0.03
7	TCM	Total Tetrachlorobiphenyls	0.271	0.267	1.5	99	-0.04
8	TC	RT #104 (CL5)	0.188	0.294	-56.4#	167	-0.04
9	TCM	Total Pentachlorobiphenyls	0.200	0.195	2.5	102	-0.04
10	TCM	Total Hexachlorobiphenyls	0.191	0.180	5.8	100	-0.04
11	TC	RT #77 (CL4)	0.403	0.324	19.6	76	-0.04
12	TCM	Total Heptachlorobiphenyls	0.156	0.160	-2.6	104	-0.03
13	SC	SURR2, 4-4'-DDT	0.307	0.275	10.4	100	-0.03
14	TCM	Total Octachlorobiphenyls	0.086	0.079	8.1	92	-0.03
15	TC	Total Nonachlorobiphenyls R	0.056	0.092	-64.3#	168	-0.03
16	TCM	Total Decachlorobiphenyl	0.037	0.037	0.0	105	-0.01
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042414\DK065.D Vial: 6
Acq On : 24 Apr 2014 2:06 pm Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL STD 1.0 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	95	-0.03
2	IR	d12-Chrysene	1.000	1.000	0.0	103	-0.03
3	TCM	Total Monochlorobiphenyls	0.872	0.790	9.4	92	-0.03
4	TCM	Total Dichlorobiphenyls	0.630	0.599	4.9	98	-0.04
5	SC	SURR1, gamma-BHC	0.144	0.139	3.5	100	-0.03
6	TCM	Total Trichlorobiphenyls	0.433	0.400	7.6	94	-0.04
7	TCM	Total Tetrachlorobiphenyls	0.271	0.248	8.5	93	-0.03
8	TC	RT #104 (CL5)	0.188	0.264	-40.4#	152	-0.04
9	TCM	Total Pentachlorobiphenyls	0.200	0.193	3.5	102	-0.03
10	TCM	Total Hexachlorobiphenyls	0.191	0.171	10.5	96	-0.05
11	TC	RT #77 (CL4)	0.403	0.330	18.1	78	-0.04
12	TCM	Total Heptachlorobiphenyls	0.156	0.150	3.8	100	-0.03
13	SC	SURR2, 4-4'-DDT	0.307	0.209	31.9#	77	-0.03
14	TCM	Total Octachlorobiphenyls	0.086	0.081	5.8	96	-0.03
15	TC	Total Nonachlorobiphenyls R	0.056	0.089	-58.9#	164	-0.03
16	TCM	Total Decachlorobiphenyl	0.037	0.038	-2.7	108	-0.02
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

00157

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\5973B\DATA\042414\DK073.D Vial: 11
Acq On : 24 Apr 2014 6:00 pm Operator: J.Wu
Sample : CCV Inst : 5973-B
Misc : CAL STD 1.0 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 70% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	d10-Phenanthrene	1.000	1.000	0.0	74	-0.03
2	IR	d12-Chrysene	1.000	1.000	0.0	79	-0.03
3	TCM	Total Monochlorobiphenyls	0.872	0.818	6.2	74	-0.03
4	TCM	Total Dichlorobiphenyls	0.630	0.599	4.9	76	-0.03
5	SC	SURR1, gamma-BHC	0.144	0.137	4.9	76	-0.03
6	TCM	Total Trichlorobiphenyls	0.433	0.398	8.1	72	-0.04
7	TCM	Total Tetrachlorobiphenyls	0.271	0.253	6.6	73	-0.03
8	TC	RT #104 (CL5)	0.188	0.247	-31.4#	110	-0.04
9	TCM	Total Pentachlorobiphenyls	0.200	0.194	3.0	79	-0.03
10	TCM	Total Hexachlorobiphenyls	0.191	0.174	8.9	75	-0.04
11	TC	RT #77 (CL4)	0.403	0.324	19.6	59#	-0.04
12	TCM	Total Heptachlorobiphenyls	0.156	0.149	4.5	76	-0.03
13	SC	SURR2, 4-4'-DDT	0.307	0.189	38.4#	54#	-0.03
14	TCM	Total Octachlorobiphenyls	0.086	0.082	4.7	76	-0.03
15	TC	Total Nonachlorobiphenyls	0.056	0.085	-51.8#	121	-0.03
16	TCM	Total Decachlorobiphenyl	0.037	0.038	-2.7	82	-0.02
17	L1	CL1 - #1	0.000	0.000	0.0	0#	-8.41#
18	L1	CL1 - #2	0.000	0.000	0.0	0#	-8.41#
19	L1	CL1 - #3	0.000	0.000	0.0	0#	-8.41#
20	L1	CL1 - #4	0.000	0.000	0.0	0#	-8.41#
21	L1	CL1 - #5	0.000	0.000	0.0	0#	-8.41#
22	L1	CL1 - #6	0.000	0.000	0.0	0#	-8.41#
23	L1	CL1 - #7	0.000	0.000	0.0	0#	-8.41#
24	L1	CL1 - #8	0.000	0.000	0.0	0#	-8.41#
25	L1	CL1 - #9	0.000	0.000	0.0	0#	-8.41#
26	L1	CL1 - #10	0.000	0.000	0.0	0#	-8.41#
27	L1	MonoCB - Total	0.872	0.000	100.0#	0#	-8.41#
28	L2	CL2 - #1	0.000	0.000	0.0	0#	-10.47#
29	L2	CL2 - #2	0.000	0.000	0.0	0#	-10.47#
30	L2	CL2 - #3	0.000	0.000	0.0	0#	-10.47#
31	L2	CL2 - #4	0.000	0.000	0.0	0#	-10.47#
32	L2	CL2 - #5	0.000	0.000	0.0	0#	-10.47#
33	L2	CL2 - #6	0.000	0.000	0.0	0#	-10.47#
34	L2	CL2 - #7	0.000	0.000	0.0	0#	-10.47#
35	L2	CL2 - #8	0.000	0.000	0.0	0#	-10.47#
36	L2	CL2 - #9	0.000	0.000	0.0	0#	-10.47#
37	L2	CL2 - #10	0.000	0.000	0.0	0#	-10.47#
38	L2	DiCB - Total	0.630	0.000	100.0#	0#	-10.47#
39	L3	CL3 - #1	0.000	0.000	0.0	0#	-11.87#
40	L3	CL3 - #2	0.000	0.000	0.0	0#	-11.87#
41	L3	CL3 - #3	0.000	0.000	0.0	0#	-11.87#

(#) = Out of Range

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	4/23/14 09:41
Sample Matrix:	Water	**Date Extracted:**	4/21/14

Method Blank Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-MS-52
Lab Code:	RQ1403865-01	**File ID:**	I:\ACQUDATA\5973B\DATA\042314\DK027.D\
Analytical Method:	680		
Prep Method:	EPA 3510C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1403865-02	I:\ACQUDATA\5973B\DATA\042314\DK028.D\	4/23/14 10:10
Duplicate Lab Control Sample	RQ1403865-03	I:\ACQUDATA\5973B\DATA\042314\DK029.D\	4/23/14 10:40
MRC-MW-43A-041714	R1402795-001	I:\ACQUDATA\5973B\DATA\042314\DK030.D\	4/23/14 11:09
MRC-MW-43A-041714 Dissolved	R1402795-002	I:\ACQUDATA\5973B\DATA\042314\DK031.D\	4/23/14 11:38
MRC-MW-44A-041714	R1402795-003	I:\ACQUDATA\5973B\DATA\042314\DK032.D\	4/23/14 12:07
MRC-MW-44A-041714 Dissolved	R1402795-004	I:\ACQUDATA\5973B\DATA\042314\DK035.D\	4/23/14 14:04
MRC-MW-62A-041714	R1402795-005	I:\ACQUDATA\5973B\DATA\042314\DK036.D\	4/23/14 14:33
MRC-MW-62A-041714 Dissolved	R1402795-006	I:\ACQUDATA\5973B\DATA\042314\DK037.D\	4/23/14 15:02
MRC-MW-62C-041714	R1402795-007	I:\ACQUDATA\5973B\DATA\042314\DK041.D\	4/23/14 16:58
MRC-MW-62C-041714 Dissolved	R1402795-008	I:\ACQUDATA\5973B\DATA\042314\DK042.D\	4/23/14 17:27
MRC-MW-113A-041814	R1402795-009	I:\ACQUDATA\5973B\DATA\042314\DK043.D\	4/23/14 17:56
MRC-MW-113A-041814 Dissolved	R1402795-010	I:\ACQUDATA\5973B\DATA\042314\DK040.D\	4/23/14 18:25
MRC-MW-114A-041814	R1402795-011	I:\ACQUDATA\5973B\DATA\042414\DK060.D\	4/24/14 11:40
MRC-MW-114A-041814 Dissolved	R1402795-012	I:\ACQUDATA\5973B\DATA\042414\DK061.D\	4/24/14 12:09
MRC-MW-103A-041814	R1402795-013	I:\ACQUDATA\5973B\DATA\042414\DK062.D\	4/24/14 12:38
MRC-MW-103A-041814 Dissolved	R1402795-014	I:\ACQUDATA\5973B\DATA\042414\DK067.D\	4/24/14 15:05
MRC-MW-103B-041814	R1402795-015	I:\ACQUDATA\5973B\DATA\042414\DK068.D\	4/24/14 15:34
MRC-MW-103B-041814 Dissolved	R1402795-016	I:\ACQUDATA\5973B\DATA\042414\DK069.D\	4/24/14 16:03

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 09:41
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1403865-01	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK027.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	0.0017	U	0.0050	0.0017	
25512-42-9	Dichlorobiphenyls, Total	0.0044	U	0.0050	0.0044	
25323-68-6	Trichlorobiphenyls, Total	0.0034	U	0.0050	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	0.0054	U	0.010	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	0.0088	U	0.010	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	0.010	U	0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	0.011	U	0.015	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.015	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.020	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.025	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	92	63-119	4/23/14 09:41	
4,4'-DDT	120	62-181	4/23/14 09:41	

Client: Tetra Tech
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1402795
Date Analyzed: 4/23/14

Lab Control Sample Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method: 680
Prep Method: EPA 3510C

Units: µg/L
Basis: NA

Extraction Lot: 206571

Analyte Name	Lab Control Sample RQ1403865-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1403865-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Monochlorobiphenyls, Total	0.175	0.250	70	0.185	0.250	74	34 - 137	6	30
Dichlorobiphenyls, Total	0.190	0.250	76	0.195	0.250	78	37 - 139	3	30
Trichlorobiphenyls, Total	0.185	0.250	74	0.190	0.250	76	10 - 173	3	30
Tetrachlorobiphenyls, Total	0.365	0.500	73	0.355	0.500	71	14 - 153	3	30
Pentachlorobiphenyls, Total	0.425	0.500	85	0.425	0.500	85	10 - 180	<1	30
Hexachlorobiphenyls, Total	0.400	0.500	80	0.375	0.500	75	11 - 160	6	30
Heptachlorobiphenyls, Total	0.580	0.750	77	0.600	0.750	80	53 - 120	3	30
Octachlorobiphenyls, Total	0.615	0.750	82	0.660	0.750	88	57 - 125	7	30
Decachlorobiphenyls, Total	1.02	1.25	81	1.08	1.25	86	29 - 162	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1402795
Date Analyzed: 4/23/14 09:03

Internal Standard Area and RT Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

File ID: I:\ACQUDATA\5973B\DATA\042314\DK026.D\
Instrument ID: R-MS-52
Analytical Method: 680

Lab Code: RQ1404131-02
Analysis Lot: 389618
Signal ID:

		Phenanthrene-d10		Chrysene-d12	
		Area	RT	Area	RT
	Results ==>	185,594	11.30	173,846	17.02
	Upper Limit ==>	278,391	11.80	260,769	17.52
	Lower Limit ==>	55,678	10.80	52,154	16.52
	ICAL Result ==>	205,126	11.30	175,806	17.02
Associated Analyses					
Method Blank	RQ1403865-01	152,727	11.31	146,872	17.02
Lab Control Sample	RQ1403865-02	164,500	11.30	155,040	17.02
Duplicate Lab Control Sample	RQ1403865-03	167,213	11.30	149,893	17.02
MRC-MW-43A-041714	R1402795-001	157,852	11.30	148,731	17.02
MRC-MW-43A-041714 Dissolved	R1402795-002	138,621	11.30	143,510	17.02
MRC-MW-44A-041714	R1402795-003	143,569	11.30	137,843	17.02
Continuing Cal. Verification	RQ1404131-03	179,711	11.30	158,123	17.02
MRC-MW-44A-041714 Dissolved	R1402795-004	163,738	11.30	163,531	17.02
MRC-MW-62A-041714	R1402795-005	156,824	11.30	155,039	17.03
MRC-MW-62A-041714 Dissolved	R1402795-006	148,991	11.30	139,692	17.03
Continuing Cal. Verification	RQ1404131-04	200,326	11.30	190,487	17.02
MRC-MW-62C-041714	R1402795-007	154,497	11.30	155,548	17.03
MRC-MW-62C-041714 Dissolved	R1402795-008	155,420	11.30	147,902	17.03
MRC-MW-113A-041814	R1402795-009	165,786	11.30	150,793	17.02
MRC-MW-113A-041814 Dissolved	R1402795-010	166,709	11.30	154,619	17.02
Continuing Cal. Verification	RQ1404131-05	167,483	11.30	153,843	17.02

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1402795
Date Analyzed: 4/24/14 11:10

Internal Standard Area and RT Summary
Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

File ID: I:\ACQUDATA\5973B\DATA\042414\DK059.D\
Instrument ID: R-MS-52
Analytical Method: 680

Lab Code: RQ1404186-02
Analysis Lot: 389812
Signal ID:

		Phenanthrene-d10		Chrysene-d12	
		Area	RT	Area	RT
	Results ==>	198,224	11.26	178,373	16.99
	Upper Limit ==>	297,336	11.76	267,560	17.49
	Lower Limit ==>	59,467	10.76	53,512	16.49
	ICAL Result ==>	205,126	11.30	175,806	17.02
Associated Analyses					
MRC-MW-114A-041814	R1402795-011	164,454	11.27	155,105	16.99
MRC-MW-114A-041814 Dissolved	R1402795-012	166,604	11.27	165,830	16.99
MRC-MW-103A-041814	R1402795-013	167,967	11.27	160,118	16.99
Continuing Cal. Verification	RQ1404186-03	194,964	11.27	180,470	16.99
MRC-MW-103A-041814 Dissolved	R1402795-014	166,234	11.27	148,273	16.99
MRC-MW-103B-041814	R1402795-015	162,562	11.26	166,806	16.99
MRC-MW-103B-041814 Dissolved	R1402795-016	162,659	11.27	171,923	16.99
Continuing Cal. Verification	RQ1404186-04	151,796	11.27	139,396	16.99

Results flagged with an asterisk (*) indicate values outside control criteria.

PCB CONGENER METHOD 680 CALCULATION

	SAMPLE MRC-MW-43A-041714	
TARGET ANALYTE	**MONOCHLOROBIPHENYL**	
ANALYTE RESPONSE	80895	
INTERNAL STANDARD	d12-chrysene	
I.S. RESPONSE	148731	
I.S. CONCENTRATION	0.75	ug/ml
ANALYTE CAL. RELATIVE RESPONSE FACTOR (RRF)	0.872	
VOLUME OF FINAL EXTRACT	500	ul
VOLUME OF INITIAL EXTRACT	1000	ml
VOLUME INJECTED	1	ul
DILUTION FACTOR (DF)	1	
	on column result	0.4678

$$\frac{\text{(ANALYTE RESPONSE) X (I.S. CONCENTRATION) X DF X Vol final}}{\text{(I.S. RESPONSE) X (CAL. RRF) X (vol. initial)}} = 0.2339 \text{ ug/l}$$

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech	**Service Request:**	R1402795
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	4/17/14 0907
Sample Matrix:	Water	**Date Received:**	4/18/14
		Date Extracted:	4/21/14
		Date Analyzed:	4/23/14 11:09
Sample Name:	MRC-MW-43A-041714	**Units:**	µg/L
Lab Code:	R1402795-001	**Basis:**	NA

Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analytical Method:	680	**Analysis Lot:**	389618
Prep Method:	EPA 3510C	**Extraction Lot:**	206571
Data File Name:	I:\ACQUDATA\5973B\DATA\042314\DK030.D\	**Instrument Name:**	R-MS-52
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
27323-18-8	Monochlorobiphenyls, Total	**0.23**		0.0050	0.0017	
25512-42-9	Dichlorobiphenyls, Total	**0.034**		0.0050	0.0044	
25323-68-6	Trichlorobiphenyls, Total	**0.012**		0.0050	0.0034	
26914-33-0	Tetrachlorobiphenyls, Total	**0.048**		0.010	0.0054	
25429-29-2	Pentachlorobiphenyls, Total	**0.23**		0.010	0.0088	
26601-64-9	Hexachlorobiphenyls, Total	**0.054**		0.010	0.010	
28655-71-2	Heptachlorobiphenyls, Total	**0.012**	J	0.015	0.011	
55722-26-4	Octachlorobiphenyls, Total	0.0084	U	0.015	0.0084	
53742-07-7	Nonachlorobiphenyls, Total	0.019	U	0.020	0.019	
2051-24-3	Decachlorobiphenyls, Total	0.018	U	0.025	0.018	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	89	63-119	4/23/14 11:09	
4,4'-DDT	128	62-181	4/23/14 11:09	

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\5973B\DATA\042314\DK030.D Vial: 6
Acq On : 23 Apr 2014 11:09 am Operator: J.Wu
Sample : R1402795-001|1.0 Inst : 5973-B
Misc : 04/21/2014 1.0 TetraTech 680.PCB Multiplr: 1.00
MS Integration Params: INTIS.P
Quant Time: Apr 24 14:41 2014 Quant Results File: 6800422B.RES

Quant Method : I:\ACQUDATA\5...\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Initial Calibration
DataAcq Meth : 680

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
1) d10-Phenanthrene	11.30	188	157852	0.75 ppm	0.00
2) d12-Chrysene	17.02	240	148731	0.75 ppm	0.00
System Monitoring Compounds					
5) SURR1, gamma-BHC	11.06	219	25482m	0.89 ppm	0.00
Spiked Amount 1.000	Range 55 - 101		Recovery = 89.00%		
13) SURR2, 4-4'-DDT	16.16	235	77865	1.28 ppm	0.00
Spiked Amount 1.000	Range 45 - 150		Recovery = 128.00%		
Target Compounds					Qvalue
27) MonoCB - Total	8.42	188	80895m	0.468 ppm	
38) DiCB - Total	10.48	222	8499m	0.068 ppm	
52) TriCB - Total	11.91	256	2014m	0.023 ppm	
68) TetraCB - Total	12.08	292	5171m	0.096 ppm	#
84) PentaCB - Total	14.77	326	17913m	0.453 ppm	#
100) HexaCB - Total	14.87	360	4097m	0.108 ppm	#
111) HeptaCB - Total	15.57	394	731m	0.024 ppm	#

4/24/14

(#) = qualifier out of range (m) = manual integration

Response Factor Report 5973-B

Method : I:\ACQUDATA\5973B\METHODS\6800422B.M (RTE Integrator)
Title : 680.PCB by SIM
Last Update : Wed Apr 23 10:52:45 2014
Response via : Initial Calibration

#13 calibrated from 0.1 - 3.0 ppm (6 points)

Calibration Files
00 =DK017.D 0 =DK018.D 0.5 =DK019.D
1.0 =DK020.D 1.5 =DK021.D 2.0 =DK022.D 3.0 = DK023.D

		Compound	00	0	0.5	1.0	1.5	2.0	Avg	%RSD
1)	IR	d10-Phenanthrene	ISTD							
2)	IR	d12-Chrysene	ISTD							
3)	TCM	Total Monochlorobip	1.008	0.878	0.849	0.882	0.887	0.827	0.872	8.29
4)	TCM	Total Dichlorobiphe	0.677	0.677	0.623	0.628	0.620	0.610	0.630	5.75
5)	SC	SURR1, gamma-BHC	0.151	0.138	0.132	0.143	0.150	0.150	0.144	4.81
6)	TCM	Total Trichlorobiph	0.485	0.446	0.429	0.437	0.423	0.427	0.433	6.95
7)	TCM	Total Tetrachlorobi	0.322	0.273	0.272	0.273	0.258	0.265	0.271	9.80
8)	TC	RT #104 (CL5)	0.195	0.174	0.254	0.178	0.182	0.172	0.188	16.24
9)	TCM	Total Pentachlorobi	0.227	0.184	0.201	0.194	0.196	0.203	0.200	6.74
10)	TCM	Total Hexachlorobip	0.200	0.174	0.177	0.183	0.218	0.182	0.191	8.59
11)	TC	RT #77 (CL4)	0.479	0.437	0.296	0.434	0.426	0.437	0.403	17.28
12)	TCM	Total Heptachlorobi	0.179	0.151	0.155	0.155	0.147	0.157	0.156	6.78
13)	SC	SURR2, 4-4'-DDT			0.246	0.278	0.300	0.343	0.307	15.90
14)	TCM	Total Octachlorobip	0.092	0.079	0.081	0.086	0.087	0.090	0.086	5.35
15)	TC	Total Nonachlorobip	0.059	0.052	0.053	0.056	0.055	0.059	0.056	4.94
16)	TCM	Total Decachlorobip	0.038	0.037	0.035	0.036	0.036	0.038	0.037	3.75
17)	L1	CL1 - #1							0.000	-1.00
18)	L1	CL1 - #2							0.000	-1.00
19)	L1	CL1 - #3							0.000	-1.00
20)	L1	CL1 - #4							0.000	-1.00
21)	L1	CL1 - #5							0.000	-1.00
22)	L1	CL1 - #6							0.000	-1.00
23)	L1	CL1 - #7							0.000	-1.00
24)	L1	CL1 - #8							0.000	-1.00
25)	L1	CL1 - #9							0.000	-1.00
26)	L1	CL1 - #10							0.000	-1.00
27)	L1	MonoCB - Total	1.008	0.878	0.849	0.882	0.887	0.827	0.872	8.29
28)	L2	CL2 - #1							0.000	-1.00
29)	L2	CL2 - #2							0.000	-1.00
30)	L2	CL2 - #3							0.000	-1.00
31)	L2	CL2 - #4							0.000	-1.00
32)	L2	CL2 - #5							0.000	-1.00
33)	L2	CL2 - #6							0.000	-1.00
34)	L2	CL2 - #7							0.000	-1.00
35)	L2	CL2 - #8							0.000	-1.00
36)	L2	CL2 - #9							0.000	-1.00
37)	L2	CL2 - #10							0.000	-1.00
38)	L2	DiCB - Total	0.677	0.677	0.623	0.628	0.620	0.610	0.630	5.75
39)	L3	CL3 - #1							0.000	-1.00
40)	L3	CL3 - #2							0.000	-1.00
41)	L3	CL3 - #3							0.000	-1.00
42)	L3	CL3 - #4							0.000	-1.00

(#) = Out of Range ### Number of calibration levels exceeded format ###

Preparation Information Benchsheet

Prep Run#: 206571 **Prep WorkFlow:** OrgExtAq(7) **Status:** Prepped
Team: Semivoa GCMS/DMURPHY **Prep Method:** EPA 3510C **Prep Date/Time:** 4/21/14 06:45 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1403865-01	MB		1000mL	680/Pest PCB	6			0.50mL	clear-colorless	0.5000 mL/68689	
2	RQ1403865-02	LCS		1000mL	680/Pest PCB	6			0.50mL	clear-colorless	0.5000 mL/68669; 0.5000 mL/68689	
3	RQ1403865-03	DLCS		1000mL	680/Pest PCB	6			0.50mL	clear-colorless	0.5000 mL/68669; 0.5000 mL/68689	
4	R1402795-001	MRC-MW-43A-041714	.01	1000mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	W 4/k str.
5	R1402795-002	MRC-MW-43A-041714 Dissolved	.01	1000mL	680/Pest PCB	7			0.50mL	yellow-cloudy	0.5000 mL/68689	
6	R1402795-003	MRC-MW-44A-041714	.02	1000mL	680/Pest PCB	7			0.50mL	yellow-opaque	0.5000 mL/68689	
7	R1402795-004	MRC-MW-44A-041714 Dissolved	.02	1000mL	680/Pest PCB	7			0.50mL	yellow-opque	0.5000 mL/68689	
8	R1402795-005	MRC-MW-62A-041714	.01	1060mL	680/Pest PCB	7			0.50mL	yellow-cloudy	0.5000 mL/68689	
9	R1402795-006	MRC-MW-62A-041714 Dissolved	.02	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
10	R1402795-007	MRC-MW-62C-041714	.02	1060mL	680/Pest PCB	7			0.50mL	orang3e-opaque	0.5000 mL/68689	
11	R1402795-008	MRC-MW-62C-041714 Dissolved	.01	1060mL	680/Pest PCB	7			0.50mL	yellow-opaque	0.5000 mL/68689	
12	R1402795-009	MRC-MW-113A-041814	.02	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
13	R1402795-010	MRC-MW-113A-041814 Dissolved	.02	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
14	R1402795-011	MRC-MW-114A-041814	.01	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	str.
15	R1402795-012	MRC-MW-114A-041814 Dissolved	.01	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
16	R1402795-013	MRC-MW-103A-041814	.02	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
17	R1402795-014	MRC-MW-103A-041814 Dissolved	.01	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
18	R1402795-015	MRC-MW-103B-041814	.02	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	
19	R1402795-016	MRC-MW-103B-041814 Dissolved	.01	1060mL	680/Pest PCB	7			0.50mL	clear-colorless	0.5000 mL/68689	

Spiking Solutions

Name: 680 Matrix Spike 0.5-2.0 ug/mL Inventory ID 68669 Logbook Ref: Expires On: 09/20/2014

Name: 680 PCB Surrogate 1 ug/mL Inventory ID 68689 Logbook Ref: Expires On: 09/20/2014

Preparation Materials

Eppendorf Pipette Repeater EXT #14 (61350)

2mL Graduated Vials (68794)

Dichloromethane (Methylene Chloride) 99.9% MeCl2 canister (68854)

Prepared Sodium Sulfate Na2SO4 (69492)

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **T. APANAVAGE** **DATE: AUGUST 26, 2014**

FROM: **EDWARD SEDLMYER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC / 1,4-DIOXANE / DISSOLVED GASES / PERCHLORATE**
LOCKHEED – MIDDLE RIVER CENTER (MRC)
SDG R1403433

SAMPLES: 19 / Aqueous / VOC

MRC-MW-101A-050814	MRC-MW-101B-050814	MRC-MW-102A-050814
MRC-MW-102B-050814	MRC-MW-104A-051214	MRC-MW-104B-051214
MRC-MW-32A-050814	MRC-MW-33A-050814	MRC-MW-34A-051214
MRC-MW-34B-051214	MRC-MW-34C-051214	MRC-MW-38A-051214
MRC-MW-69A-051314	MRC-MW-69B-051314	MRC-MW-96A-051314
MRC-MW-96B-051314	TB-050814	TB-051214
TB-051314		

4 / Aqueous / 1,4-Dioxane

MRC-MW-69A-051314	MRC-MW-69B-051314	MRC-MW-96A-051314
MRC-MW-96B-051314		

5 / Aqueous / Perchlorate

MRC-MW-38A-051214	MRC-MW-69A-051314	MRC-MW-69B-051314
MRC-MW-96A-051314	MRC-MW-96B-051314	

1 / Aqueous / Dissolved Gases

MRC-MW-34B-051214

Overview

The sample set for Lockheed – MRC, SDG R1403433 consists of seventeen (17) aqueous environmental samples and three (3) trip blanks. The samples were analyzed for volatile organic compounds (VOC), 1,4-dioxane, perchlorate, and dissolved gases as outlined above.

The samples were collected by Tetra Tech on May 8, 12, 13, and 14, 2014 and analyzed by Test America. All analyses were conducted in accordance with SW-846 Methods 8260C, 6850, EPA method 522, and RSK-175 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

- The matrix spike and matrix spike duplicate recoveries for 2-chloroethylvinyl ether in sample MRC-MW-96A-051314 were less than 10%. The nondetected result in sample MRC-MW-96A-051314 was qualified as rejected, (UR).

Minor

- The following contaminants were detected in the method blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Naphthalene[(1)]	0.28 ug/L	1.4 ug/L
Naphthalene[(2)]	0.26 ug/L	1.3 ug/L
Methane[(3)]	0.28 ug/L	1.4 ug/L

1 - Maximum concentration found in preparation blank (RQ1405407-04) affecting samples MRC-MW-101A-050814, MRC-MW-101B-050814, MRC-MW-102A-050814, MRC-MW-102B-050814, MRC-MW-32A-050814, MRC-MW-33A-050814, MRC-MW-34A-051214, MRC-MW-34B-051214, and MRC-MW-34C-051214.

2 - Maximum concentration found in preparation blank (RQ1405451-04) affecting samples MRC-MW-38A-051214, MRC-MW-104A-051214, MRC-MW-104B-051214, MRC-MW-69A-051314, MRC-MW-69B-051314, MRC-MW-96A-051314, MRC-MW-96B-051314, TB-050814, TB-051214, and TB-051314.

3 - Maximum concentration found in preparation blank (RQ1405177-01) affecting sample MRC-MW-34B-051214.

An action level of 5X the maximum contaminant level for naphthalene and methane have been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Detections less than the action level were qualified (U) due to blank contamination.

- The VOC continuing calibration percent differences (%Ds) were greater than the quality control limit of 20% for 1,1,2-trichlorotrifluoroethane, 2-chloroethyl vinyl ether, 4-isopropyltoluene, hexachlorobutadiene, n-butylbenzene, sec-butylbenzene, and tert-butylbenzene for instrument R-MS-08 on 05/20/14 @09:38. The nondetected results for the aforementioned compounds in samples MRC-MW-101A-050814, MRC-MW-101B-050814, MRC-MW-102A-050814, MRC-MW-102B-050814, MRC-MW-32A-050814, MRC-MW-33A-050814, MRC-MW-34A-051214, MRC-MW-34B-051214, and MRC-MW-34C-051214 were qualified as estimated (UJ).

- The VOC continuing calibration %Ds were greater than the quality control limit of 20% for 2-chloroethyl vinyl ether, tert-butyl alcohol, acetone, and hexachlorobutadiene for instrument R-MS-08 on 05/21/14 @11:57. The nondetected results for the aforementioned compounds in samples MRC-MW-38A-051214, MRC-MW-104A-051214, MRC-MW-104B-051214, MRC-MW-69A-051314, MRC-MW-69B-051314, MRC-MW-96A-051314, MRC-MW-96B-051314, TB-050814, TB-051214, and TB-051314 were qualified as estimated (UJ).

- The compound cis-1,2-dichloroethene result reported from the undiluted analysis for sample MRC-MW-69B-051314 exceeded the linear calibration range of the instrument. The sample was re-analyzed at a four-fold dilution one day outside the 14 day hold time. The data validator chose the cis-1,2-dichloroethene result from the undiluted analysis as the valid result because it was the greater concentration of the two results and was analyzed within the hold time. The cis-1,2-dichloroethene result for sample MRC-MW-69B-051314 was qualified as estimated (J).

- Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

Notes

The laboratory control sample (LCS) RQ1405407-03 had a percent recovery greater than the quality control limit for tert-butyl alcohol. No action was taken on tert-butyl alcohol results because all affected results were nondetect.

Sample MRC-MW-102A-050814 was re-analyzed outside the 14 day VOC hold time. No action was taken on this basis because no results were reported from the re-analysis.

The VOC matrix spike / matrix spike duplicate (MS/MSD) performed on sample MRC-MW-96A-051314 had a high recovery for 1,2,3-trichlorobenzene in the MSD. No action was taken on the nondetected 1,2,3-trichlorobenzene result.

Nondetected results were reported to the MDL.

Samples MRC-MW-96A-051314 and MRC-MW-96B-051314 required dilutions due to VOC concentrations greater than the linear calibration range of the instrument. This accounts for the elevated detection limits for the nondetected compounds.

Executive Summary

Laboratory Performance: Blank contamination was noted in the VOC and dissolved gases fraction. Continuing calibration %D noncompliances resulted in the qualification of VOC data. One VOC compound was qualified because the reported result exceeded the linear calibration range of the instrument.

Other Factors Affecting Data Quality: Positive results less than the reporting limit (RL) were qualified as estimated, due to uncertainty near the detection limit. A MS/MSD recovery noncompliance resulted in the qualification of one VOC compound.

The data for these analyses were reviewed with reference to USEPA National Functional Guidelines for Organic Data Validation (June 2008). The text of this report has been formulated to address only those problem areas affecting data quality.

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Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-101A-050814			MRC-MW-101B-050814			MRC-MW-102A-050814			MRC-MW-102B-050814		
SDG: R1403433	LAB_ID	R1403433-004			R1403433-003			R1403433-002			R1403433-001		
FRACTION: OV	SAMP_DATE	5/8/2014			5/8/2014			5/8/2014			5/8/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	U		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	UJ	C	0.31	UJ	C	0.31	UJ	C	0.31	UJ	C
1,1-DICHLOROETHANE		0.2	U		3.1			0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.57	U		1.1			0.57	U		1.9		
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.44	UJ	C	0.44	UJ	C	0.44	UJ	C	0.44	UJ	C
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	UJ	C	0.2	UJ	C	0.2	UJ	C	0.2	UJ	C
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE		1.3	U		1.3	U		1.3	U		1.3	U	
BENZENE		0.2	U		0.2	U		0.22	J	P	0.27	J	P
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	U		0.29	U		0.29	U		0.29	U	
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-104A-051214			MRC-MW-104B-051214			MRC-MW-32A-050814			MRC-MW-33A-050814		
SDG: R1403433	LAB_ID	R1403433-016			R1403433-017			R1403433-007			R1403433-008		
FRACTION: OV	SAMP_DATE	5/12/2014			5/12/2014			5/8/2014			5/8/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	U		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	UJ	C	0.31	UJ	C
1,1-DICHLOROETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.44	UJ	C	0.44	UJ	C	0.44	UJ	C	0.44	UJ	C
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	UJ	C	0.2	UJ	C
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE		1.3	UJ	C	1.3	UJ	C	1.3	U		1.3	U	
BENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	U		0.29	U		0.29	U		0.29	U	
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-34A-051214			MRC-MW-34B-051214			MRC-MW-34C-051214			MRC-MW-38A-051214		
SDG: R1403433	LAB_ID	R1403433-011			R1403433-012			R1403433-013			R1403433-014		
FRACTION: OV	SAMP_DATE	5/12/2014			5/12/2014			5/12/2014			5/12/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	UJ	C	0.31	UJ	C	0.31	UJ	C	0.31	U	
1,1-DICHLOROETHANE	0.2	U		0.73	J	P	0.2	U		0.2	U	
1,1-DICHLOROETHENE	0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE	0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	UJ	C	0.44	UJ	C	0.44	UJ	C	0.44	UJ	C
2-CHLOROTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE	1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE	0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	UJ	C	0.2	UJ	C	0.2	UJ	C	0.2	U	
4-METHYL-2-PENTANONE	0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE	1.3	U		1.3	U		1.3	U		1.3	UJ	C
BENZENE	0.2	U		0.23	J	P	0.2	U		0.2	U	
BROMOBENZENE	0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM	0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE	0.29	U		0.29	U		0.29	U		0.29	U	
CARBON DISULFIDE	0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		5.4			0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-69A-051314			MRC-MW-69B-051314			MRC-MW-96A-051314			MRC-MW-96A-051314-DL		
SDG: R1403433	LAB_ID	R1403433-022			R1403433-021			R1403433-024			R1403433-024		
FRACTION: OV	SAMP_DATE	5/13/2014			5/13/2014			5/14/2014			5/14/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		11	U				
1,1,1-TRICHLOROETHANE	0.36	U		0.36	U		18	U				
1,1,2,2-TETRACHLOROETHANE	0.25	U		0.25	U		13	U				
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		0.31	U		16	U				
1,1-DICHLOROETHANE	0.2	U		0.2	U		10	U				
1,1-DICHLOROETHENE	0.57	U		0.57	U		72					
1,1-DICHLOROPROPENE	0.29	U		0.29	U		15	U				
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		41	U				
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		35	U				
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		12	U				
1,2,4-TRIMETHYLBENZENE	0.2	U		0.2	U		10	U				
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		37	U				
1,2-DIBROMOETHANE	0.24	U		0.24	U		12	U				
1,2-DICHLOROBENZENE	0.21	U		0.21	U		11	U				
1,2-DICHLOROETHANE	0.36	U		0.36	U		18	U				
1,2-DICHLOROPROPANE	0.2	U		0.2	U		10	U				
1,3-DICHLOROBENZENE	0.2	U		0.2	U		10	U				
1,3-DICHLOROPROPANE	0.27	U		0.27	U		14	U				
1,4-DICHLOROBENZENE	0.2	U		0.2	U		10	U				
2,2-DICHLOROPROPANE	0.27	U		0.27	U		14	U				
2-BUTANONE	0.81	U		0.81	U		41	U				
2-CHLOROETHYL VINYL ETHER	0.44	UJ	C	0.44	UJ	C	22	UR	D			
2-CHLOROTOLUENE	0.2	U		0.2	U		10	U				
2-HEXANONE	1.7	U		1.7	U		83	U				
4-CHLOROTOLUENE	0.24	U		0.24	U		12	U				
4-ISOPROPYLTOLUENE	0.2	U		0.2	U		10	U				
4-METHYL-2-PENTANONE	0.67	U		0.67	U		34	U				
ACETONE	1.3	UJ	C	1.3	UJ	C	62	UJ	C			
BENZENE	0.2	U		0.2	U		10	U				
BROMOBENZENE	0.28	U		0.28	U		15	U				
BROMOCHLOROMETHANE	0.32	U		0.32	U		16	U				
BROMODICHLOROMETHANE	0.32	U		0.32	U		16	U				
BROMOFORM	0.42	U		0.42	U		21	U				
BROMOMETHANE	0.29	U		0.29	U		15	U				
CARBON DISULFIDE	0.22	U		0.22	U		11	U				
CARBON TETRACHLORIDE	0.45	U		0.45	U		23	U				

PROJ_NO: 06247	NSAMPLE	MRC-MW-96B-051314			MRC-MW-96B-051314-DL			TB-050814			TB-051214		
SDG: R1403433	LAB_ID	R1403433-025			R1403433-025			R1403433-009			R1403433-010		
FRACTION: OV	SAMP_DATE	5/14/2014			5/14/2014			5/8/2014			5/12/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.44	U					0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.72	U					0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U					0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.62	U					0.31	U		0.31	U	
1,1-DICHLOROETHANE		0.4	U					0.2	U		0.2	U	
1,1-DICHLOROETHENE		1.2	U					0.57	U		0.57	U	
1,1-DICHLOROPROPENE		0.58	U					0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		1.7	U					0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		1.4	U					0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.46	U					0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		22						0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		1.5	U					0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.48	U					0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.42	U					0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.72	U					0.36	U		0.36	U	
1,2-DICHLOROPROPANE		0.4	U					0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.4	U					0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.54	U					0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.4	U					0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.54	U					0.27	U		0.27	U	
2-BUTANONE		1.7	U					0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.88	UJ	C				0.44	UJ	C	0.44	UJ	C
2-CHLOROTOLUENE		0.4	U					0.2	U		0.2	U	
2-HEXANONE		3.4	U					1.7	U		1.7	U	
4-CHLOROTOLUENE		0.48	U					0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.4	U					0.2	U		0.2	U	
4-METHYL-2-PENTANONE		1.4	U					0.67	U		0.67	U	
ACETONE		2.5	UJ	C				1.3	UJ	C	1.3	UJ	C
BENZENE					470			0.2	U		0.2	U	
BROMOBENZENE		0.56	U					0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.64	U					0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.64	U					0.32	U		0.32	U	
BROMOFORM		0.84	U					0.42	U		0.42	U	
BROMOMETHANE		0.58	U					0.29	U		0.29	U	
CARBON DISULFIDE		0.44	U					0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.9	U					0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	TB-051314
SDG: R1403433	LAB_ID	R1403433-019
FRACTION: OV	SAMP_DATE	5/13/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U	
1,1-DICHLOROETHANE	0.2	U	
1,1-DICHLOROETHENE	0.57	U	
1,1-DICHLOROPROPENE	0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U	
1,2-DIBROMOETHANE	0.24	U	
1,2-DICHLOROBENZENE	0.21	U	
1,2-DICHLOROETHANE	0.36	U	
1,2-DICHLOROPROPANE	0.2	U	
1,3-DICHLOROBENZENE	0.2	U	
1,3-DICHLOROPROPANE	0.27	U	
1,4-DICHLOROBENZENE	0.2	U	
2,2-DICHLOROPROPANE	0.27	U	
2-BUTANONE	0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	UJ	C
2-CHLOROTOLUENE	0.2	U	
2-HEXANONE	1.7	U	
4-CHLOROTOLUENE	0.24	U	
4-ISOPROPYLTOLUENE	0.2	U	
4-METHYL-2-PENTANONE	0.67	U	
ACETONE	1.3	UJ	C
BENZENE	0.2	U	
BROMOBENZENE	0.28	U	
BROMOCHLOROMETHANE	0.32	U	
BROMODICHLOROMETHANE	0.32	U	
BROMOFORM	0.42	U	
BROMOMETHANE	0.29	U	
CARBON DISULFIDE	0.22	U	
CARBON TETRACHLORIDE	0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-101A-050814			MRC-MW-101B-050814			MRC-MW-102A-050814			MRC-MW-102B-050814		
SDG: R1403433	LAB_ID	R1403433-004			R1403433-003			R1403433-002			R1403433-001		
FRACTION: OV	SAMP_DATE	5/8/2014			5/8/2014			5/8/2014			5/8/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		2.6			1.4			1.2			410	J	L
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	UJ	C	0.62	UJ	C	0.62	UJ	C	0.62	UJ	C
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	UJ	C	0.21	UJ	C	0.21	UJ	C	0.21	UJ	C
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	UJ	C	0.27	UJ	C	0.27	UJ	C	0.27	UJ	C
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	UJ	C	0.2	UJ	C	0.2	UJ	C	0.2	UJ	C
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		2.9		
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		1.1			1.4			0.22	U		93		
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U		0.35	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-104A-051214			MRC-MW-104B-051214			MRC-MW-32A-050814			MRC-MW-33A-050814		
SDG: R1403433	LAB_ID	R1403433-016			R1403433-017			R1403433-007			R1403433-008		
FRACTION: OV	SAMP_DATE	5/12/2014			5/12/2014			5/8/2014			5/8/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		0.3	U		0.3	U		0.67	J	P
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	UJ	C	0.62	UJ	C	0.62	UJ	C	0.62	UJ	C
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		1.2		
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	UJ	C	0.21	UJ	C
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	UJ	C	0.27	UJ	C
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	UJ	C	0.2	UJ	C
TERTIARY-BUTYL ALCOHOL		11	UJ	C	11	UJ	C	11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.22	U		0.22	U		0.22	U		0.6	J	P
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-34A-051214			MRC-MW-34B-051214			MRC-MW-34C-051214			MRC-MW-38A-051214		
SDG: R1403433	LAB_ID	R1403433-011			R1403433-012			R1403433-013			R1403433-014		
FRACTION: OV	SAMP_DATE	5/12/2014			5/12/2014			5/12/2014			5/12/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		1.9			0.25	U		6.9		
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		15			0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	UJ	C	0.62	UJ	C	0.62	UJ	C	0.62	UJ	C
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		18			0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	UJ	C	0.21	UJ	C	0.21	UJ	C	0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	UJ	C	0.27	UJ	C	0.27	UJ	C	0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	UJ	C	0.2	UJ	C	0.2	UJ	C	0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	UJ	C
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		1.1			0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		14			16			0.22	U		0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		2.2			0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-69A-051314			MRC-MW-69B-051314			MRC-MW-96A-051314			MRC-MW-96A-051314-DL		
SDG: R1403433	LAB_ID	R1403433-022			R1403433-021			R1403433-024			R1403433-024		
FRACTION: OV	SAMP_DATE	5/13/2014			5/13/2014			5/14/2014			5/14/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		15	U				
CHLORODIBROMOMETHANE		0.31	U		0.31	U		16	U				
CHLOROETHANE		0.24	U		0.24	U		12	U				
CHLOROFORM		0.25	U		0.25	U		13	U				
CHLOROMETHANE		0.21	U		0.21	U		11	U				
CIS-1,2-DICHLOROETHENE		0.3	U		0.3	U					31000		
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		12	U				
DIBROMOMETHANE		0.32	U		0.32	U		16	U				
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		23	U				
DIISOPROPYL ETHER		0.2	U		0.2	U		10	U				
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		10	U				
ETHYLBENZENE		0.2	U		0.2	U		10	U				
HEXACHLOROBUTADIENE		0.62	UJ	C	0.62	UJ	C	31	UJ	C			
ISOPROPYLBENZENE		0.2	U		0.2	U		10	U				
M+P-XYLENES		0.33	U		0.33	U		17	U				
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		15	U				
METHYLENE CHLORIDE		0.32	U		0.32	U		16	U				
NAPHTHALENE		0.2	U		0.52	U	A	18	J	P			
N-BUTYLBENZENE		0.21	U		0.21	U		11	U				
N-PROPYLBENZENE		0.2	U		0.2	U		10	U				
O-XYLENE		0.2	U		0.2	U		10	U				
SEC-BUTYLBENZENE		0.27	U		0.27	U		14	U				
STYRENE		0.2	U		0.2	U		10	U				
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		10	U				
TERT-BUTYLBENZENE		0.2	U		0.2	U		10	U				
TERTIARY-BUTYL ALCOHOL		11	UJ	C	11	UJ	C	540	UJ	C			
TETRACHLOROETHENE		0.3	U		0.3	U		15	U				
TOLUENE		0.2	U		0.2	U		10	U				
TOTAL XYLENES		0.53	U		0.53	U		27	U				
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		75					
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		10	U				
TRICHLOROETHENE		0.22	U		0.22	U		3300					
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		10	U				
VINYL ACETATE		1.1	U		1.1	U		51	U				
VINYL CHLORIDE		0.32	U		0.32	U		37	J	P			

PROJ_NO: 06247	NSAMPLE	MRC-MW-96B-051314			MRC-MW-96B-051314-DL			TB-050814			TB-051214		
SDG: R1403433	LAB_ID	R1403433-025			R1403433-025			R1403433-009			R1403433-010		
FRACTION: OV	SAMP_DATE	5/14/2014			5/14/2014			5/8/2014			5/12/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE	0.58	U					0.29	U		0.29	U	
CHLORODIBROMOMETHANE	0.62	U					0.31	U		0.31	U	
CHLOROETHANE	0.48	U					0.24	U		0.24	U	
CHLOROFORM	0.58	J	P				0.25	U		0.25	U	
CHLOROMETHANE	0.42	U					0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE	22						0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE	0.48	U					0.24	U		0.24	U	
DIBROMOMETHANE	0.64	U					0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE	0.92	U					0.46	U		0.46	U	
DIISOPROPYL ETHER	0.4	U					0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER	0.4	U					0.2	U		0.2	U	
ETHYLBENZENE	6.7						0.2	U		0.2	U	
HEXACHLOROBUTADIENE	1.3	UJ	C				0.62	UJ	C	0.62	UJ	C
ISOPROPYLBENZENE	7.8						0.2	U		0.2	U	
M+P-XYLENES	35						0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER	23						0.29	U		0.29	U	
METHYLENE CHLORIDE	0.64	U					0.32	U		0.32	U	
NAPHTHALENE	19						0.2	U		0.2	U	
N-BUTYLBENZENE	1.4	J	P				0.21	U		0.21	U	
N-PROPYLBENZENE	4.3						0.2	U		0.2	U	
O-XYLENE	68						0.2	U		0.2	U	
SEC-BUTYLBENZENE	1.5	J	P				0.27	U		0.27	U	
STYRENE	2.2						0.2	U		0.2	U	
TERT-AMYL METHYL ETHER	0.4	U					0.2	U		0.2	U	
TERT-BUTYLBENZENE	0.4	U					0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL	22	UJ	C				11	UJ	C	11	UJ	C
TETRACHLOROETHENE	0.6	U					0.3	U		0.3	U	
TOLUENE	1.3	J	P				0.2	U		0.2	U	
TOTAL XYLENES	100						0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE	0.74	J	P				0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.4	U					0.2	U		0.2	U	
TRICHLOROETHENE	15						0.22	U		0.22	U	
TRICHLOROFLUOROMETHANE	0.4	U					0.2	U		0.2	U	
VINYL ACETATE	2.1	U					1.1	U		1.1	U	
VINYL CHLORIDE	0.64	U					0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	TB-051314
SDG: R1403433	LAB_ID	R1403433-019
FRACTION: OV	SAMP_DATE	5/13/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CHLOROBENZENE	0.29	U	
CHLORODIBROMOMETHANE	0.31	U	
CHLOROETHANE	0.24	U	
CHLOROFORM	0.25	U	
CHLOROMETHANE	0.21	U	
CIS-1,2-DICHLOROETHENE	0.3	U	
CIS-1,3-DICHLOROPROPENE	0.24	U	
DIBROMOMETHANE	0.32	U	
DICHLORODIFLUOROMETHANE	0.46	U	
DIISOPROPYL ETHER	0.2	U	
ETHYL TERT-BUTYL ETHER	0.2	U	
ETHYLBENZENE	0.2	U	
HEXACHLOROBUTADIENE	0.62	UJ	C
ISOPROPYLBENZENE	0.2	U	
M+P-XYLENES	0.33	U	
METHYL TERT-BUTYL ETHER	0.29	U	
METHYLENE CHLORIDE	0.32	U	
NAPHTHALENE	0.2	U	
N-BUTYLBENZENE	0.21	U	
N-PROPYLBENZENE	0.2	U	
O-XYLENE	0.2	U	
SEC-BUTYLBENZENE	0.27	U	
STYRENE	0.2	U	
TERT-AMYL METHYL ETHER	0.2	U	
TERT-BUTYLBENZENE	0.2	U	
TERTIARY-BUTYL ALCOHOL	11	UJ	C
TETRACHLOROETHENE	0.3	U	
TOLUENE	0.2	U	
TOTAL XYLENES	0.53	U	
TRANS-1,2-DICHLOROETHENE	0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	0.22	U	
TRICHLOROFLUOROMETHANE	0.2	U	
VINYL ACETATE	1.1	U	
VINYL CHLORIDE	0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-69A-051314			MRC-MW-69B-051314			MRC-MW-96A-051314			MRC-MW-96B-051314		
SDG: R1403433	LAB_ID	R1403433-022			R1403433-021			R1403433-024			R1403433-025		
FRACTION: OS	SAMP_DATE	5/13/2014			5/13/2014			5/14/2014			5/14/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		3.27			0.393			5.52			1.16		

PROJ_NO: 06247	NSAMPLE	MRC-MW-34B-051214		
SDG: R1403433	LAB_ID	R1403433-012		
FRACTION: OVG	SAMP_DATE	5/12/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ETHANE		0.29	J	P
ETHENE		0.11	U	
METHANE		69		

PROJ_NO: 06247	NSAMPLE	MRC-MW-34B-051214		
SDG: R1403433	LAB_ID	R1403433-012		
FRACTION: MISC	SAMP_DATE	5/12/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	MG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
AMMONIA-N		0.004	U	
CARBONATE ALKALINITY		0.3	U	
CHLORIDE		165		
DISSOLVED ORGANIC CARBON		1.1		
NITRATE-N		0.5	J	P
NITRITE-N		0.3	U	
ORTHOPHOSPHATE-P		0.002	U	
SILICA		8.04		
SULFATE		27.3		
TOTAL DISSOLVED SOLIDS		314		

PROJ_NO: 06247	NSAMPLE	MRC-MW-38A-051214			MRC-MW-69A-051314			MRC-MW-69B-051314			MRC-MW-96A-051314		
SDG: R1403433	LAB_ID	R1403433-014			R1403433-022			R1403433-021			R1403433-024		
FRACTION: MISCO	SAMP_DATE	5/12/2014			5/13/2014			5/13/2014			5/14/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		0.59			0.026	U		0.026	U		0.026	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-96B-051314		
SDG: R1403433	LAB_ID	R1403433-025		
FRACTION: MISCO	SAMP_DATE	5/14/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PERCHLORATE		2.8		

Appendix B

Results as Reported by the Laboratory

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1430
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 15:25
Sample Name:	MRC-MW-101A-050814	**Units:**	µg/L
Lab Code:	R1403433-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4737.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1430
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 15:25
Sample Name:	MRC-MW-101A-050814	**Units:**	µg/L
Lab Code:	R1403433-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4737.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.1**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**2.6**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1430
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 15:25
Sample Name:	MRC-MW-101A-050814	**Units:**	µg/L
Lab Code:	R1403433-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4737.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	5/20/14 15:25	
Dibromofluoromethane	108	89-119	5/20/14 15:25	
Toluene-d8	117	87-121	5/20/14 15:25	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1245
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:58
Sample Name:	MRC-MW-101B-050814	**Units:**	µg/L
Lab Code:	R1403433-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4736.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	3.1		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.1		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1245
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:58
Sample Name:	MRC-MW-101B-050814	**Units:**	µg/L
Lab Code:	R1403433-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4736.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.4**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.4**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1245
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:58
Sample Name:	MRC-MW-101B-050814	**Units:**	µg/L
Lab Code:	R1403433-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4736.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	5/20/14 14:58	
Dibromofluoromethane	115	89-119	5/20/14 14:58	
Toluene-d8	119	87-121	5/20/14 14:58	

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/1121C06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/ 8/14 1100
Date Received: 5/ 9/14
Date Analyzed: 5/20/14 14:31

Sample Name: MRC-MW-102A-050814
Lab Code: R1403433-002

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA8\DATA\052014\C4735.D\

Analysis Lot: 393494
Instrument Name: R-MS-08
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**0.22**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1100
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:31
Sample Name:	MRC-MW-102A-050814	**Units:**	µg/L
Lab Code:	R1403433-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4735.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.2		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1100
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:31
Sample Name:	MRC-MW-102A-050814	**Units:**	µg/L
Lab Code:	R1403433-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4735.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	5/20/14 14:31	
Dibromofluoromethane	106	89-119	5/20/14 14:31	
Toluene-d8	113	87-121	5/20/14 14:31	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1100
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/23/14 13:53
Sample Name:	MRC-MW-102A-050814	**Units:**	µg/L
Lab Code:	R1403433-002	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4824.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	*
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	*
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	*
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	*
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	*
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	*
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	*
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	*
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	*
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	*
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	*
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	*
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	*
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	*
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	*
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	*
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	*
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	*
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	*
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	*
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	*
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	*
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	*
591-78-6	2-Hexanone	5.0	U	5.0	1.7	*
75-65-0	tert-Butyl Alcohol	40	U	40	11	*
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	*
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	*
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	*
67-64-1	Acetone	5.0	U	5.0	1.3	*
71-43-2	Benzene	**0.22**	J	1.0	0.20	*
108-86-1	Bromobenzene	1.0	U	1.0	0.28	*
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	*
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	*
75-25-2	Bromoform	1.0	U	1.0	0.42	*
74-83-9	Bromomethane	1.0	U	1.0	0.29	*

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1100
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/23/14 13:53
Sample Name:	MRC-MW-102A-050814	**Units:**	µg/L
Lab Code:	R1403433-002	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4824.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	*
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	*
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	*
75-00-3	Chloroethane	1.0	U	1.0	0.24	*
67-66-3	Chloroform	1.0	U	1.0	0.25	*
74-87-3	Chloromethane	1.0	U	1.0	0.21	*
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	*
74-95-3	Dibromomethane	1.0	U	1.0	0.32	*
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	*
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	*
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	*
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	*
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	*
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	*
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	*
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	*
91-20-3	Naphthalene	**0.26**	BJ	1.0	0.20	*
100-42-5	Styrene	1.0	U	1.0	0.20	*
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	*
108-88-3	Toluene	1.0	U	1.0	0.20	*
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	*
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	*
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	*
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	*
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	*
156-59-2	cis-1,2-Dichloroethene	**0.69**	J	1.0	0.30	*
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	*
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	*
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	*
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	*
95-47-6	o-Xylene	1.0	U	1.0	0.20	*
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	*
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	*
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	*
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	*

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1100
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/23/14 13:53
Sample Name:	MRC-MW-102A-050814	**Units:**	µg/L
Lab Code:	R1403433-002	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4824.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	*

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	5/23/14 13:53	
Dibromofluoromethane	110	89-119	5/23/14 13:53	
Toluene-d8	116	87-121	5/23/14 13:53	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 0950
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:04
Sample Name:	MRC-MW-102B-050814	**Units:**	µg/L
Lab Code:	R1403433-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4734.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**1.9**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**0.27**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 0950
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:04
Sample Name:	MRC-MW-102B-050814	**Units:**	µg/L
Lab Code:	R1403433-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4734.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**93**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.35**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**410**	E	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**2.9**		1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 0950
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 14:04
Sample Name:	MRC-MW-102B-050814	**Units:**	µg/L
Lab Code:	R1403433-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4734.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	5/20/14 14:04	
Dibromofluoromethane	110	89-119	5/20/14 14:04	
Toluene-d8	119	87-121	5/20/14 14:04	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 0950
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/23/14 14:20
Sample Name:	MRC-MW-102B-050814	**Units:**	µg/L
Lab Code:	R1403433-001	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4825.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	4.0	U	4.0	0.88	*
71-55-6	1,1,1-Trichloroethane (TCA)	4.0	U	4.0	1.5	*
79-34-5	1,1,2,2-Tetrachloroethane	4.0	U	4.0	1.0	*
76-13-1	1,1,2-Trichlorotrifluoroethane	4.0	U	4.0	1.3	*
75-34-3	1,1-Dichloroethane (1,1-DCA)	4.0	U	4.0	0.80	*
75-35-4	1,1-Dichloroethene (1,1-DCE)	4.0	U	4.0	2.3	*
563-58-6	1,1-Dichloropropene	4.0	U	4.0	1.2	*
87-61-6	1,2,3-Trichlorobenzene	4.0	U	4.0	3.3	*
96-18-4	1,2,3-Trichloropropane	4.0	U	4.0	2.8	*
120-82-1	1,2,4-Trichlorobenzene	4.0	U	4.0	0.92	*
95-63-6	1,2,4-Trimethylbenzene	4.0	U	4.0	0.80	*
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	8.0	U	8.0	3.0	*
106-93-4	1,2-Dibromoethane	4.0	U	4.0	0.96	*
95-50-1	1,2-Dichlorobenzene	4.0	U	4.0	0.84	*
107-06-2	1,2-Dichloroethane	4.0	U	4.0	1.5	*
78-87-5	1,2-Dichloropropane	4.0	U	4.0	0.80	*
541-73-1	1,3-Dichlorobenzene	4.0	U	4.0	0.80	*
142-28-9	1,3-Dichloropropane	4.0	U	4.0	1.1	*
106-46-7	1,4-Dichlorobenzene	4.0	U	4.0	0.80	*
594-20-7	2,2-Dichloropropane	4.0	U	4.0	1.1	*
78-93-3	2-Butanone (MEK)	20	U	20	3.3	*
110-75-8	2-Chloroethyl Vinyl Ether	4.0	U	4.0	1.8	*
95-49-8	2-Chlorotoluene	4.0	U	4.0	0.80	*
591-78-6	2-Hexanone	20	U	20	6.7	*
75-65-0	tert-Butyl Alcohol	160	U	160	43	*
106-43-4	4-Chlorotoluene	4.0	U	4.0	0.96	*
99-87-6	4-Isopropyltoluene	4.0	U	4.0	0.80	*
108-10-1	4-Methyl-2-pentanone	20	U	20	2.7	*
67-64-1	Acetone	20	U	20	5.0	*
71-43-2	Benzene	4.0	U	4.0	0.80	*
108-86-1	Bromobenzene	4.0	U	4.0	1.2	*
74-97-5	Bromochloromethane	4.0	U	4.0	1.3	*
75-27-4	Bromodichloromethane	4.0	U	4.0	1.3	*
75-25-2	Bromoform	4.0	U	4.0	1.7	*
74-83-9	Bromomethane	4.0	U	4.0	1.2	*

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 0950
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/23/14 14:20
Sample Name:	MRC-MW-102B-050814	**Units:**	µg/L
Lab Code:	R1403433-001	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4825.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	4.0	U	4.0	0.88	*
56-23-5	Carbon Tetrachloride	4.0	U	4.0	1.8	*
108-90-7	Chlorobenzene	4.0	U	4.0	1.2	*
75-00-3	Chloroethane	4.0	U	4.0	0.96	*
67-66-3	Chloroform	4.0	U	4.0	1.0	*
74-87-3	Chloromethane	4.0	U	4.0	0.84	*
124-48-1	Dibromochloromethane	4.0	U	4.0	1.3	*
74-95-3	Dibromomethane	4.0	U	4.0	1.3	*
75-71-8	Dichlorodifluoromethane (CFC 12)	4.0	U	4.0	1.9	*
75-09-2	Methylene Chloride	2.4	DJ	4.0	1.3	*
108-20-3	Diisopropyl Ether	4.0	U	4.0	0.80	*
637-92-3	Ethyl tert-Butyl Ether	4.0	U	4.0	0.80	*
100-41-4	Ethylbenzene	4.0	U	4.0	0.80	*
87-68-3	Hexachlorobutadiene	8.0	U	8.0	2.5	*
98-82-8	Isopropylbenzene (Cumene)	4.0	U	4.0	0.80	*
1634-04-4	Methyl tert-Butyl Ether	4.0	U	4.0	1.2	*
91-20-3	Naphthalene	4.0	U	4.0	0.80	*
100-42-5	Styrene	4.0	U	4.0	0.80	*
127-18-4	Tetrachloroethene (PCE)	4.0	U	4.0	1.2	*
108-88-3	Toluene	4.0	U	4.0	0.80	*
79-01-6	Trichloroethene (TCE)	83	D	4.0	0.88	*
75-69-4	Trichlorofluoromethane (CFC 11)	4.0	U	4.0	0.80	*
108-05-4	Vinyl Acetate	8.0	U	8.0	4.1	*
75-01-4	Vinyl Chloride	4.0	U	4.0	1.3	*
1330-20-7	Xylenes, Total	12	U	12	2.2	*
156-59-2	cis-1,2-Dichloroethene	370	D	4.0	1.2	*
10061-01-5	cis-1,3-Dichloropropene	4.0	U	4.0	0.96	*
179601-23-1	m,p-Xylenes	8.0	U	8.0	1.4	*
104-51-8	n-Butylbenzene	4.0	U	4.0	0.84	*
103-65-1	n-Propylbenzene	4.0	U	4.0	0.80	*
95-47-6	o-Xylene	4.0	U	4.0	0.80	*
135-98-8	sec-Butylbenzene	4.0	U	4.0	1.1	*
994-05-8	tert-Amyl Methyl Ether	4.0	U	4.0	0.80	*
98-06-6	tert-Butylbenzene	4.0	U	4.0	0.80	*
156-60-5	trans-1,2-Dichloroethene	3.1	DJ	4.0	1.4	*

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 0950
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/23/14 14:20
Sample Name:	MRC-MW-102B-050814	**Units:**	µg/L
Lab Code:	R1403433-001	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4825.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	4.0	U	4.0	0.80	*

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	5/23/14 14:20	
Dibromofluoromethane	110	89-119	5/23/14 14:20	
Toluene-d8	111	87-121	5/23/14 14:20	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1025
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 14:55
Sample Name:	MRC-MW-104A-051214	**Units:**	µg/L
Lab Code:	R1403433-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4762.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/12/14 1025
Date Received: 5/13/14
Date Analyzed: 5/21/14 14:55

Sample Name: MRC-MW-104A-051214
Lab Code: R1403433-016

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA8\DATA\052114\C4762.D\

Analysis Lot: 393625
Instrument Name: R-MS-08
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1025
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 14:55
Sample Name:	MRC-MW-104A-051214	**Units:**	µg/L
Lab Code:	R1403433-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4762.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	5/21/14 14:55	
Dibromofluoromethane	109	89-119	5/21/14 14:55	
Toluene-d8	115	87-121	5/21/14 14:55	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1130
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 15:22
Sample Name:	MRC-MW-104B-051214	**Units:**	µg/L
Lab Code:	R1403433-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4763.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1130
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 15:22
Sample Name:	MRC-MW-104B-051214	**Units:**	µg/L
Lab Code:	R1403433-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4763.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1130
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 15:22
Sample Name:	MRC-MW-104B-051214	**Units:**	µg/L
Lab Code:	R1403433-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4763.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	5/21/14 15:22	
Dibromofluoromethane	110	89-119	5/21/14 15:22	
Toluene-d8	116	87-121	5/21/14 15:22	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1143
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 15:52
Sample Name:	MRC-MW-32A-050814	**Units:**	µg/L
Lab Code:	R1403433-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4738.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1143
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 15:52
Sample Name:	MRC-MW-32A-050814	**Units:**	µg/L
Lab Code:	R1403433-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4738.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1143
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 15:52
Sample Name:	MRC-MW-32A-050814	**Units:**	µg/L
Lab Code:	R1403433-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4738.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	5/20/14 15:52	
Dibromofluoromethane	111	89-119	5/20/14 15:52	
Toluene-d8	118	87-121	5/20/14 15:52	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1533
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 16:19
Sample Name:	MRC-MW-33A-050814	**Units:**	µg/L
Lab Code:	R1403433-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4739.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14 1533
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 16:19
Sample Name:	MRC-MW-33A-050814	**Units:**	µg/L
Lab Code:	R1403433-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4739.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**1.2**		1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.60**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.67**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	5/ 8/14 1533
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/20/14 16:19
Sample Name:	MRC-MW-33A-050814	**Units:**	µg/L
Lab Code:	R1403433-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4739.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	5/20/14 16:19	
Dibromofluoromethane	111	89-119	5/20/14 16:19	
Toluene-d8	117	87-121	5/20/14 16:19	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 0855
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 16:46
Sample Name:	MRC-MW-34A-051214	**Units:**	µg/L
Lab Code:	R1403433-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4740.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 0855
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 16:46
Sample Name:	MRC-MW-34A-051214	**Units:**	µg/L
Lab Code:	R1403433-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4740.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**14**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 0855
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 16:46
Sample Name:	MRC-MW-34A-051214	**Units:**	µg/L
Lab Code:	R1403433-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4740.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	109	85-122	5/20/14 16:46	
Dibromofluoromethane	113	89-119	5/20/14 16:46	
Toluene-d8	120	87-121	5/20/14 16:46	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1048
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 17:13
Sample Name:	MRC-MW-34B-051214	**Units:**	µg/L
Lab Code:	R1403433-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4741.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.73**	**J**	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**0.23**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1048
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 17:13
Sample Name:	MRC-MW-34B-051214	**Units:**	µg/L
Lab Code:	R1403433-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4741.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	**5.4**		1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**1.9**		1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**18**		1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**16**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**2.2**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**15**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.1**		1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1048
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 17:13
Sample Name:	MRC-MW-34B-051214	**Units:**	µg/L
Lab Code:	R1403433-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4741.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	5/20/14 17:13	
Dibromofluoromethane	108	89-119	5/20/14 17:13	
Toluene-d8	117	87-121	5/20/14 17:13	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1152
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 17:40
Sample Name:	MRC-MW-34C-051214	**Units:**	µg/L
Lab Code:	R1403433-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4742.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1152
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 17:40
Sample Name:	MRC-MW-34C-051214	**Units:**	µg/L
Lab Code:	R1403433-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4742.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1152
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/20/14 17:40
Sample Name:	MRC-MW-34C-051214	**Units:**	µg/L
Lab Code:	R1403433-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4742.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	5/20/14 17:40	
Dibromofluoromethane	111	89-119	5/20/14 17:40	
Toluene-d8	117	87-121	5/20/14 17:40	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1444
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 14:28
Sample Name:	MRC-MW-38A-051214	**Units:**	µg/L
Lab Code:	R1403433-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4761.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1444
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 14:28
Sample Name:	MRC-MW-38A-051214	**Units:**	µg/L
Lab Code:	R1403433-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4761.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**6.9**		1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1444
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 14:28
Sample Name:	MRC-MW-38A-051214	**Units:**	µg/L
Lab Code:	R1403433-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4761.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	5/21/14 14:28	
Dibromofluoromethane	109	89-119	5/21/14 14:28	
Toluene-d8	115	87-121	5/21/14 14:28	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1332
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 16:23
Sample Name:	MRC-MW-69A-051314	**Units:**	µg/L
Lab Code:	R1403433-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4765.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1332
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 16:23
Sample Name:	MRC-MW-69A-051314	**Units:**	µg/L
Lab Code:	R1403433-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4765.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1332
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 16:23
Sample Name:	MRC-MW-69A-051314	**Units:**	µg/L
Lab Code:	R1403433-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4765.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	5/21/14 16:23	
Dibromofluoromethane	109	89-119	5/21/14 16:23	
Toluene-d8	113	87-121	5/21/14 16:23	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	5/13/14 1146
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 15:54
Sample Name:	MRC-MW-69B-051314	**Units:**	µg/L
Lab Code:	R1403433-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4764.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1146
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 15:54
Sample Name:	MRC-MW-69B-051314	**Units:**	µg/L
Lab Code:	R1403433-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4764.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.52**	BJ	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1146
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 15:54
Sample Name:	MRC-MW-69B-051314	**Units:**	µg/L
Lab Code:	R1403433-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4764.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	5/21/14 15:54	
Dibromofluoromethane	109	89-119	5/21/14 15:54	
Toluene-d8	113	87-121	5/21/14 15:54	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 18:37
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4770.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	50	U	50	11	
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	18	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	13	
76-13-1	1,1,2-Trichlorotrifluoroethane	50	U	50	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	72		50	29	
563-58-6	1,1-Dichloropropene	50	U	50	15	
87-61-6	1,2,3-Trichlorobenzene	50	U	50	41	
96-18-4	1,2,3-Trichloropropane	50	U	50	35	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	12	
95-63-6	1,2,4-Trimethylbenzene	50	U	50	10	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	37	
106-93-4	1,2-Dibromoethane	50	U	50	12	
95-50-1	1,2-Dichlorobenzene	50	U	50	11	
107-06-2	1,2-Dichloroethane	50	U	50	18	
78-87-5	1,2-Dichloropropane	50	U	50	10	
541-73-1	1,3-Dichlorobenzene	50	U	50	10	
142-28-9	1,3-Dichloropropane	50	U	50	14	
106-46-7	1,4-Dichlorobenzene	50	U	50	10	
594-20-7	2,2-Dichloropropane	50	U	50	14	
78-93-3	2-Butanone (MEK)	250	U	250	41	
110-75-8	2-Chloroethyl Vinyl Ether	50	U	50	22	
95-49-8	2-Chlorotoluene	50	U	50	10	
591-78-6	2-Hexanone	250	U	250	83	
75-65-0	tert-Butyl Alcohol	2000	U	2000	540	
106-43-4	4-Chlorotoluene	50	U	50	12	
99-87-6	4-Isopropyltoluene	50	U	50	10	
108-10-1	4-Methyl-2-pentanone	250	U	250	34	
67-64-1	Acetone	250	U	250	62	
71-43-2	Benzene	50	U	50	10	
108-86-1	Bromobenzene	50	U	50	15	
74-97-5	Bromochloromethane	50	U	50	16	
75-27-4	Bromodichloromethane	50	U	50	16	
75-25-2	Bromoform	50	U	50	21	
74-83-9	Bromomethane	50	U	50	15	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 18:37
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4770.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	50	U	50	11	
56-23-5	Carbon Tetrachloride	50	U	50	23	
108-90-7	Chlorobenzene	50	U	50	15	
75-00-3	Chloroethane	50	U	50	12	
67-66-3	Chloroform	50	U	50	13	
74-87-3	Chloromethane	50	U	50	11	
124-48-1	Dibromochloromethane	50	U	50	16	
74-95-3	Dibromomethane	50	U	50	16	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	23	
75-09-2	Methylene Chloride	50	U	50	16	
108-20-3	Diisopropyl Ether	50	U	50	10	
637-92-3	Ethyl tert-Butyl Ether	50	U	50	10	
100-41-4	Ethylbenzene	50	U	50	10	
87-68-3	Hexachlorobutadiene	100	U	100	31	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	10	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	15	
91-20-3	Naphthalene	**18**	J	50	10	
100-42-5	Styrene	50	U	50	10	
127-18-4	Tetrachloroethene (PCE)	50	U	50	15	
108-88-3	Toluene	50	U	50	10	
79-01-6	Trichloroethene (TCE)	**3300**		50	11	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	10	
108-05-4	Vinyl Acetate	100	U	100	51	
75-01-4	Vinyl Chloride	**37**	J	50	16	
1330-20-7	Xylenes, Total	150	U	150	27	
156-59-2	cis-1,2-Dichloroethene	**28000**	E	50	15	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	12	
179601-23-1	m,p-Xylenes	100	U	100	17	
104-51-8	n-Butylbenzene	50	U	50	11	
103-65-1	n-Propylbenzene	50	U	50	10	
95-47-6	o-Xylene	50	U	50	10	
135-98-8	sec-Butylbenzene	50	U	50	14	
994-05-8	tert-Amyl Methyl Ether	50	U	50	10	
98-06-6	tert-Butylbenzene	50	U	50	10	
156-60-5	trans-1,2-Dichloroethene	**75**		50	17	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 18:37
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4770.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	50	U	50	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	5/21/14 18:37	
Dibromofluoromethane	111	89-119	5/21/14 18:37	
Toluene-d8	117	87-121	5/21/14 18:37	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:30
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	200	U	200	44	
71-55-6	1,1,1-Trichloroethane (TCA)	200	U	200	72	
79-34-5	1,1,2,2-Tetrachloroethane	200	U	200	50	
76-13-1	1,1,2-Trichlorotrifluoroethane	200	U	200	62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	200	U	200	40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	200	U	200	120	
563-58-6	1,1-Dichloropropene	200	U	200	58	
87-61-6	1,2,3-Trichlorobenzene	200	U	200	170	
96-18-4	1,2,3-Trichloropropane	200	U	200	140	
120-82-1	1,2,4-Trichlorobenzene	200	U	200	46	
95-63-6	1,2,4-Trimethylbenzene	200	U	200	40	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	400	U	400	150	
106-93-4	1,2-Dibromoethane	200	U	200	48	
95-50-1	1,2-Dichlorobenzene	200	U	200	42	
107-06-2	1,2-Dichloroethane	200	U	200	72	
78-87-5	1,2-Dichloropropane	200	U	200	40	
541-73-1	1,3-Dichlorobenzene	200	U	200	40	
142-28-9	1,3-Dichloropropane	200	U	200	54	
106-46-7	1,4-Dichlorobenzene	200	U	200	40	
594-20-7	2,2-Dichloropropane	200	U	200	54	
78-93-3	2-Butanone (MEK)	1000	U	1000	170	
110-75-8	2-Chloroethyl Vinyl Ether	200	U	200	88	
95-49-8	2-Chlorotoluene	200	U	200	40	
591-78-6	2-Hexanone	1000	U	1000	340	
75-65-0	tert-Butyl Alcohol	8000	U	8000	2200	
106-43-4	4-Chlorotoluene	200	U	200	48	
99-87-6	4-Isopropyltoluene	200	U	200	40	
108-10-1	4-Methyl-2-pentanone	1000	U	1000	140	
67-64-1	Acetone	1000	U	1000	250	
71-43-2	Benzene	200	U	200	40	
108-86-1	Bromobenzene	200	U	200	57	
74-97-5	Bromochloromethane	200	U	200	64	
75-27-4	Bromodichloromethane	200	U	200	64	
75-25-2	Bromoform	200	U	200	84	
74-83-9	Bromomethane	200	U	200	58	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:30
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	200	U	200	44	
56-23-5	Carbon Tetrachloride	200	U	200	90	
108-90-7	Chlorobenzene	200	U	200	58	
75-00-3	Chloroethane	200	U	200	48	
67-66-3	Chloroform	200	U	200	50	
74-87-3	Chloromethane	200	U	200	42	
124-48-1	Dibromochloromethane	200	U	200	62	
74-95-3	Dibromomethane	200	U	200	64	
75-71-8	Dichlorodifluoromethane (CFC 12)	200	U	200	92	
75-09-2	Methylene Chloride	200	U	200	64	
108-20-3	Diisopropyl Ether	200	U	200	40	
637-92-3	Ethyl tert-Butyl Ether	200	U	200	40	
100-41-4	Ethylbenzene	200	U	200	40	
87-68-3	Hexachlorobutadiene	400	U	400	130	
98-82-8	Isopropylbenzene (Cumene)	200	U	200	40	
1634-04-4	Methyl tert-Butyl Ether	200	U	200	58	
91-20-3	Naphthalene	**42**	DJ	200	40	
100-42-5	Styrene	200	U	200	40	
127-18-4	Tetrachloroethene (PCE)	200	U	200	60	
108-88-3	Toluene	200	U	200	40	
79-01-6	Trichloroethene (TCE)	**3700**	D	200	44	
75-69-4	Trichlorofluoromethane (CFC 11)	200	U	200	40	
108-05-4	Vinyl Acetate	400	U	400	210	
75-01-4	Vinyl Chloride	200	U	200	64	
1330-20-7	Xylenes, Total	600	U	600	110	
156-59-2	cis-1,2-Dichloroethene	**31000**	D	200	60	
10061-01-5	cis-1,3-Dichloropropene	200	U	200	48	
179601-23-1	m,p-Xylenes	400	U	400	66	
104-51-8	n-Butylbenzene	200	U	200	42	
103-65-1	n-Propylbenzene	200	U	200	40	
95-47-6	o-Xylene	200	U	200	40	
135-98-8	sec-Butylbenzene	200	U	200	54	
994-05-8	tert-Amyl Methyl Ether	200	U	200	40	
98-06-6	tert-Butylbenzene	200	U	200	40	
156-60-5	trans-1,2-Dichloroethene	**78**	DJ	200	66	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:30
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	200	U	200	40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	5/22/14 18:30	
Dibromofluoromethane	109	89-119	5/22/14 18:30	
Toluene-d8	113	87-121	5/22/14 18:30	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 18:10
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4769.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.0	U	2.0	0.44	
71-55-6	1,1,1-Trichloroethane (TCA)	2.0	U	2.0	0.72	
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	2.0	0.50	
76-13-1	1,1,2-Trichlorotrifluoroethane	2.0	U	2.0	0.62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2.0	U	2.0	0.40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	2.0	U	2.0	1.2	
563-58-6	1,1-Dichloropropene	2.0	U	2.0	0.58	
87-61-6	1,2,3-Trichlorobenzene	2.0	U	2.0	1.7	
96-18-4	1,2,3-Trichloropropane	2.0	U	2.0	1.4	
120-82-1	1,2,4-Trichlorobenzene	2.0	U	2.0	0.46	
95-63-6	1,2,4-Trimethylbenzene	**22**		2.0	0.40	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	4.0	U	4.0	1.5	
106-93-4	1,2-Dibromoethane	2.0	U	2.0	0.48	
95-50-1	1,2-Dichlorobenzene	2.0	U	2.0	0.42	
107-06-2	1,2-Dichloroethane	2.0	U	2.0	0.72	
78-87-5	1,2-Dichloropropane	2.0	U	2.0	0.40	
541-73-1	1,3-Dichlorobenzene	2.0	U	2.0	0.40	
142-28-9	1,3-Dichloropropane	2.0	U	2.0	0.54	
106-46-7	1,4-Dichlorobenzene	2.0	U	2.0	0.40	
594-20-7	2,2-Dichloropropane	2.0	U	2.0	0.54	
78-93-3	2-Butanone (MEK)	10	U	10	1.7	
110-75-8	2-Chloroethyl Vinyl Ether	2.0	U	2.0	0.88	
95-49-8	2-Chlorotoluene	2.0	U	2.0	0.40	
591-78-6	2-Hexanone	10	U	10	3.4	
75-65-0	tert-Butyl Alcohol	80	U	80	22	
106-43-4	4-Chlorotoluene	2.0	U	2.0	0.48	
99-87-6	4-Isopropyltoluene	2.0	U	2.0	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	1.4	
67-64-1	Acetone	10	U	10	2.5	
71-43-2	Benzene	**430**	E	2.0	0.40	
108-86-1	Bromobenzene	2.0	U	2.0	0.56	
74-97-5	Bromochloromethane	2.0	U	2.0	0.64	
75-27-4	Bromodichloromethane	2.0	U	2.0	0.64	
75-25-2	Bromoform	2.0	U	2.0	0.84	
74-83-9	Bromomethane	2.0	U	2.0	0.58	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 18:10
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4769.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.0	U	2.0	0.44	
56-23-5	Carbon Tetrachloride	2.0	U	2.0	0.90	
108-90-7	Chlorobenzene	2.0	U	2.0	0.58	
75-00-3	Chloroethane	2.0	U	2.0	0.48	
67-66-3	Chloroform	**0.58**	J	2.0	0.50	
74-87-3	Chloromethane	2.0	U	2.0	0.42	
124-48-1	Dibromochloromethane	2.0	U	2.0	0.62	
74-95-3	Dibromomethane	2.0	U	2.0	0.64	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.0	U	2.0	0.92	
75-09-2	Methylene Chloride	2.0	U	2.0	0.64	
108-20-3	Diisopropyl Ether	2.0	U	2.0	0.40	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	2.0	0.40	
100-41-4	Ethylbenzene	**6.7**		2.0	0.40	
87-68-3	Hexachlorobutadiene	4.0	U	4.0	1.3	
98-82-8	Isopropylbenzene (Cumene)	**7.8**		2.0	0.40	
1634-04-4	Methyl tert-Butyl Ether	**23**		2.0	0.58	
91-20-3	Naphthalene	**19**		2.0	0.40	
100-42-5	Styrene	**2.2**		2.0	0.40	
127-18-4	Tetrachloroethene (PCE)	2.0	U	2.0	0.60	
108-88-3	Toluene	**1.3**	J	2.0	0.40	
79-01-6	Trichloroethene (TCE)	**15**		2.0	0.44	
75-69-4	Trichlorofluoromethane (CFC 11)	2.0	U	2.0	0.40	
108-05-4	Vinyl Acetate	4.0	U	4.0	2.1	
75-01-4	Vinyl Chloride	2.0	U	2.0	0.64	
1330-20-7	Xylenes, Total	**100**		6.0	1.1	
156-59-2	cis-1,2-Dichloroethene	**22**		2.0	0.60	
10061-01-5	cis-1,3-Dichloropropene	2.0	U	2.0	0.48	
179601-23-1	m,p-Xylenes	**35**		4.0	0.66	
104-51-8	n-Butylbenzene	**1.4**	J	2.0	0.42	
103-65-1	n-Propylbenzene	**4.3**		2.0	0.40	
95-47-6	o-Xylene	**68**		2.0	0.40	
135-98-8	sec-Butylbenzene	**1.5**	J	2.0	0.54	
994-05-8	tert-Amyl Methyl Ether	2.0	U	2.0	0.40	
98-06-6	tert-Butylbenzene	2.0	U	2.0	0.40	
156-60-5	trans-1,2-Dichloroethene	**0.74**	J	2.0	0.66	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 18:10
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4769.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	2.0	0.40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	5/21/14 18:10	
Dibromofluoromethane	109	89-119	5/21/14 18:10	
Toluene-d8	114	87-121	5/21/14 18:10	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:03
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4805.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	4.0	U	4.0	0.88	
71-55-6	1,1,1-Trichloroethane (TCA)	4.0	U	4.0	1.5	
79-34-5	1,1,2,2-Tetrachloroethane	4.0	U	4.0	1.0	
76-13-1	1,1,2-Trichlorotrifluoroethane	4.0	U	4.0	1.3	
75-34-3	1,1-Dichloroethane (1,1-DCA)	4.0	U	4.0	0.80	
75-35-4	1,1-Dichloroethene (1,1-DCE)	4.0	U	4.0	2.3	
563-58-6	1,1-Dichloropropene	4.0	U	4.0	1.2	
87-61-6	1,2,3-Trichlorobenzene	4.0	U	4.0	3.3	
96-18-4	1,2,3-Trichloropropane	4.0	U	4.0	2.8	
120-82-1	1,2,4-Trichlorobenzene	4.0	U	4.0	0.92	
95-63-6	1,2,4-Trimethylbenzene	23	D	4.0	0.80	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	8.0	U	8.0	3.0	
106-93-4	1,2-Dibromoethane	4.0	U	4.0	0.96	
95-50-1	1,2-Dichlorobenzene	4.0	U	4.0	0.84	
107-06-2	1,2-Dichloroethane	4.0	U	4.0	1.5	
78-87-5	1,2-Dichloropropane	4.0	U	4.0	0.80	
541-73-1	1,3-Dichlorobenzene	4.0	U	4.0	0.80	
142-28-9	1,3-Dichloropropane	4.0	U	4.0	1.1	
106-46-7	1,4-Dichlorobenzene	4.0	U	4.0	0.80	
594-20-7	2,2-Dichloropropane	4.0	U	4.0	1.1	
78-93-3	2-Butanone (MEK)	20	U	20	3.3	
110-75-8	2-Chloroethyl Vinyl Ether	4.0	U	4.0	1.8	
95-49-8	2-Chlorotoluene	4.0	U	4.0	0.80	
591-78-6	2-Hexanone	20	U	20	6.7	
75-65-0	tert-Butyl Alcohol	160	U	160	43	
106-43-4	4-Chlorotoluene	4.0	U	4.0	0.96	
99-87-6	4-Isopropyltoluene	4.0	U	4.0	0.80	
108-10-1	4-Methyl-2-pentanone	20	U	20	2.7	
67-64-1	Acetone	20	U	20	5.0	
71-43-2	Benzene	470	D	4.0	0.80	
108-86-1	Bromobenzene	4.0	U	4.0	1.2	
74-97-5	Bromochloromethane	4.0	U	4.0	1.3	
75-27-4	Bromodichloromethane	4.0	U	4.0	1.3	
75-25-2	Bromoform	4.0	U	4.0	1.7	
74-83-9	Bromomethane	4.0	U	4.0	1.2	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:03
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4805.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	4.0	U	4.0	0.88	
56-23-5	Carbon Tetrachloride	4.0	U	4.0	1.8	
108-90-7	Chlorobenzene	4.0	U	4.0	1.2	
75-00-3	Chloroethane	4.0	U	4.0	0.96	
67-66-3	Chloroform	4.0	U	4.0	1.0	
74-87-3	Chloromethane	4.0	U	4.0	0.84	
124-48-1	Dibromochloromethane	4.0	U	4.0	1.3	
74-95-3	Dibromomethane	4.0	U	4.0	1.3	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.0	U	4.0	1.9	
75-09-2	Methylene Chloride	4.0	U	4.0	1.3	
108-20-3	Diisopropyl Ether	4.0	U	4.0	0.80	
637-92-3	Ethyl tert-Butyl Ether	4.0	U	4.0	0.80	
100-41-4	Ethylbenzene	**6.8**	D	4.0	0.80	
87-68-3	Hexachlorobutadiene	8.0	U	8.0	2.5	
98-82-8	Isopropylbenzene (Cumene)	**7.8**	D	4.0	0.80	
1634-04-4	Methyl tert-Butyl Ether	**23**	D	4.0	1.2	
91-20-3	Naphthalene	**18**	D	4.0	0.80	
100-42-5	Styrene	4.0	U	4.0	0.80	
127-18-4	Tetrachloroethene (PCE)	4.0	U	4.0	1.2	
108-88-3	Toluene	**1.4**	DJ	4.0	0.80	
79-01-6	Trichloroethene (TCE)	**16**	D	4.0	0.88	
75-69-4	Trichlorofluoromethane (CFC 11)	4.0	U	4.0	0.80	
108-05-4	Vinyl Acetate	8.0	U	8.0	4.1	
75-01-4	Vinyl Chloride	4.0	U	4.0	1.3	
1330-20-7	Xylenes, Total	**100**	D	12	2.2	
156-59-2	cis-1,2-Dichloroethene	**22**	D	4.0	1.2	
10061-01-5	cis-1,3-Dichloropropene	4.0	U	4.0	0.96	
179601-23-1	m,p-Xylenes	**35**	D	8.0	1.4	
104-51-8	n-Butylbenzene	**2.5**	DJ	4.0	0.84	
103-65-1	n-Propylbenzene	**4.2**	D	4.0	0.80	
95-47-6	o-Xylene	**69**	D	4.0	0.80	
135-98-8	sec-Butylbenzene	**1.4**	DJ	4.0	1.1	
994-05-8	tert-Amyl Methyl Ether	4.0	U	4.0	0.80	
98-06-6	tert-Butylbenzene	4.0	U	4.0	0.80	
156-60-5	trans-1,2-Dichloroethene	4.0	U	4.0	1.4	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:03
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4805.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	4.0	U	4.0	0.80	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	5/22/14 18:03	
Dibromofluoromethane	108	89-119	5/22/14 18:03	
Toluene-d8	113	87-121	5/22/14 18:03	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/21/14 16:50
Sample Name:	TB-050814	**Units:**	µg/L
Lab Code:	R1403433-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4766.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/21/14 16:50
Sample Name:	TB-050814	**Units:**	µg/L
Lab Code:	R1403433-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4766.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/ 8/14
Sample Matrix:	Water	**Date Received:**	5/ 9/14
		Date Analyzed:	5/21/14 16:50
Sample Name:	TB-050814	**Units:**	µg/L
Lab Code:	R1403433-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4766.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	5/21/14 16:50	
Dibromofluoromethane	111	89-119	5/21/14 16:50	
Toluene-d8	115	87-121	5/21/14 16:50	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 17:17
Sample Name:	TB-051214	**Units:**	µg/L
Lab Code:	R1403433-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4767.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/1121C06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/12/14
Date Received: 5/13/14
Date Analyzed: 5/21/14 17:17

Sample Name: TB-051214
Lab Code: R1403433-010

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA8\DATA\052114\C4767.D\

Analysis Lot: 393625
Instrument Name: R-MS-08
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	5/12/14
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/21/14 17:17
Sample Name:	TB-051214	**Units:**	µg/L
Lab Code:	R1403433-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4767.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	5/21/14 17:17	
Dibromofluoromethane	108	89-119	5/21/14 17:17	
Toluene-d8	111	87-121	5/21/14 17:17	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 0000
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 17:44
Sample Name:	TB-051314	**Units:**	µg/L
Lab Code:	R1403433-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4768.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 0000
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 17:44
Sample Name:	TB-051314	**Units:**	µg/L
Lab Code:	R1403433-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4768.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 0000
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/21/14 17:44
Sample Name:	TB-051314	**Units:**	µg/L
Lab Code:	R1403433-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4768.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	5/21/14 17:44	
Dibromofluoromethane	109	89-119	5/21/14 17:44	
Toluene-d8	114	87-121	5/21/14 17:44	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1048
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Analyzed:	5/16/14 11:26
Sample Name:	MRC-MW-34B-051214	**Units:**	µg/L
Lab Code:	R1403433-012	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	392846
Data File Name:	1005.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**0.29**	J	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	**69**		1.0	0.21	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1332
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/16/14
		Date Analyzed:	5/19/14 10:39
Sample Name:	MRC-MW-69A-051314	**Units:**	µg/L
Lab Code:	R1403433-022	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	393191
Prep Method:	Method	**Extraction Lot:**	208516
Data File Name:	I:\ACQUDATA\5975E\data\051914\Af766.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**3.27**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	70-130	5/19/14 10:39	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1146
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/16/14
		Date Analyzed:	5/19/14 13:55
Sample Name:	MRC-MW-69B-051314	**Units:**	µg/L
Lab Code:	R1403433-021	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	393191
Prep Method:	Method	**Extraction Lot:**	208516
Data File Name:	I:\ACQUDATA\5975E\data\051914\Af770.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.393**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	111	70-130	5/19/14 13:55	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/16/14
		Date Analyzed:	5/19/14 10:59
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	393191
Prep Method:	Method	**Extraction Lot:**	208516
Data File Name:	I:\ACQUDATA\5975E\data\051914\Af767.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**5.52**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	99	70-130	5/19/14 10:59	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/16/14
		Date Analyzed:	5/19/14 11:18
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	393191
Prep Method:	Method	**Extraction Lot:**	208516
Data File Name:	I:\ACQUDATA\5975E\data\051914\Af768.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	1.16		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	110	70-130	5/19/14 11:18	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1444
Sample Matrix:	Water	**Date Received:**	5/13/14
		Date Extracted:	5/14/14
		Date Analyzed:	5/14/14 20:55
Sample Name:	MRC-MW-38A-051214	**Units:**	µg/L
Lab Code:	R1403433-014	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	392670
Prep Method:	Method	**Extraction Lot:**	208428
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051414\B0031013.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.59**		0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1332
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/19/14
		Date Analyzed:	5/19/14 16:02
Sample Name:	MRC-MW-69A-051314	**Units:**	µg/L
Lab Code:	R1403433-022	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	393289
Prep Method:	Method	**Extraction Lot:**	208730
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051914\B0031028.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/13/14 1146
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/19/14
		Date Analyzed:	5/19/14 15:21
Sample Name:	MRC-MW-69B-051314	**Units:**	µg/L
Lab Code:	R1403433-021	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	393289
Prep Method:	Method	**Extraction Lot:**	208730
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051914\B0031025.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/19/14
		Date Analyzed:	5/19/14 16:15
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	393289
Prep Method:	Method	**Extraction Lot:**	208730
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051914\B0031029.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/19/14
		Date Analyzed:	5/19/14 16:42
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	393289
Prep Method:	Method	**Extraction Lot:**	208730
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051914\B0031031.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	2.8		0.20	0.026	

Appendix C

Support Documentation

HOLDTIME

SDG R1403433

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	MG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/30/2014	05/30/2014	18	0	18
HG	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/27/2014	05/28/2014	13	1	14
HG	UG/L	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/27/2014	05/28/2014	14	1	15
HG	UG/L	MRC-MW-68A-051314	R1403433-023	NM	05/13/2014	05/27/2014	05/28/2014	14	1	15
HG	UG/L	MRC-MW-67A-051314	R1403433-020	NM	05/13/2014	05/27/2014	05/28/2014	14	1	15
HG	UG/L	MRC-MW-46A-051214	R1403433-015	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
HG	UG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
HG	UG/L	MRC-MW-31A-050814	R1403433-006	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
HG	UG/L	MRC-MW-30A-050814	R1403433-005	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
HG	UG/L	MRC-MW-105A-051214	R1403433-018	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
HG	UG/L	MRC-MW-104B-051214	R1403433-017	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
HG	UG/L	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
HG	UG/L	MRC-MW-33A-050814	R1403433-008	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
HG	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/27/2014	05/28/2014	13	1	14
M	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/21/2014	06/06/2014	7	16	23

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
M	UG/L	MRC-MW-46A-051214	R1403433-015	NM	05/12/2014	05/16/2014	05/21/2014	4	5	9
M	UG/L	MRC-MW-46A-051214	R1403433-015	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
M	UG/L	MRC-MW-67A-051314	R1403433-020	NM	05/13/2014	05/21/2014	06/06/2014	8	16	24
M	UG/L	MRC-MW-67A-051314	R1403433-020	NM	05/13/2014	05/27/2014	05/28/2014	14	1	15
M	UG/L	MRC-MW-68A-051314	R1403433-023	NM	05/13/2014	05/21/2014	06/06/2014	8	16	24
M	UG/L	MRC-MW-68A-051314	R1403433-023	NM	05/13/2014	05/27/2014	05/28/2014	14	1	15
M	UG/L	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/27/2014	05/28/2014	14	1	15
M	UG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/16/2014	05/21/2014	4	5	9
M	UG/L	MRC-MW-105A-051214	R1403433-018	NM	05/12/2014	05/16/2014	05/21/2014	4	5	9
M	UG/L	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/21/2014	06/06/2014	8	16	24
M	UG/L	MRC-MW-33A-050814	R1403433-008	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
M	UG/L	MRC-MW-33A-050814	R1403433-008	NM	05/08/2014	05/16/2014	05/21/2014	8	5	13
M	UG/L	MRC-MW-31A-050814	R1403433-006	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
M	UG/L	MRC-MW-31A-050814	R1403433-006	NM	05/08/2014	05/16/2014	05/21/2014	8	5	13
M	UG/L	MRC-MW-30A-050814	R1403433-005	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
M	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/21/2014	06/06/2014	7	16	23
M	UG/L	MRC-MW-105A-051214	R1403433-018	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/27/2014	05/28/2014	13	1	14
M	UG/L	MRC-MW-104B-051214	R1403433-017	NM	05/12/2014	05/27/2014	05/28/2014	15	1	16
M	UG/L	MRC-MW-104B-051214	R1403433-017	NM	05/12/2014	05/16/2014	05/21/2014	4	5	9
M	UG/L	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/27/2014	05/28/2014	19	1	20
M	UG/L	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/16/2014	05/21/2014	8	5	13
M	UG/L	MRC-MW-30A-050814	R1403433-005	NM	05/08/2014	05/16/2014	05/21/2014	8	5	13
M	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/27/2014	05/28/2014	13	1	14
	MG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/13/2014	05/13/2014	1	0	1
	MG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/14/2014	05/14/2014	2	0	2
	MG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	06/09/2014	06/09/2014	28	0	28
ALK	MG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/14/2014	05/14/2014	2	0	2
NH3	0.050	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/27/2014	05/27/2014	15	0	15
PCL	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/19/2014	05/19/2014	5	0	5
PCL	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/19/2014	05/19/2014	5	0	5
PCL	UG/L	MRC-MW-69B-051314	R1403433-021	NM	05/13/2014	05/19/2014	05/19/2014	6	0	6
PCL	UG/L	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/19/2014	05/19/2014	6	0	6
PCL	UG/L	MRC-MW-38A-051214	R1403433-014	NM	05/12/2014	05/14/2014	05/14/2014	2	0	2
	PERCENT	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/16/2014	05/19/2014	2	3	5

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	PERCENT	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/16/2014	05/19/2014	2	3	5
	PERCENT	MRC-MW-69B-051314	R1403433-021	NM	05/13/2014	05/16/2014	05/19/2014	3	3	6
	PERCENT	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/16/2014	05/19/2014	3	3	6
	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/16/2014	05/19/2014	2	3	5
	UG/L	MRC-MW-69B-051314	R1403433-021	NM	05/13/2014	05/16/2014	05/19/2014	3	3	6
	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/16/2014	05/19/2014	2	3	5
	UG/L	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/16/2014	05/19/2014	3	3	6
OV	PERCENT	TB-050814	R1403433-009	NM	05/08/2014	05/21/2014	05/21/2014	13	0	13
OV	PERCENT	TB-051214	R1403433-010	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	PERCENT	MRC-MW-34A-051214	R1403433-011	NM	05/12/2014	05/20/2014	05/20/2014	8	0	8
OV	PERCENT	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/20/2014	05/20/2014	8	0	8
OV	PERCENT	MRC-MW-33A-050814	R1403433-008	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	PERCENT	MRC-MW-32A-050814	R1403433-007	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	PERCENT	MRC-MW-104B-051214	R1403433-017	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	PERCENT	MRC-MW-104A-051214	R1403433-016	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	PERCENT	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/23/2014	05/23/2014	15	0	15
OV	PERCENT	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	PERCENT	MRC-MW-102A-050814	R1403433-002	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	PERCENT	TB-051314	R1403433-019	NM	05/13/2014	05/21/2014	05/21/2014	8	0	8
OV	PERCENT	MRC-MW-101A-050814	R1403433-004	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	PERCENT	MRC-MW-34C-051214	R1403433-013	NM	05/12/2014	05/20/2014	05/20/2014	8	0	8
OV	PERCENT	MRC-MW-38A-051214	R1403433-014	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	PERCENT	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/21/2014	05/21/2014	8	0	8
OV	PERCENT	MRC-MW-69B-051314	R1403433-021	NM	05/13/2014	05/21/2014	05/21/2014	8	0	8
OV	PERCENT	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/21/2014	05/21/2014	7	0	7
OV	PERCENT	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/22/2014	05/22/2014	8	0	8
OV	PERCENT	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/21/2014	05/21/2014	7	0	7
OV	PERCENT	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/22/2014	05/22/2014	8	0	8
OV	PERCENT	MRC-MW-101B-050814	R1403433-003	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	UG/L	MRC-MW-32A-050814	R1403433-007	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	UG/L	TB-051214	R1403433-010	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	UG/L	TB-051314	R1403433-019	NM	05/13/2014	05/21/2014	05/21/2014	8	0	8
OV	UG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/20/2014	05/20/2014	8	0	8
OV	UG/L	MRC-MW-101A-050814	R1403433-004	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	UG/L	MRC-MW-101B-050814	R1403433-003	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	UG/L	MRC-MW-102A-050814	R1403433-002	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	UG/L	MRC-MW-102B-050814	R1403433-001	NM	05/08/2014	05/23/2014	05/23/2014	15	0	15
OV	UG/L	MRC-MW-104A-051214	R1403433-016	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	UG/L	MRC-MW-104B-051214	R1403433-017	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	UG/L	MRC-MW-34A-051214	R1403433-011	NM	05/12/2014	05/20/2014	05/20/2014	8	0	8
OV	UG/L	MRC-MW-33A-050814	R1403433-008	NM	05/08/2014	05/20/2014	05/20/2014	12	0	12
OV	UG/L	TB-050814	R1403433-009	NM	05/08/2014	05/21/2014	05/21/2014	13	0	13
OV	UG/L	MRC-MW-34C-051214	R1403433-013	NM	05/12/2014	05/20/2014	05/20/2014	8	0	8
OV	UG/L	MRC-MW-38A-051214	R1403433-014	NM	05/12/2014	05/21/2014	05/21/2014	9	0	9
OV	UG/L	MRC-MW-69A-051314	R1403433-022	NM	05/13/2014	05/21/2014	05/21/2014	8	0	8
OV	UG/L	MRC-MW-69B-051314	R1403433-021	NM	05/13/2014	05/21/2014	05/21/2014	8	0	8
OV	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/21/2014	05/21/2014	7	0	7
OV	UG/L	MRC-MW-96A-051314	R1403433-024	NM	05/14/2014	05/22/2014	05/22/2014	8	0	8
OV	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/21/2014	05/21/2014	7	0	7
OV	UG/L	MRC-MW-96B-051314	R1403433-025	NM	05/14/2014	05/22/2014	05/22/2014	8	0	8
	UG/L	MRC-MW-34B-051214	R1403433-012	NM	05/12/2014	05/16/2014	05/16/2014	4	0	4

June 25, 2014

Service Request No: R1403433

Mr. Anthony Apanavage
Tetra Tech NUS,Inc.
20251 Century Blvd. Ste. 200
Germantown, MD 20874-7114

Laboratory Results for: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Dear Mr. Apanavage:

Enclosed are the results of the sample(s) submitted to our laboratory between May 9, 2014 and May 15, 2014. For your reference, these analyses have been assigned our service request number **R1403433**.

All analyses were performed according to our laboratory's quality assurance program. The test results meet requirements of the NELAP standards except as noted in the case narrative report. All results are intended to be considered in their entirety, and ALS Environmental is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. The measurement uncertainty of the results included in this report is within that expected when using the prescribed method(s) for analysis of these samples, and represented by Laboratory Control Sample control limits. Any events, such as QC failures, which may add to the uncertainty are explained in the report narrative.

Please contact me if you have any questions. My extension is 7473. You may also contact me via email at Deb.Patton@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Deb Patton
Project Manager

ADDRESS 1565 Jefferson Rd, Building 300, Suite 360, Rochester, NY 14623 PHONE 585-288-5380 | FAX 585-288-8475
ALS GROUP USA, CORP. Part of the ALS Group An ALS Limited Company
www.alsglobal.com
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ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1403433
Project:	Middle River	**Date Received:**	5/9-5/15/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Twenty-five water samples were received for analysis at ALS-Environmental between 5/9/-5/15/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 3.9-4.3°C within the 0-6°C temperature guidelines.

Wet Chemistry

No analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-67A-051314 (R1403433-020) was not applicable for Beryllium, Cobalt, Copper and Nickel as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery.

The Serial dilution for Beryllium on sample MRC-MW-67A-051314 (R1403433-020) was outside of the control limits and has been flagged with a "E". All affected samples have been "E" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
5/20/14- 1,1,2-Trichlorotrifluoroethane, 2-Chloroethyl Vinyl Ether, 4-Isopropyltoluene, Hexachlorobutadiene, n-Butylbenzene, sec-Butylbenzene and tert-Butylbenzene.
5/21/14- , 2-Chloroethyl Vinyl Ether, tert-Butyl Alcohol, Acetone and Hexachlorobutadiene.
5/22/14- 1,1,2-Trichlorotrifluoroethane, 1,2,4-Trimethylbenzene, 2-Chloroethyl Vinyl Ether (>40%), 4-Isopropyltoluene, Ethylbenzene, Hexachlorobutadiene (>40%), Isopropylbenzene, n-Propylbenzene, n-Butylbenzene, sec-Butylbenzene and tert-Butylbenzene.
5/23/14- 1,1,2-Trichlorotrifluoroethane, tert-Butyl Alcohol, 4-Isopropyltoluene, Acetone, Hexachlorobutadiene, n-Propylbenzene, n-Butylbenzene, sec-Butylbenzene and tert-Butylbenzene.
All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

The Method Blanks contained low level hits of Naphthalene on 5/20/14, 5/21/14, 5/22/14 and 1,2,4-Trichlorobenzene and Naphthalene on 5/23/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on sample MRMW-96A-051314 (R1403433-024). All exceedences have been flagged with a "*". The Matrix Spike and Duplicate Matrix Spike for cis-1,2-Dichloroethene were not applicable as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery. These have been flagged with a "#". All QC was within limits.

The Laboratory Control Sample was outside of the control limits high for tert-Butyl Alcohol on 5/20/14 and 5/22/14. These have been flagged with a "*". The high bias allows for appropriate sensitivity. There were no hits for this compound and no data was affected.

Approved by _____ **Date** 6/25/14

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Samples MRC-MW-102B-050814 (R1403433-001) and MRC-MW-102A-050814 (R1403433-002) were originally analyzed within the method specified holding time of 14 days. The samples were repeated outside of the method specified holding time and have been flagged with a "*". Both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The 5/16/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

Site specific QC was not requested but was analyzed on sample MRC-MW-69B-051314 (R1403433-021). All QC was within limits.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/25/14

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15143

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014
Project Number: E 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: 20251 Century Blvd, Ste. 200, Germantown, MD, 20874
Phone #: 301-528-3000
Email: tony.apanavage@tetratech.com
Sampler's Signature:
Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl, HNO3

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP VOCS	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-102B-050814		5/8/14	0950	Aq	4	X					X		
MRC-MW-102A-050814			1100		3	X							
MRC-MW-101B-050814			1245		3	X							
MRC-MW-101A-050814			1430		3	X							
MRC-MW-30A-050814			0856		1						X		
MRC-MW-31A-050814			0956		1						X		
MRC-MW-32A-050814			1143		3	X							
MRC-MW-33A-050814			1533		4	X					X		
TB-050814			—		2	X							

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Total Metals, Beryllium, Cobalt, Nickel

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED: MRC, Middle River, MD

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	
Printed Name: Josh Mullis	Printed Name: J Seward	Printed Name	Printed Name	Printed Name	
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5/8/14 1630	Date/Time: 5/9/14 0940	Date/Time	Date/Time	Date/Time	

R1403433 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp GW 2014

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number 14-3433

Cooler received on 5/9/14 by: JS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as:	Bulk Encore 5035set NA

8. Temperature Readings Date: 5/9/14 Time: 1057 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.4						
Correction Factor (°C)	+0.9						
Corrected Temp (°C)	4.3						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: rack by JS on 5/9/14 at 1057
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 5/12/14 Time: 0945 by: JS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated NA

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BD0261358	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112100	4/15				

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 4-032-003, 082613-2AAW

Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15138

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014
Project Number: 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: Tetra Tech Inc
20251 Century Blvd STE 200
Germantown, MD 20874
Phone #: 301 528-3021
Email:
Sampler's Signature: Walt Pryon
Sampler's Printed Name: Walt Pryon

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl, HNO3

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs (8260, 624 • CLP) VOCs	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)	RSK	NH3	Alk	TDS, Cl, SO4, OPO4	NO3, NO2	Silica	Perchlorate	REMARKS/ ALTERNATE DESCRIPTION
TB-051214	-010	5-12-14	—	GW	2	X														
MRC-MW-34A-051214	-011	↓	0855	↓	3	X														
MRC-MW-34B-051214	-012	↓	1048	↓	9	X					X		X	X	X	X	X	X		
MRC-MW-34C-051214	-013	↓	1152	↓	3	X														
MRC-MW-38A-051214	-014	↓	1444	↓	4	X													X	
MRC-MW-46A-051214	-015	↓	0850	↓	1						X									
MRC-MW-104A-051214	-016	↓	1025	↓	3	X														
MRC-MW-104B-051214	-017	↓	1130	↓	4	X					X									
MRC-MW-105A-051214	-018	↓	1345	↓	1						X									

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

INVOICE INFORMATION
PO #
BILL TO:

R1403433 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp GW 2014

STATE WHERE SAMPLES WERE COLLECTED: Maryland

Edata ____ Yes ____

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature: Walt Pryon	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: Walt Pryon	Printed Name: J. Seward	Printed Name	Printed Name	Printed Name	Printed Name
Firm: TT INC	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5-12-14	Date/Time: 5/13/14 1015	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R1403433

Cooler received on 5/13/14 by: JFS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set NA	

8. Temperature Readings Date: 5/13/14 Time: 1035 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.7						
Correction Factor (°C)	-0.2						
Corrected Temp (°C)	3.9						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: 1002 by JFS on 5/13/14 at 1035
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: OB 5/13/14

Cooler Breakdown: Date: 5/13/14 Time: 1310 by: [illegible]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB26135B	3/15				
≤2	H_2SO_4	✓		WC12610TD	4/15				
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4/12/20	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 082613-2AAW, 112612-2VV

Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15139

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC- GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavaga	Report CC:
Company/Address: Tetra Tech Inc. 20251 Century Blvd STE 200 Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature: Walt Pa	Sampler's Printed Name: Walt Pryor

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl, HNO3, NaHSO4 —

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs 6260 • 624 • CLP (VOCs)	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)	1,4 Dioxane	Perchlorate	REMARKS/ ALTERNATE DESCRIPTION
TB-051314	-019	5-13-14	—	GW	3	X									
MRC-MW-67A-051314	-020		0920		1						X				
MRC-MW-69B-051314	-021		1146		6	X							X	X	
MRC-MW-69A-051314	-022		1332		7	X					X		X	X	
MRC-MW-68A-051314	-023	4	1603		1						X				
MRC-MW-96A-051414	-024	5-14-14	0915		7	X					X		X	X	
MRC-MW-96B-051414	-025		1025		7	X					X		X	X	
~~MRC-MW-49A-051414~~															
~~MRC-MW-[illegible]50A-051414~~															

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
Standard
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

R1403433

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pa	Signature: [signature]	Signature	Signature	Signature	
Printed Name: Walt Pryor	Printed Name: Greg Idfan	Printed Name	Printed Name	Printed Name	
Firm: TT Inc	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5-14-14	Date/Time: 5/15/14 0935	Date/Time	Date/Time	Date/Time	

R1403433 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp GW 2014

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R1403433

Cooler received on 5/15/14 by: Q COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did (VOA vials, Alk,or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 5/15/14 Time: 1010 ID: IR#3 (IR#4) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.1°						
Correction Factor (°C)	+0.9°						
Corrected Temp (°C)	4.0°						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by Q on 5/15/14 at 1013
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: KB 5/15/14

Cooler Breakdown: Date: 5/15/14 Time: 1413 by: JFS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB2613SD	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	411420	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 082613-2AMB, 112612-2VV, 021017-1BMC
Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

VOLATILE ORGANICS
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/15/14 09:29

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\051514\C4667.D\
Instrument ID: R-MS-08

Analytical Method: 8260C
Analysis Lot: 215798

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	24.24	56204	Pass
75	95	30	60	56.14	130199	Pass
95	95	100	100	100.00	231902	Pass
96	95	5	9	6.73	15609	Pass
173	174	0	2	0.00	0	Pass
174	95	50	120	66.11	153301	Pass
175	174	5	9	8.14	12474	Pass
176	174	95	101	98.61	151168	Pass
177	176	5	9	6.38	9646	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4669.D\	5/15/14 10:25	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4670.D\	5/15/14 10:52	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4671.D\	5/15/14 11:19	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4672.D\	5/15/14 11:46	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4673.D\	5/15/14 12:13	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4674.D\	5/15/14 12:40	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4675.D\	5/15/14 13:07	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\MSVOA8\DATA\051514\C4676.D\	5/15/14 13:34	

GW 05/2014

Initial Calibration - Summary Report

Calibration ID: RC1400038 **Instrument ID:** R-MS-08
Column Name: 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.2903	<=20	8.0
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.8176	<=20	5.9
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5429	<=20	14.8
1,1,2-Trichloroethane	T	Average RF		0.100	0.1928	<=20	8.2
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.2390	<=20	18.3
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.7973	<=20	8.5
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3860	<=20	6.0
1,1-Dichloropropene	T	Average RF			0.3841	<=20	10.1
1,2,3-Trichlorobenzene	T	Average RF			0.4550	<=20	12.9
1,2,3-Trichloropropane	T	Average RF			0.1604	<=20	9.5
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.5866	<=20	18.5
1,2,4-Trimethylbenzene	T	Average RF			2.556	<=20	6.7
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.06740	<=20	18.3
1,2-Dibromoethane	T	Average RF		0.100	0.2232	<=20	5.4
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.2700	<=20	6.3
1,2-Dichlorobenzene	T	Average RF		0.400	1.085	<=20	7.2
1,2-Dichloroethane	T	Average RF		0.100	0.3681	<=20	11.4
1,2-Dichloropropane	T	Average RF		0.100	0.2666	<=20	9.8
1,3,5-Trichlorobenzene	T	Average RF			0.7809	<=20	14.5
1,3,5-Trimethylbenzene	T	Average RF			2.634	<=20	7.7
1,3-Dichlorobenzene	T	Average RF		0.600	1.235	<=20	8.2
1,3-Dichloropropane	T	Average RF			0.4250	<=20	11.4
1,4-Dichlorobenzene	T	Average RF		0.500	1.228	<=20	6.9
1,4-Dioxane	T	Average RF			7.778E-4	<=20	27.0
1-Butanol	T	Average RF			0.001915	<=20	19.3
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.4724	<=20	9.9
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.4503	<=20	7.2
2,2-Dichloropropane	T	Average RF			0.7984	<=20	10.5
2,3,6-Trichlorotoluene	T	Quadratic	1/X		0.4949	>=0.99	0.9993
2,4,5-Trichlorotoluene	T	Quadratic	1/X2		0.4461	>=0.99	0.9989
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			1.033	<=20	11.3
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5494	<=20	13.7
2,5-Dichlorobenzotrifluoride	T	Average RF			0.6300	<=20	10.7
2-Butanone (MEK)	T	Quadratic	1/X2	0.05	0.1408	>=0.99	0.9964
2-Chloro-1,3-butadiene	T	Average RF			0.7111	<=20	8.9
2-Chlorobenzotrifluoride	T	Average RF			1.039	<=20	8.6
2-Chloroethyl Vinyl Ether	T	Average RF			0.09920	<=20	8.8
2-Chlorotoluene	T	Average RF			2.355	<=20	7.6
2-Hexanone	T	Average RF		0.05	0.1630	<=20	18.0
2-Methyl-1-propanol	T	Average RF			0.004228	<=20	19.8
2-Methyl-2-propanol	T	Average RF			0.01335	<=20	16.3
2-Nitropropane	T	Average RF				<=20	
2-Propanol	T	Average RF			0.008048	<=20	19.5
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.024	<=20	11.4
3,4-Dichlorobenzotrifluoride	T	Average RF			0.6265	<=20	13.3
3-Chloro-1-propene	T	Average RF			0.2648	<=20	6.6
3-Chlorobenzotrifluoride	T	Average RF			0.5116	<=20	10.5
3-Chlorotoluene	T	Average RF			2.697	<=20	9.3
4-Chlorotoluene	T	Average RF			2.301	<=20	9.2
4-Isopropyltoluene	T	Average RF			2.658	<=20	7.9
4-Methyl-2-pentanone	T	Average RF		0.05	0.2080	<=20	13.6
Acetone	T	Linear	1/X	0.05	0.1002	>=0.99	0.9986

00243

Initial Calibration - Summary Report

Calibration ID:	RC1400038	**Instrument ID:**	R-MS-08
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetonitrile	T	Quadratic	1/X2		0.01539	>=0.99	0.9933
Acrolein	T	Average RF			0.009303	<=20	14.6
Acrylonitrile	T	Average RF			0.07725	<=20	7.8
Benzene	T	Average RF		0.500	1.084	<=20	7.7
Bromobenzene	T	Average RF			0.6778	<=20	7.8
Bromochloromethane	T	Average RF			0.2220	<=20	10.0
Bromodichloromethane	T	Average RF		0.200	0.3909	<=20	4.0
Bromoform	T	Average RF		0.100	0.2665	<=20	16.2
Bromomethane	T	Average RF		0.100	0.4389	<=20	9.0
Carbon Disulfide	T	Average RF		0.100	1.113	<=20	13.7
Carbon Tetrachloride	T	Average RF		0.05	0.4389	<=20	6.2
Chlorobenzene	T	Average RF		0.500	0.8724	<=20	8.1
Chloroethane	T	Average RF		0.100	0.3495	<=20	7.8
Chloroform	T	Average RF		0.200	0.8945	<=20	9.4
Chloromethane	T	Average RF		0.100	0.5570	<=20	9.4
Cyclohexane	T	Average RF		0.100	0.5215	<=20	6.1
Cyclohexanone	T	Average RF			0.03963	<=20	15.9
Dibromochloromethane	T	Average RF		0.100	0.2573	<=20	7.8
Dibromomethane	T	Average RF			0.1577	<=20	6.7
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.6300	<=20	6.4
Dichlorofluoromethane (CFC 21)	T	Average RF			0.9925	<=20	5.0
Dichloromethane	T	Average RF		0.100	0.4487	<=20	11.2
Diethyl Ether	T	Average RF			0.2835	<=20	10.3
Diisopropyl Ether	T	Average RF			1.600	<=20	7.9
Ethyl Methacrylate	T	Average RF			0.2851	<=20	6.2
Ethyl tert-Butyl Ether	T	Average RF			1.185	<=20	5.7
Ethylbenzene	T	Average RF		0.100	1.562	<=20	9.4
Hexachlorobutadiene	T	Quadratic	1/X		0.2221	>=0.99	0.9989
Iodomethane	T	Average RF			0.6385	<=20	10.5
Isopropylbenzene (Cumene)	T	Average RF		0.100	3.304	<=20	7.9
Methacrylonitrile	T	Average RF			0.08739	<=20	10.3
Methyl Acetate	T	Average RF		0.100	0.1936	<=20	14.2
Methyl Methacrylate	T	Average RF			0.1102	<=20	12.3
Methyl tert-Butyl Ether	T	Average RF		0.100	0.9054	<=20	6.9
Methylcyclohexane	T	Average RF		0.100	0.4621	<=20	7.7
Naphthalene	T	Average RF			1.092	<=20	13.0
Propionitrile	T	Average RF			0.02396	<=20	13.7
Styrene	T	Average RF		0.300	0.9149	<=20	6.4
Tetrachloroethene (PCE)	T	Average RF		0.200	0.3685	<=20	8.7
Tetrahydrofuran (THF)	T	Average RF			0.05612	<=20	5.9
Toluene	T	Average RF		0.400	1.388	<=20	7.3
Trichloroethene (TCE)	T	Average RF		0.200	0.3209	<=20	11.1
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.9186	<=20	6.6
Vinyl Acetate	T	Average RF			0.07188	<=20	10.7
Vinyl Chloride	T	Average RF		0.100	0.4863	<=20	3.1
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5217	<=20	6.1
cis-1,3-Dichloropropene	T	Average RF		0.200	0.4215	<=20	4.4
m,p-Xylenes	T	Average RF		0.100	0.5726	<=20	6.4
n-Butyl Acetate	T	Average RF			0.3754	<=20	13.2
n-Butylbenzene	T	Average RF			2.485	<=20	6.6
n-Heptane	T	Average RF			0.4218	<=20	10.2
n-Propylbenzene	T	Average RF			3.943	<=20	10.0

Initial Calibration - Summary Report

Calibration ID:	RC1400038	**Instrument ID:**	R-MS-08
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
o-Xylene	T	Average RF		0.300	0.5659	<=20	7.5
sec-Butylbenzene	T	Average RF			3.415	<=20	7.0
tert-Amyl Methyl Ether	T	Average RF			0.6298	<=20	6.0
tert-Butylbenzene	T	Average RF			2.244	<=20	7.5
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4798	<=20	5.6
trans-1,3-Dichloropropene	T	Average RF		0.100	0.4095	<=20	3.7
trans-1,4-Dichloro-2-butene	T	Average RF			0.1644	<=20	14.6
1,2-Dichloroethane-d4	S	Average RF			0.2630	<=20	5.3
4-Bromofluorobenzene	S	Average RF			0.4271	<=20	9.3
Dibromofluoromethane	S	Average RF			0.2786	<=20	8.3
Toluene-d8	S	Average RF			1.032	<=20	8.4

Exceptions

QAP	Method
CRA-OXY	8260C

Compound	Type	Criteria	Result
1,4-Dioxane	RSD	<= 20	27.0

AV 05/20/14

Initial Calibration Verification Summary Report

Calibration ID:	RC1400038	**Instrument ID:**	R-MS-08
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
1,1,1,2-Tetrachloroethane	RC1400038-11	T	Average RF	50	52.69	ppm	5.4	<=30
1,1,1-Trichloroethane (TCA)	RC1400038-11	T	Average RF	50	47.87	ppm	-4.3	<=30
1,1,2,2-Tetrachloroethane	RC1400038-11	T	Average RF	50	47.58	ppm	-4.8	<=30
1,1,2-Trichloroethane	RC1400038-11	T	Average RF	50	48.03	ppm	-3.9	<=30
1,1,2-Trichlorotrifluoroethane	RC1400038-11	T	Average RF	50	44.32	ppm	-11.4	<=30
1,1-Dichloroethane (1,1-DCA)	RC1400038-11	T	Average RF	50	44.94	ppm	-10.1	<=30
1,1-Dichloroethene (1,1-DCE)	RC1400038-11	T	Average RF	50	54.07	ppm	8.1	<=30
1,1-Dichloropropene	RC1400038-11	T	Average RF	50	51.78	ppm	3.6	<=30
1,2,3-Trichlorobenzene	RC1400038-11	T	Average RF	50	56.14	ppm	12.3	<=30
1,2,3-Trichloropropane	RC1400038-11	T	Average RF	50	50.58	ppm	1.2	<=30
1,2,4-Trichlorobenzene	RC1400038-11	T	Average RF	50	53.32	ppm	6.6	<=30
1,2,4-Trimethylbenzene	RC1400038-11	T	Average RF	50	50.66	ppm	1.3	<=30
1,2-Dibromo-3-chloropropane (DBCP)	RC1400038-11	T	Average RF	50	50.26	ppm	0.5	<=30
1,2-Dibromoethane	RC1400038-11	T	Average RF	50	50.75	ppm	1.5	<=30
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	RC1400038-11	T	Average RF	50	52.95	ppm	5.9	<=30
1,2-Dichlorobenzene	RC1400038-11	T	Average RF	50	51.70	ppm	3.4	<=30
1,2-Dichloroethane	RC1400038-11	T	Average RF	50	45.77	ppm	-8.5	<=30
1,2-Dichloropropane	RC1400038-11	T	Average RF	50	45.14	ppm	-9.7	<=30
1,3,5-Trichlorobenzene	RC1400038-11	T	Average RF	50	50.94	ppm	1.9	<=30
1,3,5-Trimethylbenzene	RC1400038-11	T	Average RF	50	49.80	ppm	-0.4	<=30
1,3-Dichlorobenzene	RC1400038-11	T	Average RF	50	52.09	ppm	4.2	<=30
1,3-Dichloropropane	RC1400038-11	T	Average RF	50	47.13	ppm	-5.7	<=30
1,4-Dichlorobenzene	RC1400038-11	T	Average RF	50	51.43	ppm	2.9	<=30
1,4-Dioxane	RC1400038-11	T	Average RF	1000	1184	ppm	18.4	<=30
1-Butanol	RC1400038-11	T	Average RF	2500	2788	ppm	11.5	<=30
1-Chloro-4-(trifluoromethyl)benzene	RC1400038-11	T	Average RF	50	45.30	ppm	-9.4	<=30
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	RC1400038-11	T	Average RF	50	48.18	ppm	-3.6	<=30
2,2-Dichloropropane	RC1400038-11	T	Average RF	50	46.87	ppm	-6.3	<=30
2,3,6-Trichlorotoluene	RC1400038-11	T	Quadratic	50	49.21	ppm	-1.6	<=30
2,4,5-Trichlorotoluene	RC1400038-11	T	Quadratic	50	50.54	ppm	1.1	<=30
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	RC1400038-11	T	Average RF	150	153.2	ppm	2.1	<=30
2,4-Dichlorobenzotrifluoride	RC1400038-11	T	Average RF	50	49.46	ppm	-1.1	<=30
2,5-Dichlorobenzotrifluoride	RC1400038-11	T	Average RF	50	47.13	ppm	-5.7	<=30
2-Butanone (MEK)	RC1400038-11	T	Quadratic	50	37.13	ppm	-25.7	<=30
2-Chloro-1,3-butadiene	RC1400038-11	T	Average RF	50	46.39	ppm	-7.2	<=30
2-Chlorobenzotrifluoride	RC1400038-11	T	Average RF	50	46.33	ppm	-7.3	<=30
2-Chloroethyl Vinyl Ether	RC1400038-11	T	Average RF	50	48.50	ppm	-3.0	<=30
2-Chlorotoluene	RC1400038-11	T	Average RF	50	49.40	ppm	-1.2	<=30
2-Hexanone	RC1400038-11	T	Average RF	50	39.60	ppm	-20.8	<=30
2-Methyl-1-propanol	RC1400038-11	T	Average RF	1000	971.1	ppm	-2.9	<=30
2-Methyl-2-propanol	RC1400038-11	T	Average RF	1000	1072	ppm	7.2	<=30
2-Propanol	RC1400038-11	T	Average RF	1000	1090	ppm	9.0	<=30
3,4- and 2,3-Dichlorotoluene Coelution	RC1400038-11	T	Average RF	100	103.1	ppm	3.1	<=30
3,4-Dichlorobenzotrifluoride	RC1400038-11	T	Average RF	50	49.51	ppm	-1.0	<=30
3-Chloro-1-propene	RC1400038-11	T	Average RF	50	43.13	ppm	-13.7	<=30
3-Chlorobenzotrifluoride	RC1400038-11	T	Average RF	50	47.72	ppm	-4.6	<=30
3-Chlorotoluene	RC1400038-11	T	Average RF	50	43.62	ppm	-12.8	<=30
4-Chlorotoluene	RC1400038-11	T	Average RF	50	52.80	ppm	5.6	<=30
4-Isopropyltoluene	RC1400038-11	T	Average RF	50	50.91	ppm	1.8	<=30
4-Methyl-2-pentanone	RC1400038-11	T	Average RF	50	47.15	ppm	-5.7	<=30
Acetone	RC1400038-10	T	Linear	50	35.77	ppm	-28.5	<=30

00472

Initial Calibration Verification Summary Report

Calibration ID:	RC1400038	**Instrument ID:**	R-MS-08
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Acetonitrile	RC1400038-11	T	Quadratic	250	237.6	ppm	-5.0	<=30
Acrolein	RC1400038-10	T	Average RF	100	307.6	ppm	207.6	<=30
Acrylonitrile	RC1400038-11	T	Average RF	250	226.8	ppm	-9.3	<=30
Benzene	RC1400038-11	T	Average RF	50	46.08	ppm	-7.8	<=30
Bromobenzene	RC1400038-11	T	Average RF	50	50.98	ppm	2.0	<=30
Bromochloromethane	RC1400038-11	T	Average RF	50	47.53	ppm	-4.9	<=30
Bromodichloromethane	RC1400038-11	T	Average RF	50	49.25	ppm	-1.5	<=30
Bromoform	RC1400038-11	T	Average RF	50	55.20	ppm	10.4	<=30
Bromomethane	RC1400038-11	T	Average RF	50	46.24	ppm	-7.5	<=30
Carbon Disulfide	RC1400038-11	T	Average RF	50	40.45	ppm	-19.1	<=30
Carbon Tetrachloride	RC1400038-11	T	Average RF	50	48.66	ppm	-2.7	<=30
Chlorobenzene	RC1400038-11	T	Average RF	50	47.81	ppm	-4.4	<=30
Chloroethane	RC1400038-11	T	Average RF	50	47.25	ppm	-5.5	<=30
Chloroform	RC1400038-11	T	Average RF	50	45.83	ppm	-8.3	<=30
Chloromethane	RC1400038-11	T	Average RF	50	50.90	ppm	1.8	<=30
Cyclohexane	RC1400038-11	T	Average RF	50	45.19	ppm	-9.6	<=30
Cyclohexanone	RC1400038-11	T	Average RF	1000	760.2	ppm	-24.0	<=30
Dibromochloromethane	RC1400038-11	T	Average RF	50	53.65	ppm	7.3	<=30
Dibromomethane	RC1400038-11	T	Average RF	50	47.65	ppm	-4.7	<=30
Dichlorodifluoromethane (CFC 12)	RC1400038-11	T	Average RF	50	57.80	ppm	15.6	<=30
Dichlorofluoromethane (CFC 21)	RC1400038-11	T	Average RF	50	41.15	ppm	-17.7	<=30
Dichloromethane	RC1400038-11	T	Average RF	50	46.17	ppm	-7.7	<=30
Diethyl Ether	RC1400038-11	T	Average RF	50	48.52	ppm	-3.0	<=30
Diisopropyl Ether	RC1400038-11	T	Average RF	50	40.63	ppm	-18.7	<=30
Ethyl Methacrylate	RC1400038-11	T	Average RF	50	50.05	ppm	0.1	<=30
Ethyl tert-Butyl Ether	RC1400038-11	T	Average RF	50	43.22	ppm	-13.6	<=30
Ethylbenzene	RC1400038-11	T	Average RF	50	49.18	ppm	-1.6	<=30
Hexachlorobutadiene	RC1400038-11	T	Quadratic	50	48.38	ppm	-3.2	<=30
Iodomethane	RC1400038-11	T	Average RF	50	48.96	ppm	-2.1	<=30
Isopropylbenzene (Cumene)	RC1400038-11	T	Average RF	50	50.40	ppm	0.8	<=30
Methacrylonitrile	RC1400038-11	T	Average RF	50	48.01	ppm	-4.0	<=30
Methyl Acetate	RC1400038-11	T	Average RF	50	45.19	ppm	-9.6	<=30
Methyl Methacrylate	RC1400038-11	T	Average RF	50	48.67	ppm	-2.7	<=30
Methyl tert-Butyl Ether	RC1400038-11	T	Average RF	50	50.82	ppm	1.6	<=30
Methylcyclohexane	RC1400038-11	T	Average RF	50	45.06	ppm	-9.9	<=30
Naphthalene	RC1400038-11	T	Average RF	50	55.32	ppm	10.6	<=30
Propionitrile	RC1400038-11	T	Average RF	250	223.6	ppm	-10.6	<=30
Styrene	RC1400038-11	T	Average RF	50	52.10	ppm	4.2	<=30
Tetrachloroethene (PCE)	RC1400038-11	T	Average RF	50	49.97	ppm	-0.1	<=30
Tetrahydrofuran (THF)	RC1400038-11	T	Average RF	50	48.87	ppm	-2.3	<=30
Toluene	RC1400038-11	T	Average RF	50	48.44	ppm	-3.1	<=30
Trichloroethene (TCE)	RC1400038-11	T	Average RF	50	46.89	ppm	-6.2	<=30
Trichlorofluoromethane (CFC 11)	RC1400038-11	T	Average RF	50	50.19	ppm	0.4	<=30
Vinyl Acetate	RC1400038-11	T	Average RF	50	46.04	ppm	-7.9	<=30
Vinyl Chloride	RC1400038-11	T	Average RF	50	51.23	ppm	2.5	<=30
cis-1,2-Dichloroethene	RC1400038-11	T	Average RF	50	46.84	ppm	-6.3	<=30
cis-1,3-Dichloropropene	RC1400038-11	T	Average RF	50	47.93	ppm	-4.1	<=30
m,p-Xylenes	RC1400038-11	T	Average RF	100	103.4	ppm	3.4	<=30
n-Butyl Acetate	RC1400038-11	T	Average RF	50	49.07	ppm	-1.9	<=30
n-Butylbenzene	RC1400038-11	T	Average RF	50	50.59	ppm	1.2	<=30
n-Heptane	RC1400038-11	T	Average RF	50	45.54	ppm	-8.9	<=30

Initial Calibration Verification Summary Report

Calibration ID:	RC1400038	**Instrument ID:**	R-MS-08
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
n-Propylbenzene	RC1400038-11	T	Average RF	50	49.32	ppm	-1.4	<=30
o-Xylene	RC1400038-11	T	Average RF	50	50.41	ppm	0.8	<=30
sec-Butylbenzene	RC1400038-11	T	Average RF	50	49.36	ppm	-1.3	<=30
tert-Amyl Methyl Ether	RC1400038-11	T	Average RF	50	44.09	ppm	-11.8	<=30
tert-Butylbenzene	RC1400038-11	T	Average RF	50	50.44	ppm	0.9	<=30
trans-1,2-Dichloroethene	RC1400038-11	T	Average RF	50	46.75	ppm	-6.5	<=30
trans-1,3-Dichloropropene	RC1400038-11	T	Average RF	50	50.40	ppm	0.8	<=30
trans-1,4-Dichloro-2-butene	RC1400038-11	T	Average RF	50	46.12	ppm	-7.8	<=30
1,2-Dichloroethane-d4	RC1400038-11	S	Average RF	50	50.45	ppm	0.9	<=30
4-Bromofluorobenzene	RC1400038-11	S	Average RF	50	55.00	ppm	10.0	<=30
Dibromofluoromethane	RC1400038-11	S	Average RF	50	52.38	ppm	4.8	<=30
Toluene-d8	RC1400038-11	S	Average RF	50	54.57	ppm	9.1	<=30

Exceptions

QAP	Method
CRA-OXY	8260C

Compound	Type	Criteria	Result
Acrolein	Percent Difference	<= 30	207.58

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/20/14 09:11

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052014\C4724.D\
Instrument ID: R-MS-08

Analytical Method: 8260C
Analysis Lot: 393494

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	24.59	56834	Pass
75	95	30	60	56.76	131203	Pass
95	95	100	100	100.00	231138	Pass
96	95	5	9	6.88	15906	Pass
173	174	0	2	0.00	0	Pass
174	95	50	120	61.91	143099	Pass
175	174	5	9	8.32	11906	Pass
176	174	95	101	98.98	141643	Pass
177	176	5	9	6.36	9014	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405407-02	I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D\	5/20/14 09:38	
Lab Control Sample	RQ1405407-03	I:\ACQUDATA\MSVOA8\DATA\052014\C4726.D\	5/20/14 10:08	
Method Blank	RQ1405407-04	I:\ACQUDATA\MSVOA8\DATA\052014\C4728.D\	5/20/14 11:08	
MRC-MW-102B-050814	R1403433-001	I:\ACQUDATA\MSVOA8\DATA\052014\C4734.D\	5/20/14 14:04	
MRC-MW-102A-050814	R1403433-002	I:\ACQUDATA\MSVOA8\DATA\052014\C4735.D\	5/20/14 14:31	
MRC-MW-101B-050814	R1403433-003	I:\ACQUDATA\MSVOA8\DATA\052014\C4736.D\	5/20/14 14:58	
MRC-MW-101A-050814	R1403433-004	I:\ACQUDATA\MSVOA8\DATA\052014\C4737.D\	5/20/14 15:25	
MRC-MW-32A-050814	R1403433-007	I:\ACQUDATA\MSVOA8\DATA\052014\C4738.D\	5/20/14 15:52	
MRC-MW-33A-050814	R1403433-008	I:\ACQUDATA\MSVOA8\DATA\052014\C4739.D\	5/20/14 16:19	
MRC-MW-34A-051214	R1403433-011	I:\ACQUDATA\MSVOA8\DATA\052014\C4740.D\	5/20/14 16:46	
MRC-MW-34B-051214	R1403433-012	I:\ACQUDATA\MSVOA8\DATA\052014\C4741.D\	5/20/14 17:13	
MRC-MW-34C-051214	R1403433-013	I:\ACQUDATA\MSVOA8\DATA\052014\C4742.D\	5/20/14 17:40	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/20/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 393494
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	47.8	0.2903	0.2777	-4.4	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	44.9	0.8176	0.7348	-10.1	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	45.7	0.5429	0.4963	-8.6	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	39.8	0.2390	0.1901	-20.5 *	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	45.8	0.7973	0.7295	-8.5	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	46.1	0.3860	0.3555	-7.9	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	41.6	0.3841	0.3196	-16.8	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	44.0	0.4550	0.4004	-12.0	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	47.7	0.1604	0.1530	-4.6	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	42.2	0.5866	0.4951	-15.6	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	42.9	2.556	2.191	-14.3	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	46.4	0.06740	0.06251	-7.3	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	48.7	0.2232	0.2174	-2.6	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	46.7	1.085	1.014	-6.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	43.6	0.3681	0.3212	-12.7	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	43.8	0.2666	0.2333	-12.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	46.1	1.235	1.140	-7.7	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	45.0	0.4250	0.3820	-10.1	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	44.5	1.228	1.094	-10.9	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	45.6	0.7984	0.7281	-8.8	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	50.1	NA	NA	NA	0.3	± 20 %	Quadratic
2-Chloroethyl Vinyl Ether	50.0	33.9	0.09920	0.06732	-32.1 *	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	43.4	2.355	2.042	-13.3	NA	± 20 %	Average RF
2-Hexanone	50.0	44.4	0.1630	0.1448	-11.2	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1050	0.01335	0.01400	4.9	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	43.3	2.301	1.991	-13.5	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	37.8	2.658	2.009	-24.4 *	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	44.7	0.2080	0.1861	-10.5	NA	± 20 %	Average RF
Acetone	50.0	56.1	NA	NA	NA	12.2	± 20 %	Linear
Benzene	50.0	43.8	1.084	0.9504	-12.4	NA	± 20 %	Average RF
Bromobenzene	50.0	46.9	0.6778	0.6363	-6.1	NA	± 20 %	Average RF
Bromochloromethane	50.0	47.5	0.2220	0.2110	-5.0	NA	± 20 %	Average RF
Bromodichloromethane	50.0	45.2	0.3909	0.3536	-9.5	NA	± 20 %	Average RF
Bromoform	50.0	51.8	0.2665	0.2762	3.6	NA	± 20 %	Average RF
Bromomethane	50.0	44.9	0.4389	0.3937	-10.3	NA	± 20 %	Average RF
Carbon Disulfide	50.0	43.6	1.113	0.9699	-12.9	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	42.3	0.4389	0.3710	-15.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	44.3	0.8724	0.7730	-11.4	NA	± 20 %	Average RF
Chloroethane	50.0	45.8	0.3495	0.3199	-8.5	NA	± 20 %	Average RF
Chloroform	50.0	46.2	0.8945	0.8267	-7.6	NA	± 20 %	Average RF

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/20/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 393494
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	47.3	0.5570	0.5270	-5.4	NA	± 20 %	Average RF
Dibromochloromethane	50.0	50.3	0.2573	0.2590	0.6	NA	± 20 %	Average RF
Dibromomethane	50.0	44.7	0.1577	0.1411	-10.5	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	48.6	0.6300	0.6128	-2.7	NA	± 20 %	Average RF
Methylene Chloride	50.0	45.4	0.4487	0.4077	-9.1	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	45.6	1.600	1.457	-8.9	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	45.3	1.185	1.074	-9.3	NA	± 20 %	Average RF
Ethylbenzene	50.0	42.8	1.562	1.338	-14.4	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	31.9	NA	NA	NA	-36.1 *	± 20 %	Quadratic
Isopropylbenzene (Cumene)	50.0	42.2	3.304	2.785	-15.7	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	46.7	0.9054	0.8447	-6.7	NA	± 20 %	Average RF
Naphthalene	50.0	47.6	1.092	1.040	-4.8	NA	± 20 %	Average RF
Styrene	50.0	48.2	0.9149	0.8820	-3.6	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	42.3	0.3685	0.3114	-15.5	NA	± 20 %	Average RF
Toluene	50.0	44.8	1.388	1.244	-10.4	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	42.5	0.3209	0.2727	-15.0	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	45.3	0.9186	0.8327	-9.3	NA	± 20 %	Average RF
Vinyl Acetate	50.0	46.7	0.07188	0.06719	-6.5	NA	± 20 %	Average RF
Vinyl Chloride	50.0	48.5	0.4863	0.4718	-3.0	NA	± 20 %	Average RF
Xylenes, Total	150	133	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	47.5	0.5217	0.4952	-5.1	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	45.8	0.4215	0.3856	-8.5	NA	± 20 %	Average RF
m,p-Xylenes	100	89.0	0.5726	0.5097	-11.0	NA	± 20 %	Average RF
n-Butylbenzene	50.0	36.5	2.485	1.813	-27.0 *	NA	± 20 %	Average RF
n-Propylbenzene	50.0	40.6	3.943	3.202	-18.8	NA	± 20 %	Average RF
o-Xylene	50.0	44.1	0.5659	0.4987	-11.9	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	36.6	3.415	2.499	-26.8 *	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	43.0	0.6298	0.5418	-14.0	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	38.8	2.244	1.742	-22.4 *	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	46.5	0.4798	0.4460	-7.1	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	48.6	0.4095	0.3978	-2.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	52.9	0.4271	0.4518	5.8	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.0	0.2786	0.2950	5.9	NA	± 20 %	Average RF
Toluene-d8	50.0	54.7	1.032	1.128	9.3	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D Vial: 5
Acq On : 20 May 2014 9:38 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

AV 05/23/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	106	-0.01	
2	P	Dichlorodifluoromethane	0.6300	0.6128	2.7	97	0.00	
3	P	Chloromethane	0.5570	0.5270	5.4	102	0.00	
4	P	Vinyl Chloride	0.4863	0.4718	3.0	101	0.00	
5	P	Bromomethane	0.4389	0.3937	10.3	102	0.00	
6	P	Chloroethane	0.3495	0.3199	8.5	103	0.00	
7		FREON 21	0.9925	0.9172	7.6	98	0.00	
8	P	Trichlorofluoromethane	0.9186	0.8327	9.4	100	0.00	
9		Diethyl Ether	0.2835	0.2641	6.8	102	0.00	
10		FREON 123A	0.2700	0.2462	8.8	97	0.00	
11		FREON 123	0.4503	0.3997	11.2	95	0.00	
12		Acrolein	0.0093	0.0075	19.4	92	0.00	
13	P	FREON 113	0.2390	0.1901	20.5#	97	0.00	OF TW 5-29-14
14	P	1,1-Diclethene	0.3860	0.3555	7.9	103	0.00	
15	P	Acetone	0.1002	0.1042	-12.2 ~~-4.0~~	113	0.00	
16		2-Propanol	0.0080	0.0081	-1.2	126	0.00	
17		Iodomethane	0.6385	0.6138	3.9	91	-0.01	
18	P	Carbon Disulfide	1.1129	0.9699	12.8	94	0.00	
19		Acetonitrile	0.0154	0.0152	-25.3 ~~-1.5~~	130	0.00	NT
20		Allyl Chloride	0.2648	0.2507	5.3	102	0.00	
21	P	Methyl Acetate	0.1936	0.1731	10.6	107	-0.01	
22	P	Methylene Chloride	0.4487	0.4077	9.1	104	0.00	
23		TBA	0.0134	0.0140	-4.5	127	0.00	
24		Acrylonitrile	0.0772	0.0752	2.6	108	0.00	
25	P	Methyl-t-Butyl Ether	0.9054	0.8447	6.7	103	-0.01	
26	P	trans-1,2-Dichloroethene	0.4798	0.4460	7.0	103	0.00	
27	P	1,1-Diclethane	0.7973	0.7295	8.5	102	0.00	
28		DIPE	1.5995	1.4573	8.9	100	-0.01	
29		Vinyl Acetate	0.0719	0.0672	6.5	113	-0.01	
30		2-Chloro-1,3-butadiene	0.7111	0.6506	8.5	95	-0.01	
31		ETBE	1.1848	1.0743	9.3	99	-0.01	
32		2,2-Dichloropropane	0.7984	0.7281	8.8	104	-0.01	
33	P	2-Butanone	0.1408	0.1286	-0.3 ~~-8.7~~	110	-0.01	
34	P	cis-1,2-Dichloroethene	0.5217	0.4952	5.1	105	-0.01	
35		Propionitrile	0.0240	0.0243	-1.2	121	-0.01	
36		Methacrylonitrile	0.0874	0.0822	5.9	106	-0.01	
37		Bromochloromethane	0.2220	0.2110	5.0	104	-0.01	
38	P	Chloroform	0.8945	0.8267	7.6	103	-0.01	
39		Tetrahydrofuran	0.0561	0.0514	8.4	102	-0.01	
40	P	1,1,1-Trichloroethane	0.8176	0.7348	10.1	100	-0.01	
41	I	1,4 - Difluorobenzene	1.0000	1.0000	0.0	111	-0.01	
42	S	surr4,Dibrflmethane	0.2786	0.2950	-5.9	106	-0.01	
43	P	cyclohexane	0.5215	0.4420	15.2	94	-0.01	
44	P	Carbontetrachloride	0.4389	0.3710	15.5	99	-0.01	
45		1,1-Dichloropropene	0.3841	0.3196	16.8	100	-0.01	
46		Iso-Butyl Alcohol	0.0042	0.0039	7.1	119	-0.01	
47	S	surr1,1,2-Diclethane	0.2630	0.2705	-2.9	107	-0.01	
48	P	Benzene	1.0845	0.9504	12.4	102	-0.01	
49	P	1,2-Dichloroethane	0.3681	0.3212	12.7	103	-0.01	

00497

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D Vial: 5
Acq On : 20 May 2014 9:38 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
50		TAME	0.6298	0.5418	14.0	98	-0.01	
51		N-Heptane	0.4218	0.2443	42.1#	70	-0.01	NT
52		1-Butanol	0.0019	0.0018	5.3	127	-0.01	
53	P	Trichloroethene	0.3209	0.2727	15.0	99	-0.01	
54	P	methylcyclohexane	0.4621	0.3914	15.3	96	-0.01	
55	P	1,2-Diclpropane	0.2666	0.2333	12.5	105	-0.01	
56		Methyl Methacrylate	0.1102	0.0978	11.3	106	-0.01	
57		1,4-Dioxane	0.0008	0.0008	0.0	142	-0.02	
58		Dibromomethane	0.1577	0.1411	10.5	103	-0.02	
59	P	Bromodichloromethane	0.3909	0.3536	9.5	102	-0.02	
60		2-Nitropropane	0.0000	0.0000	0.0	76	-0.01	
61		2-Chloroethylvinyl Ether	0.0992	0.0673	32.2#	77	-0.01	x3407,3431
62	P	cis-1,3-Dichloropropene	0.4215	0.3856	8.5	101	-0.01	
63	I	d5 - Chlorobenzene	1.0000	1.0000	0.0	107	-0.02	
64	P	4-Methyl-2-Pentanone	0.2080	0.1861	10.5	106	-0.02	
65	P	Toluene	1.3882	1.2442	10.4	101	-0.02	
66	P	trans-1,3-Dichloropropene	0.4095	0.3978	2.9	104	-0.02	
67		Ethyl Methacrylate	0.2851	0.2653	6.9	102	-0.01	
68	P	1,1,2-Trichloroethane	0.1928	0.1788	7.3	104	-0.02	
69	S	surr3,Toluene-d8	1.0321	1.1280	-9.3	104	-0.02	
70	S	surr2,bfb	0.4271	0.4518	-5.8	101	-0.02	
71	P	Tetrachloroethene	0.3685	0.3114	15.5	96	-0.01	
72	P	2-Hexanone	0.1630	0.1448	11.2	105	-0.01	
73		N-Butyl Acetate	0.3754	0.3317	11.6	103	-0.01	
74		1,3-Dichloropropane	0.4250	0.3820	10.1	103	-0.01	
75	P	Dibromochloromethane	0.2573	0.2590	-0.7	106	-0.01	
76	P	1,2-Dibromoethane	0.2232	0.2174	2.6	106	-0.02	
77		3-Chlorobenzotrifluoride	0.5116	0.5108	0.2	106	-0.02	
78	P	Chlorobenzene	0.8724	0.7730	11.4	101	-0.02	
79		4-Chlorobenzotrifluoride	0.4724	0.4739	-0.3	109	-0.02	
80		1,1,1,2-Tetrachloroethane	0.2903	0.2777	4.3	100	-0.02	
81	P	Ethylbenzene	1.5623	1.3379	14.4	96	-0.02	
82	P	(m+p)Xylene	0.5726	0.5097	11.0	96	-0.02	
83	P	o-Xylene	0.5659	0.4987	11.9	96	-0.02	
84	P	Styrene	0.9149	0.8820	3.6	100	-0.01	
85	I	d4 - Dichlorobenzene	1.0000	1.0000	0.0	104	-0.02	
86	P	Bromoform	0.2665	0.2762	-3.6	103	-0.02	
87		2-Chlorobenzotrifluoride	1.0387	1.0564	-1.7	107	-0.02	
88	P	Isopropylbenzene	3.3036	2.7855	15.7	91	-0.01	
89		Cyclohexanone	0.0396	0.0360	9.1	105	-0.02	
90	P	1,1,2,2-Tetrachloroethane	0.5429	0.4963	8.6	105	-0.02	
91		Trans-1,4-Dichloro-2-butene	0.1644	0.1554	5.5	106	-0.02	
92		1,2,3-Trichloropropane	0.1604	0.1530	4.6	108	-0.02	
93		n-Propylbenzene	3.9430	3.2020	18.8	90	-0.02	
94		Bromobenzene	0.6778	0.6363	6.1	99	-0.02	
95		1,3,5-Trimethylbenzene	2.6338	2.1763	17.4	90	-0.02	
96		2-Chlorotoluene	2.3551	2.0420	13.3	94	-0.02	
97		3-Chlorotoluene	2.6966	2.5867	4.1	103	-0.02	

00498

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D Vial: 5
Acq On : 20 May 2014 9:38 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
98		4-Chlorotoluene	2.3011	1.9915	13.5	94	-0.02	
99		tert-Butylbenzene	2.2444	1.7424	22.4#	83	-0.02	X 3428, 3433
100		1,2,4-Trimethylbenzene	2.5555	2.1907	14.3	90	-0.02	
101		3,4-Dichlorobenzotrifluorid	0.6265	0.6594	-5.3	105	-0.02	
102		2-Octanol	0.0000	0.0000	0.0	138	0.02	
103		sec-Butylbenzene	3.4148	2.4988	26.8#	79	-0.02	X 3428, 3433
104		p-Isopropyltoluene	2.6576	2.0093	24.4#	80	-0.02	X 3428, 3433
105	P	1,3-Dclbenz	1.2351	1.1398	7.7	96	-0.02	
106	P	1,4-Dclbenz	1.2280	1.0937	10.9	94	-0.02	
107		2,4-Dichlorobenzotrifluorid	0.5494	0.5731	-4.3	103	-0.02	
108		2,5-Dichlorobenzotrifluorid	0.6300	0.6325	-0.4	104	-0.02	
109		n-Butylbenzene	2.4850	1.8135	27.0#	77	-0.02	X 3428, 3433
110	P	1,2-Dclbenz	1.0846	1.0137	6.5	96	-0.01	
111	P	1,2-Dibromo-3-chloropropane	0.0674	0.0625	7.3	106	-0.02	
112		Trielution-Dichlorotoluene	1.0328	1.0969	-6.2	103	-0.02	
113		1,3,5-Trichlorobenzene	0.7809	0.8312	-6.4	105	-0.02	
114		Coelution - Dichlorotoluene	1.0238	1.0994	-7.4	104	-0.02	
115	P	1,2,4-Tcbenzene	0.5866	0.4951	15.6	86	-0.02	
116		Hexachlorobu	0.2221	0.1305	+36.1 ~~41.2#~~	66	-0.02	X 3428, 3433
117		Naphthalen	1.0918	1.0395	4.8	101	-0.02	
118		1,2,3-Tclbenzene	0.4550	0.4004	12.0	85	-0.01	
119		2,4,5-Trichlorotoluene	0.4461	0.5212	-6.3 ~~16.8~~	109	-0.02	
120		2,3,6-Trichlorotoluene	0.4949	0.5940	-9.1 ~~20.0#~~	112	-0.02	

00499

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/20/14 11:08
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-08
Lab Code:	RQ1405407-04	**File ID:**	I:\ACQUDATA\MSVOA8\DATA\052014\C4728.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405407-03	I:\ACQUDATA\MSVOA8\DATA\052014\C4726.D\	5/20/14 10:08
MRC-MW-102B-050814	R1403433-001	I:\ACQUDATA\MSVOA8\DATA\052014\C4734.D\	5/20/14 14:04
MRC-MW-102A-050814	R1403433-002	I:\ACQUDATA\MSVOA8\DATA\052014\C4735.D\	5/20/14 14:31
MRC-MW-101B-050814	R1403433-003	I:\ACQUDATA\MSVOA8\DATA\052014\C4736.D\	5/20/14 14:58
MRC-MW-101A-050814	R1403433-004	I:\ACQUDATA\MSVOA8\DATA\052014\C4737.D\	5/20/14 15:25
MRC-MW-32A-050814	R1403433-007	I:\ACQUDATA\MSVOA8\DATA\052014\C4738.D\	5/20/14 15:52
MRC-MW-33A-050814	R1403433-008	I:\ACQUDATA\MSVOA8\DATA\052014\C4739.D\	5/20/14 16:19
MRC-MW-34A-051214	R1403433-011	I:\ACQUDATA\MSVOA8\DATA\052014\C4740.D\	5/20/14 16:46
MRC-MW-34B-051214	R1403433-012	I:\ACQUDATA\MSVOA8\DATA\052014\C4741.D\	5/20/14 17:13
MRC-MW-34C-051214	R1403433-013	I:\ACQUDATA\MSVOA8\DATA\052014\C4742.D\	5/20/14 17:40

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/20/14 11:08
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405407-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4728.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/20/14 11:08
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405407-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4728.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.28**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/20/14 11:08
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405407-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393494
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052014\C4728.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	5/20/14 11:08	
Dibromofluoromethane	106	89-119	5/20/14 11:08	
Toluene-d8	111	87-121	5/20/14 11:08	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/20/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 393494

Analyte Name	Lab Control Sample RQ1405407-03 Result	Spike Amount	% Rec		% Rec Limits
1,1,1,2-Tetrachloroethane	20.2	20.0	101		80 - 120
1,1,1-Trichloroethane (TCA)	19.4	20.0	97		67 - 121
1,1,2,2-Tetrachloroethane	20.3	20.0	101		72 - 124
1,1,2-Trichlorotrifluoroethane	18.6	20.0	93		60 - 123
1,1-Dichloroethane (1,1-DCA)	19.4	20.0	97		76 - 128
1,1-Dichloroethene (1,1-DCE)	23.0	20.0	115		74 - 135
1,1-Dichloropropene	21.3	20.0	106		72 - 122
1,2,3-Trichlorobenzene	22.4	20.0	112		67 - 135
1,2,3-Trichloropropane	20.7	20.0	103		72 - 123
1,2,4-Trichlorobenzene	22.1	20.0	110		70 - 130
1,2,4-Trimethylbenzene	20.0	20.0	100		72 - 127
1,2-Dibromo-3-chloropropane (DBCP)	21.4	20.0	107		64 - 131
1,2-Dibromoethane	20.6	20.0	103		81 - 118
1,2-Dichlorobenzene	20.7	20.0	104		80 - 119
1,2-Dichloroethane	19.1	20.0	95		72 - 130
1,2-Dichloropropane	18.5	20.0	92		80 - 119
1,3-Dichlorobenzene	20.5	20.0	102		79 - 121
1,3-Dichloropropane	19.8	20.0	99		81 - 115
1,4-Dichlorobenzene	20.1	20.0	101		79 - 119
2,2-Dichloropropane	19.7	20.0	98		54 - 137
2-Butanone (MEK)	18.4	20.0	92		60 - 133
2-Chloroethyl Vinyl Ether	18.4	20.0	92		60 - 136
2-Chlorotoluene	20.0	20.0	100		71 - 125
2-Hexanone	17.4	20.0	87		61 - 131
tert-Butyl Alcohol	634	400	158	*	59 - 155
4-Chlorotoluene	21.7	20.0	108		73 - 127
4-Isopropyltoluene	20.4	20.0	102		71 - 130
4-Methyl-2-pentanone	19.3	20.0	96		61 - 132
Acetone	16.8	20.0	84		61 - 138
Benzene	19.1	20.0	96		76 - 118
Bromobenzene	20.1	20.0	100		79 - 118
Bromochloromethane	19.9	20.0	99		83 - 123
Bromodichloromethane	19.7	20.0	98		79 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/20/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 393494

Analyte Name	Lab Control Sample RQ1405407-03 Result	Spike Amount	% Rec	% Rec Limits
Bromoform	21.0	20.0	105	72 - 128
Bromomethane	20.0	20.0	100	46 - 157
Carbon Disulfide	18.8	20.0	94	61 - 144
Carbon Tetrachloride	19.2	20.0	96	64 - 129
Chlorobenzene	19.6	20.0	98	80 - 121
Chloroethane	21.3	20.0	106	69 - 128
Chloroform	19.8	20.0	99	75 - 123
Chloromethane	22.2	20.0	111	55 - 139
Dibromochloromethane	20.6	20.0	103	78 - 127
Dibromomethane	18.9	20.0	95	79 - 120
Dichlorodifluoromethane (CFC 12)	22.8	20.0	114	45 - 147
Methylene Chloride	19.8	20.0	99	73 - 122
Diisopropyl Ether	18.0	20.0	90	72 - 130
Ethyl tert-Butyl Ether	17.9	20.0	89	70 - 126
Ethylbenzene	19.5	20.0	98	75 - 123
Hexachlorobutadiene	23.8	20.0	119	51 - 150
Isopropylbenzene (Cumene)	20.1	20.0	101	75 - 139
Methyl tert-Butyl Ether	20.7	20.0	103	75 - 116
Naphthalene	22.7	20.0	113	71 - 139
Styrene	20.4	20.0	102	80 - 121
Tetrachloroethene (PCE)	19.1	20.0	96	71 - 127
Toluene	19.5	20.0	97	77 - 120
Trichloroethene (TCE)	18.8	20.0	94	75 - 122
Trichlorofluoromethane (CFC 11)	21.0	20.0	105	64 - 134
Vinyl Acetate	20.8	20.0	104	13 - 161
Vinyl Chloride	22.6	20.0	113	68 - 139
Xylenes, Total	59.8	60.0	100	77 - 122
cis-1,2-Dichloroethene	19.4	20.0	97	77 - 123
cis-1,3-Dichloropropene	18.7	20.0	94	77 - 125
m,p-Xylenes	40.4	40.0	101	77 - 124
n-Butylbenzene	20.8	20.0	104	65 - 135
n-Propylbenzene	19.8	20.0	99	69 - 132
o-Xylene	19.3	20.0	97	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/20/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 393494

Lab Control Sample
RQ1405407-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	19.9	20.0	99	67 - 131
tert-Amyl Methyl Ether	17.5	20.0	88	71 - 124
tert-Butylbenzene	20.0	20.0	100	70 - 126
trans-1,2-Dichloroethene	19.9	20.0	100	72 - 120
trans-1,3-Dichloropropene	20.1	20.0	100	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/21/14 11:20

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052114\C4755.D\
Instrument ID: R-MS-08

Analytical Method: 8260C
Analysis Lot: 393625

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	22.96	54928	Pass
75	95	30	60	55.63	133112	Pass
95	95	100	100	100.00	239275	Pass
96	95	5	9	6.91	16524	Pass
173	174	0	2	0.00	0	Pass
174	95	50	120	68.38	163627	Pass
175	174	5	9	7.99	13069	Pass
176	174	95	101	98.80	161664	Pass
177	176	5	9	6.68	10800	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405451-02	I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D\	5/21/14 11:57	
Lab Control Sample	RQ1405451-03	I:\ACQUDATA\MSVOA8\DATA\052114\C4757.D\	5/21/14 12:24	
Method Blank	RQ1405451-04	I:\ACQUDATA\MSVOA8\DATA\052114\C4759.D\	5/21/14 13:28	
MRC-MW-38A-051214	R1403433-014	I:\ACQUDATA\MSVOA8\DATA\052114\C4761.D\	5/21/14 14:28	
MRC-MW-104A-051214	R1403433-016	I:\ACQUDATA\MSVOA8\DATA\052114\C4762.D\	5/21/14 14:55	
MRC-MW-104B-051214	R1403433-017	I:\ACQUDATA\MSVOA8\DATA\052114\C4763.D\	5/21/14 15:22	
MRC-MW-69B-051314	R1403433-021	I:\ACQUDATA\MSVOA8\DATA\052114\C4764.D\	5/21/14 15:54	
MRC-MW-69A-051314	R1403433-022	I:\ACQUDATA\MSVOA8\DATA\052114\C4765.D\	5/21/14 16:23	
TB-050814	R1403433-009	I:\ACQUDATA\MSVOA8\DATA\052114\C4766.D\	5/21/14 16:50	
TB-051214	R1403433-010	I:\ACQUDATA\MSVOA8\DATA\052114\C4767.D\	5/21/14 17:17	
TB-051314	R1403433-019	I:\ACQUDATA\MSVOA8\DATA\052114\C4768.D\	5/21/14 17:44	
MRC-MW-96B-051314	R1403433-025	I:\ACQUDATA\MSVOA8\DATA\052114\C4769.D\	5/21/14 18:10	
MRC-MW-96A-051314	R1403433-024	I:\ACQUDATA\MSVOA8\DATA\052114\C4770.D\	5/21/14 18:37	
MRC-MW-96A-051314MS	RQ1405451-05	I:\ACQUDATA\MSVOA8\DATA\052114\C4777.D\	5/21/14 21:46	
MRC-MW-96A-051314DMS	RQ1405451-06	I:\ACQUDATA\MSVOA8\DATA\052114\C4778.D\	5/21/14 22:13	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/21/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 393625
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	49.9	0.2903	0.2898	-0.2	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	47.6	0.8176	0.7781	-4.8	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	46.8	0.5429	0.5077	-6.5	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	41.3	0.2390	0.1972	-17.5	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	47.5	0.7973	0.7573	-5.0	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	48.2	0.3860	0.3723	-3.6	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	43.7	0.3841	0.3354	-12.7	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	51.8	0.4550	0.4714	3.6	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	48.3	0.1604	0.1549	-3.4	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	48.7	0.5866	0.5718	-2.5	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	45.0	2.556	2.300	-10.0	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	50.1	0.06740	0.06754	0.2	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	50.8	0.2232	0.2268	1.6	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	48.6	1.085	1.053	-2.9	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	45.1	0.3681	0.3316	-9.9	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	44.3	0.2666	0.2360	-11.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	47.4	1.235	1.171	-5.2	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	46.2	0.4250	0.3929	-7.5	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	47.1	1.228	1.157	-5.8	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	46.7	0.7984	0.7457	-6.6	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	55.2	NA	NA	NA	10.4	± 20 %	Quadratic
2-Chloroethyl Vinyl Ether	50.0	33.3	0.09920	0.06612	-33.3 *	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	45.0	2.355	2.121	-9.9	NA	± 20 %	Average RF
2-Hexanone	50.0	47.8	0.1630	0.1557	-4.5	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1280	0.01335	0.01703	27.6 *	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	43.6	2.301	2.006	-12.8	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	43.0	2.658	2.286	-14.0	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	47.5	0.2080	0.1976	-5.0	NA	± 20 %	Average RF
Acetone	50.0	61.1	NA	NA	NA	22.1 *	± 20 %	Linear
Benzene	50.0	45.8	1.084	0.9927	-8.5	NA	± 20 %	Average RF
Bromobenzene	50.0	48.1	0.6778	0.6519	-3.8	NA	± 20 %	Average RF
Bromochloromethane	50.0	48.6	0.2220	0.2159	-2.7	NA	± 20 %	Average RF
Bromodichloromethane	50.0	46.9	0.3909	0.3665	-6.2	NA	± 20 %	Average RF
Bromoform	50.0	53.7	0.2665	0.2860	7.3	NA	± 20 %	Average RF
Bromomethane	50.0	45.3	0.4389	0.3977	-9.4	NA	± 20 %	Average RF
Carbon Disulfide	50.0	44.1	1.113	0.9819	-11.8	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	45.0	0.4389	0.3947	-10.1	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.6	0.8724	0.8125	-6.9	NA	± 20 %	Average RF
Chloroethane	50.0	49.2	0.3495	0.3435	-1.7	NA	± 20 %	Average RF
Chloroform	50.0	46.7	0.8945	0.8358	-6.6	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/21/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 393625
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	49.9	0.5570	0.5556	-0.3	NA	± 20 %	Average RF
Dibromochloromethane	50.0	51.2	0.2573	0.2635	2.4	NA	± 20 %	Average RF
Dibromomethane	50.0	46.4	0.1577	0.1465	-7.1	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	50.7	0.6300	0.6392	1.5	NA	± 20 %	Average RF
Methylene Chloride	50.0	48.1	0.4487	0.4318	-3.8	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	46.2	1.600	1.478	-7.6	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	46.8	1.185	1.109	-6.4	NA	± 20 %	Average RF
Ethylbenzene	50.0	44.3	1.562	1.386	-11.3	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	37.6	NA	NA	NA	-24.8 *	± 20 %	Quadratic
Isopropylbenzene (Cumene)	50.0	44.3	3.304	2.928	-11.4	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	48.6	0.9054	0.8803	-2.8	NA	± 20 %	Average RF
Naphthalene	50.0	51.6	1.092	1.126	3.2	NA	± 20 %	Average RF
Styrene	50.0	49.3	0.9149	0.9020	-1.4	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	44.5	0.3685	0.3281	-11.0	NA	± 20 %	Average RF
Toluene	50.0	46.7	1.388	1.296	-6.7	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	44.6	0.3209	0.2865	-10.7	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	47.3	0.9186	0.8690	-5.4	NA	± 20 %	Average RF
Vinyl Acetate	50.0	52.4	0.07188	0.07527	4.7	NA	± 20 %	Average RF
Vinyl Chloride	50.0	51.4	0.4863	0.5000	2.8	NA	± 20 %	Average RF
Xylenes, Total	150	141	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	48.5	0.5217	0.5059	-3.0	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	47.0	0.4215	0.3961	-6.0	NA	± 20 %	Average RF
m,p-Xylenes	100	94.7	0.5726	0.5420	-5.4	NA	± 20 %	Average RF
n-Butylbenzene	50.0	41.7	2.485	2.073	-16.6	NA	± 20 %	Average RF
n-Propylbenzene	50.0	43.1	3.943	3.397	-13.9	NA	± 20 %	Average RF
o-Xylene	50.0	46.8	0.5659	0.5294	-6.4	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	41.5	3.415	2.833	-17.0	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	44.7	0.6298	0.5632	-10.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	43.4	2.244	1.948	-13.2	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	49.4	0.4798	0.4740	-1.2	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	49.6	0.4095	0.4060	-0.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	54.5	0.4271	0.4655	9.0	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.8	0.2786	0.2998	7.6	NA	± 20 %	Average RF
Toluene-d8	50.0	55.4	1.032	1.144	10.8	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D Vial: 5
Acq On : 21 May 2014 11:57 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	108	0.00	
2	P	Dichlorodifluoromethane	0.6300	0.6392	-1.5	103	0.00	
3	P	Chloromethane	0.5570	0.5556	0.3	110	0.00	
4	P	Vinyl Chloride	0.4863	0.5000	-2.8	109	0.00	
5	P	Bromomethane	0.4389	0.3977	9.4	105	0.00	
6	P	Chloroethane	0.3495	0.3435	1.7	113	0.00	
7		FREON 21	0.9925	0.9979	-0.5	109	0.00	
8	P	Trichlorofluoromethane	0.9186	0.8690	5.4	107	0.00	
9		Diethyl Ether	0.2835	0.2798	1.3	110	0.00	
10		FREON 123A	0.2700	0.2513	6.9	101	0.00	
11		FREON 123	0.4503	0.4528	-0.6	110	0.00	
12		Acrolein	0.0093	0.0073	21.5#	91	0.00	X 3352, 3464
13	P	FREON 113	0.2390	0.1972	17.5	103	0.00	
14	P	1,1-Diclethene	0.3860	0.3723	3.5	110	0.00	
15	P	Acetone	0.1002	0.1131	~~22.1~~ ~~12.9~~	125	0.00	X 3352, 3428, 3464, 348
16		2-Propanol	0.0080	0.0114	-42.5#	179	0.00	- NT 3433
17		Iodomethane	0.6385	0.5959	6.7	90	0.00	
18	P	Carbon Disulfide	1.1129	0.9819	11.8	98	0.00	
19		Acetonitrile	0.0154	0.0128	-42 ~~16.9~~	111	0.00	
20		Allyl Chloride	0.2648	0.2559	3.4	106	0.00	
21	P	Methyl Acetate	0.1936	0.1841	4.9	117	0.00	
22	P	Methylene Chloride	0.4487	0.4318	3.8	112	0.00	
23		TBA	0.0134	0.0170	-26.9#	158	0.00	~~NT~~ X 3433
24		Acrylonitrile	0.0772	0.0798	-3.4	117	0.00	
25	P	Methyl-t-Butyl Ether	0.9054	0.8803	2.8	109	0.00	
26	P	trans-1,2-Dichloroethene	0.4798	0.4740	1.2	112	0.00	
27	P	1,1-Diclethane	0.7973	0.7573	5.0	108	0.00	
28		DIPE	1.5995	1.4782	7.6	103	0.00	
29		Vinyl Acetate	0.0719	0.0753	-4.7	129	0.00	
30		2-Chloro-1,3-butadiene	0.7111	0.6499	8.6	97	0.00	
31		ETBE	1.1848	1.1093	6.4	104	0.00	
32		2,2-Dichloropropane	0.7984	0.7457	6.6	109	0.00	
33	P	2-Butanone	0.1408	0.1409	-10.4 ~~-0.1~~	123	0.00	
34	P	cis-1,2-Dichloroethene	0.5217	0.5059	3.0	109	0.00	
35		Propionitrile	0.0240	0.0255	-6.2	129	0.00	
36		Methacrylonitrile	0.0874	0.0868	0.7	114	0.00	
37		Bromochloromethane	0.2220	0.2159	2.7	108	0.00	
38	P	Chloroform	0.8945	0.8358	6.6	107	0.00	
39		Tetrahydrofuran	0.0561	0.0587	-4.6	119	0.00	
40	P	1,1,1-Trichloroethane	0.8176	0.7781	4.8	108	0.00	
41	I	1,4 - Difluorobenzene	1.0000	1.0000	0.0	113	0.00	
42	S	surr4,Dibrflmethane	0.2786	0.2998	-7.6	109	0.00	
43	P	cyclohexane	0.5215	0.4858	6.8	104	0.00	
44	P	Carbontetrachloride	0.4389	0.3947	10.1	106	0.00	
45		1,1-Dichloropropene	0.3841	0.3354	12.7	106	0.00	
46		Iso-Butyl Alcohol	0.0042	0.0051	-21.4#	157	0.00	~~NT~~ X 3464
47	S	surr1,1,2-Diclethane	0.2630	0.2756	-4.8	110	0.00	
48	P	Benzene	1.0845	0.9927	8.5	108	0.00	
49	P	1,2-Dichloroethane	0.3681	0.3316	9.9	108	0.00	

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D Vial: 5
Acq On : 21 May 2014 11:57 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
50		TAME	0.6298	0.5632	10.6	104	0.00	
51		N-Heptane	0.4218	0.2927	30.6#	84	0.00	
52		1-Butanol	0.0019	0.0026	-36.8#	180	0.00	NT
53	P	Trichloroethene	0.3209	0.2865	10.7	105	0.00	
54	P	methylcyclohexane	0.4621	0.4245	8.1	105	0.00	
55	P	1,2-Diclpropane	0.2666	0.2360	11.5	107	0.00	
56		Methyl Methacrylate	0.1102	0.1033	6.3	113	0.00	
57		1,4-Dioxane	0.0008	0.0012	-50.0#	216#	0.00	X 3428
58		Dibromomethane	0.1577	0.1465	7.1	108	0.00	
59	P	Bromodichloromethane	0.3909	0.3665	6.2	107	0.00	
60		2-Nitropropane	0.0000	0.0000	0.0	77	0.00	
61		2-Chloroethylvinyl Ether	0.0992	0.0661	33.4#	77	0.00	X 3352, 3433
62	P	cis-1,3-Dichloropropene	0.4215	0.3961	6.0	105	0.00	
63	I	d5 - Chlorobenzene	1.0000	1.0000	0.0	109	0.00	
64	P	4-Methyl-2-Pentanone	0.2080	0.1976	5.0	115	0.00	
65	P	Toluene	1.3882	1.2956	6.7	107	0.00	
66	P	trans-1,3-Dichloropropene	0.4095	0.4060	0.9	108	0.00	
67		Ethyl Methacrylate	0.2851	0.2797	1.9	109	0.00	
68	P	1,1,2-Trichloroethane	0.1928	0.1842	4.5	109	0.00	
69	S	surr3,Toluene-d8	1.0321	1.1439	-10.8	108	0.00	
70	S	surr2,bfb	0.4271	0.4655	-9.0	106	0.00	
71	P	Tetrachloroethene	0.3685	0.3281	11.0	103	0.00	
72	P	2-Hexanone	0.1630	0.1557	4.5	115	0.00	
73		N-Butyl Acetate	0.3754	0.3560	5.2	113	0.00	
74		1,3-Dichloropropane	0.4250	0.3929	7.6	108	0.00	
75	P	Dibromochloromethane	0.2573	0.2635	-2.4	110	0.00	
76	P	1,2-Dibromoethane	0.2232	0.2268	-1.6	113	0.00	
77		3-Chlorobenzotrifluoride	0.5116	0.5118	-0.0	108	0.00	
78	P	Chlorobenzene	0.8724	0.8125	6.9	108	0.00	
79		4-Chlorobenzotrifluoride	0.4724	0.4554	3.6	107	0.00	
80		1,1,1,2-Tetrachloroethane	0.2903	0.2898	0.2	106	0.00	
81	P	Ethylbenzene	1.5623	1.3856	11.3	101	0.00	
82	P	(m+p)Xylene	0.5726	0.5420	5.3	104	0.00	
83	P	o-Xylene	0.5659	0.5294	6.4	104	0.00	
84	P	Styrene	0.9149	0.9020	1.4	104	0.00	
85	I	d4 - Dichlorobenzene	1.0000	1.0000	0.0	108	0.00	
86	P	Bromoform	0.2665	0.2860	-7.3	111	0.00	
87		2-Chlorobenzotrifluoride	1.0387	1.0118	2.6	106	0.00	
88	P	Isopropylbenzene	3.3036	2.9278	11.4	100	0.00	
89		Cyclohexanone	0.0396	0.0426	-7.6	129	0.00	
90	P	1,1,2,2-Tetrachloroethane	0.5429	0.5077	6.5	112	0.00	
91		Trans-1,4-Dichloro-2-butene	0.1644	0.1564	4.9	111	0.00	
92		1,2,3-Trichloropropane	0.1604	0.1549	3.4	114	0.00	
93		n-Propylbenzene	3.9430	3.3967	13.9	99	0.00	
94		Bromobenzene	0.6778	0.6519	3.8	106	0.00	
95		1,3,5-Trimethylbenzene	2.6338	2.3231	11.8	99	0.00	
96		2-Chlorotoluene	2.3551	2.1209	9.9	101	0.00	
97		3-Chlorotoluene	2.6966	2.4128	10.5	99	0.00	

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D Vial: 5
Acq On : 21 May 2014 11:57 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
98		4-Chlorotoluene	2.3011	2.0056	12.8	99	0.00
99		tert-Butylbenzene	2.2444	1.9483	13.2	97	0.00
100		1,2,4-Trimethylbenzene	2.5555	2.3001	10.0	98	0.00
101		3,4-Dichlorobenzotrifluorid	0.6265	0.6515	-4.0	108	0.00
102		2-Octanol	0.0000	0.0000	0.0	64	0.00
103		sec-Butylbenzene	3.4148	2.8333	17.0	93	0.00
104		p-Isopropyltoluene	2.6576	2.2861	14.0	94	0.00
105	P	1,3-Dclbenz	1.2351	1.1705	5.2	102	0.00
106	P	1,4-Dclbenz	1.2280	1.1571	5.8	103	0.00
107		2,4-Dichlorobenzotrifluorid	0.5494	0.5737	-4.4	107	0.00
108		2,5-Dichlorobenzotrifluorid	0.6300	0.6147	2.4	105	0.00
109		n-Butylbenzene	2.4850	2.0727	16.6	91	0.00
110	P	1,2-Dclbenz	1.0846	1.0534	2.9	104	0.00
111	P	1,2-Dibromo-3-chloropropane	0.0674	0.0675	-0.1	119	0.00
112		Trielution-Dichlorotoluene	1.0328	1.0923	-5.8	107	0.00
113		1,3,5-Trichlorobenzene	0.7809	0.8276	-6.0	108	0.00
114		Coelution - Dichlorotoluene	1.0238	1.0872	-6.2	106	0.00
115	P	1,2,4-Tcbenzene	0.5866	0.5718	2.5	103	0.00
116		Hexachlorobu	0.2221	0.1569	24.8 ~~-29.4#~~	82	0.00 ~~-15~~ X 3433
117		Naphthalen	1.0918	1.1264	-3.2	113	0.00
118		1,2,3-Tclbenzene	0.4550	0.4714	-3.6	104	0.00
119		2,4,5-Trichlorotoluene	0.4461	0.5478	-10.5 ~~-22.8#~~	120	0.00
120		2,3,6-Trichlorotoluene	0.4949	0.6347	-14.6 ~~-28.2#~~	125	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
C4756.D W051514.M Thu May 22 13:46:13 2014

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/21/14 13:28

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1405451-04
Instrument ID: R-MS-08
File ID: I:\ACQUDATA\MSVOA8\DATA\052114\C4759.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405451-03	I:\ACQUDATA\MSVOA8\DATA\052114\C4757.D\	5/21/14 12:24
MRC-MW-38A-051214	R1403433-014	I:\ACQUDATA\MSVOA8\DATA\052114\C4761.D\	5/21/14 14:28
MRC-MW-104A-051214	R1403433-016	I:\ACQUDATA\MSVOA8\DATA\052114\C4762.D\	5/21/14 14:55
MRC-MW-104B-051214	R1403433-017	I:\ACQUDATA\MSVOA8\DATA\052114\C4763.D\	5/21/14 15:22
MRC-MW-69B-051314	R1403433-021	I:\ACQUDATA\MSVOA8\DATA\052114\C4764.D\	5/21/14 15:54
MRC-MW-69A-051314	R1403433-022	I:\ACQUDATA\MSVOA8\DATA\052114\C4765.D\	5/21/14 16:23
TB-050814	R1403433-009	I:\ACQUDATA\MSVOA8\DATA\052114\C4766.D\	5/21/14 16:50
TB-051214	R1403433-010	I:\ACQUDATA\MSVOA8\DATA\052114\C4767.D\	5/21/14 17:17
TB-051314	R1403433-019	I:\ACQUDATA\MSVOA8\DATA\052114\C4768.D\	5/21/14 17:44
MRC-MW-96B-051314	R1403433-025	I:\ACQUDATA\MSVOA8\DATA\052114\C4769.D\	5/21/14 18:10
MRC-MW-96A-051314	R1403433-024	I:\ACQUDATA\MSVOA8\DATA\052114\C4770.D\	5/21/14 18:37
MRC-MW-96A-051314MS	RQ1405451-05	I:\ACQUDATA\MSVOA8\DATA\052114\C4777.D\	5/21/14 21:46
MRC-MW-96A-051314DMS	RQ1405451-06	I:\ACQUDATA\MSVOA8\DATA\052114\C4778.D\	5/21/14 22:13

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/21/14 13:28
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405451-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4759.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/21/14 13:28
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405451-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4759.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.26**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/21/14 13:28
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405451-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	393625
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052114\C4759.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	5/21/14 13:28	
Dibromofluoromethane	110	89-119	5/21/14 13:28	
Toluene-d8	115	87-121	5/21/14 13:28	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/21/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 393625

Lab Control Sample
RQ1405451-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	20.4	20.0	102	80 - 120
1,1,1-Trichloroethane (TCA)	20.6	20.0	103	67 - 121
1,1,2,2-Tetrachloroethane	20.4	20.0	102	72 - 124
1,1,2-Trichlorotrifluoroethane	19.7	20.0	98	60 - 123
1,1-Dichloroethane (1,1-DCA)	19.7	20.0	99	76 - 128
1,1-Dichloroethene (1,1-DCE)	23.2	20.0	116	74 - 135
1,1-Dichloropropene	22.0	20.0	110	72 - 122
1,2,3-Trichlorobenzene	22.8	20.0	114	67 - 135
1,2,3-Trichloropropane	20.0	20.0	100	72 - 123
1,2,4-Trichlorobenzene	21.6	20.0	108	70 - 130
1,2,4-Trimethylbenzene	21.2	20.0	106	72 - 127
1,2-Dibromo-3-chloropropane (DBCP)	21.3	20.0	106	64 - 131
1,2-Dibromoethane	20.4	20.0	102	81 - 118
1,2-Dichlorobenzene	21.5	20.0	108	80 - 119
1,2-Dichloroethane	18.6	20.0	93	72 - 130
1,2-Dichloropropane	19.0	20.0	95	80 - 119
1,3-Dichlorobenzene	21.7	20.0	108	79 - 121
1,3-Dichloropropane	18.8	20.0	94	81 - 115
1,4-Dichlorobenzene	22.0	20.0	110	79 - 119
2,2-Dichloropropane	20.4	20.0	102	54 - 137
2-Butanone (MEK)	16.7	20.0	84	60 - 133
2-Chloroethyl Vinyl Ether	17.9	20.0	90	60 - 136
2-Chlorotoluene	20.9	20.0	104	71 - 125
2-Hexanone	15.8	20.0	79	61 - 131
tert-Butyl Alcohol	616	400	154	59 - 155
4-Chlorotoluene	21.3	20.0	106	73 - 127
4-Isopropyltoluene	20.0	20.0	100	71 - 130
4-Methyl-2-pentanone	17.3	20.0	86	61 - 132
Acetone	17.0	20.0	85	61 - 138
Benzene	19.3	20.0	97	76 - 118
Bromobenzene	21.9	20.0	109	79 - 118
Bromochloromethane	19.7	20.0	98	83 - 123
Bromodichloromethane	19.5	20.0	97	79 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/21/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 393625

Lab Control Sample
RQ1405451-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	20.9	20.0	104	72 - 128
Bromomethane	20.1	20.0	101	46 - 157
Carbon Disulfide	18.4	20.0	92	61 - 144
Carbon Tetrachloride	19.7	20.0	98	64 - 129
Chlorobenzene	20.2	20.0	101	80 - 121
Chloroethane	21.1	20.0	106	69 - 128
Chloroform	19.6	20.0	98	75 - 123
Chloromethane	22.6	20.0	113	55 - 139
Dibromochloromethane	20.4	20.0	102	78 - 127
Dibromomethane	18.9	20.0	94	79 - 120
Dichlorodifluoromethane (CFC 12)	23.8	20.0	119	45 - 147
Methylene Chloride	20.2	20.0	101	73 - 122
Diisopropyl Ether	18.0	20.0	90	72 - 130
Ethyl tert-Butyl Ether	17.8	20.0	89	70 - 126
Ethylbenzene	20.6	20.0	103	75 - 123
Hexachlorobutadiene	22.1	20.0	110	51 - 150
Isopropylbenzene (Cumene)	21.3	20.0	106	75 - 139
Methyl tert-Butyl Ether	20.1	20.0	100	75 - 116
Naphthalene	23.8	20.0	119	71 - 139
Styrene	21.2	20.0	106	80 - 121
Tetrachloroethene (PCE)	20.9	20.0	104	71 - 127
Toluene	20.4	20.0	102	77 - 120
Trichloroethene (TCE)	19.4	20.0	97	75 - 122
Trichlorofluoromethane (CFC 11)	21.7	20.0	108	64 - 134
Vinyl Acetate	20.1	20.0	100	13 - 161
Vinyl Chloride	23.1	20.0	115	68 - 139
Xylenes, Total	62.6	60.0	104	77 - 122
cis-1,2-Dichloroethene	20.4	20.0	102	77 - 123
cis-1,3-Dichloropropene	18.8	20.0	94	77 - 125
m,p-Xylenes	42.3	40.0	106	77 - 124
n-Butylbenzene	19.9	20.0	100	65 - 135
n-Propylbenzene	20.6	20.0	103	69 - 132
o-Xylene	20.3	20.0	101	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/21/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 393625

Analyte Name	Lab Control Sample RQ1405451-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	19.6	20.0	98	67 - 131
tert-Amyl Methyl Ether	17.2	20.0	86	71 - 124
tert-Butylbenzene	20.1	20.0	100	70 - 126
trans-1,2-Dichloroethene	20.6	20.0	103	72 - 120
trans-1,3-Dichloropropene	19.5	20.0	98	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/14/14
Date Received: 5/15/14
Date Analyzed: 5/21/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-96A-051314
Lab Code: R1403433-024

Units: µg/L
Basis: NA

Analytical Method: 8260C

Analyte Name	Sample Result	MRC-MW-96A-051314MS Matrix Spike RQ1405451-05 Result	Spike Amount	% Rec	MRC-MW-96A-051314DMS Duplicate Matrix Spike RQ1405451-06 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	ND	2670	2500	107	2630	2500	105	83 - 121	2	30
1,1,1-Trichloroethane (TCA)	ND	2650	2500	106	2500	2500	100	74 - 127	6	30
1,1,2,2-Tetrachloroethane	ND	2500	2500	100	2500	2500	100	72 - 122	<1	30
1,1,2-Trichlorotrifluoroethane	ND	2550	2500	102	2410	2500	97	59 - 131	6	30
1,1-Dichloroethane (1,1-DCA)	ND	2520	2500	101	2390	2500	96	74 - 132	5	30
1,1-Dichloroethene (1,1-DCE)	72	3070	2500	120	2930	2500	114	72 - 125	5	30
1,1-Dichloropropene	ND	2760	2500	110	2680	2500	107	83 - 125	3	30
1,2,3-Trichlorobenzene	ND	3230	2500	129	3250	2500	130 *	65 - 129	<1	30
1,2,3-Trichloropropane	ND	2640	2500	106	2600	2500	104	73 - 116	2	30
1,2,4-Trichlorobenzene	ND	3000	2500	120	3080	2500	123	71 - 125	2	30
1,2,4-Trimethylbenzene	ND	2770	2500	111	2700	2500	108	57 - 137	2	30
1,2-Dibromo-3-chloropropane (DBC	ND	2720	2500	109	2860	2500	114	67 - 126	5	30
1,2-Dibromoethane	ND	2650	2500	106	2610	2500	104	80 - 117	2	30
1,2-Dichlorobenzene	ND	2810	2500	112	2730	2500	109	84 - 114	3	30
1,2-Dichloroethane	ND	2340	2500	94	2250	2500	90	72 - 132	4	30
1,2-Dichloropropane	ND	2380	2500	95	2270	2500	91	85 - 121	5	30
1,3-Dichlorobenzene	ND	2860	2500	114	2810	2500	112	83 - 117	2	30
1,3-Dichloropropane	ND	2380	2500	95	2340	2500	94	80 - 114	2	30
1,4-Dichlorobenzene	ND	2770	2500	111	2720	2500	109	83 - 115	2	30
2,2-Dichloropropane	ND	2140	2500	86	2000	2500	80	33 - 146	7	30
2-Butanone (MEK)	ND	3260	2500	130	3110	2500	124	55 - 133	4	30
2-Chloroethyl Vinyl Ether	ND	125	2500	5 *	79.0	2500	3 *	10 - 180	45 *	30
2-Chlorotoluene	ND	2540	2500	102	2500	2500	100	74 - 124	1	30
2-Hexanone	ND	2070	2500	83	1910	2500	77	60 - 134	8	30
tert-Butyl Alcohol	ND	67100	50000	134	66400	50000	133	52 - 146	1	30
4-Chlorotoluene	ND	2770	2500	111	2680	2500	107	75 - 125	4	30
4-Isopropyltoluene	ND	2880	2500	115	2870	2500	115	75 - 127	<1	30
4-Methyl-2-pentanone	ND	2440	2500	97	2290	2500	92	60 - 138	6	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/14/14
Date Received: 5/15/14
Date Analyzed: 5/21/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-96A-051314
Lab Code: R1403433-024

Units: µg/L
Basis: NA

Analytical Method: 8260C

		MRC-MW-96A-051314MS Matrix Spike RQ1405451-05			MRC-MW-96A-051314DMS Duplicate Matrix Spike RQ1405451-06					
Analyte Name	Sample Result	Result	Spike Amount	% Rec	Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Acetone	ND	2100	2500	84	1960	2500	79	47 - 154	7	30
Benzene	ND	2480	2500	99	2360	2500	94	84 - 120	5	30
Bromobenzene	ND	2720	2500	109	2680	2500	107	80 - 115	2	30
Bromochloromethane	ND	2600	2500	104	2470	2500	99	83 - 119	5	30
Bromodichloromethane	ND	2490	2500	100	2420	2500	97	76 - 127	3	30
Bromoform	ND	2750	2500	110	2780	2500	111	58 - 133	1	30
Bromomethane	ND	2420	2500	97	2480	2500	99	33 - 154	2	30
Carbon Disulfide	ND	2620	2500	105	2400	2500	96	37 - 152	9	30
Carbon Tetrachloride	ND	2560	2500	102	2490	2500	100	71 - 135	3	30
Chlorobenzene	ND	2550	2500	102	2480	2500	99	80 - 125	3	30
Chloroethane	ND	2840	2500	113	2660	2500	106	72 - 140	6	30
Chloroform	ND	2510	2500	100	2360	2500	94	76 - 128	6	30
Chloromethane	ND	2900	2500	116	2770	2500	111	56 - 147	5	30
Dibromochloromethane	ND	2640	2500	106	2620	2500	105	71 - 128	<1	30
Dibromomethane	ND	2460	2500	98	2400	2500	96	77 - 119	3	30
Dichlorodifluoromethane (CFC 12)	ND	3000	2500	120	2870	2500	115	49 - 154	5	30
Methylene Chloride	ND	2580	2500	103	2430	2500	97	75 - 121	6	30
Diisopropyl Ether	ND	2270	2500	91	2200	2500	88	71 - 134	3	30
Ethyl tert-Butyl Ether	ND	2260	2500	91	2220	2500	89	64 - 132	2	30
Ethylbenzene	ND	2580	2500	103	2530	2500	101	80 - 126	2	30
Hexachlorobutadiene	ND	3050	2500	122	3060	2500	123	51 - 136	<1	30
Isopropylbenzene (Cumene)	ND	2760	2500	110	2710	2500	108	84 - 140	2	30
Methyl tert-Butyl Ether	ND	2610	2500	104	2500	2500	100	71 - 119	4	30
Naphthalene	18	2980	2500	119	2980	2500	119	69 - 137	<1	30
Styrene	ND	2740	2500	109	2660	2500	106	49 - 144	3	30
Tetrachloroethene (PCE)	ND	2720	2500	109	2650	2500	106	78 - 130	3	30
Toluene	ND	2530	2500	101	2470	2500	99	74 - 130	2	30
Trichloroethene (TCE)	3300	5740	2500	96	5690	2500	94	68 - 135	<1	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/14/14
Date Received: 5/15/14
Date Analyzed: 5/21/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-96A-051314
Lab Code: R1403433-024

Units: µg/L
Basis: NA

Analytical Method: 8260C

Analyte Name	Sample Result	MRC-MW-96A-051314MS Matrix Spike RQ1405451-05 Result	Spike Amount	% Rec		MRC-MW-96A-051314DMS Duplicate Matrix Spike RQ1405451-06 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
Trichlorofluoromethane (CFC 11)	ND	2750	2500	110		2610	2500	104		67 - 143	5	30
Vinyl Acetate	ND	2760	2500	110		2460	2500	98		17 - 156	11	30
Vinyl Chloride	37	3060	2500	121		2930	2500	116		72 - 148	4	30
Xylenes, Total	ND	8160	7500	109		7930	7500	106		73 - 132	3	30
cis-1,2-Dichloroethene	28000	30400	2500	93	#	29400	2500	54	#	72 - 133	3	30
cis-1,3-Dichloropropene	ND	2360	2500	94		2310	2500	92		71 - 120	2	30
m,p-Xylenes	ND	5480	5000	110		5320	5000	106		70 - 135	3	30
n-Butylbenzene	ND	2820	2500	113		2790	2500	112		72 - 129	1	30
n-Propylbenzene	ND	2660	2500	107		2610	2500	104		75 - 130	2	30
o-Xylene	ND	2680	2500	107		2610	2500	104		76 - 126	3	30
sec-Butylbenzene	ND	2800	2500	112		2750	2500	110		74 - 127	2	30
tert-Amyl Methyl Ether	ND	2210	2500	89		2230	2500	89		66 - 128	<1	30
tert-Butylbenzene	ND	2840	2500	114		2810	2500	112		78 - 124	1	30
trans-1,2-Dichloroethene	75	2730	2500	106		2620	2500	102		77 - 125	4	30
trans-1,3-Dichloropropene	ND	2440	2500	98		2420	2500	97		66 - 118	<1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/22/14 08:05

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052214\C4784.D\
Instrument ID: R-MS-08

Analytical Method: 8260C
Analysis Lot: 394365

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	22.99	56366	Pass
75	95	30	60	53.15	130283	Pass
95	95	100	100	100.00	245141	Pass
96	95	5	9	7.10	17400	Pass
173	174	0	2	0.00	0	Pass
174	95	50	120	66.22	162325	Pass
175	174	5	9	8.08	13115	Pass
176	174	95	101	98.34	159627	Pass
177	176	5	9	6.54	10433	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405677-02	I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D\	5/22/14 08:32	
Lab Control Sample	RQ1405677-03	I:\ACQUDATA\MSVOA8\DATA\052214\C4786.D\	5/22/14 08:59	
Method Blank	RQ1405677-04	I:\ACQUDATA\MSVOA8\DATA\052214\C4788.D\	5/22/14 10:05	
MRC-MW-96B-051314DL	R1403433-025	I:\ACQUDATA\MSVOA8\DATA\052214\C4805.D\	5/22/14 18:03	
MRC-MW-96A-051314DL	R1403433-024	I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D\	5/22/14 18:30	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/22/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 394365
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	45.3	0.2903	0.2632	-9.3	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	43.2	0.8176	0.7062	-13.6	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	44.8	0.5429	0.4864	-10.4	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	37.8	0.2390	0.1808	-24.4 *	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	44.2	0.7973	0.7046	-11.6	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	45.0	0.3860	0.3476	-9.9	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	40.3	0.3841	0.3094	-19.5	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	44.4	0.4550	0.4040	-11.2	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	45.6	0.1604	0.1461	-8.9	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	40.4	0.5866	0.4740	-19.2	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	39.7	2.556	2.031	-20.5 *	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	47.4	0.06740	0.06385	-5.3	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	46.3	0.2232	0.2066	-7.4	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	44.1	1.085	0.9561	-11.8	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	42.9	0.3681	0.3155	-14.3	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	41.7	0.2666	0.2226	-16.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	43.4	1.235	1.072	-13.2	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	43.0	0.4250	0.3654	-14.0	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	43.2	1.228	1.061	-13.6	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	42.9	0.7984	0.6856	-14.1	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	49.1	NA	NA	NA	-1.8	± 20 %	Quadratic
2-Chloroethyl Vinyl Ether	50.0	28.9	0.09920	0.05734	-42.2 *	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	41.1	2.355	1.936	-17.8	NA	± 20 %	Average RF
2-Hexanone	50.0	41.8	0.1630	0.1364	-16.3	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1120	0.01335	0.01498	12.2	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	43.7	2.301	2.012	-12.6	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	33.3	2.658	1.770	-33.4 *	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	41.8	0.2080	0.1740	-16.3	NA	± 20 %	Average RF
Acetone	50.0	59.8	NA	NA	NA	19.6	± 20 %	Linear
Benzene	50.0	42.9	1.084	0.9313	-14.1	NA	± 20 %	Average RF
Bromobenzene	50.0	45.6	0.6778	0.6177	-8.9	NA	± 20 %	Average RF
Bromochloromethane	50.0	45.0	0.2220	0.1997	-10.0	NA	± 20 %	Average RF
Bromodichloromethane	50.0	44.3	0.3909	0.3463	-11.4	NA	± 20 %	Average RF
Bromoform	50.0	50.0	0.2665	0.2662	-0.1	NA	± 20 %	Average RF
Bromomethane	50.0	43.0	0.4389	0.3775	-14.0	NA	± 20 %	Average RF
Carbon Disulfide	50.0	43.5	1.113	0.9692	-12.9	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	40.5	0.4389	0.3552	-19.1	NA	± 20 %	Average RF
Chlorobenzene	50.0	42.5	0.8724	0.7421	-14.9	NA	± 20 %	Average RF
Chloroethane	50.0	44.6	0.3495	0.3117	-10.8	NA	± 20 %	Average RF
Chloroform	50.0	43.7	0.8945	0.7811	-12.7	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/22/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 394365
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	46.0	0.5570	0.5129	-7.9	NA	± 20 %	Average RF
Dibromochloromethane	50.0	47.4	0.2573	0.2438	-5.3	NA	± 20 %	Average RF
Dibromomethane	50.0	44.0	0.1577	0.1387	-12.1	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	44.7	0.6300	0.5631	-10.6	NA	± 20 %	Average RF
Methylene Chloride	50.0	44.0	0.4487	0.3948	-12.0	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	41.0	1.600	1.312	-18.0	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	42.1	1.185	0.9984	-15.7	NA	± 20 %	Average RF
Ethylbenzene	50.0	39.7	1.562	1.242	-20.5 *	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	28.1	NA	NA	NA	-43.8 *	± 20 %	Quadratic
Isopropylbenzene (Cumene)	50.0	38.7	3.304	2.559	-22.6 *	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	44.8	0.9054	0.8103	-10.5	NA	± 20 %	Average RF
Naphthalene	50.0	46.7	1.092	1.020	-6.6	NA	± 20 %	Average RF
Styrene	50.0	45.1	0.9149	0.8243	-9.9	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	40.1	0.3685	0.2952	-19.9	NA	± 20 %	Average RF
Toluene	50.0	42.6	1.388	1.183	-14.8	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	41.2	0.3209	0.2646	-17.6	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	43.2	0.9186	0.7931	-13.7	NA	± 20 %	Average RF
Vinyl Acetate	50.0	47.8	0.07188	0.06864	-4.5	NA	± 20 %	Average RF
Vinyl Chloride	50.0	47.0	0.4863	0.4567	-6.1	NA	± 20 %	Average RF
Xylenes, Total	150	125	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	45.7	0.5217	0.4767	-8.6	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	45.0	0.4215	0.3797	-9.9	NA	± 20 %	Average RF
m,p-Xylenes	100	83.8	0.5726	0.4800	-16.2	NA	± 20 %	Average RF
n-Butylbenzene	50.0	30.7	2.485	1.525	-38.6 *	NA	± 20 %	Average RF
n-Propylbenzene	50.0	36.6	3.943	2.887	-26.8 *	NA	± 20 %	Average RF
o-Xylene	50.0	41.6	0.5659	0.4706	-16.8	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	32.2	3.415	2.196	-35.7 *	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	41.6	0.6298	0.5241	-16.8	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	34.8	2.244	1.560	-30.5 *	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	44.5	0.4798	0.4268	-11.1	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	45.4	0.4095	0.3722	-9.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	51.2	0.4271	0.4372	2.4	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.8	0.2786	0.2999	7.6	NA	± 20 %	Average RF
Toluene-d8	50.0	54.3	1.032	1.122	8.7	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D Vial: 4
Acq On : 22 May 2014 8:32 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

BW 05/27/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	109	0.00	
2	P	Dichlorodifluoromethane	0.6300	0.5631	10.6	92	0.00	
3	P	Chloromethane	0.5570	0.5129	7.9	102	0.00	
4	P	Vinyl Chloride	0.4863	0.4567	6.1	100	0.00	
5	P	Bromomethane	0.4389	0.3775	14.0	100	0.00	
6	P	Chloroethane	0.3495	0.3117	10.8	103	0.00	
7		FREON 21	0.9925	0.9650	2.8	105	0.00	
8	P	Trichlorofluoromethane	0.9186	0.7931	13.7	98	0.00	
9		Diethyl Ether	0.2835	0.2571	9.3	101	0.00	
10		FREON 123A	0.2700	0.2676	0.9	108	0.00	
11		FREON 123	0.4503	0.4312	4.2	105	0.00	
12		Acrolein	0.0093	0.0077	17.2	96	0.00	
13	P	FREON 113	0.2390	0.1808	24.4#	95	0.00	X 3413
14	P	1,1-Diclethene	0.3860	0.3476	9.9	103	0.00	
15	P	Acetone	0.1002	0.1109	-19.6 ~~-10.7~~	123	0.00	
16		2-Propanol	0.0080	0.0098	-22.5#	155	0.00	-NT
17		Iodomethane	0.6385	0.5716	10.5	87	0.00	
18	P	Carbon Disulfide	1.1129	0.9692	12.9	97	0.00	
19		Acetonitrile	0.0154	0.0145	-19.4 ~~-5.8~~	127	0.00	
20		Allyl Chloride	0.2648	0.2337	11.7	97	0.00	
21	P	Methyl Acetate	0.1936	0.1766	8.8	112	0.00	
22	P	Methylene Chloride	0.4487	0.3948	12.0	103	0.00	
23		TBA	0.0134	0.0150	-11.9	139	0.00	
24		Acrylonitrile	0.0772	0.0744	3.6	110	0.00	
25	P	Methyl-t-Butyl Ether	0.9054	0.8103	10.5	101	0.00	
26	P	trans-1,2-Dichloroethene	0.4798	0.4268	11.0	101	0.00	
27	P	1,1-Diclethane	0.7973	0.7046	11.6	101	0.00	
28		DIPE	1.5995	1.3120	18.0	92	0.00	
29		Vinyl Acetate	0.0719	0.0686	4.6	118	0.00	
30		2-Chloro-1,3-butadiene	0.7111	0.6293	11.5	94	0.00	
31		ETBE	1.1848	0.9984	15.7	94	0.00	
32		2,2-Dichloropropane	0.7984	0.6856	14.1	101	0.00	
33	P	2-Butanone	0.1408	0.1261	1.8 ~~-10.4~~	110	0.00	
34	P	cis-1,2-Dichloroethene	0.5217	0.4767	8.6	104	0.00	
35		Propionitrile	0.0240	0.0236	1.7	121	0.00	
36		Methacrylonitrile	0.0874	0.0793	9.3	105	0.00	
37		Bromochloromethane	0.2220	0.1997	10.0	101	0.00	
38	P	Chloroform	0.8945	0.7811	12.7	100	0.00	
39		Tetrahydrofuran	0.0561	0.0518	7.7	105	0.00	
40	P	1,1,1-Trichloroethane	0.8176	0.7062	13.6	98	0.00	
41	I	1,4 - Difluorobenzene	1.0000	1.0000	0.0	112	0.00	
42	S	surr4,Dibrflmethane	0.2786	0.2999	-7.6	108	0.00	
43	P	cyclohexane	0.5215	0.4810	7.8	102	0.00	
44	P	Carbontetrachloride	0.4389	0.3552	19.1	95	0.00	
45		1,1-Dichloropropene	0.3841	0.3094	19.4	97	0.00	
46		Iso-Butyl Alcohol	0.0042	0.0044	-4.8	136	0.00	
47	S	surr1,1,2-Diclethane	0.2630	0.2691	-2.3	107	0.00	
48	P	Benzene	1.0845	0.9313	14.1	100	0.00	
49	P	1,2-Dichloroethane	0.3681	0.3155	14.3	102	0.00	

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D Vial: 4
Acq On : 22 May 2014 8:32 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
50		TAME	0.6298	0.5241	16.8	96	0.00	
51		N-Heptane	0.4218	0.2044	51.5#	59	0.00	-NT
52		1-Butanol	0.0019	0.0022	-15.8	151	0.00	
53	P	Trichloroethene	0.3209	0.2646	17.5	96	0.00	
54	P	methylcyclohexane	0.4621	0.4194	9.2	103	0.00	
55	P	1,2-Diclpropane	0.2666	0.2226	16.5	100	0.00	
56		Methyl Methacrylate	0.1102	0.0975	11.5	106	0.00	
57		1,4-Dioxane	0.0008	0.0010	-25.0#	180	0.00	-NT
58		Dibromomethane	0.1577	0.1387	12.0	102	0.00	
59	P	Bromodichloromethane	0.3909	0.3463	11.4	100	0.00	
60		2-Nitropropane	0.0000	0.0000	0.0	67	0.00	
61		2-Chloroethylvinyl Ether	0.0992	0.0573	42.2#	66	0.00	X3433
62	P	cis-1,3-Dichloropropene	0.4215	0.3797	9.9	100	0.00	
63	I	d5 - Chlorobenzene	1.0000	1.0000	0.0	111	0.00	
64	P	4-Methyl-2-Pentanone	0.2080	0.1740	16.3	103	0.00	
65	P	Toluene	1.3882	1.1829	14.8	99	0.00	
66	P	trans-1,3-Dichloropropene	0.4095	0.3722	9.1	101	0.00	
67		Ethyl Methacrylate	0.2851	0.2504	12.2	100	0.00	
68	P	1,1,2-Trichloroethane	0.1928	0.1724	10.6	104	0.00	
69	S	surr3,Toluene-d8	1.0321	1.1217	-8.7	108	0.00	
70	S	surr2,bfb	0.4271	0.4372	-2.4	101	0.00	
71	P	Tetrachloroethene	0.3685	0.2952	19.9	94	0.00	
72	P	2-Hexanone	0.1630	0.1364	16.3	103	0.00	
73		N-Butyl Acetate	0.3754	0.3222	14.2	104	0.00	
74		1,3-Dichloropropane	0.4250	0.3654	14.0	103	0.00	
75	P	Dibromochloromethane	0.2573	0.2438	5.2	104	0.00	
76	P	1,2-Dibromoethane	0.2232	0.2066	7.4	105	0.00	
77		3-Chlorobenzotrifluoride	0.5116	0.4854	5.1	104	0.00	
78	P	Chlorobenzene	0.8724	0.7421	14.9	101	0.00	
79		4-Chlorobenzotrifluoride	0.4724	0.4188	11.3	100	0.00	
80		1,1,1,2-Tetrachloroethane	0.2903	0.2632	9.3	99	0.00	
81	P	Ethylbenzene	1.5623	1.2417	20.5#	92	0.00	X3433,3489
82	P	(m+p)Xylene	0.5726	0.4800	16.2	94	0.00	
83	P	o-Xylene	0.5659	0.4706	16.8	94	0.00	
84	P	Styrene	0.9149	0.8243	9.9	97	0.00	
85	I	d4 - Dichlorobenzene	1.0000	1.0000	0.0	107	0.00	
86	P	Bromoform	0.2665	0.2662	0.1	102	0.00	
87		2-Chlorobenzotrifluoride	1.0387	0.9961	4.1	103	0.00	
88	P	Isopropylbenzene	3.3036	2.5586	22.6#	86	0.00	X3433,3489
89		Cyclohexanone	0.0396	0.0370	6.6	111	0.00	
90	P	1,1,2,2-Tetrachloroethane	0.5429	0.4864	10.4	106	0.00	
91		Trans-1,4-Dichloro-2-butene	0.1644	0.1458	11.3	102	0.00	
92		1,2,3-Trichloropropane	0.1604	0.1461	8.9	106	0.00	
93		n-Propylbenzene	3.9430	2.8872	26.8#	83	0.00	X3433,3489
94		Bromobenzene	0.6778	0.6177	8.9	99	0.00	
95		1,3,5-Trimethylbenzene	2.6338	1.9978	24.1#	84	0.00	X3489
96		2-Chlorotoluene	2.3551	1.9357	17.8	91	0.00	
97		3-Chlorotoluene	2.6966	2.4950	7.5	102	0.00	

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D Vial: 4
Acq On : 22 May 2014 8:32 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
98		4-Chlorotoluene	2.3011	2.0121	12.6	98	0.00	
99		tert-Butylbenzene	2.2444	1.5602	30.5#	77	0.00	x 3433, 3499
100		1,2,4-Trimethylbenzene	2.5555	2.0307	20.5#	85	0.00	x 3433, 3499
101		3,4-Dichlorobenzotrifluorid	0.6265	0.6398	-2.1	105	0.00	
102		2-Octanol	0.0000	0.0000	0.0	81	0.00	
103		sec-Butylbenzene	3.4148	2.1956	35.7#	72	0.00	x 3433, 3499
104		p-Isopropyltoluene	2.6576	1.7704	33.4#	72	0.00	x 3433, 3499
105	P	1,3-Dclbenz	1.2351	1.0717	13.2	92	0.00	
106	P	1,4-Dclbenz	1.2280	1.0608	13.6	93	0.00	
107		2,4-Dichlorobenzotrifluorid	0.5494	0.5592	-1.8	103	0.00	
108		2,5-Dichlorobenzotrifluorid	0.6300	0.5990	4.9	101	0.00	
109		n-Butylbenzene	2.4850	1.5255	38.6#	67	0.00	x 3433, 3499
110	P	1,2-Dclbenz	1.0846	0.9561	11.8	93	0.00	
111	P	1,2-Dibromo-3-chloropropane	0.0674	0.0639	5.2	111	0.00	
112		Trielution-Dichlorotoluene	1.0328	1.0663	-3.2	103	0.00	
113		1,3,5-Trichlorobenzene	0.7809	0.8134	-4.2	105	0.00	
114		Coelution - Dichlorotoluene	1.0238	1.0634	-3.9	103	0.00	
115	P	1,2,4-Tcbenzene	0.5866	0.4740	19.2	84	0.00	
116		Hexachlorobu	0.2221	0.1133	43.8 ~~49.0#~~	58	0.00	x 3433, 3499
117		Naphthalen	1.0918	1.0200	6.6	102	0.00	
118		1,2,3-Tclbenzene	0.4550	0.4040	11.2	89	0.00	
119		2,4,5-Trichlorotoluene	0.4461	0.5289	-7.5 ~~-18.6~~	114	0.00	
120		2,3,6-Trichlorotoluene	0.4949	0.6223	-12.9 ~~-25.7#~~	121	0.01	

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/22/14 10:05
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-08
Lab Code:	RQ1405677-04	**File ID:**	I:\ACQUDATA\MSVOA8\DATA\052214\C4788.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405677-03	I:\ACQUDATA\MSVOA8\DATA\052214\C4786.D\	5/22/14 08:59
MRC-MW-96B-051314DL	R1403433-025	I:\ACQUDATA\MSVOA8\DATA\052214\C4805.D\	5/22/14 18:03
MRC-MW-96A-051314DL	R1403433-024	I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D\	5/22/14 18:30

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/14 10:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405677-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4788.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/14 10:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405677-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4788.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.24**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/22/14 10:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405677-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4788.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	5/22/14 10:05	
Dibromofluoromethane	106	89-119	5/22/14 10:05	
Toluene-d8	111	87-121	5/22/14 10:05	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/22/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394365

Lab Control Sample
RQ1405677-03

Analyte Name	Result	Spike Amount	% Rec		% Rec Limits
1,1,1,2-Tetrachloroethane	18.9	20.0	95		80 - 120
1,1,1-Trichloroethane (TCA)	17.4	20.0	87		67 - 121
1,1,2,2-Tetrachloroethane	19.5	20.0	98		72 - 124
1,1,2-Trichlorotrifluoroethane	15.9	20.0	80		60 - 123
1,1-Dichloroethane (1,1-DCA)	18.1	20.0	90		76 - 128
1,1-Dichloroethene (1,1-DCE)	20.4	20.0	102		74 - 135
1,1-Dichloropropene	19.0	20.0	95		72 - 122
1,2,3-Trichlorobenzene	21.9	20.0	109		67 - 135
1,2,3-Trichloropropane	20.2	20.0	101		72 - 123
1,2,4-Trichlorobenzene	19.8	20.0	99		70 - 130
1,2,4-Trimethylbenzene	18.5	20.0	92		72 - 127
1,2-Dibromo-3-chloropropane (DBCP)	21.7	20.0	108		64 - 131
1,2-Dibromoethane	20.1	20.0	101		81 - 118
1,2-Dichlorobenzene	20.0	20.0	100		80 - 119
1,2-Dichloroethane	18.2	20.0	91		72 - 130
1,2-Dichloropropane	17.6	20.0	88		80 - 119
1,3-Dichlorobenzene	19.4	20.0	97		79 - 121
1,3-Dichloropropane	18.4	20.0	92		81 - 115
1,4-Dichlorobenzene	19.3	20.0	97		79 - 119
2,2-Dichloropropane	17.6	20.0	88		54 - 137
2-Butanone (MEK)	18.7	20.0	93		60 - 133
2-Chloroethyl Vinyl Ether	19.1	20.0	95		60 - 136
2-Chlorotoluene	17.6	20.0	88		71 - 125
2-Hexanone	16.6	20.0	83		61 - 131
tert-Butyl Alcohol	624	400	156	*	59 - 155
4-Chlorotoluene	19.2	20.0	96		73 - 127
4-Isopropyltoluene	18.0	20.0	90		71 - 130
4-Methyl-2-pentanone	18.4	20.0	92		61 - 132
Acetone	18.0	20.0	90		61 - 138
Benzene	17.6	20.0	88		76 - 118
Bromobenzene	19.6	20.0	98		79 - 118
Bromochloromethane	18.9	20.0	95		83 - 123
Bromodichloromethane	18.1	20.0	90		79 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/22/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394365

Analyte Name	Lab Control Sample RQ1405677-03 Result	Spike Amount	% Rec	% Rec Limits
Bromoform	20.3	20.0	102	72 - 128
Bromomethane	18.5	20.0	92	46 - 157
Carbon Disulfide	18.5	20.0	93	61 - 144
Carbon Tetrachloride	16.9	20.0	85	64 - 129
Chlorobenzene	18.4	20.0	92	80 - 121
Chloroethane	19.5	20.0	97	69 - 128
Chloroform	17.9	20.0	90	75 - 123
Chloromethane	20.2	20.0	101	55 - 139
Dibromochloromethane	19.7	20.0	98	78 - 127
Dibromomethane	18.6	20.0	93	79 - 120
Dichlorodifluoromethane (CFC 12)	20.4	20.0	102	45 - 147
Methylene Chloride	18.6	20.0	93	73 - 122
Diisopropyl Ether	16.6	20.0	83	72 - 130
Ethyl tert-Butyl Ether	16.7	20.0	83	70 - 126
Ethylbenzene	17.9	20.0	90	75 - 123
Hexachlorobutadiene	19.3	20.0	97	51 - 150
Isopropylbenzene (Cumene)	18.1	20.0	91	75 - 139
Methyl tert-Butyl Ether	19.6	20.0	98	75 - 116
Naphthalene	22.1	20.0	111	71 - 139
Styrene	19.5	20.0	98	80 - 121
Tetrachloroethene (PCE)	18.0	20.0	90	71 - 127
Toluene	17.9	20.0	89	77 - 120
Trichloroethene (TCE)	17.7	20.0	88	75 - 122
Trichlorofluoromethane (CFC 11)	18.5	20.0	92	64 - 134
Vinyl Acetate	20.3	20.0	102	13 - 161
Vinyl Chloride	21.1	20.0	106	68 - 139
Xylenes, Total	55.1	60.0	92	77 - 122
cis-1,2-Dichloroethene	18.4	20.0	92	77 - 123
cis-1,3-Dichloropropene	17.5	20.0	87	77 - 125
m,p-Xylenes	36.9	40.0	92	77 - 124
n-Butylbenzene	17.2	20.0	86	65 - 135
n-Propylbenzene	17.7	20.0	89	69 - 132
o-Xylene	18.2	20.0	91	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/22/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394365

Analyte Name	Lab Control Sample RQ1405677-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	17.2	20.0	86	67 - 131
tert-Amyl Methyl Ether	16.9	20.0	85	71 - 124
tert-Butylbenzene	18.0	20.0	90	70 - 126
trans-1,2-Dichloroethene	18.0	20.0	90	72 - 120
trans-1,3-Dichloropropene	18.4	20.0	92	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/23/14 11:20

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052314\C4819.D\
Instrument ID: R-MS-08

Analytical Method: 8260C
Analysis Lot: 394040

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	22.92	56589	Pass
75	95	30	60	54.14	133680	Pass
95	95	100	100	100.00	246912	Pass
96	95	5	9	6.62	16348	Pass
173	174	0	2	0.00	0	Pass
174	95	50	120	72.49	178987	Pass
175	174	5	9	7.77	13911	Pass
176	174	95	101	98.86	176939	Pass
177	176	5	9	6.40	11326	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405643-02	I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D\	5/23/14 11:47	
Lab Control Sample	RQ1405643-03	I:\ACQUDATA\MSVOA8\DATA\052314\C4821.D\	5/23/14 12:20	
Method Blank	RQ1405643-04	I:\ACQUDATA\MSVOA8\DATA\052314\C4823.D\	5/23/14 13:21	
MRC-MW-102A-050814RE	R1403433-002	I:\ACQUDATA\MSVOA8\DATA\052314\C4824.D\	5/23/14 13:53	
MRC-MW-102B-050814DL	R1403433-001	I:\ACQUDATA\MSVOA8\DATA\052314\C4825.D\	5/23/14 14:20	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/23/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 394040
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	49.7	0.2903	0.2884	-0.7	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	43.6	0.8176	0.7126	-12.8	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	46.6	0.5429	0.5057	-6.9	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	38.8	0.2390	0.1853	-22.5 *	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	44.0	0.7973	0.7023	-11.9	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	44.8	0.3860	0.3457	-10.4	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	44.1	0.3841	0.3391	-11.7	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	47.5	0.4550	0.4326	-4.9	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	48.0	0.1604	0.1540	-4.0	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	42.5	0.5866	0.4980	-15.1	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	40.1	2.556	2.051	-19.8	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	54.1	0.06740	0.07298	8.3	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	50.1	0.2232	0.2236	0.2	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	46.4	1.085	1.006	-7.3	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	44.5	0.3681	0.3275	-11.0	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	43.9	0.2666	0.2340	-12.2	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	45.0	1.235	1.112	-10.0	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	45.1	0.4250	0.3837	-9.7	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	44.2	1.228	1.085	-11.7	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	43.0	0.7984	0.6860	-14.1	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	54.9	NA	NA	NA	9.8	± 20 %	Quadratic
2-Chloroethyl Vinyl Ether	50.0	52.3	0.09920	0.1037	4.5	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	41.4	2.355	1.950	-17.2	NA	± 20 %	Average RF
2-Hexanone	50.0	52.6	0.1630	0.1715	5.2	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1260	0.01335	0.01680	25.8 *	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	40.6	2.301	1.867	-18.9	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	35.2	2.658	1.870	-29.6 *	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	50.2	0.2080	0.2087	0.3	NA	± 20 %	Average RF
Acetone	50.0	67.8	NA	NA	NA	35.6 *	± 20 %	Linear
Benzene	50.0	45.5	1.084	0.9862	-9.1	NA	± 20 %	Average RF
Bromobenzene	50.0	46.9	0.6778	0.6357	-6.2	NA	± 20 %	Average RF
Bromochloromethane	50.0	46.3	0.2220	0.2056	-7.4	NA	± 20 %	Average RF
Bromodichloromethane	50.0	47.1	0.3909	0.3683	-5.8	NA	± 20 %	Average RF
Bromoform	50.0	57.0	0.2665	0.3039	14.1	NA	± 20 %	Average RF
Bromomethane	50.0	41.8	0.4389	0.3667	-16.4	NA	± 20 %	Average RF
Carbon Disulfide	50.0	42.9	1.113	0.9551	-14.2	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	45.2	0.4389	0.3968	-9.6	NA	± 20 %	Average RF
Chlorobenzene	50.0	45.8	0.8724	0.7995	-8.4	NA	± 20 %	Average RF
Chloroethane	50.0	45.3	0.3495	0.3164	-9.5	NA	± 20 %	Average RF
Chloroform	50.0	43.3	0.8945	0.7747	-13.4	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/23/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D\

Calibration Date: 5/15/14
Calibration ID: RC1400038
Analysis Lot: 394040
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	44.6	0.5570	0.4963	-10.9	NA	± 20 %	Average RF
Dibromochloromethane	50.0	53.4	0.2573	0.2748	6.8	NA	± 20 %	Average RF
Dibromomethane	50.0	47.0	0.1577	0.1481	-6.1	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	44.6	0.6300	0.5622	-10.8	NA	± 20 %	Average RF
Methylene Chloride	50.0	43.7	0.4487	0.3920	-12.6	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	44.7	1.600	1.431	-10.6	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	46.9	1.185	1.111	-6.2	NA	± 20 %	Average RF
Ethylbenzene	50.0	42.8	1.562	1.337	-14.4	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	31.0	NA	NA	NA	-37.9 *	± 20 %	Quadratic
Isopropylbenzene (Cumene)	50.0	40.1	3.304	2.649	-19.8	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	47.1	0.9054	0.8531	-5.8	NA	± 20 %	Average RF
Naphthalene	50.0	50.9	1.092	1.112	1.8	NA	± 20 %	Average RF
Styrene	50.0	48.1	0.9149	0.8800	-3.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	44.9	0.3685	0.3307	-10.3	NA	± 20 %	Average RF
Toluene	50.0	46.1	1.388	1.280	-7.8	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	44.0	0.3209	0.2821	-12.1	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	44.0	0.9186	0.8079	-12.0	NA	± 20 %	Average RF
Vinyl Acetate	50.0	50.2	0.07188	0.07221	0.5	NA	± 20 %	Average RF
Vinyl Chloride	50.0	47.2	0.4863	0.4586	-5.7	NA	± 20 %	Average RF
Xylenes, Total	150	135	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	45.4	0.5217	0.4737	-9.2	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	47.6	0.4215	0.4012	-4.8	NA	± 20 %	Average RF
m,p-Xylenes	100	90.5	0.5726	0.5180	-9.5	NA	± 20 %	Average RF
n-Butylbenzene	50.0	32.9	2.485	1.636	-34.2 *	NA	± 20 %	Average RF
n-Propylbenzene	50.0	38.2	3.943	3.011	-23.6 *	NA	± 20 %	Average RF
o-Xylene	50.0	44.8	0.5659	0.5074	-10.3	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	33.8	3.415	2.308	-32.4 *	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	47.9	0.6298	0.6030	-4.2	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	37.0	2.244	1.660	-26.0 *	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	44.9	0.4798	0.4308	-10.2	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	49.4	0.4095	0.4047	-1.2	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	54.9	0.4271	0.4693	9.9	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	55.1	0.2786	0.3072	10.3	NA	± 20 %	Average RF
Toluene-d8	50.0	56.3	1.032	1.162	12.6	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D Vial: 1
Acq On : 23 May 2014 11:47 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : RQ1405643-02 Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

BV 05/22/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	114	0.00	
2	P	Dichlorodifluoromethane	0.6300	0.5622	10.8	96	0.00	
3	P	Chloromethane	0.5570	0.4963	10.9	103	0.00	
4	P	Vinyl Chloride	0.4863	0.4586	5.7	105	0.00	
5	P	Bromomethane	0.4389	0.3667	16.5	102	0.00	
6	P	Chloroethane	0.3495	0.3164	9.5	109	0.00	
7		FREON 21	0.9925	0.8650	12.8	99	0.00	
8	P	Trichlorofluoromethane	0.9186	0.8079	12.1	104	0.00	
9		Diethyl Ether	0.2835	0.2680	5.5	110	0.00	
10		FREON 123A	0.2700	0.2435	9.8	103	0.00	
11		FREON 123	0.4503	0.3837	14.8	98	0.00	
12		Acrolein	0.0093	0.0371	-298.9#	487#	0.00	-NT
13	P	FREON 113	0.2390	0.1853	22.5#	101	0.00	~~-NT~~ TW 5/23/14
14	P	1,1-Diclethene	0.3860	0.3457	10.4	107	0.00	
15	P	Acetone	0.1002	0.1252	~~-25.0#~~ -25.6	146	0.00	X 3433
16		2-Propanol	0.0080	0.0100	-25.0#	165	0.00	-NT
17		Iodomethane	0.6385	0.5776	9.5	92	0.00	
18	P	Carbon Disulfide	1.1129	0.9551	14.2	100	0.00	
19		Acetonitrile	0.0154	0.0143	~~-7.1~~ -17.8	132	0.00	
20		Allyl Chloride	0.2648	0.2440	7.9	106	0.00	
21	P	Methyl Acetate	0.1936	0.1719	11.2	114	0.00	
22	P	Methylene Chloride	0.4487	0.3920	12.6	107	0.00	
23		TBA	0.0134	0.0168	-25.4#	163	0.00	X 3433
24		Acrylonitrile	0.0772	0.0759	1.7	117	0.00	
25	P	Methyl-t-Butyl Ether	0.9054	0.8531	5.8	111	0.00	
26	P	trans-1,2-Dichloroethene	0.4798	0.4308	10.2	107	0.00	
27	P	1,1-Diclethane	0.7973	0.7023	11.9	105	0.00	
28		DIPE	1.5995	1.4306	10.6	105	0.00	
29		Vinyl Acetate	0.0719	0.0722	-0.4	130	0.00	
30		2-Chloro-1,3-butadiene	0.7111	0.6807	4.3	106	0.00	
31		ETBE	1.1848	1.1114	6.2	109	0.00	
32		2,2-Dichloropropane	0.7984	0.6860	14.1	105	0.00	
33	P	2-Butanone	0.1408	0.1402	~~-0.4~~ -9.8	128	0.00	
34	P	cis-1,2-Dichloroethene	0.5217	0.4737	9.2	108	0.00	
35		Propionitrile	0.0240	0.0246	-2.5	131	0.00	
36		Methacrylonitrile	0.0874	0.0858	1.8	119	0.00	
37		Bromochloromethane	0.2220	0.2056	7.4	108	0.00	
38	P	Chloroform	0.8945	0.7747	13.4	104	0.00	
39		Tetrahydrofuran	0.0561	0.0582	-3.7	123	0.00	
40	P	1,1,1-Trichloroethane	0.8176	0.7126	12.8	103	0.00	
41	I	1,4 - Difluorobenzene	1.0000	1.0000	0.0	110	0.00	
42	S	surr4,Dibrflmethane	0.2786	0.3072	-10.3	110	0.00	
43	P	cyclohexane	0.5215	0.4637	11.1	98	0.00	
44	P	Carbontetrachloride	0.4389	0.3968	9.6	105	0.00	
45		1,1-Dichloropropene	0.3841	0.3391	11.7	105	0.00	
46		Iso-Butyl Alcohol	0.0042	0.0050	-19.0	151	0.00	
47	S	surr1,1,2-Diclethane	0.2630	0.2868	-9.0	112	0.00	
48	P	Benzene	1.0845	0.9862	9.1	105	0.00	
49	P	1,2-Dichloroethane	0.3681	0.3275	11.0	104	0.00	

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D Vial: 1
Acq On : 23 May 2014 11:47 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
50		TAME	0.6298	0.6030	4.3	109	0.00	
51		N-Heptane	0.4218	0.2283	45.9#	65	0.00	} NT
52		1-Butanol	0.0019	0.0025	-31.6#	173	0.00	} NT
53	P	Trichloroethene	0.3209	0.2821	12.1	102	0.00	
54	P	methylcyclohexane	0.4621	0.4001	13.4	97	0.00	
55	P	1,2-Diclpropane	0.2666	0.2340	12.2	104	0.00	
56		Methyl Methacrylate	0.1102	0.1065	3.4	114	0.00	
57		1,4-Dioxane	0.0008	0.0011	-37.5#	190	0.00	NT
58		Dibromomethane	0.1577	0.1481	6.1	107	0.00	
59	P	Bromodichloromethane	0.3909	0.3683	5.8	105	0.00	
60		2-Nitropropane	0.0000	0.0000	0.0	120	0.00	
61		2-Chloroethylvinyl Ether	0.0992	0.1037	-4.5	118	0.00	
62	P	cis-1,3-Dichloropropene	0.4215	0.4012	4.8	105	0.00	
63	I	d5 - Chlorobenzene	1.0000	1.0000	0.0	109	0.00	
64	P	4-Methyl-2-Pentanone	0.2080	0.2087	-0.3	121	0.00	
65	P	Toluene	1.3882	1.2803	7.8	105	0.00	
66	P	trans-1,3-Dichloropropene	0.4095	0.4047	1.2	107	0.00	
67		Ethyl Methacrylate	0.2851	0.2880	-1.0	112	0.00	
68	P	1,1,2-Trichloroethane	0.1928	0.1830	5.1	108	0.00	
69	S	surr3,Toluene-d8	1.0321	1.1622	-12.6	109	0.00	
70	S	surr2,bfb	0.4271	0.4693	-9.9	106	0.00	
71	P	Tetrachloroethene	0.3685	0.3307	10.3	104	0.00	
72	P	2-Hexanone	0.1630	0.1715	-5.2	127	0.00	
73		N-Butyl Acetate	0.3754	0.3738	0.4	118	0.00	
74		1,3-Dichloropropane	0.4250	0.3837	9.7	105	0.00	
75	P	Dibromochloromethane	0.2573	0.2748	-6.8	114	0.00	
76	P	1,2-Dibromoethane	0.2232	0.2236	-0.2	111	0.00	
77		3-Chlorobenzotrifluoride	0.5116	0.5200	-1.6	109	0.00	
78	P	Chlorobenzene	0.8724	0.7995	8.4	107	-0.01	
79		4-Chlorobenzotrifluoride	0.4724	0.4649	1.6	109	0.00	
80		1,1,1,2-Tetrachloroethane	0.2903	0.2884	0.7	106	-0.01	
81	P	Ethylbenzene	1.5623	1.3366	14.4	98	0.00	
82	P	(m+p)Xylene	0.5726	0.5180	9.5	99	-0.01	
83	P	o-Xylene	0.5659	0.5074	10.3	100	0.00	
84	P	Styrene	0.9149	0.8800	3.8	101	0.00	
85	I	d4 - Dichlorobenzene	1.0000	1.0000	0.0	111	0.00	
86	P	Bromoform	0.2665	0.3039	-14.0	121	0.00	
87		2-Chlorobenzotrifluoride	1.0387	1.0044	3.3	108	0.00	
88	P	Isopropylbenzene	3.3036	2.6488	19.8	92	0.00	
89		Cyclohexanone	0.0396	0.0402	-1.5	125	0.00	
90	P	1,1,2,2-Tetrachloroethane	0.5429	0.5057	6.9	114	0.00	
91		Trans-1,4-Dichloro-2-butene	0.1644	0.1584	3.6	115	0.00	
92		1,2,3-Trichloropropane	0.1604	0.1540	4.0	116	0.00	
93		n-Propylbenzene	3.9430	3.0111	23.6#	90	0.00	x 3433
94		Bromobenzene	0.6778	0.6357	6.2	106	0.00	
95		1,3,5-Trimethylbenzene	2.6338	2.0515	22.1#	90	0.00	NT
96		2-Chlorotoluene	2.3551	1.9497	17.2	95	0.00	
97		3-Chlorotoluene	2.6966	2.4048	10.8	102	0.00	

(#) = Out of Range

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D Vial: 1
Acq On : 23 May 2014 11:47 am Operator: B WOJTASIEWICZ
Sample : CCV Inst : MS #8
Misc : Multiplr: 1.00
MS Integration Params: INTP100.P

Method : I:\ACQUDATA\MSVOA8\METHODS\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
98		4-Chlorotoluene	2.3011	1.8667	18.9	94	0.00
99		tert-Butylbenzene	2.2444	1.6602	26.0#	85	0.00 X 3433
100		1,2,4-Trimethylbenzene	2.5555	2.0505	19.8	89	0.00
101		3,4-Dichlorobenzotrifluorid	0.6265	0.6431	-2.6	109	0.00
102		2-Octanol	0.0000	0.0000	0.0	0#	-8.39#
103		sec-Butylbenzene	3.4148	2.3076	32.4#	78	0.00 X 3433
104		p-Isopropyltoluene	2.6576	1.8700	29.6#	79	0.00 X 3433
105	P	1,3-Dclbenz	1.2351	1.1121	10.0	99	0.00
106	P	1,4-Dclbenz	1.2280	1.0848	11.7	99	0.00
107		2,4-Dichlorobenzotrifluorid	0.5494	0.5695	-3.7	109	0.00
108		2,5-Dichlorobenzotrifluorid	0.6300	0.6166	2.1	108	0.00
109		n-Butylbenzene	2.4850	1.6360	34.2#	74	0.00 X 3433
110	P	1,2-Dclbenz	1.0846	1.0057	7.3	101	0.00
111	P	1,2-Dibromo-3-chloropropane	0.0674	0.0730	-8.3	132	-0.01
112		Trielution-Dichlorotoluene	1.0328	1.0574	-2.4	106	0.00
113		1,3,5-Trichlorobenzene	0.7809	0.8268	-5.9	111	0.00
114		Coelution - Dichlorotoluene	1.0238	1.0701	-4.5	108	0.00
115	P	1,2,4-Tcbenzene	0.5866	0.4980	15.1	92	0.00
116		Hexachlorobu	0.2221	0.1264 37.6	~~43.1#~~	68	-0.01 X 3433
117		Naphthalen	1.0918	1.1119	-1.8	115	0.00
118		1,2,3-Tclbenzene	0.4550	0.4326	4.9	98	0.00
119		2,4,5-Trichlorotoluene	0.4461	0.5462 -10.2	~~22.4#~~	122	0.00
120		2,3,6-Trichlorotoluene	0.4949	0.6121 -11.6	~~23.7#~~	123	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00566

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/23/14 13:21
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-08
Lab Code:	RQ1405643-04	**File ID:**	I:\ACQUDATA\MSVOA8\DATA\052314\C4823.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405643-03	I:\ACQUDATA\MSVOA8\DATA\052314\C4821.D\	5/23/14 12:20
MRC-MW-102A-050814RE	R1403433-002	I:\ACQUDATA\MSVOA8\DATA\052314\C4824.D\	5/23/14 13:53
MRC-MW-102B-050814DL	R1403433-001	I:\ACQUDATA\MSVOA8\DATA\052314\C4825.D\	5/23/14 14:20

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/23/14 13:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405643-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4823.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.25**	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/23/14 13:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405643-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4823.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.33**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/23/14 13:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405643-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394040
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052314\C4823.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	110	85-122	5/23/14 13:21	
Dibromofluoromethane	111	89-119	5/23/14 13:21	
Toluene-d8	115	87-121	5/23/14 13:21	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/23/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394040

Analyte Name	Lab Control Sample RQ1405643-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	19.3	20.0	97	80 - 120
1,1,1-Trichloroethane (TCA)	17.1	20.0	85	67 - 121
1,1,2,2-Tetrachloroethane	18.1	20.0	90	72 - 124
1,1,2-Trichlorotrifluoroethane	16.5	20.0	83	60 - 123
1,1-Dichloroethane (1,1-DCA)	17.5	20.0	88	76 - 128
1,1-Dichloroethene (1,1-DCE)	20.1	20.0	101	74 - 135
1,1-Dichloropropene	19.5	20.0	97	72 - 122
1,2,3-Trichlorobenzene	23.7	20.0	119	67 - 135
1,2,3-Trichloropropane	18.9	20.0	94	72 - 123
1,2,4-Trichlorobenzene	21.5	20.0	108	70 - 130
1,2,4-Trimethylbenzene	18.7	20.0	93	72 - 127
1,2-Dibromo-3-chloropropane (DBCP)	21.4	20.0	107	64 - 131
1,2-Dibromoethane	20.0	20.0	100	81 - 118
1,2-Dichlorobenzene	19.4	20.0	97	80 - 119
1,2-Dichloroethane	17.9	20.0	90	72 - 130
1,2-Dichloropropane	17.7	20.0	89	80 - 119
1,3-Dichlorobenzene	19.2	20.0	96	79 - 121
1,3-Dichloropropane	18.0	20.0	90	81 - 115
1,4-Dichlorobenzene	19.9	20.0	100	79 - 119
2,2-Dichloropropane	15.8	20.0	79	54 - 137
2-Butanone (MEK)	17.7	20.0	88	60 - 133
2-Chloroethyl Vinyl Ether	18.0	20.0	90	60 - 136
2-Chlorotoluene	18.3	20.0	92	71 - 125
2-Hexanone	16.5	20.0	82	61 - 131
tert-Butyl Alcohol	599	400	150	59 - 155
4-Chlorotoluene	18.1	20.0	91	73 - 127
4-Isopropyltoluene	19.4	20.0	97	71 - 130
4-Methyl-2-pentanone	18.4	20.0	92	61 - 132
Acetone	17.2	20.0	86	61 - 138
Benzene	17.6	20.0	88	76 - 118
Bromobenzene	19.2	20.0	96	79 - 118
Bromochloromethane	18.1	20.0	90	83 - 123
Bromodichloromethane	18.5	20.0	92	79 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/23/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394040

Lab Control Sample
RQ1405643-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	20.6	20.0	103	72 - 128
Bromomethane	16.5	20.0	83	46 - 157
Carbon Disulfide	16.2	20.0	81	61 - 144
Carbon Tetrachloride	17.6	20.0	88	64 - 129
Chlorobenzene	18.6	20.0	93	80 - 121
Chloroethane	18.5	20.0	93	69 - 128
Chloroform	17.3	20.0	87	75 - 123
Chloromethane	19.8	20.0	99	55 - 139
Dibromochloromethane	20.4	20.0	102	78 - 127
Dibromomethane	18.1	20.0	90	79 - 120
Dichlorodifluoromethane (CFC 12)	19.4	20.0	97	45 - 147
Methylene Chloride	18.4	20.0	92	73 - 122
Diisopropyl Ether	15.8	20.0	79	72 - 130
Ethyl tert-Butyl Ether	16.4	20.0	82	70 - 126
Ethylbenzene	18.4	20.0	92	75 - 123
Hexachlorobutadiene	22.7	20.0	113	51 - 150
Isopropylbenzene (Cumene)	18.7	20.0	94	75 - 139
Methyl tert-Butyl Ether	19.3	20.0	97	75 - 116
Naphthalene	22.7	20.0	113	71 - 139
Styrene	19.3	20.0	96	80 - 121
Tetrachloroethene (PCE)	18.7	20.0	94	71 - 127
Toluene	18.5	20.0	92	77 - 120
Trichloroethene (TCE)	17.8	20.0	89	75 - 122
Trichlorofluoromethane (CFC 11)	18.3	20.0	91	64 - 134
Vinyl Acetate	16.6	20.0	83	13 - 161
Vinyl Chloride	20.3	20.0	101	68 - 139
Xylenes, Total	56.3	60.0	94	77 - 122
cis-1,2-Dichloroethene	17.9	20.0	89	77 - 123
cis-1,3-Dichloropropene	17.7	20.0	88	77 - 125
m,p-Xylenes	37.8	40.0	94	77 - 124
n-Butylbenzene	19.0	20.0	95	65 - 135
n-Propylbenzene	18.2	20.0	91	69 - 132
o-Xylene	18.5	20.0	93	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/23/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394040

Analyte Name	Lab Control Sample RQ1405643-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	18.9	20.0	94	67 - 131
tert-Amyl Methyl Ether	17.2	20.0	86	71 - 124
tert-Butylbenzene	18.9	20.0	95	70 - 126
trans-1,2-Dichloroethene	17.6	20.0	88	72 - 120
trans-1,3-Dichloropropene	18.6	20.0	93	69 - 127

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/20/14 09:38

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405407-02
Analysis Lot: 393494
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	477,213	8.42	1,341,581	3.87	1,068,447	6.21
	Upper Limit ==>	954,426	8.92	2,683,162	4.37	2,136,894	6.71
	Lower Limit ==>	238,607	7.92	670,791	3.37	534,224	5.71
	ICAL Result ==>	459,699	8.43	1,206,147	3.89	996,275	6.23
Associated Analyses							
Lab Control Sample	RQ1405407-03	463,772	8.42	1,325,650	3.88	1,048,371	6.21
Method Blank	RQ1405407-04	402,963	8.42	1,308,907	3.88	1,021,643	6.21
MRC-MW-102B-050814	R1403433-001	381,904	8.42	1,247,523	3.87	963,791	6.22
MRC-MW-102A-050814	R1403433-002	401,425	8.42	1,304,067	3.87	1,002,612	6.22
MRC-MW-101B-050814	R1403433-003	390,642	8.42	1,256,490	3.87	980,589	6.22
MRC-MW-101A-050814	R1403433-004	383,261	8.42	1,268,496	3.87	968,772	6.22
MRC-MW-32A-050814	R1403433-007	393,915	8.42	1,265,787	3.87	970,154	6.22
MRC-MW-33A-050814	R1403433-008	392,502	8.42	1,252,623	3.87	977,321	6.22
MRC-MW-34A-051214	R1403433-011	382,911	8.42	1,263,056	3.87	976,659	6.22
MRC-MW-34B-051214	R1403433-012	385,343	8.42	1,271,806	3.88	984,963	6.22
MRC-MW-34C-051214	R1403433-013	393,343	8.42	1,277,774	3.87	981,651	6.22

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/20/14 09:38

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052014\C4725.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405407-02
Analysis Lot: 393494
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	824,528	3.36
	Upper Limit ==>	1,649,056	3.86
	Lower Limit ==>	412,264	2.86
	ICAL Result ==>	776,224	3.38
Associated Analyses			
Lab Control Sample	RQ1405407-03	833,505	3.36
Method Blank	RQ1405407-04	819,879	3.36
MRC-MW-102B-050814	R1403433-001	776,280	3.36
MRC-MW-102A-050814	R1403433-002	811,965	3.36
MRC-MW-101B-050814	R1403433-003	784,412	3.36
MRC-MW-101A-050814	R1403433-004	793,471	3.36
MRC-MW-32A-050814	R1403433-007	794,204	3.36
MRC-MW-33A-050814	R1403433-008	790,632	3.36
MRC-MW-34A-051214	R1403433-011	793,285	3.36
MRC-MW-34B-051214	R1403433-012	785,630	3.36
MRC-MW-34C-051214	R1403433-013	786,065	3.36

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/21/14 11:57

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405451-02
Analysis Lot: 393625
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	495,895	8.43	1,357,910	3.89	1,088,066	6.23
	Upper Limit ==>	991,790	8.93	2,715,820	4.39	2,176,132	6.73
	Lower Limit ==>	247,948	7.93	678,955	3.39	544,033	5.73
	ICAL Result ==>	459,699	8.43	1,206,147	3.89	996,275	6.23
Associated Analyses							
Lab Control Sample	RQ1405451-03	463,114	8.43	1,337,120	3.88	1,061,335	6.23
Method Blank	RQ1405451-04	406,229	8.43	1,298,544	3.89	1,022,115	6.23
MRC-MW-38A-051214	R1403433-014	397,090	8.44	1,273,741	3.88	995,536	6.23
MRC-MW-104A-051214	R1403433-016	392,709	8.44	1,281,218	3.88	997,212	6.23
MRC-MW-104B-051214	R1403433-017	398,403	8.44	1,292,978	3.89	998,710	6.23
MRC-MW-69B-051314	R1403433-021	403,496	8.44	1,292,187	3.89	1,017,598	6.23
MRC-MW-69A-051314	R1403433-022	415,301	8.43	1,337,342	3.89	1,040,602	6.23
TB-050814	R1403433-009	403,897	8.43	1,268,989	3.89	991,891	6.23
TB-051214	R1403433-010	411,904	8.44	1,297,240	3.89	1,021,774	6.23
TB-051314	R1403433-019	415,293	8.44	1,302,206	3.89	1,031,031	6.23
MRC-MW-96B-051314	R1403433-025	427,221	8.44	1,276,902	3.89	1,012,181	6.23
MRC-MW-96A-051314	R1403433-024	411,195	8.43	1,307,258	3.89	1,027,430	6.23
MRC-MW-96A-051314MS	RQ1405451-05	482,380	8.44	1,315,696	3.89	1,072,858	6.23
MRC-MW-96A-051314DMS	RQ1405451-06	488,554	8.44	1,361,819	3.88	1,101,582	6.23

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/21/14 11:57

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052114\C4756.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405451-02
Analysis Lot: 393625
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	841,240	3.38
	Upper Limit ==>	1,682,480	3.88
	Lower Limit ==>	420,620	2.88
	ICAL Result ==>	776,224	3.38
Associated Analyses			
Lab Control Sample	RQ1405451-03	834,170	3.37
Method Blank	RQ1405451-04	822,102	3.38
MRC-MW-38A-051214	R1403433-014	803,997	3.37
MRC-MW-104A-051214	R1403433-016	801,658	3.37
MRC-MW-104B-051214	R1403433-017	811,459	3.37
MRC-MW-69B-051314	R1403433-021	816,171	3.38
MRC-MW-69A-051314	R1403433-022	838,251	3.38
TB-050814	R1403433-009	807,430	3.38
TB-051214	R1403433-010	818,732	3.38
TB-051314	R1403433-019	822,979	3.38
MRC-MW-96B-051314	R1403433-025	800,176	3.38
MRC-MW-96A-051314	R1403433-024	808,949	3.38
MRC-MW-96A-051314MS	RQ1405451-05	812,303	3.37
MRC-MW-96A-051314DMS	RQ1405451-06	855,780	3.37

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/23/14 11:47

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405643-02
Analysis Lot: 394040
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	508,860	8.43	1,331,901	3.88	1,087,062	6.22
	Upper Limit ==>	1,017,720	8.93	2,663,802	4.38	2,174,124	6.72
	Lower Limit ==>	254,430	7.93	665,951	3.38	543,531	5.72
	ICAL Result ==>	459,699	8.43	1,206,147	3.89	996,275	6.23
Associated Analyses							
Lab Control Sample	RQ1405643-03	518,875	8.43	1,404,088	3.88	1,127,687	6.22
Method Blank	RQ1405643-04	446,331	8.43	1,306,380	3.88	1,056,112	6.22
MRC-MW-102A-050814	R1403433-002	433,605	8.43	1,324,331	3.88	1,059,419	6.22
MRC-MW-102B-050814	R1403433-001	448,994	8.43	1,311,559	3.88	1,065,738	6.22

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/23/14 11:47

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052314\C4820.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405643-02
Analysis Lot: 394040
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	883,173	3.37
	Upper Limit ==>	1,766,346	3.87
	Lower Limit ==>	441,587	2.87
	ICAL Result ==>	776,224	3.38
Associated Analyses			
Lab Control Sample	RQ1405643-03	918,752	3.37
Method Blank	RQ1405643-04	852,003	3.37
MRC-MW-102A-050814	R1403433-002	863,754	3.37
MRC-MW-102B-050814	R1403433-001	847,263	3.37

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/22/14 08:32

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405677-02
Analysis Lot: 394365
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	490,708	8.44	1,348,526	3.89	1,109,962	6.23
	Upper Limit ==>	981,416	8.94	2,697,052	4.39	2,219,924	6.73
	Lower Limit ==>	245,354	7.94	674,263	3.39	554,981	5.73
	ICAL Result ==>	459,699	8.43	1,206,147	3.89	996,275	6.23
Associated Analyses							
Lab Control Sample	RQ1405677-03	492,472	8.44	1,390,744	3.89	1,107,893	6.24
Method Blank	RQ1405677-04	432,151	8.44	1,352,062	3.89	1,082,938	6.23
MRC-MW-96B-051314	R1403433-025	430,317	8.43	1,293,873	3.89	1,027,007	6.23
MRC-MW-96A-051314	R1403433-024	435,322	8.44	1,330,485	3.89	1,059,227	6.23

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/22/14 08:32

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA8\DATA\052214\C4785.D\
Instrument ID: R-MS-08
Analytical Method: 8260C

Lab Code: RQ1405677-02
Analysis Lot: 394365
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	844,810	3.38
	Upper Limit ==>	1,689,620	3.88
	Lower Limit ==>	422,405	2.88
	ICAL Result ==>	776,224	3.38
Associated Analyses			
Lab Control Sample	RQ1405677-03	881,631	3.38
Method Blank	RQ1405677-04	864,080	3.38
MRC-MW-96B-051314	R1403433-025	815,662	3.38
MRC-MW-96A-051314	R1403433-024	837,792	3.38

Results flagged with an asterisk (*) indicate values outside control criteria.

SDG R1403433

SAMPLE ID MRC-MW-96A-051314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST / IS AMOUNT (NG)	Final Volume (ML)	AVE RRF	CONCENTRATION ug/L
837792	200	1344751	50	5	0.5217	30766.98

Sample Volume (ML)
5

cis-1,2-dichloroethene = 31,000 ug/L

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 0915
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Analyzed:	5/22/14 18:30
Sample Name:	MRC-MW-96A-051314	**Units:**	µg/L
Lab Code:	R1403433-024	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394365
Data File Name:	I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D\	**Instrument Name:**	R-MS-08
		Dilution Factor:	200

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	200	U	200	44	
56-23-5	Carbon Tetrachloride	200	U	200	90	
108-90-7	Chlorobenzene	200	U	200	58	
75-00-3	Chloroethane	200	U	200	48	
67-66-3	Chloroform	200	U	200	50	
74-87-3	Chloromethane	200	U	200	42	
124-48-1	Dibromochloromethane	200	U	200	62	
74-95-3	Dibromomethane	200	U	200	64	
75-71-8	Dichlorodifluoromethane (CFC 12)	200	U	200	92	
75-09-2	Methylene Chloride	200	U	200	64	
108-20-3	Diisopropyl Ether	200	U	200	40	
637-92-3	Ethyl tert-Butyl Ether	200	U	200	40	
100-41-4	Ethylbenzene	200	U	200	40	
87-68-3	Hexachlorobutadiene	400	U	400	130	
98-82-8	Isopropylbenzene (Cumene)	200	U	200	40	
1634-04-4	Methyl tert-Butyl Ether	200	U	200	58	
91-20-3	Naphthalene	**42**	DJ	200	40	
100-42-5	Styrene	200	U	200	40	
127-18-4	Tetrachloroethene (PCE)	200	U	200	60	
108-88-3	Toluene	200	U	200	40	
79-01-6	Trichloroethene (TCE)	**3700**	D	200	44	
75-69-4	Trichlorofluoromethane (CFC 11)	200	U	200	40	
108-05-4	Vinyl Acetate	400	U	400	210	
75-01-4	Vinyl Chloride	200	U	200	64	
1330-20-7	Xylenes, Total	600	U	600	110	
156-59-2	cis-1,2-Dichloroethene	**31000**	D	200	60	
10061-01-5	cis-1,3-Dichloropropene	200	U	200	48	
179601-23-1	m,p-Xylenes	400	U	400	66	
104-51-8	n-Butylbenzene	200	U	200	42	
103-65-1	n-Propylbenzene	200	U	200	40	
95-47-6	o-Xylene	200	U	200	40	
135-98-8	sec-Butylbenzene	200	U	200	54	
994-05-8	tert-Amyl Methyl Ether	200	U	200	40	
98-06-6	tert-Butylbenzene	200	U	200	40	
156-60-5	trans-1,2-Dichloroethene	**78**	DJ	200	66	

Quantitation Report (Not Reviewed)

Data File : I:\ACQUDATA\MSVOA8\DATA\052214\C4806.D Vial: 25
Acq On : 22 May 2014 6:30 pm Operator: B WOJTASIEWICZ
Sample : R1403433-024|200 Inst : MS #8
Misc : TETRA TECH 11423 T4 Multiplr: 1.00
MS Integration Params: INTP100.P
Quant Time: May 23 6:49 2014 Quant Results File: W051514.RES

Quant Method : I:\ACQUDATA\M...\W051514.M (RTE Integrator)
Title : 8260voa
Last Update : Tue May 20 14:22:15 2014
Response via : Initial Calibration
DataAcq Meth : W051514

BV 05/28/14

ΔL

Internal Standards	R.T.	QIon	Response	Conc	Units		Dev(Min)
1) Pentafluorobenzene	3.38	168	837792	50.00	ppb		0.00
41) 1,4 - Difluorobenzene	3.89	114	1330485	50.00	ppb		0.00
63) d5 - Chlorobenzene	6.23	117	1059227	50.00	ppb		0.00
85) d4 - Dichlorobenzene	8.44	152	435322	50.00	ppb		0.00
System Monitoring Compounds							
42) surr4,Dibrflmethane	3.37	113	402429	54.28	ppb		0.00
Spiked Amount 50.000	Range 89 - 119		Recovery = 108.56%				
47) surr1,1,2-Diclethane	3.60	65	379975	54.30	ppb		0.00
Spiked Amount 50.000	Range 65 - 130		Recovery = 108.60%				
69) surr3,Toluene-d8	5.00	98	1231197	56.31	ppb		0.00
Spiked Amount 50.000	Range 87 - 121		Recovery = 112.62%				
70) surr2,bfb	7.31	95	477113	52.73	ppb		0.00
Spiked Amount 50.000	Range 85 - 122		Recovery = 105.46%				
Target Compounds							Qvalue
4) Vinyl Chloride	1.42	62	1815	0.22	ppb		82
~~12) Acrolein~~	~~2.06~~	~~56~~	~~67~~	~~0.43~~	~~ppb~~		~~80~~
14) 1,1-Diclethene	2.08	96	2669	0.41	ppb	#	82
~~15) Acetone~~	~~2.10~~	~~43~~	~~1281~~	~~Below Cal~~			~~78~~
16) 2-Propanol	2.14	45	414	3.07	ppb	#	1
19) Acetonitrile	2.26	40	634	Below Cal		#	1
~~21) Methyl Acetate~~	~~2.23~~	~~43~~	~~776~~	~~0.24~~	~~ppb~~		~~86~~
26) trans-1,2-Dichloroethene	2.49	96	3124	0.39	ppb		88
~~31) BTDB~~	~~3.00~~	~~59~~	~~42003~~	~~2.16~~	~~ppb~~	#	~~39~~
~~33) 2-Butanone~~	~~3.03~~	~~43~~	~~463~~	~~Below Cal~~			~~54~~
34) cis-1,2-Dichloroethene	3.08	96	1344751	153.84	ppb		95
~~35) Propionitrile~~	~~3.11~~	~~54~~	~~151~~	~~0.38~~	~~ppb~~		~~54~~
~~39) Tetrahydrofuran~~	~~3.20~~	~~42~~	~~792~~	~~0.84~~	~~ppb~~	#	~~35~~
~~46) Iso-Butyl Alcohol~~	~~3.56~~	~~43~~	~~404~~	~~3.59~~	~~ppb~~		~~88~~
53) Trichloroethene	4.08	95	157859	18.49	ppb		94
~~89) Cyclohexanone~~	~~7.31~~	~~55~~	~~2128~~	~~6.17~~	~~ppb~~	#	~~43~~
117) Naphthalen	10.67	128	2031	0.21	ppb		99

(#) = qualifier out of range (m) = manual integration

ALS Environmental

RSK 175
QC SUMMARY

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d/h 9/5/13

ALS Environmental-Rochester

Analyst: B Wojtaslewicz
Date: 8/27/2013

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	Avg. R.T.	1PPB R F STD 1	2PPB R F STD 2	10.0PPB R F STD 3	20PPB R F STD 4	50PPB R F STD 5	75PPB R F STD 6	100PPB R F STD 7	Avg R F	% RSD
Methane	0.29	0.8369	0.7754	0.7632	0.7422	0.7178	0.7195	0.7307	**0.7551**	5.8%
Ethylene	0.77	0.5121	0.5030	0.4969	0.5145	0.4921	0.5080	0.5206	**0.5067**	2.0%
Ethane	1.15	0.7478	0.7047	0.7275	0.7211	0.6941	0.7031	0.7167	**0.7164**	2.5%
Propene	4.81		0.1874	0.1532	0.1732	0.2013	0.2286	0.2484	**0.1987**	17.8%
Propane	5.80	0.7040	0.7346	0.7895	0.7607	0.7480	0.7493	0.7625	**0.7498**	3.5%
Acetylene	0.64	0.0922	0.0935	0.0769	0.0923	0.0921	0.1004	0.1072	**0.0935**	9.9%

***LR =Linear Regression**

BW 09/03/13

ALS Environmental-Rochester

Analyst: B Wwojtaslewicz
Date: 08/27/13
Time: 12:27

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)

ICAL Date: 8/27/2013

ICV EVALUATION

Compound	R.T. WINDOW MIN. FROM	R.T. WINDOW MIN. TO	Time	Area Units	Conc. Result	True Value	Percent Recovery	% LIMITS
Methane	0.19	0.39	0.29	19.54	25.87	26.2	98.7%	70-130
Ethylene	0.78	0.98	0.88	12.56	24.78	24.3	102.1%	70-130
Ethane	1.05	1.25	1.15	18.81	26.25	26.1	100.8%	70-130
Propene	4.71	4.91	4.81	5.45	27.43	24.0	114.1%	70-130
Propane	5.70	5.90	5.80	19.55	26.07	25.5	102.3%	70-130
Acetylene	0.54	0.74	0.64	4.65	49.72	50.1	99.2%	70-130

*LR = Linear Regression
X = Out of Control Limits

JC 5/16/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 5/16/14
Time: 10:37

Method: RSK-175 Dissolved Gases

CCV EVALUATION
ICAL Date: 08/27/13
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	36.191	0.7551	0.6915	8.4%	52.3
Ethylene	0.77	0.97	0.87	25.616	0.5067	0.5271	4.0%	48.6
Ethane	1.03	1.23	1.13	35.890	0.7164	0.6898	3.7%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.65	5.85	5.75	35.210	0.7498	0.6912	7.8%	50.9
Acetylene	0.53	0.73	0.63	10.621	0.0935	0.1061	13.5%	100.1
						Avg %D:	7.5%	(#62941)

JC 5/16/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 5/16/14
Time: 13:08

Method: RSK-175 Dissolved Gases

CCV EVALUATION
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

ICAL Date: 08/27/13

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	33.613	0.7551	0.6422	15.0%	52.3
Ethylene	0.77	0.97	0.87	24.186	0.5067	0.4976	1.8%	48.6
Ethane	1.04	1.24	1.14	33.388	0.7164	0.6418	10.4%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.66	5.86	5.76	32.889	0.7498	0.6457	13.9%	50.9
Acetylene	0.54	0.74	0.64	10.871	0.0935	0.1086	16.2%	100.1
						Avg %D:	11.4%	(#62941)

JC 5/16/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 5/16/14
Time: 14:20

Method: RSK-175 Dissolved Gases

CCV EVALUATION
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

ICAL Date: 08/27/13

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	35.210	0.7551	0.6727	10.9%	52.3
Ethylene	0.77	0.97	0.87	25.278	0.5067	0.5201	2.6%	48.6
Ethane	1.04	1.24	1.14	35.191	0.7164	0.6764	5.6%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.65	5.85	5.75	34.572	0.7498	0.6787	9.5%	50.9
Acetylene	0.54	0.74	0.64	11.254	0.0935	0.1125	20.2%	100.1
						Avg %D:	9.8%	(#62941)

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/16/14 10:48
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405177-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	392846
Data File Name:	1002.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	0.28	J	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/16/14 10:48
Sample Matrix:	Water		

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name:	Method Blank	**Instrument ID:**	R-GC-02
Lab Code:	RQ1405177-01	**File ID:**	1002.run
Analytical Method:	RSK 175		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405177-02	1003.run	5/16/14 10:58
Duplicate Lab Control Sample	RQ1405177-03	1004.run	5/16/14 11:08
MRC-MW-34B-051214	R1403433-012	1005.run	5/16/14 11:26

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/16/14

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 392846

Analyte Name	Lab Control Sample RQ1405177-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405177-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	28.2	26.1	108	28.3	26.1	108	78 - 134	<1	30
Ethene	28.4	24.3	117	28.2	24.3	116	73 - 129	<1	30
Methane	27.2	26.2	104	27.1	26.2	103	76 - 138	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Environmental

1,4-DIOXANE
QC SUMMARY

ALS Environmental - Rochester, NY
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/2/14 09:52

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\050214\Af625.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 393191

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	74.76	45403	Pass
175	174	5	9	7.72	3505	Pass
176	174	95	101	95.51	43363	Pass
177	176	5	9	6.47	2805	Pass
50	95	15	40	16.50	10021	Pass
75	95	30	60	45.23	27469	Pass
95	95	100	100	100.00	60728	Pass
96	95	5	9	6.97	4230	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	RQ1405292-02	I:\ACQUDATA\5975E\data\050214\Af629.D\	5/2/14 11:21	
Initial CalibrationICAL	RQ1405292-03	I:\ACQUDATA\5975E\data\050214\Af630.D\	5/2/14 11:39	
Initial CalibrationICAL	RQ1405292-04	I:\ACQUDATA\5975E\data\050214\Af631.D\	5/2/14 11:58	
Initial CalibrationICAL	RQ1405292-05	I:\ACQUDATA\5975E\data\050214\Af632.D\	5/2/14 12:17	
Initial CalibrationICAL	RQ1405292-06	I:\ACQUDATA\5975E\data\050214\Af633.D\	5/2/14 12:36	
Initial CalibrationICAL	RQ1405292-07	I:\ACQUDATA\5975E\data\050214\Af634.D\	5/2/14 12:55	
Initial CalibrationICAL	RQ1405292-08	I:\ACQUDATA\5975E\data\050214\Af635.D\	5/2/14 13:14	
Initial CalibrationICAL	RQ1405292-09	I:\ACQUDATA\5975E\data\050214\Af636.D\	5/2/14 13:42	

Response Factor Report 7975 E

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX050214.M
Title : 8270 BNA ANALYSIS
Last Update : Mon May 05 07:43:33 2014
Response Via : Initial Calibration

Calibration Files
2 =Af629.D 10 =Af630.D 20 =Af631.D 100 =Af632.D 200 =Af633.D 500 =Af634.D 1000=Af635.D 5000=Af636.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1)	IR d8-THF	ISTD									
2)	T 1,4-Dioxane	1.161	1.195	1.093	1.239	1.188	1.055	1.305	1.204	1.180	6.67
3)	S SURR,1,4-DIOXA...	1.161	1.031	0.922	1.071	1.019	0.906	1.103	1.007	1.027	8.37

(#) = Out of Range

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\050214\
Data File : Af637.D
Acq On : 2 May 2014 2:01 pm
Operator : m.pedro
Sample : icv
Misc : initial cal
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 07:44:00 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	98	-0.02
2	T	1,4-Dioxane	200.000	171.335	14.3	83	0.00
3	S	SURR,1,4-DIOXANE-d8	200.000	188.714	5.6	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO **Service Request:** R1403433
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247 **Date Analyzed:** 5/19/14 08:16

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\051914\Af759.D\ **Analytical Method:** 522
Instrument ID: R-MS-56 **Analysis Lot:** 393191

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	78.76	46808	Pass
175	174	5	9	7.52	3518	Pass
176	174	95	101	97.17	45483	Pass
177	176	5	9	6.37	2896	Pass
50	95	15	40	15.14	9000	Pass
75	95	30	60	42.19	25077	Pass
95	95	100	100	100.00	59432	Pass
96	95	5	9	6.76	4020	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405292-11	I:\ACQUDATA\5975E\data\051914\Af760.D\	5/19/14 08:50	
Method Blank	RQ1405170-01	I:\ACQUDATA\5975E\data\051914\Af761.D\	5/19/14 09:08	
Lab Control Sample	RQ1405170-02	I:\ACQUDATA\5975E\data\051914\Af762.D\	5/19/14 09:26	
Duplicate Lab Control Sample	RQ1405170-03	I:\ACQUDATA\5975E\data\051914\Af763.D\	5/19/14 09:44	
Lab Control Sample	RQ1405170-04	I:\ACQUDATA\5975E\data\051914\Af764.D\	5/19/14 10:02	
MRC-MW-69A-051314	R1403433-022	I:\ACQUDATA\5975E\data\051914\Af766.D\	5/19/14 10:39	
MRC-MW-96A-051314	R1403433-024	I:\ACQUDATA\5975E\data\051914\Af767.D\	5/19/14 10:59	
MRC-MW-96B-051314	R1403433-025	I:\ACQUDATA\5975E\data\051914\Af768.D\	5/19/14 11:18	
Continuing Cal. VerificationCCVA	RQ1405292-12	I:\ACQUDATA\5975E\data\051914\Af769.D\	5/19/14 11:37	
MRC-MW-69B-051314	R1403433-021	I:\ACQUDATA\5975E\data\051914\Af770.D\	5/19/14 13:55	
Continuing Cal. VerificationCCVB	RQ1405292-13	I:\ACQUDATA\5975E\data\051914\Af771.D\	5/19/14 14:13	

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\051914\
Data File : Af760.D
Acq On : 19 May 2014 8:50 am
Operator : m.pedro
Sample : ccv
Misc : cal check
ALS Vial : 3 Sample Multiplier: 1

Quant Time: May 19 14:21:07 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	105	0.00
2	T	1,4-Dioxane	2.000	1.942	2.9	102	0.05
3	S	SURR,1,4-DIOXANE-d8	2.000	1.807	9.7	96	0.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5975E\data\051914\
Data File : Af769.D
Acq On : 19 May 2014 11:37 am
Operator : m.pedro
Sample : ccv .2ppm
Misc : cal check
ALS Vial : 12 Sample Multiplier: 1

Quant Time: May 19 12:23:52 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	85	-0.02
2 T	1,4-Dioxane	200.000	225.131	-12.6	95	-0.02
3 S	SURR,1,4-DIOXANE-d8	200.000	227.126	-13.6	95	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5975E\data\051914\
Data File : Af771.D
Acq On : 19 May 2014 2:13 pm
Operator : m.pedro
Sample : ccv1.0ppm
Misc : 05/16/14 522
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 19 14:24:17 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	104	0.00
2	T	1,4-Dioxane	1000.000	1070.930	-7.1	101	-0.01
3	S	SURR,1,4-DIOXANE-d8	1000.000	1068.185	-6.8	101	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/19/14 09:08
Sample Matrix:	Water	**Date Extracted:**	5/16/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1405170-01	**File ID:**	I:\ACQUDATA\5975E\data\051914\Af761.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405170-02	I:\ACQUDATA\5975E\data\051914\Af762.D\	5/19/14 09:26
Duplicate Lab Control Sample	RQ1405170-03	I:\ACQUDATA\5975E\data\051914\Af763.D\	5/19/14 09:44
Lab Control Sample	RQ1405170-04	I:\ACQUDATA\5975E\data\051914\Af764.D\	5/19/14 10:02
MRC-MW-69A-051314	R1403433-022	I:\ACQUDATA\5975E\data\051914\Af766.D\	5/19/14 10:39
MRC-MW-96A-051314	R1403433-024	I:\ACQUDATA\5975E\data\051914\Af767.D\	5/19/14 10:59
MRC-MW-96B-051314	R1403433-025	I:\ACQUDATA\5975E\data\051914\Af768.D\	5/19/14 11:18
MRC-MW-69B-051314	R1403433-021	I:\ACQUDATA\5975E\data\051914\Af770.D\	5/19/14 13:55

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/16/14
		Date Analyzed:	5/19/14 09:08
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405170-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	393191
Prep Method:	Method	**Extraction Lot:**	208516
Data File Name:	I:\ACQUDATA\5975E\data\051914\Af761.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	100	70-130	5/19/14 09:08	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/19/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 208516

Analyte Name	Lab Control Sample RQ1405170-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405170-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,4-Dioxane	9.14	10.1	90	10.1	10.1	100	70 - 130	10	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/1121C06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/19/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 208516

Analyte Name	Lab Control Sample RQ1405170-04 Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	0.0444	0.0405	110	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/19/14 08:50

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID:	I:\ACQUDATA\5975E\data\051914\Af760.D\	**Lab Code:**	RQ1405292-11
Instrument ID:	R-MS-56	**Analysis Lot:**	393191
Analytical Method:	522	**Signal ID:**	

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	59,801	2.84
	Upper Limit ==>	77,741	3.34
	Lower Limit ==>	41,861	2.34
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Method Blank	RQ1405170-01	56,959	2.82
Lab Control Sample	RQ1405170-02	67,489	2.86
Duplicate Lab Control Sample	RQ1405170-03	59,437	2.83
Lab Control Sample	RQ1405170-04	59,849	2.82
MRC-MW-69A-051314	R1403433-022	60,893	2.81
MRC-MW-96A-051314	R1403433-024	61,835	2.81
MRC-MW-96B-051314	R1403433-025	58,759	2.82

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/19/14 11:37

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID:	I:\ACQUDATA\5975E\data\051914\Af769.D\	**Lab Code:**	RQ1405292-14
Instrument ID:	R-MS-56	**Analysis Lot:**	393191
Analytical Method:	522	**Signal ID:**	

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	53,574	2.82
	Upper Limit ==>	69,646	3.32
	Lower Limit ==>	37,502	2.32
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-69B-051314	R1403433-021	54,724	2.81
Continuing Cal. Verification	RQ1405292-13	59,287	2.84

Results flagged with an asterisk (*) indicate values outside control criteria

Preparation Information Benchsheet

Prep Run#: 208516 **Prep WorkFlow:** OrgExt SPE Aq28 **Status:** Prepped
Team: Semivoa GCMS/MPEDRO **Prep Method:** Method **Prep Date/Time:** 5/16/14 08:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405170-01	MB		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
2	RQ1405170-02	LCS		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69716; 200.0000 uL/69135; 10.0000 uL/69806	
3	RQ1405170-03	DLCS		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69716; 200.0000 uL/69135; 10.0000 uL/69806	
4	RQ1405170-04	LCS		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 1.0000 mL/68909; 10.0000 uL/69806	
5	R1403433-021	MRC-MW-69B-051314	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
6	R1403433-022	MRC-MW-69A-051314	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
7	R1403433-024	MRC-MW-96A-051314	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
8	R1403433-025	MRC-MW-96B-051314	.06	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	

Spiking Solutions

Name:	EPA 522 MDL Spike 4ppb	Inventory ID	68909	Logbook Ref:		Expires On:	08/05/2014
Name:	1,4-Dioxane-d8 1ppm Surr. Std.	Inventory ID	69135	Logbook Ref:		Expires On:	10/07/2014
Name:	EPA 522 LCS Spike 5ppm	Inventory ID	69716	Logbook Ref:		Expires On:	08/05/2014
Name:	SVOA Tetrahydrofuran-D8 100ppm	Inventory ID	69806	Logbook Ref:		Expires On:	07/30/2014

Preparation Materials

Method 522 400mg charcoal filters	(69964)	Eppendorf Pipette Repeater	EXT #15 (67588)	Water Deionized H2O	DI System (2262)
Dichloromethane (Methylene Chloride) 99.9% MeCl2	canister (69946)	Methanol Purge & Trap MeOH	64288 (64288)		

Preparation Steps

Step: Extraction
Started: 5/16/14 08:00
Finished: 5/16/14 10:00
By: MPEDRO
Comments

ALS Environmental

PERCHLORATE
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Response Factor Report Instrumen

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files

1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00934

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

1/29

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051414\B0030987.D Vial: 6
Acq On : 14 May 2014 3:06 pm Operator: b.allgeier
Sample : ccv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	113	0.52
2	Perchlorate	1.085	1.088	-0.3	106	0.56
3	#2 perc ion	0.366	0.349	4.6	105	0.53

00973

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030987.D PERC0129.M Thu May 15 09:45:03 2014 Page 1

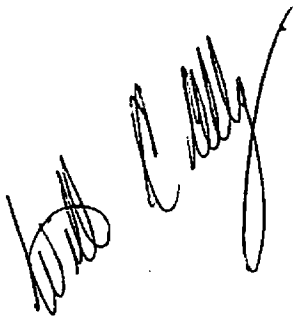
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051414\B0030998.D Vial: 6
Acq On : 14 May 2014 5:34 pm Operator: b.allgeier
Sample : ccv 1.0 Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	108	0.52
2	Perchlorate	1.085	1.094	-0.8	102	0.56
3	#2 perc ion	0.366	0.352	3.8	101	0.53



00979

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030998.D PERC0129.M Thu May 15 09:50:58 2014 Page 1

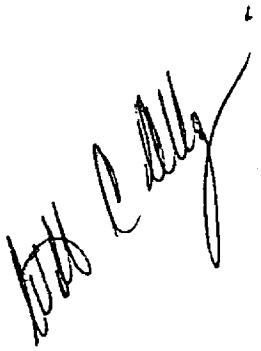
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051414\B0031009.D Vial: 6
Acq On : 14 May 2014 8:01 pm Operator: b.allgeier
Sample : ccv 1.00ppb Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	018LP	1.000	1.000	0.0	108	0.52
2	Perchlorate	1.085	1.093	-0.7	102	0.56
3	#2 perc ion	0.366	0.345	5.7	99	0.53



(#) = Out of Range SPCC's out = 0 CCC's out = 0 00985
B0031009.D PERC0129.M Thu May 15 10:43:06 2014 Page 1

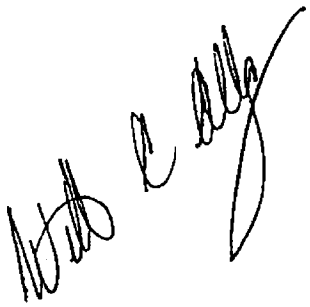
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051414\B0031015.D Vial: 6
Acq On : 14 May 2014 9:22 pm Operator: b.allgeier
Sample : ccv 1.00ppb Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	106	0.52
2	Perchlorate	1.085	1.110	-2.3	101	0.52
3	#2 perc ion	0.366	0.356	2.7	100	0.53



(#) = Out of Range SPCC's out = 0 CCC's out = 0 00991
B0031015.D PERC0129.M Thu May 15 09:59:00 2014 Page 1

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051914\B0031019.D Vial: 6
Acq On : 19 May 2014 2:01 pm Operator: b.allgeier
Sample : ccv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	119	0.45
2	Perchlorate	1.085	1.084	0.1	112	0.49
3	#2 perc ion	0.366	0.343	6.3	109	0.46

00997

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031019.D PERC0129.M Tue May 20 07:04:08 2014

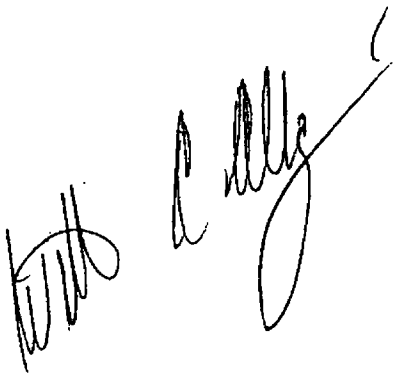
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051914\B0031030.D Vial: 6
Acq On : 19 May 2014 4:29 pm Operator: b.allgeier
Sample : ccv 1.0 Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	115	0.45
2	Perchlorate	1.085	1.095	-0.9	109	0.49
3	#2 perc ion	0.366	0.350	4.4	108	0.46



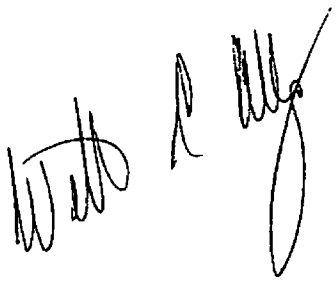
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\051914\B0031037.D Vial: 6
Acq On : 19 May 2014 6:03 pm Operator: b.allgeier
Sample : ccv 1.00ppb Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	112	0.52
2	Perchlorate	1.085	1.078	0.6	105	0.52
3	#2 perc ion	0.366	0.371	-1.4	111	0.49



ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/14/14
Sample Matrix:	Water	**Time Analyzed:**	15:33:00

Limit of Detection Verification
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\051414\B0030989.D\		
		Extraction Lot:	208428

Analyte Name	RQ1405087-04 Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.100**	0.100	100	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/14/14
Sample Matrix:	Water	**Time Analyzed:**	21:09:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\051414\B0031014.D\		
		Extraction Lot:	208428

	RQ1405087-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

Printed 5/16/14 13:14

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/19/14
Sample Matrix:	Water	**Time Analyzed:**	14:28:00

Limit of Detection Verification
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\051914\B0031021.D\		
		Extraction Lot:	208730

	RQ1405281-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/19/14
Sample Matrix:	Water	**Time Analyzed:**	17:49:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\051914\B0031036.D\		
		Extraction Lot:	208730

Analyte Name	RQ1405281-04 Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.100**	0.100	100	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/14/14 15:19
Sample Matrix:	Water	**Date Extracted:**	5/14/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1405087-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\051414\B0030988.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1405087-04	I:\ACQUDATA\HPLC02\DATA\051414\B0030989.D\	5/14/14 15:33
Lab Control Sample	RQ1405087-02	I:\ACQUDATA\HPLC02\DATA\051414\B0030990.D\	5/14/14 15:46
Duplicate Lab Control Sample	RQ1405087-03	I:\ACQUDATA\HPLC02\DATA\051414\B0030991.D\	5/14/14 16:00
Interference Check StandardICS	RQ1405087-05	I:\ACQUDATA\HPLC02\DATA\051414\B0030992.D\	5/14/14 16:13
MRC-MW-38A-051214	R1403433-014	I:\ACQUDATA\HPLC02\DATA\051414\B0031013.D\	5/14/14 20:55
Limit of Detection VerificationLODV	RQ1405087-04	I:\ACQUDATA\HPLC02\DATA\051414\B0031014.D\	5/14/14 21:09

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/14/14
		Date Analyzed:	5/14/14 15:19
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405087-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	392670
Prep Method:	Method	**Extraction Lot:**	208428
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051414\B0030988.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/14/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 208428

Analyte Name	Lab Control Sample RQ1405087-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405087-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Perchlorate	0.180	0.200	90	0.190	0.200	95	80 - 120	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/19/14
		Date Analyzed:	5/19/14 14:14
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405281-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	393289
Prep Method:	Method	**Extraction Lot:**	208730
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051914\B0031020.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Analyzed:**	5/19/14 14:14
Sample Matrix:	Water	**Date Extracted:**	5/19/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1405281-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\051914\B0031020.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1405281-04	I:\ACQUDATA\HPLC02\DATA\051914\B0031021.D\	5/19/14 14:28
Lab Control Sample	RQ1405281-02	I:\ACQUDATA\HPLC02\DATA\051914\B0031022.D\	5/19/14 14:41
Duplicate Lab Control Sample	RQ1405281-03	I:\ACQUDATA\HPLC02\DATA\051914\B0031023.D\	5/19/14 14:54
Interference Check StandardICS	RQ1405281-05	I:\ACQUDATA\HPLC02\DATA\051914\B0031024.D\	5/19/14 15:08
MRC-MW-69B-051314	R1403433-021	I:\ACQUDATA\HPLC02\DATA\051914\B0031025.D\	5/19/14 15:21
MRC-MW-69B-051314MS	RQ1405281-06	I:\ACQUDATA\HPLC02\DATA\051914\B0031026.D\	5/19/14 15:35
MRC-MW-69B-051314DMS	RQ1405281-07	I:\ACQUDATA\HPLC02\DATA\051914\B0031027.D\	5/19/14 15:48
MRC-MW-69A-051314	R1403433-022	I:\ACQUDATA\HPLC02\DATA\051914\B0031028.D\	5/19/14 16:02
MRC-MW-96A-051314	R1403433-024	I:\ACQUDATA\HPLC02\DATA\051914\B0031029.D\	5/19/14 16:15
MRC-MW-96B-051314	R1403433-025	I:\ACQUDATA\HPLC02\DATA\051914\B0031031.D\	5/19/14 16:42
Limit of Detection VerificationLODV	RQ1405281-04	I:\ACQUDATA\HPLC02\DATA\051914\B0031036.D\	5/19/14 17:49

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/19/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 208730

Analyte Name	Lab Control Sample RQ1405281-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405281-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Perchlorate	0.190	0.200	95	0.190	0.200	95	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Collected: 5/13/14
Date Received: 5/15/14
Date Analyzed: 5/19/14

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name: MRC-MW-69B-051314
Lab Code: R1403433-021

Units: µg/L
Basis: NA

Analytical Method: 6850
Prep Method: Method

		MRC-MW-69B-051314MS Matrix Spike RQ1405281-06			MRC-MW-69B-051314DMS Duplicate Matrix Spike RQ1405281-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND	0.370	0.400	92	0.390	0.400	98	80 - 120	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/14/14 15:06

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\051414\B0030987.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1405130-01
Analysis Lot: 392670
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1405130-01	227,449	8.36
Method Blank	RQ1405087-01	237,145	8.40
Limit of Detection Verification	RQ1405087-04	238,245	8.40
Lab Control Sample	RQ1405087-02	241,675	8.40
Duplicate Lab Control Sample	RQ1405087-03	235,397	8.40
Interference Check Standard	RQ1405087-05	239,421	8.12
Continuing Cal. Verification	RQ1405130-02	217,021	8.36
Continuing Cal. Verification	RQ1405130-03	217,317	8.36
MRC-MW-38A-051214	R1403433-014	223,824	8.12
Limit of Detection Verification	RQ1405087-04	227,319	8.36
Continuing Cal. Verification	RQ1405130-04	212,612	8.36

Results flagged with an asterisk (*) indicate values outside control criteria.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433
Date Analyzed: 5/19/14 14:01

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\051914\B0031019.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1405322-01
Analysis Lot: 393289
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1405322-01	239,557	8.29
Method Blank	RQ1405281-01	247,806	8.33
Limit of Detection Verification	RQ1405281-04	252,708	8.33
Lab Control Sample	RQ1405281-02	250,071	8.33
Duplicate Lab Control Sample	RQ1405281-03	250,952	8.33
Interference Check Standard	RQ1405281-05	248,551	8.12
MRC-MW-69B-051314	R1403433-021	242,240	8.26
MRC-MW-69B-051314MS	RQ1405281-06	240,291	8.26
MRC-MW-69B-051314DMS	RQ1405281-07	237,285	8.26
MRC-MW-69A-051314	R1403433-022	242,343	8.15
MRC-MW-96A-051314	R1403433-024	239,314	8.19
Continuing Cal. Verification	RQ1405322-02	231,627	8.29
MRC-MW-96B-051314	R1403433-025	240,802	8.08
Limit of Detection Verification	RQ1405281-04	239,214	8.36
Continuing Cal. Verification	RQ1405322-03	226,184	8.36

Results flagged with an asterisk (*) indicate values outside control criteria.

Preparation Information Benchsheet

Prep Run#: 208428
Team: Semivoa GC/BALLGEIER

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/14/14 01:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405087-01	MB		10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
2	RQ1405087-02	LCS		10mL	6850/ClO4				10.00mL	colorless clear/ clear	2.0000 uL/66005; 10.0000 uL/68807	
3	RQ1405087-03	DLCS		10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807; 2.0000 uL/66005	
4	RQ1405087-04	LODV		10mL	6850/ClO4				10.00mL	colorless clear/ clear	1.0000 uL/66005; 10.0000 uL/68807	
5	RQ1405087-05	ICS		10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807; 2.0000 uL/66005	
6	K1404697-001	SMSW01WA01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
7	K1404697-002	SMSW02WA01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
8	K1404697-003	SMSW03WA01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
9	K1404697-004	SMSW04WA01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
10	K1404697-005	SMSW05WA01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
11	K1404697-006	SMSW01WB01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
12	K1404697-007	SMSW02WB01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
13	K1404697-008	SMSW03WB01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
14	K1404697-009	SMSW04WB01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
15	K1404697-010	SMSW05WB01	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
16	RQ1405087-06	K1404697-010 MS	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807; 4.0000 uL/66005	
17	RQ1405087-07	K1404697-010 DMS	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	4.0000 uL/66005; 10.0000 uL/68807	
18	K1404697-011	SMSW05WB02	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
19	K1404697-012	SMSW05WB03	.02	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
20	R1403359-001	1405061757X BLM-32-580	.01	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
21	R1403433-014	MRC-MW-38A-051214	.08	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
22	R1403438-001	1405071056X PL-7-560	.01	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
23	R1403438-002	1405071323 MPE-8	.01	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
24	R1403473-001	1405081333A BW-5-295	.01	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	
25	R1403473-002	1405081430X PL-7-480	.01	10mL	6850/ClO4				10.00mL	colorless clear/ clear	10.0000 uL/68807	

Spiking Solutions

Name: Perchlorate 1000 ppb CLO4 Inventory ID 66005 Logbook Ref: Expires On: 05/31/2014

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Preparation Materials

Water (69963) interference check standard for perchlorate (63899)

Preparation Information Benchsheet

Prep Run#: 208730 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 5/19/14 12:30 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405281-01	MB		10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
2	RQ1405281-02	LCS		10mL	6850/ClO4				10.00mL	colorless clear / clear	2.0000 uL/66005; 10.0000 uL/68807	
3	RQ1405281-03	DLCS		10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807; 2.0000 uL/66005	
4	RQ1405281-04	LODV		10mL	6850/ClO4				10.00mL	colorless clear / clear	1.0000 uL/66005; 10.0000 uL/68807	
5	RQ1405281-05	ICS		10mL	6850/ClO4				10.00mL	colorless clear / clear	2.0000 uL/66005; 10.0000 uL/68807	
6	R1403433-021	MRC-MW-69B-051314	.02	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
7	RQ1405281-06	R1403433-021 MS	.02	10mL	6850/ClO4				10.00mL	colorless clear / clear	4.0000 uL/66005; 10.0000 uL/68807	
8	RQ1405281-07	R1403433-021 DMS	.02	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807, 4.0000 uL/66005	
9	R1403433-022	MRC-MW-69A-051314	.02	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
10	R1403433-024	MRC-MW-96A-051314	.02	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
11	R1403433-025	MRC-MW-96B-051314	.02	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
12	R1403359-001	1405061257X BLM-32-580	.01	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
13	R1403554-001	1405140805X 200-C-170	.01	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
14	R1403609-001	1405141320A BLM-17-550	.01	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	
15	R1403609-002	1405141457Y BLM-28-525	.01	10mL	6850/ClO4				10.00mL	colorless clear / clear	10.0000 uL/68807	

Spiking Solutions

Name: Perchlorate 1000 ppb CLO4 Inventory ID 66005 Logbook Ref: Expires On: 05/31/2014

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Preparation Steps

Step: Extraction
Started: 5/19/14 12:30
Finished: 5/19/14 13:01
By: BALLGEIER
Comments

01105

Comments:

SAMPLE ID MRC-MW-96B-051314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	CONCENTRATION PPB
240802	1	741556	1	10	1.0850	2.84
			Amt. inj	Sample Volume (ML)		
			1	10		

Perchlorate = 2.8 ug/L

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/14/14 1025
Sample Matrix:	Water	**Date Received:**	5/15/14
		Date Extracted:	5/19/14
		Date Analyzed:	5/19/14 16:42
Sample Name:	MRC-MW-96B-051314	**Units:**	µg/L
Lab Code:	R1403433-025	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	393289
Prep Method:	Method	**Extraction Lot:**	208730
Data File Name:	I:\ACQUDATA\HPLC02\DATA\051914\B0031031.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	2.8		0.20	0.026	

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\051914\B0031031.D Vial: 21
Acq On : 19 May 2014 4:42 pm Operator: b.allgeier
Sample : r1403433-025 Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: May 20 6:23 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	8.08	89	240802	1.00	ug/L	0.24
Target Compounds						Qvalue
2) Perchlorate	8.05	83	741556	2.84	ug/L	100
3) #2 perc ion	8.08	85	240966	2.74	ug/L	100

Ratio
3.08

BAS 5/20

(#) = qualifier out of range (m) = manual integration
B0031031.D PERC0129.M Tue May 20 06:35:28 2014

00930

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. APANAVAGE** **DATE:** **AUGUST 14, 2014**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – METALS/MISCELLANEOUS**
LOCKHEED MARTIN CORPORATION (LMC)
GROUNDWATER 2014
SDG R1403433

SAMPLES: 13/Aqueous/Metals

MRC-MW-102B-050814	MRC-MW-104B-051214	MRC-MW-105A-051214
MRC-MW-30A-050814	MRC-MW-31A-050814	MRC-MW-33A-050814
MRC-MW-34B-051214	MRC-MW-46A-051214	MRC-MW-67A-051314
MRC-MW-68A-051314	MRC-MW-69A-051314	MRC-MW-96A-051314
MRC-MW-96B-051314		

1/Aqueous/Miscellaneous

MRC-MW-34B-051214

Overview

The sample set for LMC-Groundwater 2014, SDG R1403433 consisted of thirteen (13) aqueous environmental samples. All thirteen (13) aqueous samples were analyzed metals. One (1) aqueous sample was analyzed for miscellaneous parameters (alkalinity (as $CaCO_3$), ammonia as N, Dissolved Organic Carbon (DOC), nitrate, nitrite, orthophosphate as P, silica, Total Dissolved Solids (TDS), and sulfate). No field duplicate sample pair was included in this SDG.

The samples were collected by Tetra Tech, Inc. on May 8, 12, 13, and 14, 2014 and analyzed by TestAmerica, Inc. All analyses were conducted in accordance with SW-846 Methods 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, and 365.1, and Standard Methods 2320B, 2540C, and 5310 B/C analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, ICP/MS tuning, initial/continuing calibrations, laboratory method/calibration blanks, Interference Check Sample (ICS), laboratory control sample results, matrix spike/matrix spike duplicate results, internal standard areas and recoveries, ICP serial dilution results, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The following analytes below were detected in the laboratory method and preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Antimony [(1)]	0.174	0.87
Chromium [(1)]	1.607	8.035
Lead [(1)]	0.219	1.095
Silver [(1)]	0.052	0.26

Molybdenum [1]	0.069	0.345
Iron [2]	32.565	162.8
Cobalt [3]	0.045	0.225
Barium [4]	7.454	37.27
Manganese [4]	2.391	11.955
Vanadium [4]	0.67	3.35
Antimony [5]	0.212	1.06
Lead [5]	0.089	0.445
Cobalt [6]	0.097	0.485
Selenium [6]	0.256	1.28
Silver [6]	0.039	0.195
Thallium [6]	0.037	0.185

[1] - Maximum concentration detected in the laboratory preparation blank from preparation batch #208635 (indicated in the electronic deliverable) affecting all 6020A samples extracted on 05/16/14.
[2] - Maximum concentration detected in the laboratory preparation blank from preparation batch #209400 (indicated in the electronic deliverable) affecting all 6010C samples extracted on 05/27/14.
[3] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 05/21/14.
[4] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 05/28/14 and 505/29/14.
[5] - Maximum concentration detected in the laboratory preparation blank from preparation batch #208912 (indicated in the electronic deliverable) affecting all 6020A samples extracted on 05/21/14.
[3] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 05/28/14 and 06/06/14.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected results reported for these compounds in the affected samples below the established action level were qualified as non-detected, (U).

- The serial dilution associated with preparation batch #208912 (indicated in the electronic deliverable) had a Percent Difference (%D) greater than 10% for beryllium. The detected results reported for beryllium in the samples associated with this preparation batch were qualified as estimated, (J).

- The following internal standard Percent Recoveries (%R) were above the 125% quality control limit:

Sample	Internal Standard(s)	Affected Analytes
MRC-MW-102B-050814	Li, Sc	Be, Cr, Cu
MRC-MW-31A-050814	Li, Sc	Be, Cr, Co, Cu, Ni
MRC-MW-33A-050814	Li, Sc, Ho, Ge, Tb	Sb, As, Be, Cd, Cr, Co, Cu, Ni, Se, Au, Tl, Mo
MRC-MW-34B-051214	Li, Sc	Be, Cr, Co, Cu, Ni
MRC-MW-46A-051214	Li, Sc	Be, Cr, Co, Cu, Ni
MRC-MW-104B-051214	Li	Be

  The detected and non-detected results reported for the affected analytes were qualified as estimated, (J) and (UJ), respectively.

- Detected results reported below the Reporting Limit (RL) limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The preparation batch for alkalinity as $CaCO_3$ had a detection. No action was necessary because alkalinity was not reported in the associated sample.

Non-detected results were reported to the MDL.

Executive Summary

Laboratory Performance: Contaminants were detected in the laboratory preparation and method blanks. Some internal standards had high %Rs. A serial dilution %D for beryllium was noncompliant.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review" (January 2010) and SW-846 Methods 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, and 365.1, and Standard Methods 2320B, 2540C, and 5310 B/C analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-34B-051214		
SDG: R1403433	LAB_ID	R1403433-012		
FRACTION: MISC	SAMP_DATE	5/12/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	MG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
AMMONIA-N		0.004	U	
CARBONATE ALKALINITY		0.3	U	
CHLORIDE		165		
DISSOLVED ORGANIC CARBON		1.1		
NITRATE		0.5	J	P
NITRITE		0.3	U	
ORTHOPHOSPHATE-P		0.002	U	
SULFATE		27.3		
TOTAL DISSOLVED SOLIDS		314		

PROJ_NO: 06247	NSAMPLE	MRC-MW-102B-050814			MRC-MW-104B-051214			MRC-MW-105A-051214			MRC-MW-30A-050814		
SDG: R1403433	LAB_ID	R1403433-001			R1403433-017			R1403433-018			R1403433-005		
FRACTION: M	SAMP_DATE	5/8/2014			5/12/2014			5/12/2014			5/8/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.248	U	A	0.182	U	A	0.157	U		1.1		
ARSENIC		1.4			0.211	U		0.211	U		0.211	U	
BARIUM		42.4			52.7			53.8			98.3		
BERYLLIUM		12.8	J	N	4.7	J	N	2.9			0.225	J	P
CADMIUM		0.812	J	P	0.008	U		0.233	J	P	0.008	U	
CHROMIUM		2.1	U	A	2.2	U	A	2	U	A	2.3	U	A
COBALT		437	J	N	51.2			38.2			2.2		
COPPER		2.1	J	N	5.7			11.3			4.5		
IRON		264			664			164			132	U	A
LEAD		0.687	J	P	0.767	J	P	0.396	J	P	0.147	J	P
MANGANESE		396			440			69.7			18		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.09	U	A	0.068	U		0.068	U		0.364	J	P
NICKEL		602	J	N	61.3			30.2			7.3		
SELENIUM		4.5			0.279	J	P	1.9	J	P	1.9	J	P
SILICON		8780			3640			1750			3420		
SILVER		0.027	U	A	0.016	U	A	0.015	U		0.015	U	
THALLIUM		0.031	U		0.031	U		0.031	U		0.031	U	
VANADIUM		0.479	U		1.1	J	P	0.479	U		10.2	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-31A-050814			MRC-MW-33A-050814			MRC-MW-34B-051214			MRC-MW-46A-051214		
SDG: R1403433	LAB_ID	R1403433-006			R1403433-008			R1403433-012			R1403433-015		
FRACTION: M	SAMP_DATE	5/8/2014			5/8/2014			5/12/2014			5/12/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.157	UJ	N	0.284	U	A	1.9		
ARSENIC		0.211	U		0.211	UJ	N	0.211	U		0.91	J	P
BARIUM		90.5			17.9	J	P	137			191		
BERYLLIUM		4.9	J	N	1.9	J	N	8.8	J	N	1.4	J	N
CADMIUM		0.008	U		0.107	J	N	0.348	J	P	0.251	J	P
CHROMIUM		2.2	U	A	2.1	U	A	3.2	U	A	1.8	U	A
COBALT		43.2	J	N	18.2	J	N	113	J	N	21	J	N
COPPER		21.9	J	N	2.2	J	N	31.5	J	N	8.1	J	N
IRON		69.1	U	A	23.1	U	A	13.6	U	A	2200		
LEAD		0.289	J	P	0.1	J	N	0.089	J	P	5.7		
MANGANESE		14.8			108			411			136		
MERCURY		0.024	U		0.024	U		0.024	J	P	0.024	J	P
MOLYBDENUM		0.068	U		0.068	UJ	N	0.068	U		1.8		
NICKEL		83.3	J	N	14.5	J	N	135	J	N	16.4	J	N
SELENIUM		0.236	J	P	0.255	J	N	0.807	J	P	0.606	J	P
SILICON		12100			2740			3490			11100		
SILVER		0.015	U		0.015	UJ	N	0.044	U	A	0.045	U	A
THALLIUM		0.031	U		0.031	UJ	N	0.065	J	P	0.031	U	
VANADIUM		0.479	U		0.479	U		0.522	J	P	2	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-67A-051314			MRC-MW-68A-051314			MRC-MW-69A-051314			MRC-MW-96A-051314		
SDG: R1403433	LAB_ID	R1403433-020			R1403433-023			R1403433-022			R1403433-024		
FRACTION: M	SAMP_DATE	5/13/2014			5/13/2014			5/13/2014			5/14/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.785	U		0.785	U		0.393	U	A	0.157	U	
ARSENIC		3.7	J	P	1.4	J	P	1.3			2.1		
BARIUM		688			2400			73.7			271		
BERYLLIUM		249	J	I	168	J	I	0.034	J	IP	12.8	J	I
CADMIUM		10.3			5.7			0.008	U		0.106	J	P
CHROMIUM		3.8	J	P	2.4	U		1.5	J	P	0.971	J	P
COBALT		7550			1640			42.5			491		
COPPER		2120			84.2			8.1			18.7		
IRON		9230			173			6700			9790		
LEAD		6.5			0.598	J	P	0.89	J	P	1.2		
MANGANESE		12600			6750			1340			4160		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.708	J	P	0.341	U		0.279	J	P	0.068	U	
NICKEL		129000			5640			49.6			390		
SELENIUM		6.4	J	P	4.5	J	P	0.505	U	A	6.4		
SILICON		14200			17500			4460			14000		
SILVER		0.258	J	P	0.391	J	P	0.034	U	A	0.033	U	A
THALLIUM		1.1	J	P	0.153	U		0.031	U		0.031	U	
VANADIUM		0.479	U		0.479	U		0.479	U		0.479	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-96B-051314
SDG: R1403433	LAB_ID	R1403433-025
FRACTION: M	SAMP_DATE	5/14/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ANTIMONY	0.785	U	
ARSENIC	1.1	U	
BARIUM	576		
BERYLLIUM	4.7	J	I
CADMIUM	1	J	P
CHROMIUM	2.4	U	
COBALT	789		
COPPER	50.4		
IRON	155	U	A
LEAD	1.2	J	P
MANGANESE	2730		
MERCURY	0.024	U	
MOLYBDENUM	0.587	J	P
NICKEL	1460		
SELENIUM	2.8	J	P
SILICON	8970		
SILVER	0.153	U	A
THALLIUM	0.153	U	A
VANADIUM	0.479	U	

Appendix B

Results as Reported by the Laboratory

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-102B-050814

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-001

Level (low/med): LOW Date Received: 5/9/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.248	J		MS
7440-38-2	Arsenic	1.4			MS
7440-39-3	Barium	42.4			P
7440-41-7	Beryllium	12.8			MS
7440-43-9	Cadmium	0.812	J		MS
7440-47-3	Chromium	2.1			MS
7440-48-4	Cobalt	437			MS
7440-50-8	Copper	2.1			MS
7439-89-6	Iron	264			P
7439-92-1	Lead	0.687	J		MS
7439-96-5	Manganese	396			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	602			MS
7782-49-2	Selenium	4.5			MS
7440-22-4	Silver	0.027	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	8780			P
7439-98-7	Molybdenum	0.090	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-104B-051214

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-017

Level (low/med): LOW Date Received: 5/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.182	J		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	52.7			P
7440-41-7	Beryllium	4.7			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.2			MS
7440-48-4	Cobalt	51.2			MS
7440-50-8	Copper	5.7			MS
7439-89-6	Iron	664			P
7439-92-1	Lead	0.767	J		MS
7439-96-5	Manganese	440			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	61.3			MS
7782-49-2	Selenium	0.279	J		MS
7440-22-4	Silver	0.016	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	1.1	J		P
7440-21-3	Silicon	3640			P
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-105A-051214

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-018

Level (low/med): LOW Date Received: 5/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	53.8			P
7440-41-7	Beryllium	2.9			MS
7440-43-9	Cadmium	0.233	J		MS
7440-47-3	Chromium	2.0			MS
7440-48-4	Cobalt	38.2			MS
7440-50-8	Copper	11.3			MS
7439-89-6	Iron	164			P
7439-92-1	Lead	0.396	J		MS
7439-96-5	Manganese	69.7			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	30.2			MS
7782-49-2	Selenium	1.9	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	1750			P
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-30A-050814

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-005

Level (low/med): LOW Date Received: 5/9/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.1			MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	98.3			P
7440-41-7	Beryllium	0.225	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.3			MS
7440-48-4	Cobalt	2.2			MS
7440-50-8	Copper	4.5			MS
7439-89-6	Iron	132			P
7439-92-1	Lead	0.147	J		MS
7439-96-5	Manganese	18.0			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	7.3			MS
7782-49-2	Selenium	1.9	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	10.2	J		P
7440-21-3	Silicon	3420			P
7439-98-7	Molybdenum	0.364	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-31A-050814

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-006

Level (low/med): LOW Date Received: 5/9/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	90.5			P
7440-41-7	Beryllium	4.9			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.2			MS
7440-48-4	Cobalt	43.2			MS
7440-50-8	Copper	21.9			MS
7439-89-6	Iron	69.1	J		P
7439-92-1	Lead	0.289	J		MS
7439-96-5	Manganese	14.8			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	83.3			MS
7782-49-2	Selenium	0.236	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	12100			P
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-33A-050814

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-008

Level (low/med): LOW Date Received: 5/9/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	17.9	J		P
7440-41-7	Beryllium	1.9			MS
7440-43-9	Cadmium	0.107	J		MS
7440-47-3	Chromium	2.1			MS
7440-48-4	Cobalt	18.2			MS
7440-50-8	Copper	2.2			MS
7439-89-6	Iron	23.1	J		P
7439-92-1	Lead	0.100	J		MS
7439-96-5	Manganese	108			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	14.5			MS
7782-49-2	Selenium	0.255	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	2740			P
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-34B-051214

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-012

Level (low/med): LOW Date Received: 5/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.284	J		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	137			P
7440-41-7	Beryllium	8.8			MS
7440-43-9	Cadmium	0.348	J		MS
7440-47-3	Chromium	3.2			MS
7440-48-4	Cobalt	113			MS
7440-50-8	Copper	31.5			MS
7439-89-6	Iron	13.6	J		P
7439-92-1	Lead	0.089	J		MS
7439-96-5	Manganese	411			P
7439-97-6	Mercury	0.047	J		CV
7440-02-0	Nickel	135			MS
7782-49-2	Selenium	0.807	J		MS
7440-22-4	Silver	0.044	J		MS
7440-28-0	Thallium	0.065	J		MS
7440-62-2	Vanadium	0.522	J		P
7440-21-3	Silicon	3490			P
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-46A-051214

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-015

Level (low/med): LOW Date Received: 5/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.9			MS
7440-38-2	Arsenic	0.910	J		MS
7440-39-3	Barium	191			P
7440-41-7	Beryllium	1.4			MS
7440-43-9	Cadmium	0.251	J		MS
7440-47-3	Chromium	1.8	J		MS
7440-48-4	Cobalt	21.0			MS
7440-50-8	Copper	8.1			MS
7439-89-6	Iron	2200			P
7439-92-1	Lead	5.7			MS
7439-96-5	Manganese	136			P
7439-97-6	Mercury	0.051	J		CV
7440-02-0	Nickel	16.4			MS
7782-49-2	Selenium	0.606	J		MS
7440-22-4	Silver	0.045	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	2.0	J		P
7440-21-3	Silicon	11100			P
7439-98-7	Molybdenum	1.8			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-67A-051314

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-020

Level (low/med): LOW Date Received: 5/15/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.785	U		MS
7440-38-2	Arsenic	3.7	J		MS
7440-39-3	Barium	688			P
7440-41-7	Beryllium	249		E	MS
7440-43-9	Cadmium	10.3			MS
7440-47-3	Chromium	3.8	J		MS
7440-48-4	Cobalt	7550			MS
7440-50-8	Copper	2120			MS
7439-89-6	Iron	9230			P
7439-92-1	Lead	6.5			MS
7439-96-5	Manganese	12600			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	12900			MS
7782-49-2	Selenium	6.4	J		MS
7440-22-4	Silver	0.258	J		MS
7440-28-0	Thallium	1.1	J		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	14200			P
7439-98-7	Molybdenum	0.708	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-68A-051314

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-023

Level (low/med): LOW Date Received: 5/15/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.785	U		MS
7440-38-2	Arsenic	1.4	J		MS
7440-39-3	Barium	2400			P
7440-41-7	Beryllium	168		E	MS
7440-43-9	Cadmium	5.7			MS
7440-47-3	Chromium	2.4	U		MS
7440-48-4	Cobalt	1640			MS
7440-50-8	Copper	84.2			MS
7439-89-6	Iron	173			P
7439-92-1	Lead	0.598	J		MS
7439-96-5	Manganese	6750			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	5640			MS
7782-49-2	Selenium	4.5	J		MS
7440-22-4	Silver	0.391	J		MS
7440-28-0	Thallium	0.153	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	17500			P
7439-98-7	Molybdenum	0.341	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-69A-051314

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-022

Level (low/med): LOW Date Received: 5/15/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.393	J		MS
7440-38-2	Arsenic	1.3			MS
7440-39-3	Barium	73.7			P
7440-41-7	Beryllium	0.034	J	E	MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.5	J		MS
7440-48-4	Cobalt	42.5			MS
7440-50-8	Copper	8.1			MS
7439-89-6	Iron	6700			P
7439-92-1	Lead	0.890	J		MS
7439-96-5	Manganese	1340			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	49.6			MS
7782-49-2	Selenium	0.505	J		MS
7440-22-4	Silver	0.034	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	4460			P
7439-98-7	Molybdenum	0.279	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-96A-051314

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-024

Level (low/med): LOW Date Received: 5/15/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	2.1			MS
7440-39-3	Barium	271			P
7440-41-7	Beryllium	12.8		E	MS
7440-43-9	Cadmium	0.106	J		MS
7440-47-3	Chromium	0.971	J		MS
7440-48-4	Cobalt	491			MS
7440-50-8	Copper	18.7			MS
7439-89-6	Iron	9790			P
7439-92-1	Lead	1.2			MS
7439-96-5	Manganese	4160			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	390			MS
7782-49-2	Selenium	6.4			MS
7440-22-4	Silver	0.033	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	14000			P
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-96B-051314

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Lab Sample ID: R1403433-025

Level (low/med): LOW Date Received: 5/15/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.785	U		MS
7440-38-2	Arsenic	1.1	U		MS
7440-39-3	Barium	576			P
7440-41-7	Beryllium	4.7		E	MS
7440-43-9	Cadmium	1.0	J		MS
7440-47-3	Chromium	2.4	U		MS
7440-48-4	Cobalt	789			MS
7440-50-8	Copper	50.4			MS
7439-89-6	Iron	155			P
7439-92-1	Lead	1.2	J		MS
7439-96-5	Manganese	2730			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	1460			MS
7782-49-2	Selenium	2.8	J		MS
7440-22-4	Silver	0.153	J		MS
7440-28-0	Thallium	0.166	J		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	8970			P
7439-98-7	Molybdenum	0.587	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

00142

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247
Sample Matrix: Water

Service Request: R1403433
Date Analyzed: 5/13/14 - 6/ 9/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1403433-LCS Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	18.2	20.0	91	84 - 112
Ammonia as Nitrogen, undistilled	350.1	0.544	0.500	109	90 - 110
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	9.70	10.0	97	76 - 123
Chloride	300.0	1.93	2.00	97	90 - 110
Nitrate as Nitrogen	300.0	0.966	1.00	97	90 - 110
Nitrite as Nitrogen	300.0	0.961	1.0	96	90 - 110
Orthophosphate as Phosphorus	365.1	0.0260	0.025	104	90 - 110
Silica, Dissolved as SiO2	USGS I-2700-85	0.240	0.250	96	88 - 110
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	864	914	95	90 - 110
Sulfate	300.0	1.95	2.00	98	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/112IC06247	**Date Collected:**	5/12/14 1048
Sample Matrix:	Water	**Date Received:**	5/13/14
Sample Name:	MRC-MW-34B-051214		
Lab Code:	R1403433-012	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0	U	mg/L	2.0	0.3	1	NA	5/14/14 11:20	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	5/27/14 15:37	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**1.1**		mg/L	1.0		1	NA	6/9/14 12:08	
Chloride	300.0	**165**		mg/L	8.0	1.2	40	NA	5/14/14 13:55	
Nitrate as Nitrogen	300.0	**0.5**	J	mg/L	1.0	0.2	10	NA	5/13/14 22:11	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	5/13/14 22:11	
Orthophosphate as Phosphorus	365.1	0.010	U	mg/L	0.010	0.002	1	NA	5/13/14 16:51	
Silica, Dissolved as SiO2	USGS I-2700-85	**8.04**		mg/L	0.10		10	NA	5/30/14 15:09	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**314**		mg/L	10	5	1	NA	5/13/14 13:07	
Sulfate	300.0	**27.3**		mg/L	2.0	1.9	10	NA	5/13/14 22:11	

Appendix C

Support Documentation

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15143

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014	Project Number: E 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd, Ste. 200 Germantown, MD, 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature:	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	PRESERVATIVE: HCl	PRESERVATIVE: HNO3	GCMS VOAs ○ 8260 ○ 624 ○ CLP VOCs	GCMS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)
MRC-MW-102B-050814		5/8/14	0950	Aq	4		X						X	
MRC-MW-102A-050814			1100		3		X							
MRC-MW-101B-050814			1245		3		X							
MRC-MW-101A-050814			1430		3		X							
MRC-MW-30A-050814			0856		1								X	
MRC-MW-31A-050814			0956		1								X	
MRC-MW-32A-050814			1143		3		X							
MRC-MW-33A-050814			1533		4		X						X	
TB-050814			—		2		X							

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Total Metals, Beryllium, Cobalt, Nickel

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED: MRC, Michelle Drive, MD

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	
Printed Name: Josh Mullis	Printed Name: J Seward	Printed Name	Printed Name	Printed Name	
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5/8/14 1630	Date/Time: 5/9/14 0940	Date/Time	Date/Time	Date/Time	

R1403433 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp GW 2014

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-3433

Cooler received on 5/9/14 by: JS

COURIER: ALS UPS ~~FEDEX~~ VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N	5a	**Perchlorate** samples have required headspace?	Y N (NA)
2	**Custody papers** properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y (N) NA
3	Did all bottles arrive in good **condition** (unbroken)?	(Y) N	6	Where did the bottles originate?	~~ALS/ROC~~ CLIENT
4	Circle: ~~Wet Ice~~ **Dry Ice Gel packs** present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 5/9/14 Time: 1057 ID: IR#3 ~~IR#4~~ From: ~~Temp Blank~~ Sample Bottle

Observed Temp (°C)	3.4						
Correction Factor (°C)	+0.9						
Corrected Temp (°C)	4.3						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: cool by JS on 5/9/14 at 1057

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 5/12/14 Time: 0945 by: JS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BD0261358	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112100	4/15				

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 4-032-003, 082613-2AAW

Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15138

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014	Project Number: 112IC06247
Project Manager: Tony Aponavage	Report CC:
Company/Address: Tetra Tech INC 20251 Century Blvd STE 200 Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature: Walt Pa	Sampler's Printed Name: Walt Payson

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: HCl | HNO3

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs (8260) ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	RSK	NH3	Alk	TDS, Cl, SO4, pH	NO3, NO2	Silica	Perchlorate
						VOCs	6020A												
TB-051214	010	5-12-14	—	GW	2	X													
MRC-MW-34A-051214	011		0855		3	X													
MRC-MW-34B-051214	012		1048		9	X					X		X	X	X	X	X	X	
MRC-MW-34C-051214	013		1152		3	X													
MRC-MW-38A-051214	014		1444		4	X												X	
MRC-MW-46A-051214	015		0850		1						X								
MRC-MW-104A-051214	016		1025		3	X													
MRC-MW-104B-051214	017		1130		4	X					X								
MRC-MW-105A-051214	018		1345		1						X								

Preservative Key: 0. NONE; 1. HCl; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
STANDARD
REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
_____ I. Results Only
_____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ N

INVOICE INFORMATION
PO #
BILL TO:

R1403433 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp GW 2014

STATE WHERE SAMPLES WERE COLLECTED: Maryland

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	
Signature: Walt Pa	Signature: J. Seward	Signature	Signature	Signature	Signature
Printed Name: Walt Payson	Printed Name: J. Seward	Printed Name	Printed Name	Printed Name	Printed Name
Firm: TT INC	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5-12-14	Date/Time: 5/13/14 1015	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R1403433

Cooler received on 5/13/14 by: JFS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N
2	Custody papers properly completed (ink, signed)?	Y N
3	Did all bottles arrive in good condition (unbroken)?	Y N
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N

5a	Perchlorate samples have required headspace?	Y N NA
5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
6	Where did the bottles originate?	ALS/ROC CLIENT
7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 5/13/14 Time: 1035 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.7						
Correction Factor (°C)	-0.2						
Corrected Temp (°C)	3.9						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: NOVA by JFS on 5/13/14 at 1035
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: OB 5/13/14

Cooler Breakdown: Date: 5/13/14 Time: 1310 by: [illegible]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB26135B	3/15				
≤2	H_2SO_4	✓		WC12610TD	4/15				
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4/12/20	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 082613-2AAW, 112612-2VV

Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15139

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC- GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: Tetra Tech Inc. 20251 Century Blvd STE 200 Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature: Walt Pr	Sampler's Printed Name: Walt Pryor

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl, HNO3, NaHSO4 —

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs (8260 • 624 • CLP) VOCs	GC/MS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)	1,4 Dioxane	Perchlorate						REMARKS/ ALTERNATE DESCRIPTION
TB-051314	-019	5-13-14	—	GW	3	X														
MRC-MW-67A-051314	-020		0920		1						X									
MRC-MW-69B-051314	-021		1146		6	X							X	X						
MRC-MW-69A-051314	-022		1332		7	X					X		X	X						
MRC-MW-68A-051314	-023		1603		1						X									
MRC-MW-96A-051414	-024	5-14-14	0915		7	X					X		X	X						
MRC-MW-96B-051414	-025		1025		7	X					X		X	X						
~~MRC-MW-49A-051414~~																				
~~MRC-MW-50A-051414~~																				

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
Standard
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
_____ I. Results Only
_____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO:
R1403433

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pr	Signature: [signature]	Signature	Signature	Signature	
Printed Name: Walt Pryor	Printed Name: Greg LaFon	Printed Name	Printed Name	Printed Name	
Firm: TT Inc	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5-14-14	Date/Time: 5/15/14 0935	Date/Time	Date/Time	Date/Time	

R1403433 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp GW 2014

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R1403433

Cooler received on 5/15/14 by: Q

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 5/15/14 Time: 1010 ID: IR#3 (IR#4) From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.1°						
Correction Factor (°C)	+0.9°						
Corrected Temp (°C)	4.0°						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by Q on 5/15/14 at 1013

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: KB 5/15/14

Cooler Breakdown: Date: 5/15/14 Time: 1413 by: JFS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		B0B2613SD	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	411420	4/15				

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 4-032-033, 082613-2NaOH, 112612-ZnV, 021017-1BNC

Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

Client:	Tetra Tech	**Service Request No.:**	R1403433
Project:	Middle River	**Date Received:**	5/9-5/15/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Twenty-five water samples were received for analysis at ALS-Environmental between 5/9/-5/15/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 3.9-4.3°C within the 0-6°C temperature guidelines.

Wet Chemistry

No analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-67A-051314 (R1403433-020) was not applicable for Beryllium, Cobalt, Copper and Nickel as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery.

The Serial dilution for Beryllium on sample MRC-MW-67A-051314 (R1403433-020) was outside of the control limits and has been flagged with a "E". All affected samples have been "E" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
5/20/14- 1,1,2-Trichlorotrifluoroethane, 2-Chloroethyl Vinyl Ether, 4-Isopropyltoluene, Hexachlorobutadiene, n-Butylbenzene, sec-Butylbenzene and tert-Butylbenzene.
5/21/14- , 2-Chloroethyl Vinyl Ether, tert-Butyl Alcohol, Acetone and Hexachlorobutadiene.
5/22/14- 1,1,2-Trichlorotrifluoroethane, 1,2,4-Trimethylbenzene, 2-Chloroethyl Vinyl Ether (>40%), 4-Isopropyltoluene, Ethylbenzene, Hexachlorobutadiene (>40%), Isopropylbenzene, n-Propylbenzene, n-Butylbenzene, sec-Butylbenzene and tert-Butylbenzene.
5/23/14- 1,1,2-Trichlorotrifluoroethane, tert-Butyl Alcohol, 4-Isopropyltoluene, Acetone, Hexachlorobutadiene, n-Propylbenzene, n-Butylbenzene, sec-Butylbenzene and tert-Butylbenzene.
All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

The Method Blanks contained low level hits of Naphthalene on 5/20/14, 5/21/14, 5/22/14 and 1,2,4-Trichlorobenzene and Naphthalene on 5/23/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on sample MRMW-96A-051314 (R1403433-024). All exceedences have been flagged with a "*". The Matrix Spike and Duplicate Matrix Spike for cis-1,2-Dichloroethene were not applicable as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery. These have been flagged with a "#". All QC was within limits.

The Laboratory Control Sample was outside of the control limits high for tert-Butyl Alcohol on 5/20/14 and 5/22/14. These have been flagged with a "*". The high bias allows for appropriate sensitivity. There were no hits for this compound and no data was affected.

Approved by _____ **Date** 6/25/14

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Samples MRC-MW-102B-050814 (R1403433-001) and MRC-MW-102A-050814 (R1403433-002) were originally analyzed within the method specified holding time of 14 days. The samples were repeated outside of the method specified holding time and have been flagged with a "*". Both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The 5/16/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

Site specific QC was not requested but was analyzed on sample MRC-MW-69B-051314 (R1403433-021). All QC was within limits.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ Date 6/25/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #: 112IC06247	Batch Complete: Yes		Date Revised:
Submission: R1403433	Diskette Requested: No		Date Due: 6/17/14
Client: Tetra Tech GEO	Date: 6/10/14		Protocol: SW846
Client Rep: DPATTON	Custody Seal: Present/Absent:		Shipping No.:
Project: Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1403433-001	MRC-MW-102B-050814	Water	8260C, 6020A, 7470A, 6010C	5/8/14	5/9/14			
R1403433-001.R01	MRC-MW-102B-050814	Water	8260C	5/8/14	5/9/14			
R1403433-002	MRC-MW-102A-050814	Water	8260C	5/8/14	5/9/14			
R1403433-002.R01	MRC-MW-102A-050814	Water	8260C	5/8/14	5/9/14			
R1403433-003	MRC-MW-101B-050814	Water	8260C	5/8/14	5/9/14			
R1403433-004	MRC-MW-101A-050814	Water	8260C	5/8/14	5/9/14			
R1403433-005	MRC-MW-30A-050814	Water	6010C, 6020A, 7470A	5/8/14	5/9/14			
R1403433-006	MRC-MW-31A-050814	Water	6020A, 7470A, 6010C	5/8/14	5/9/14			
R1403433-007	MRC-MW-32A-050814	Water	8260C	5/8/14	5/9/14			
R1403433-008	MRC-MW-33A-050814	Water	6010C, 6020A, 8260C, 7470A	5/8/14	5/9/14			
R1403433-009	TB-050814	Water	8260C	5/8/14	5/9/14			
R1403433-010	TB-051214	Water	8260C	5/12/14	5/13/14			
R1403433-011	MRC-MW-34A-051214	Water	8260C	5/12/14	5/13/14			
R1403433-012	MRC-MW-34B-051214	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, SM 2320 B-1997(2011), SM 2540 C-1997(2011), SM 5310B/C-2000(2011)	5/12/14	5/13/14			
R1403433-013	MRC-MW-34C-051214	Water	8260C	5/12/14	5/13/14			
R1403433-014	MRC-MW-38A-051214	Water	6850, 8260C	5/12/14	5/13/14			
R1403433-015	MRC-MW-46A-051214	Water	6010C, 6020A, 7470A	5/12/14	5/13/14			
R1403433-016	MRC-MW-104A-051214	Water	8260C	5/12/14	5/13/14			
R1403433-017	MRC-MW-104B-051214	Water	6010C, 6020A, 8260C, 7470A	5/12/14	5/13/14			
R1403433-018	MRC-MW-105A-051214	Water	6020A, 7470A, 6010C	5/12/14	5/13/14			
R1403433-019	TB-051314	Water	8260C	5/13/14	5/15/14			
R1403433-020	MRC-MW-67A-051314	Water	7470A, 6020A, 6010C	5/13/14	5/15/14			
R1403433-021	MRC-MW-69B-051314	Water	6850, 522, 8260C	5/13/14	5/15/14			
R1403433-022	MRC-MW-69A-051314	Water	7470A, 522, 6010C, 6020A, 8260C, 6850	5/13/14	5/15/14			
R1403433-023	MRC-MW-68A-051314	Water	6020A, 6010C, 7470A	5/13/14	5/15/14			
R1403433-024	MRC-MW-96A-051314	Water	7470A, 6850, 6010C, 6020A, 8260C, 522	5/14/14	5/15/14			
R1403433-024.R01	MRC-MW-96A-051314	Water	8260C	5/14/14	5/15/14			
R1403433-025	MRC-MW-96B-051314	Water	6020A, 8260C, 522, 7470A, 6850, 6010C	5/14/14	5/15/14			
R1403433-025.R01	MRC-MW-96B-051314	Water	8260C	5/14/14	5/15/14			

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1403433 SDG No.: MRC-MW-102B

Lab Code: _____ Case No.: _____ SAS No.: _____

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-102B-050814	R1403433-001
MRC-MW-102B-050814D	R1403433-001D
MRC-MW-102B-050814S	R1403433-001S
MRC-MW-30A-050814	R1403433-005
MRC-MW-30A-050814D	R1403433-005D
MRC-MW-30A-050814S	R1403433-005S
MRC-MW-30A-050814S	R1403433-005S-SI
MRC-MW-31A-050814	R1403433-006
MRC-MW-33A-050814	R1403433-008
MRC-MW-34B-051214	R1403433-012
MRC-MW-46A-051214	R1403433-015
MRC-MW-104B-051214	R1403433-017
MRC-MW-105A-051214	R1403433-018
MRC-MW-67A-051314	R1403433-020
MRC-MW-67A-051314D	R1403433-020D
MRC-MW-67A-051314S	R1403433-020S
MRC-MW-69A-051314	R1403433-022
MRC-MW-68A-051314	R1403433-023
MRC-MW-96A-051314	R1403433-024
MRC-MW-96B-051314	R1403433-025

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: _____ Name: _____

Date: 6/25/14 Title: Project Manager

METALS

-10-

DETECTION LIMITS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 3 Date: 3/20/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Silicon	252.851		1000.0	161.0	P

Comments: _____

01163

METALS

-10-

DETECTION LIMITS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 4 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Barium	233.529		20.0	3.0	P
Manganese	257.610		10.0	1.3	P
Vanadium	292.402		50.0	0.5	P

Comments: _____

01164

METALS

-10-

DETECTION LIMITS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 5 Date: 3/18/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Iron	273.955		100.0	12.9	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL mg/Kg	MDL mg/Kg	M
Mercury	253.70	BD	0.200	0.024	CV

Comments: _____

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 3 Date: 3/31/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.836	0.0954007	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0099568	0.0000000	-0.0801871	0.0000000
Barium	233.527	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	4.4044499	0.0000000
Cadmium	226.502	-0.0035345	0.0000000	0.1333330	0.0000000
Calcium	227.546	-2.9304600	0.0000000	-53.8955002	0.0000000
Chromium	267.716	0.0031845	0.0000000	-0.0140317	-0.1262880
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1145200	0.0000000
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1338530	0.0000000	0.0438866	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	-0.1267620	0.0000000
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0281652	0.0000000	-0.2522740	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.2778280	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0764274	0.0099938	-0.0434154	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0437078	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments: _____

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 4 Date: 5/21/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Mo
Aluminum	308.215	0.0000000	0.2182520	0.0000000	0.1277700	17.7376003
Antimony	206.836	0.0000000	0.0000000	0.0000000	0.0000000	-2.7291999
Arsenic	188.979	0.0262458	0.0000000	-0.1090120	0.0000000	3.6858201
Barium	233.527	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.2080200	0.1125670	5.6524801	0.0000000	0.0000000
Cadmium	226.502	-0.0035689	0.0000000	0.0920004	0.0000000	0.0000000
Calcium	227.546	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0021197	-0.0534332	-0.0215615	-0.1136230
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000	-0.2171010
Copper	324.752	0.0000000	0.0000000	-0.1880200	0.0283253	0.8045420
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0159475	-1.1048200
Lead	220.353	-0.1269440	-0.0150347	0.0000000	-0.0069978	-1.7022901
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	0.0215778	0.0198022	-0.3839170	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0513917	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	-4.9455299	-1.0395401	-54.2507019
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0185976	0.0000000	-0.0409431	-0.0148306	-0.6302190
Tin	189.927	0.0000000	-0.1482270	0.0000000	0.0000000	5.4941502
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	-0.0447080	0.0000000	-0.2022050
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 5 Date: 3/28/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.5893060	0.8765780	0.1292730
Antimony	206.836	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0240560	0.0000000	0.0000000	0.0000000
Barium	233.527	0.0255740	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	0.4806460	0.0000000
Cadmium	226.502	0.0000000	0.0025720	0.0450680	0.0000000
Calcium	227.546	0.0000000	0.0000000	-3.4537430	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0949220	0.0000000
Cobalt	228.616	-0.0231900	0.0000000	0.0167570	0.0000000
Copper	324.752	0.0000000	0.0000000	0.0000000	0.0000000
Iron	273.955	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0205230	0.1069300	0.0825500	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000
Molybdenum	202.031	0.0385450	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0247380	0.0148540	-0.6377590	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.1312780	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	-0.0222350	0.0000000	-0.0652490	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Silicon	0.200	20000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 4 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Barium	0.200	40000	P
Manganese	0.200	10000	P
Vanadium	0.200	10000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 5 Date: 3/19/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Iron	0.200	100000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: PE ICPMS Date: 5/9/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Antimony	0.100	200	MS
Arsenic	0.100	200	MS
Beryllium	0.100	200	MS
Cadmium	0.100	200	MS
Chromium	0.100	200	MS
Cobalt	0.100	200	MS
Copper	0.100	200	MS
Lead	0.100	200	MS
Nickel	0.100	200	MS
Selenium	0.100	200	MS
Silver	0.100	100	MS
Thallium	0.100	200	MS
Molybdenum	0.100	200	MS

Comments: _____

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	597	2075	0.657	
Be	9.012	9.028	2052	2065	0.707	
Mg	23.985	24.028	5690	2075	0.709	
Co	58.933	58.929	14193	2070	0.722	
Rh	102.905	102.878	24891	2105	0.725	
In	114.904	114.928	27816	2130	0.720	
Ba	137.905	137.929	33427	2145	0.717	
Ce	139.905	139.878	33889	2145	0.711	
Pb	207.977	207.979	50464	2190	0.728	
U	238.050	238.026	57779	2220	0.721	

01179

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.027	588	2075	0.662	
Be	9.012	9.028	2051	2065	0.690	
Mg	23.985	24.028	5688	2075	0.699	
Co	58.933	58.979	14203	2070	0.712	
Rh	102.905	102.928	24902	2105	0.707	
In	114.904	114.878	27815	2130	0.707	
Ba	137.905	137.929	33414	2145	0.681	
Ce	139.905	139.879	33900	2145	0.693	
Pb	207.977	207.928	50452	2190	0.719	
U	238.050	238.026	57785	2220	0.697	

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.027	579	2065	0.718	
Be	9.012	8.978	2055	2065	0.688	
Mg	23.985	24.028	5676	2075	0.682	
Co	58.933	58.979	14180	2070	0.721	
Rh	102.905	102.878	24878	2105	0.730	
In	114.904	114.928	27815	2130	0.725	
Ba	137.905	137.879	33402	2145	0.700	
Ce	139.905	139.878	33888	2145	0.705	
Pb	207.977	207.979	50464	2190	0.731	
U	238.050	238.028	57768	2220	0.729	

METALS

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PREPARATION LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-05081

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	5/27/2014	25.0	25.0
PBW	5/27/2014	25.0	25.0
MRC-MW-102B-050814	5/27/2014	25.0	25.0
MRC-MW-102B-050814D	5/27/2014	25.0	25.0
MRC-MW-102B-050814S	5/27/2014	25.0	25.0
MRC-MW-30A-050814	5/27/2014	25.0	25.0
MRC-MW-31A-050814	5/27/2014	25.0	25.0
MRC-MW-33A-050814	5/27/2014	25.0	25.0
MRC-MW-34B-051214	5/27/2014	25.0	25.0
MRC-MW-46A-051214	5/27/2014	25.0	25.0
MRC-MW-104B-051214	5/27/2014	25.0	25.0
MRC-MW-105A-051214	5/27/2014	25.0	25.0
MRC-MW-67A-051314	5/27/2014	25.0	25.0
MRC-MW-69A-051314	5/27/2014	25.0	25.0
MRC-MW-68A-051314	5/27/2014	25.0	25.0
MRC-MW-96A-051314	5/27/2014	25.0	25.0
MRC-MW-96B-051314	5/27/2014	25.0	25.0

Comments:

ALS Environmental

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-102B-050814S

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75 - 125	1.090		0.024	U	1.00	109		CV

Comments:

~~31143~~

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-102B-050814D

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 100.0 % Solids for Duplicate: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Mercury		0.024	U	0.030	J	200.0		CV

Comments:

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 5/28/2014 End Date: 5/28/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	01:41																X									
0.2ppb std	1.00	01:43																X									
0.5ppb std	1.00	01:44																X									
1.0ppb std	1.00	01:46																X									
2.0ppb std	1.00	01:48																X									
5.0ppb std	1.00	01:49																X									
10.0ppb std	1.00	01:51																X									
ICV1	1.00	01:52																X									
ICB1	1.00	01:54																X									
CRDL1	1.00	01:56																X									
CCV1	1.00	01:57																X									
CCB1	1.00	01:59																X									
PBW	1.00	02:00																X									
LCSW	1.00	02:02																X									
MRC-MW-102B-050814	1.00	02:04																X									
MRC-MW-102B-050814	1.00	02:05																X									
MRC-MW-102B-050814	1.00	02:07																X									
MRC-MW-30A-050814	1.00	02:09																X									
MRC-MW-31A-050814	1.00	02:10																X									
MRC-MW-33A-050814	1.00	02:12																X									
CCV2	1.00	02:13																X									
CCB2	1.00	02:15																X									
MRC-MW-34B-051214	1.00	02:17																X									
MRC-MW-46A-051214	1.00	02:18																X									
MRC-MW-104B-051214	1.00	02:20																X									
MRC-MW-105A-051214	1.00	02:22																X									
MRC-MW-67A-051314	1.00	02:23																X									
MRC-MW-69A-051314	1.00	02:25																X									
MRC-MW-68A-051314	1.00	02:27																X									
MRC-MW-96A-051314	1.00	02:28																X									
CCV3	1.00	02:30																X									
CCB3	1.00	02:31																X									
MRC-MW-96B-051314	1.00	02:33																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

-14-

ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 5/28/2014 End Date: 5/28/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	02:35																										
ZZZZZZ	1.00	02:36																										
ZZZZZZ	1.00	02:38																										
ZZZZZZ	1.00	02:40																										
ZZZZZZ	1.00	02:41																										
CRDL2	1.00	02:43																X										
CCV4	1.00	02:45																X										
CCB4	1.00	02:46																X										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Mercury	0.200	0.199	100					

Comments:

Analytical Results Summary

Instrument Name: R-Buret-01 **Analyst:** AGRAHAM **Analysis Lot:** 392539 **Method/Testcode:** SM 2320 B-1997(2011)/Alkalinity

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
RQ1405103-02	Alkalinity, Total as CaCO3	MB		Water	1.80 mg/L	100 mL	1.8 mg/L J	1	0.3	2.0			5/14/14 08:34	N	II
RQ1405103-01	Alkalinity, Total as CaCO3	LCS		Water	18.20 mg/L	100 mL	18.2 mg/L	1	0.3	2.0	91		5/14/14 08:34	N	II
R1403419-010	Alkalinity, Total as CaCO3	N/A		Water	-0.80 mg/L	100 mL	2.0 mg/L U	1	0.3	2.0			5/14/14 11:20	N	II
R1403405-001	Alkalinity, Total as CaCO3	N/A		Water	35.00 mg/L	60 mL	35.0 mg/L	1	0.3	2.0			5/14/14 08:34	N	II
RQ1405103-03	Alkalinity, Total as CaCO3	DUP	R1403405-001	Water	35.00 mg/L	60 mL	35.0 mg/L	1	0.3	2.0		<1	5/14/14 08:34	N	II
RQ1405103-04	Alkalinity, Total as CaCO3	MS	R1403405-001	Water	64.67 mg/L	60 mL	64.7 mg/L	1	0.3	2.0	89		5/14/14 08:34	N	II
R1403405-002	Alkalinity, Total as CaCO3	N/A		Water	73.33 mg/L	30 mL	73.3 mg/L	1	0.3	2.0			5/14/14 08:34	N	II
R1403405-003	Alkalinity, Total as CaCO3	N/A		Water	141.33 mg/L	15 mL	141 mg/L	1	0.3	2.0			5/14/14 08:34	N	II
R1403405-004	Alkalinity, Total as CaCO3	N/A		Water	106.00 mg/L	20 mL	106 mg/L	1	0.3	2.0			5/14/14 08:34	N	II
R1403476-002	Alkalinity, Total as CaCO3	N/A		Water	258.00 mg/L	10 mL	258 mg/L	1	0.3	2.0			5/14/14 08:34	N	III
R1403476-006	Alkalinity, Total as CaCO3	N/A		Water	218.00 mg/L	10 mL	218 mg/L	1	0.3	2.0			5/14/14 08:34	N	III
RQ1405103-05	Alkalinity, Total as CaCO3	DUP	R1403476-006	Water	220.00 mg/L	10 mL	220 mg/L	1	0.3	2.0		<1	5/14/14 08:34	N	III
RQ1405103-06	Alkalinity, Total as CaCO3	MS	R1403476-006	Water	410.00 mg/L	10 mL	410 mg/L	1	0.3	2.0	96		5/14/14 08:34	N	III
R1403476-010	Alkalinity, Total as CaCO3	N/A		Water	424.00 mg/L	5 mL	424 mg/L	1	0.3	2.0			5/14/14 08:34	N	III
R1403433-012	Alkalinity, Total as CaCO3	N/A		Water	-0.60 mg/L	100 mL	2.0 mg/L U	1	0.3	2.0			5/14/14 11:20	N	IV
R1403464-002	Alkalinity, Total as CaCO3	N/A		Water	764.00 mg/L	5 mL	764 mg/L	1	0.3	2.0			5/14/14 08:34	N	II
R1403478-001	Alkalinity, Total as CaCO3	N/A		Water	141.33 mg/L	15 mL	141 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV
R1403478-003	Alkalinity, Total as CaCO3	N/A		Water	62.29 mg/L	35 mL	62.3 mg/L	1	0.3	2.0			5/14/14 08:34	Y	IV
RQ1405103-07	Alkalinity, Total as CaCO3	DUP	R1403478-003	Water	62.86 mg/L	35 mL	62.9 mg/L	1	0.3	2.0		<1	5/14/14 08:34	N	IV
RQ1405103-08	Alkalinity, Total as CaCO3	MS	R1403478-003	Water	113.71 mg/L	35 mL	114 mg/L	1	0.3	2.0	90		5/14/14 08:34	N	IV
R1403478-005	Alkalinity, Total as CaCO3	N/A		Water	127.50 mg/L	20 mL	128 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV
R1403478-007	Alkalinity, Total as CaCO3	N/A		Water	111.00 mg/L	20 mL	111 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV
R1403478-009	Alkalinity, Total as CaCO3	N/A		Water	96.00 mg/L	25 mL	96.0 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV
R1403489-001	Alkalinity, Total as CaCO3	N/A		Water	114.00 mg/L	20 mL	114 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV
R1403489-003	Alkalinity, Total as CaCO3	N/A		Water	220.00 mg/L	10 mL	220 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV
R1403489-005	Alkalinity, Total as CaCO3	N/A		Water	76.67 mg/L	30 mL	76.7 mg/L	1	0.3	2.0			5/14/14 08:34	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403433
Project:	Middle River- Lockheed Martin Corp GW 2014/1121C06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1403433-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	1.8	J	mg/L	2.0	0.3	1	NA	5/14/14 08:34	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	5/27/14 15:18	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0		1	NA	6/9/14 11:26	
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	5/14/14 09:06	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	0.02	1	NA	5/13/14 20:59	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	0.03	1	NA	5/13/14 20:59	
Orthophosphate as Phosphorus	365.1	0.010	U	mg/L	0.010	0.002	1	NA	5/13/14 16:42	
Silica, Dissolved as SiO2	USGS I-2700-85	0.010	U	mg/L	0.010		1	NA	5/30/14 14:42	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10	U	mg/L	10	5	1	NA	5/13/14 13:07	
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	5/13/14 20:59	

NA no (+)

Client: Tetra Tech GEO **Service Request:** R1403433

Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Continuing Calibration Verification (CCV) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	394475	RQ1405729-03	5/27/14 15:13	0.900	0.951	106	90 - 110
CCV2	394475	RQ1405729-06	5/27/14 15:28	0.900	0.958	106	90 - 110
CCV3	394475	RQ1405729-09	5/27/14 15:40	0.900	0.954	106	90 - 110
CCV4	394475	RQ1405729-12	5/27/14 15:52	0.900	0.964	107	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Blank (CCB) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	394475	RQ1405729-04	5/27/14 15:18	0.004	0.050	0.050	U
CCB2	394475	RQ1405729-05	5/27/14 15:29	0.004	0.050	0.050	U
CCB3	394475	RQ1405729-10	5/27/14 15:41	0.004	0.050	0.050	U
CCB4	394475	RQ1405729-11	5/27/14 15:53	0.004	0.050	0.050	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Verification (CCV) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011)

Units: ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396325	RQ1406338-01	6/9/14 10:18	15.0	15.4	103	85 - 115
CCV2	396325	RQ1406338-02	6/9/14 14:40	15.0	15.4	102	85 - 115

Client: Tetra Tech GEO

Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Blank (CCB) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011)

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	396325	RQ1406338-03	6/9/14 10:39		1.0	1.0	U
CCB2	396325	RQ1406338-04	6/9/14 15:00		1.0	1.0	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	392652	RQ1405119-09	5/14/14 08:56	3.25	3.27	101	90 - 110
CCV2	392652	RQ1405119-10	5/14/14 11:19	3.25	3.24	100	90 - 110
CCV3	392652	RQ1405119-11	5/14/14 13:24	3.25	3.29	101	90 - 110
CCV4	392652	RQ1405119-12	5/14/14 15:51	3.25	3.23	99	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Blank (CCB) Summary
Chloride

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	392652	RQ1405119-05	5/14/14 09:06	0.03	0.20	0.20	U
CCB2	392652	RQ1405119-06	5/14/14 11:30	0.03	0.20	0.20	U
CCB3	392652	RQ1405119-07	5/14/14 13:34	0.03	0.20	0.20	U
CCB4	392652	RQ1405119-08	5/14/14 16:02	0.03	0.20	0.20	U

Client: Tetra Tech GEO **Service Request:** R1403433

Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Continuing Calibration Verification (CCV) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	392477	RQ1405070-05	5/13/14 20:48	1.80	1.79	99	90 - 110
CCV2	392477	RQ1405070-06	5/13/14 22:53	1.80	1.80	100	90 - 110

Client: Tetra Tech GEO **Service Request:** R1403433

Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Continuing Calibration Blank (CCB) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	392477	RQ1405070-07	5/13/14 20:59	0.02	0.10	0.10	U
CCB2	392477	RQ1405070-08	5/13/14 23:03	0.02	0.10	0.10	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Verification (CCV) Summary
Nitrite as Nitrogen

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	392477	RQ1405070-05	5/13/14 20:48	1.80	1.87	104	90 - 110
CCV2	392477	RQ1405070-06	5/13/14 22:53	1.80	1.89	105	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Blank (CCB) Summary
Nitrite as Nitrogen

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	392477	RQ1405070-07	5/13/14 20:59	0.03	0.10	0.10	U
CCB2	392477	RQ1405070-08	5/13/14 23:03	0.03	0.10	0.10	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Verification (CCV) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	392662	RQ1405127-01	5/13/14 16:41	0.0450	0.0461	102	90 - 110
CCV2	392662	RQ1405127-07	5/13/14 16:53	0.0450	0.0480	107	90 - 110

Client: Tetra Tech GEO **Service Request:** R1403433

Project: Middle River- Lockheed Martin Corp GW 2014/1121C06247

Continuing Calibration Blank (CCB) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	392662	RQ1405127-02	5/13/14 16:42	0.002	0.010	ND	U
CCB2	392662	RQ1405127-08	5/13/14 16:54	0.002	0.010	ND	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Verification (CCV) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	394928	RQ1405874-03	5/30/14 14:41	0.400	0.423	106	90 - 110
CCV2	394928	RQ1405874-06	5/30/14 15:03	0.400	0.434	108	90 - 110
CCV3	394928	RQ1405874-10	5/30/14 15:22	0.400	0.427	107	90 - 110
CCV4	394928	RQ1405874-14	5/30/14 15:39	0.400	0.416	104	90 - 110

Client: Tetra Tech GEO

Project: Middle River- Lockheed Martin Corp GW 2014/1121C06247

Service Request: R1403433

Continuing Calibration Blank (CCB) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MRL	Result	Q
CCB1	394928	RQ1405874-04	5/30/14 14:42	0.010	0.010	U
CCB2	394928	RQ1405874-05	5/30/14 15:04	0.010	0.010	U
CCB3	394928	RQ1405874-09	5/30/14 15:23	0.010	0.010	U
CCB4	394928	RQ1405874-13	5/30/14 15:40	0.010	0.010	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Service Request: R1403433

Continuing Calibration Verification (CCV) Summary
Sulfate

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	392477	RQ1405070-05	5/13/14 20:48	3.20	3.07	96	90 - 110
CCV2	392477	RQ1405070-06	5/13/14 22:53	3.20	3.26	102	90 - 110

Client: Tetra Tech GEO **Service Request:** R1403433

Project: Middle River- Lockheed Martin Corp GW 2014/112IC06247

Continuing Calibration Blank (CCB) Summary
Sulfate

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	392477	RQ1405070-07	5/13/14 20:59	0.19	0.20	0.20	U
CCB2	392477	RQ1405070-08	5/13/14 23:03	0.19	0.20	0.20	U

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PREPARATION LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-05081

Method: MS 6020A

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	5/16/2014	50.0	50.0
PBW	5/16/2014	50.0	50.0
MRC-MW-102B-050814	5/16/2014	50.0	50.0
MRC-MW-30A-050814	5/16/2014	50.0	50.0
MRC-MW-31A-050814	5/16/2014	50.0	50.0
MRC-MW-33A-050814	5/16/2014	50.0	50.0
MRC-MW-34B-051214	5/16/2014	50.0	50.0
MRC-MW-46A-051214	5/16/2014	50.0	50.0
MRC-MW-104B-051214	5/16/2014	50.0	50.0
MRC-MW-105A-051214	5/16/2014	50.0	50.0

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	20	21.00	105					
Arsenic	20	20.20	101					
Barium	2000	2000	100					
Beryllium	20	20.30	102					
Cadmium	20	21.40	107					
Chromium	20	21.80	109					
Cobalt	20	21.10	106					
Copper	20	21.00	105					
Iron	1000	1100	110					
Lead	20	22.20	111					
Manganese	500	498	100					
Mercury	1.000	1.040	104					
Nickel	20	20.80	104					
Selenium	20	20.30	102					
Silver	20	20.60	103					
Thallium	20	21.60	108					
Vanadium	500	479	96					
Silicon	5000	4560	91					
Molybdenum	20	21.90	110					

Comments: _____

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-105A-051214L

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	0.16	U	0.79	U			MS
Arsenic	0.21	U	1.06	U			MS
Beryllium	2.85		2.93	J	3		MS
Cadmium	0.23	J	0.18	J	22		MS
Chromium	2.04		2.35	U	100.0		MS
Cobalt	38.15		36.55		4		MS
Copper	11.32		12.21		8		MS
Lead	0.40	J	0.71	J	78		MS
Nickel	30.23		29.64		2		MS
Selenium	1.85	J	2.02	J	9		MS
Silver	0.02	U	0.08	U			MS
Thallium	0.03	U	0.15	U			MS
Molybdenum	0.07	U	0.34	U			MS

Comments: _____

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 5/21/2014 End Date: 5/21/2014 6020

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	14:19			X	X		X	X		X	X	X		X				X		X	X		X				*
Standard 1	1.00	14:26			X	X		X	X		X	X	X		X				X		X	X		X				*
Standard 2	1.00	14:32			X	X		X	X		X	X	X		X				X		X	X		X				*
Standard 3	1.00	14:39			X	X		X	X		X	X	X		X				X		X	X		X				*
ICV1	1.00	14:45			X	X		X	X		X	X	X		X				X		X	X		X				*
ICB1	1.00	14:51			X	X		X	X		X	X	X		X				X		X	X		X				*
CRDL1	1.00	14:58			X	X		X	X		X	X	X		X				X		X	X		X				*
ICS-A1	1.00	15:04			X	X		X	X		X	X	X		X				X		X	X		X				*
ICS-AB1	1.00	15:11			X	X		X	X		X	X	X		X				X		X	X		X				*
CCV1	1.00	15:17			X	X		X	X		X	X	X		X				X		X	X		X				*
CCB1	1.00	15:24			X	X		X	X		X	X	X		X				X		X	X		X				*
ZZZZZZ	1.00	15:30																											
PBW	1.00	15:36			X	X		X	X		X	X	X		X				X		X	X		X				*
LCSW	1.00	15:43			X	X		X	X		X	X	X		X				X		X	X		X				*
ZZZZZZ	1.00	15:49																											
ZZZZZZ	1.00	15:56																											
ZZZZZZ	1.00	16:02																											
ZZZZZZ	1.00	16:08																											
ZZZZZZ	5.00	16:15																											
ZZZZZZ	1.00	16:21																											
ZZZZZZ	1.00	16:28																											
CCV2	1.00	16:34			X	X		X	X		X	X	X		X				X		X	X		X				*
CCB2	1.00	16:40			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-102B-050814	1.00	16:47			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-102B-050814	10.00	16:53										X							X									
MRC-MW-30A-050814	1.00	17:00			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-31A-050814	1.00	17:06			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-33A-050814	1.00	17:13			X	X		X	X		X	X	X		X				X		X	X		X				*
CCV3	1.00	17:19			X	X		X	X		X	X	X		X				X		X	X		X				*
CCB3	1.00	17:26			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-34B-051214	1.00	17:32			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-46A-051214	1.00	17:39			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-104B-051214	1.00	17:45			X	X		X	X		X	X	X		X				X		X	X		X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 5/21/2014 End Date: 5/21/2014

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
MRC-MW-105A-051214	1.00	17:51			X	X		X	X		X	X	X		X				X		X	X		X				*
MRC-MW-105A-051214	5.00	17:58			X	X		X	X		X	X	X		X				X		X	X		X				*
CRDL3	1.00	18:04			X	X		X	X		X	X	X		X				X		X	X		X				*
CCV4	1.00	18:11			X	X		X	X		X	X	X		X				X		X	X		X				*
CCB4	1.00	18:17			X	X		X	X		X	X	X		X				X		X	X		X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 5/21/2014 End Date: 5/21/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
Blank	1.00	14:19					X																				
Standard 1	1.00	14:26					X																				
Standard 2	1.00	14:32					X																				
Standard 3	1.00	14:39					X																				
ICV1	1.00	14:45					X																				
ICB1	1.00	14:51					X																				
CRDL1	1.00	14:58					X																				
ICS-A1	1.00	15:04					X																				
ICS-AB1	1.00	15:11					X																				
CCV1	1.00	15:17					X																				
CCB1	1.00	15:24					X																				
ZZZZZZ	1.00	15:30																									
PBW	1.00	15:36					X																				
LCSW	1.00	15:43					X																				
ZZZZZZ	1.00	15:49																									
ZZZZZZ	1.00	15:56																									
ZZZZZZ	1.00	16:02																									
ZZZZZZ	1.00	16:08																									
ZZZZZZ	5.00	16:15																									
ZZZZZZ	1.00	16:21																									
ZZZZZZ	1.00	16:28																									
CCV2	1.00	16:34					X																				
CCB2	1.00	16:40					X																				
MRC-MW-102B-050814	1.00	16:47					X																				
MRC-MW-102B-050814	10.00	16:53																									
MRC-MW-30A-050814	1.00	17:00					X																				
MRC-MW-31A-050814	1.00	17:06					X																				
MRC-MW-33A-050814	1.00	17:13					X																				
CCV3	1.00	17:19					X																				
CCB3	1.00	17:26					X																				
MRC-MW-34B-051214	1.00	17:32					X																				
MRC-MW-46A-051214	1.00	17:39					X																				
MRC-MW-104B-051214	1.00	17:45					X																				
MRC-MW-105A-051214	1.00	17:51					X																				

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 5/21/2014 End Date: 5/21/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
MRC-MW-105A-051214L	5.00	17:58					X																					
CRDL3	1.00	18:04					X																					
CCV4	1.00	18:11					X																					
CCB4	1.00	18:17					X																					

METALS

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ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403433

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-102B-

ICP-MS Instrument ID: PE ICPMS Start Date: 5/21/2014 End Date: 5/21/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Li	Q	Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q
Blank	Blank	14:19	100		100		100		100		100		100	
Standard 1	Standard 1	14:26	97		103		101		105		104		101	
Standard 2	Standard 2	14:32	101		105		104		107		107		104	
Standard 3	Standard 3	14:39	99		104		100		105		105		102	
ICV1	ICV1	14:45	105		107		107		107		109		102	
ICB1	ICB1	14:51	108		107		107		107		110		109	
CRDL1	CRDL1	14:58	110		111		110		112		113		105	
ICS-A1	ICS-A1	15:04	115		110		111		115		115		107	
ICS-AB1	ICS-AB1	15:11	122		116		113		122		123		113	
CCV1	CCV1	15:17	117		118		116		119		124		115	
CCB1	CCB1	15:24	120		119		120		118		124		116	
PBW-208635	PBW	15:36	117		114		115		117		120		114	
LCSW-208635	LCSW	15:43	118		118		116		119		122		113	
CCV2	CCV2	16:34	113		116		119		115		119		114	
CCB2	CCB2	16:40	117		118		120		115		120		115	
R1403433-00	MRC-MW-102B-0508	16:47	150	*	113		118		119		141	*	115	
R1403433-00	MRC-MW-102B-0508	16:53	119		119		117		120		124		114	
R1403433-00	MRC-MW-30A-05081	17:00	119		100		105		100		115		101	
R1403433-00	MRC-MW-31A-05081	17:06	139	*	113		118		120		145	*	114	
R1403433-00	MRC-MW-33A-05081	17:13	139	*	123		126	*	128	*	137	*	121	
CCV3	CCV3	17:19	123		123		126	*	123		126	*	119	
CCB3	CCB3	17:26	124		123		124		122		127	*	121	
R1403433-01	MRC-MW-34B-05121	17:32	142	*	114		124		125		136	*	120	
R1403433-01	MRC-MW-46A-05121	17:39	134	*	115		118		117		142	*	114	
R1403433-01	MRC-MW-104B-0512	17:45	126	*	104		119		107		122		113	
R1403433-01	MRC-MW-105A-0512	17:51	123		105		116		110		118		114	
R1403433-01	MRC-MW-105A-0512	17:58	125		118		123		121		124		119	
CRDL3	CRDL3	18:04	126	*	122		123		122		125	*	117	
CCV4	CCV4	18:11	124		119		120		120		124		115	
CCB4	CCB4	18:17	125		118		122		118		125		121	

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD 5/21/14 6020A analytes

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	48	96	50	49	98	49	98	MS
Arsenic	50	49	98	50	49	98	49	98	MS
Barium	10000	9920	99	10000	10000	100	9950	100	P
Beryllium	50	46	92	50	50	100	49	98	MS
Cadmium	50	49	98	50	52	104	50	100	MS
Chromium	50	49	98	50	48	96	49	98	MS
Cobalt	50	49	98	50	49	98	49	98	MS
Copper	50	49	98	50	49	98	49	98	MS
Iron	5000	5110	102	5000	5160	103	5170	103	P
Lead	50	49	98	50	51	102	52	104	MS
Manganese	750	727	97	750	743	99	750	100	P
Mercury	3.00	3.04	101	3.00	3.04	101	3.09	103	CV
Nickel	50	49	98	50	50	100	50	100	MS
Selenium	50	49	98	50	48	96	49	98	MS
Silver	50	50	100	50	51	102	51	102	MS
Thallium	50	48	96	50	49	98	50	100	MS
Vanadium	2500	2360	94	2500	2430	97	2470	99	P
Silicon	5000	4700	94	5000	4780	96	4690	94	P
Molybdenum	50	51	102	50	52	104	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD 5/21/14 6020A

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	49	98	49	98	MS
Arsenic				50	49	98	48	96	MS
Beryllium				50	48	96	47	94	MS
Barium				10000	9840	98	9740	97	P
Cadmium				50	51	102	50	100	MS
Chromium				50	50	100	49	98	MS
Cobalt				50	49	98	49	98	MS
Copper				50	48	96	49	98	MS
Iron				5000	5180	104	5130	103	P
Lead				50	52	104	52	104	MS
Manganese				750	735	98	738	98	P
Mercury				3.00	3.09	103	3.14	105	CV
Nickel				50	49	98	49	98	MS
Selenium				50	48	96	49	98	MS
Silver				50	51	102	51	102	MS
Thallium				50	51	102	51	102	MS
Vanadium				2500	2360	94	2400	96	P
Silicon				5000	4710	94	4580	92	P
Molybdenum				50	52	104	52	104	MS

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES 5/21/14 6D20A

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	1.04	104	1.02	102
Arsenic				1.0	1.09	109	1.07	107
Barium				200.0	206.02	103	210.21	105
Beryllium				1.0	0.92	92	0.91	91
Cadmium				1.0	1.00	100	0.97	97
Chromium				2.0	1.95	98	2.02	101
Cobalt				1.0	0.93	93	0.95	95
Copper				1.0	0.98	98	1.19	119
Iron				100.0	106.48	106	104.59	105
Lead				1.0	0.97	97	1.05	105
Manganese				15.0	15.83	106	17.64	118
Mercury	0.200	0.205	102					
Nickel				1.0	0.95	95	0.93	93
Selenium				2.0	2.14	107	2.01	100
Silver				1.0	0.99	99	0.98	98
Thallium				1.0	0.84	84	0.89	89
Vanadium				50.0	50.15	100	50.52	101
Silicon				1000.0	914.09	91	888.59	89
Molybdenum				1.0	0.99	99	1.00	100

Comments:

ALS Environmental

METALS

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BLANKS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L 5/21/14 6020A

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank 5/16/14 6020A 5/27/14 6010C,7470A	C	M	
Antimony	0.157	U	0.157	U	0.157	U	0.157	U	* 0.174	J	MS	
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	-0.246	J	MS	
Barium	3.338	J	3.067	J	3.030	U	3.030	U	3.030	U	P	5/27
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS	
Cadmium	-0.019	J	-0.028	J	-0.021	J	-0.027	J	0.008	U	MS	
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	* 1.607	J	MS	
Cobalt	* 0.045	J	0.023	J	0.041	J	0.031	J	-0.094	J	MS	
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.252	U	MS	
Iron	12.900	U	12.900	U	18.033	J	12.900	U	* 32.565	J	P	5/27
Lead	0.061	U	0.061	U	0.061	U	0.061	U	* 0.219	J	MS	
Manganese	1.290	U	1.290	U	1.290	U	* 2.391	J	1.290	U	P	5/27
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV	
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS	
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS	
Silver	0.015	U	0.015	U	0.015	U	0.015	U	* 0.052	J	MS	
Thallium	0.031	U	0.031	U	0.031	U	0.031	U	-0.144	J	MS	
Vanadium	* 0.670	J	0.558	J	0.479	U	0.556	J	0.479	U	P	5/27
Silicon	161.00	U	161.00	U	161.00	U	161.00	U	161.000	U	P	5/27
Molybdenum	0.068	U	0.068	U	0.068	U	0.068	U	* 0.069	J	MS	

Comments:

METALS

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BLANKS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.157	U							MS
Arsenic			0.211	U							MS
Barium			4.832	J	7.454	J					P
Beryllium			0.020	U							MS
Cadmium			-0.030	J							MS
Chromium			0.470	U							MS
Cobalt			0.029	J							MS
Copper			0.252	U							MS
Iron			12.900	U	12.900	U	13.195	J			P
Lead			0.061	U							MS
Manganese			2.356	J	1.691	J					P
Mercury			0.024	U							CV
Nickel			0.236	U							MS
Selenium			0.213	U							MS
Silver			0.015	U							MS
Thallium			0.031	U							MS
Vanadium			0.479	U	0.479	U					P
Silicon			161.00	U							P
Molybdenum			0.068	U							MS

Comments:

METALS

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BLANKS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Manganese			1.290	U	1.290	U	1.290	U			P

Comments:

METALS

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ICP INTERFERENCE CHECK SAMPLE

5/21/14

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	0.09	20.27	101			
Arsenic	0.00	20.00	0.09	17.64	88			
Beryllium	0.00	20.00	0.01	18.29	91			
Cadmium	0.00	20.00	0.09	19.16	96			
Chromium	0.00	20.00	0.38	19.39	97			
Cobalt	0.00	20.00	0.04	18.84	94			
Copper	0.00	20.00	0.50	17.87	89			
Lead	0.00	20.00	0.09	19.63	98			
Nickel	0.00	20.00	0.71	17.96	90			
Selenium	0.00	20.00	-0.11	17.02	85			
Silver	0.00	20.00	0.07	19.30	96			
Thallium	0.00	20.00	-0.11	19.84	99			
Molybdenum	400.00	400.00	367.63	358.77	90			

METALS

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PREPARATION LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-05081

Method: MS 6020A

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	5/21/2014	50.0	50.0
PBW	5/21/2014	50.0	50.0
MRC-MW-67A-051314	5/21/2014	50.0	50.0
MRC-MW-67A-051314D	5/21/2014	50.0	50.0
MRC-MW-67A-051314S	5/21/2014	50.0	50.0
MRC-MW-69A-051314	5/21/2014	50.0	50.0
MRC-MW-68A-051314	5/21/2014	50.0	50.0
MRC-MW-96A-051314	5/21/2014	50.0	50.0
MRC-MW-96B-051314	5/21/2014	50.0	50.0

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	20	22.80	114					
Arsenic	20	21.70	108					
Beryllium	20	20.80	104					
Cadmium	20	23.70	118					
Chromium	20	23.50	118					
Cobalt	20	20.90	104					
Copper	20	22.40	112					
Lead	20	23.60	118					
Nickel	20	20.80	104					
Selenium	20	21.10	106					
Silver	20	22.10	110					
Thallium	20	22.90	114					
Molybdenum	20	23.00	115					

Comments: _____

METALS

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SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-67A-051314S

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M	
Antimony	75 - 125	23.40		0.79	U	20.0	117		MS	
Arsenic	75 - 125	26.20		3.66	J	20.0	113		MS	
Beryllium		275.00		249.00		20.0	130		MS	4x
Cadmium	75 - 125	34.10		10.30		20.0	119		MS	
Chromium	75 - 125	24.40		3.78	J	20.0	103		MS	
Cobalt		8050.00		7550.00		20.0	2500		MS	4x
Copper		2200.00		2120.00		20.0	400		MS	4x
Lead	75 - 125	26.70		6.52		20.0	101		MS	
Nickel		13700.00		12900.00		20.0	4000		MS	4x
Selenium	75 - 125	27.00		6.40	J	20.0	103		MS	
Silver	75 - 125	22.50		0.26	J	20.0	111		MS	
Thallium	75 - 125	19.700		1.080	J	20.0	93		MS	
Molybdenum	75 - 125	25.20		0.71	J	20.0	122		MS	

Comments: _____

METALS
-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-67A-051314A

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added(SA)	%R	Q	M
Antimony		22.00		0.16	U	20	110		MS
Arsenic		22.30		0.73	J	20	108		MS
Beryllium		40.70		24.90		20	79		MS
Cadmium		24.20		2.05		20	111		MS
Chromium		21.30		0.76	J	20	103		MS
Cobalt		58.60		37.70		20	104		MS
Copper		61.90		42.40		20	98		MS
Lead		20.00		1.30		20	94		MS
Nickel		85.90		64.50		20	107		MS
Selenium		21.20		1.28	J	20	100		MS
Silver		14.70		0.05	J	20	73		MS
Thallium		18.70		0.22	J	20	92		MS
Molybdenum		23.60		0.14	J	20	117		MS

Comments: _____

METALS
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DUPLICATES

SAMPLE NO.

MRC-MW-67A-051314D

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		0.79	U	0.79	U			MS
Arsenic		3.66	J	4.11	J	12		MS
Beryllium		249.00		265.00		6		MS
Cadmium	5.0	10.30		10.70		4		MS
Chromium		3.78	J	3.56	J	6		MS
Cobalt		7550.00		8120.00		7		MS
Copper		2120.00		2170.00		2		MS
Lead	5.0	6.52		6.97		7		MS
Nickel		12900.00		13900.00		7		MS
Selenium		6.40	J	7.02	J	9		MS
Silver		0.26	J	0.27	J	4		MS
Thallium		1.080	J	1.070	J	1		MS
Molybdenum		0.71	J	0.73	J	3		MS

Comments:

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-67A-051314L

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	0.16	U	0.79	U			MS
Arsenic	0.73	J	1.06	U	100.0		MS
Beryllium	24.89		31.44		26	E	MS
Cadmium	2.05		2.05	J	0		MS
Chromium	0.76	J	2.35	U	100.0		MS
Cobalt	37.73		38.92		3		MS
Copper	42.38		42.59		0		MS
Lead	1.30		1.53	J	18		MS
Nickel	64.54		65.22		1		MS
Selenium	1.28	J	2.00	J	56		MS
Silver	0.05	J	0.08	U	100.0		MS
Thallium	0.22	J	0.29	J	32		MS
Molybdenum	0.14	J	0.34	U	100.0		MS

Comments: _____

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 5/28/2014 End Date: 5/28/2014 6020

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	10:58						X				X							X								
Standard 1	1.00	11:04						X				X							X								
Standard 2	1.00	11:10						X				X							X								
Standard 3	1.00	11:17						X				X							X								
ICV2	1.00	11:23						X				X							X								
ICB2	1.00	11:30						X				X							X								
CRDL1	1.00	11:36						X				X							X								
ICS-A1	1.00	11:43						X				X							X								
ICS-AB1	1.00	11:49						X				X							X								
CCV1	1.00	11:55						X				X							X								
CCB1	1.00	12:01						X				X							X								
ZZZZZZ	1.00	12:08																									
PBW	1.00	12:14						X				X							X								
LCSW	1.00	12:21						X				X							X								
MRC-MW-67A-051314	200.00	12:27										X							X								
MRC-MW-67A-051314D	200.00	12:34										X							X								
MRC-MW-67A-051314S	200.00	12:40										X							X								
MRC-MW-67A-051314A	200.00	12:51										X							X								
CCV2	1.00	12:58						X				X							X								
CCB2	1.00	13:04						X				X							X								
MRC-MW-67A-051314L	1000.00	13:11										X							X								
MRC-MW-69A-051314	1.00	13:17						X				X							X								
MRC-MW-68A-051314	100.00	13:23										X							X								
MRC-MW-96A-051314	10.00	13:30										X							X								
MRC-MW-96B-051314	50.00	13:36										X							X								
ZZZZZZ	1.00	13:43																									
CCV3	1.00	13:49						X				X							X								
CCB3	1.00	13:56						X				X							X								
MRC-MW-67A-051314	10.00	14:02						X																			
MRC-MW-67A-051314D	10.00	14:08						X																			
MRC-MW-67A-051314S	10.00	14:15						X																			
MRC-MW-67A-051314A	10.00	14:21						X																			
MRC-MW-67A-051314L	50.00	14:28						X																			

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 5/28/2014 End Date: 5/28/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-68A-051314	10.00	14:34						X																			
MRC-MW-96A-051314	5.00	14:41						X																			
MRC-MW-96A-051314	2.00	14:47																									
MRC-MW-96B-051314	2.00	14:53						X																			
CRDL3	1.00	15:00						X				X							X								
ZZZZZZ	1.00	15:06																									
ZZZZZZ	1.00	15:13																									
CCV4	1.00	15:19						X				X							X								
CCB4	1.00	15:25						X				X							X								

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403433

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-102B-

ICP-MS Instrument ID: PE ICPMS Start Date: 5/28/2014 End Date: 5/28/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Li	Q	Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q
Blank	Blank	10:58	100		100		100		100		100		100	
Standard 1	Standard 1	11:04	97		99		97		101		99		98	
Standard 2	Standard 2	11:10	96		100		98		100		100		99	
Standard 3	Standard 3	11:17	92		97		94		98		96		99	
ICV2	ICV2	11:23	94		97		95		97		96		96	
ICB2	ICB2	11:30	95		97		96		98		98		96	
CRDL1	CRDL1	11:36	90		96		92		98		98		98	
ICS-A1	ICS-A1	11:43	97		98		94		104		103		98	
ICS-AB1	ICS-AB1	11:49	110		106		104		112		113		104	
CCV1	CCV1	11:55	104		105		101		107		109		102	
CCB1	CCB1	12:01	97		102		97		105		106		101	
PBW-208912	PBW	12:14	107		104		101		107		108		102	
LCSW-208912	LCSW	12:21	103		102		99		106		107		105	
R1403433-02	MRC-MW-67A-05131	12:27	104		106		104		108		108		104	
R1403433-02	MRC-MW-67A-05131	12:34	100		103		98		106		106		104	
R1403433-02	MRC-MW-67A-05131	12:40	104		105		100		107		108		102	
R1403433-02	MRC-MW-67A-05131	12:51	102		103		99		106		106		101	
CCV2	CCV2	12:58	92		97		94		98		100		96	
CCB2	CCB2	13:04	94		99		95		101		101		95	
R1403433-02	MRC-MW-67A-05131	13:11	95		101		95		102		103		95	
R1403433-02	MRC-MW-69A-05131	13:17	97		90		90		95		105		93	
R1403433-02	MRC-MW-68A-05131	13:23	100		104		101		107		108		105	
R1403433-02	MRC-MW-96A-05131	13:30	114		107		105		109		112		108	
R1403433-02	MRC-MW-96B-05131	13:36	98		102		98		106		108		103	
CCV3	CCV3	13:49	96		101		95		103		104		96	
CCB3	CCB3	13:56	94		101		94		104		105		97	
R1403433-02	MRC-MW-67A-05131	14:02	120		96		100		99		104		100	
R1403433-02	MRC-MW-67A-05131	14:08	121		97		99		101		106		102	
R1403433-02	MRC-MW-67A-05131	14:15	119		96		99		99		104		100	
R1403433-02	MRC-MW-67A-05131	14:21	118		95		97		99		104		100	
R1403433-02	MRC-MW-67A-05131	14:28	98		98		93		103		104		97	
R1403433-02	MRC-MW-68A-05131	14:34	125		98		98		102		107		99	
R1403433-02	MRC-MW-96A-05131	14:41	102		93		89		98		104		94	
R1403433-02	MRC-MW-96A-05131	14:47	102		93		89		98		104		94	
R1403433-02	MRC-MW-96B-05131	14:53	94		82		83		85		95		87	
CRDL3	CRDL3	15:00	86		93		87		97		97		91	
CCV4	CCV4	15:19	85		92		85		93		94		88	
CCB4	CCB4	15:25	93		100		92		103		104		96	

METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/6/2014 End Date: 6/6/2014 6020

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	08:29			X	X			X		X		X		X						X	X		X				*
Standard 1	1.00	08:35			X	X			X		X		X		X						X	X		X				*
Standard 2	1.00	08:42			X	X			X		X		X		X						X	X		X				*
Standard 3	1.00	08:48			X	X			X		X		X		X						X	X		X				*
ICV2	1.00	08:55			X	X			X		X		X		X						X	X		X				*
ICB2	1.00	09:01			X	X			X		X		X		X						X	X		X				*
CRDL1	1.00	09:08			X	X			X		X		X		X						X	X		X				*
ICS-A1	1.00	09:14			X	X			X		X		X		X						X	X		X				*
ICS-AB1	1.00	09:20			X	X			X		X		X		X						X	X		X				*
CCV1	1.00	09:27			X	X			X		X		X		X						X	X		X				*
CCB1	1.00	09:33			X	X			X		X		X		X						X	X		X				*
ZZZZZZ	1.00	09:39																												
ZZZZZZ	1.00	09:46																												
ZZZZZZ	1.00	09:52																												
ZZZZZZ	1.00	09:59																												
ZZZZZZ	5.00	10:05																												
ZZZZZZ	1.00	10:12																												
ZZZZZZ	1.00	10:18																												
CCV2	1.00	10:25			X	X			X		X		X		X						X	X		X				*
CCB2	1.00	10:31			X	X			X		X		X		X						X	X		X				*
PBW	1.00	10:38			X	X			X		X		X		X						X	X		X				*
LCSW	1.00	10:44			X	X			X		X		X		X						X	X		X				*
MRC-MW-67A-051314	5.00	10:50			X	X			X		X				X						X	X		X				*
MRC-MW-67A-051314D	5.00	10:57			X	X			X		X				X						X	X		X				*
MRC-MW-67A-051314S	5.00	11:03			X	X			X		X				X						X	X		X				*
MRC-MW-67A-051314A	5.00	11:10			X	X			X		X				X						X	X		X				*
CCV3	1.00	11:16			X	X			X		X		X		X						X	X		X				*
CCB3	1.00	11:22			X	X			X		X		X		X						X	X		X				*
MRC-MW-67A-051314L	25.00	11:29			X	X			X		X				X						X	X		X				*
MRC-MW-69A-051314	2.00	11:35																												
MRC-MW-68A-051314	10.00	11:42																												
MRC-MW-68A-051314	5.00	11:48			X	X			X		X		X		X						X	X		X				*
MRC-MW-96A-051314	5.00	11:55																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

01198

METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/6/2014 End Date: 6/6/2014 6020A

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
MRC-MW-96B-051314	5.00	12:01			X	X			X		X		X		X						X	X		X				*
ZZZZZZ	1.00	12:08																											
CCV4	1.00	12:14			X	X			X		X		X		X						X	X		X				*
CCB4	1.00	12:20			X	X			X		X		X		X						X	X		X				*
MRC-MW-69A-051314	1.00	12:27			X	X			X		X		X		X						X	X		X				*
MRC-MW-96A-051314	1.00	12:33			X	X			X		X		X		X						X	X		X				*
ZZZZZZ	1.00	12:40																											
CCV5	1.00	12:46			X	X			X		X		X		X						X	X		X				*
CCB5	1.00	12:53			X	X			X		X		X		X						X	X		X				*
MRC-MW-67A-051314	50.00	13:50											X																
MRC-MW-67A-051314D	50.00	13:56											X																
MRC-MW-67A-051314S	50.00	14:03											X																
MRC-MW-67A-051314A	50.00	14:09											X																
MRC-MW-67A-051314L	250.00	14:16											X																
ZZZZZZ	1.00	14:22																											
ZZZZZZ	1.00	14:29																											
CRDL2	1.00	14:35			X	X			X		X		X		X						X	X		X				*
CCV6	1.00	14:42			X	X			X		X		X		X						X	X		X				*
CCB6	1.00	14:48			X	X			X		X		X		X						X	X		X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/6/2014 End Date: 6/6/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	08:29					X																					
Standard 1	1.00	08:35					X																					
Standard 2	1.00	08:42					X																					
Standard 3	1.00	08:48					X																					
ICV2	1.00	08:55					X																					
ICB2	1.00	09:01					X																					
CRDL1	1.00	09:08					X																					
ICS-A1	1.00	09:14					X																					
ICS-AB1	1.00	09:20					X																					
CCV1	1.00	09:27					X																					
CCB1	1.00	09:33					X																					
ZZZZZZ	1.00	09:39																										
ZZZZZZ	1.00	09:46																										
ZZZZZZ	1.00	09:52																										
ZZZZZZ	1.00	09:59																										
ZZZZZZ	5.00	10:05																										
ZZZZZZ	1.00	10:12																										
ZZZZZZ	1.00	10:18																										
CCV2	1.00	10:25					X																					
CCB2	1.00	10:31					X																					
PBW	1.00	10:38					X																					
LCSW	1.00	10:44					X																					
MRC-MW-67A-051314	5.00	10:50					X																					
MRC-MW-67A-051314D	5.00	10:57					X																					
MRC-MW-67A-051314S	5.00	11:03					X																					
MRC-MW-67A-051314A	5.00	11:10					X																					
CCV3	1.00	11:16					X																					
CCB3	1.00	11:22					X																					
MRC-MW-67A-051314L	25.00	11:29					X																					
MRC-MW-69A-051314	2.00	11:35																										
MRC-MW-68A-051314	10.00	11:42																										
MRC-MW-68A-051314	5.00	11:48					X																					
MRC-MW-96A-051314	5.00	11:55																										
MRC-MW-96B-051314	5.00	12:01					X																					

METALS

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/6/2014 End Date: 6/6/2014

Sample ID.	D/F	Time	% R	Analytes																										
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH										
ZZZZZZ	1.00	12:08																												
CCV4	1.00	12:14					X																							
CCB4	1.00	12:20					X																							
MRC-MW-69A-051314	1.00	12:27					X																							
MRC-MW-96A-051314	1.00	12:33					X																							
ZZZZZZ	1.00	12:40																												
CCV5	1.00	12:46					X																							
CCB5	1.00	12:53					X																							
MRC-MW-67A-051314	50.00	13:50																												
MRC-MW-67A-051314D	50.00	13:56																												
MRC-MW-67A-051314S	50.00	14:03																												
MRC-MW-67A-051314A	50.00	14:09																												
MRC-MW-67A-051314L	250.00	14:16																												
ZZZZZZ	1.00	14:22																												
ZZZZZZ	1.00	14:29																												
CRDL2	1.00	14:35					X																							
CCV6	1.00	14:42					X																							
CCB6	1.00	14:48					X																							

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403433

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-102B-

ICP-MS Instrument ID: PE ICPMS Start Date: 6/6/2014 End Date: 6/6/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Li	Q	Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q
Blank	Blank	08:29	100		100		100		100		100		100	
Standard 1	Standard 1	08:35	102		102		102		101		101		102	
Standard 2	Standard 2	08:42	102		103		104		102		101		102	
Standard 3	Standard 3	08:48	106		104		106		102		101		104	
ICV2	ICV2	08:55	105		102		104		99		100		102	
ICB2	ICB2	09:01	104		98		102		97		95		103	
CRDL1	CRDL1	09:08	109		101		103		102		98		103	
ICS-A1	ICS-A1	09:14	106		93		97		99		90		96	
ICS-AB1	ICS-AB1	09:20	110		93		99		95		88		96	
CCV1	CCV1	09:27	110		95		102		92		88		104	
CCB1	CCB1	09:33	112		96		100		94		91		102	
CCV2	CCV2	10:25	98		89		97		84		86		99	
CCB2	CCB2	10:31	99		90		97		84		86		98	
PBW-208912	PBW	10:38	102		83		90		79		83		91	
LCSW-208912	LCSW	10:44	105		85		94		82		87		96	
R1403433-02	MRC-MW-67A-05131	10:50	163	*	86		112		84		91		109	
R1403433-02	MRC-MW-67A-05131	10:57	164	*	84		112		82		88		113	
R1403433-02	MRC-MW-67A-05131	11:03	162	*	84		110		82		87		111	
R1403433-02	MRC-MW-67A-05131	11:10	164	*	86		112		84		90		113	
CCV3	CCV3	11:16	103		91		99		87		90		99	
CCB3	CCB3	11:22	104		93		101		88		90		98	
R1403433-02	MRC-MW-67A-05131	11:29	122		91		102		89		93		101	
R1403433-02	MRC-MW-69A-05131	11:35	122		91		102		89		93		101	
R1403433-02	MRC-MW-68A-05131	11:42	122		91		102		89		93		101	
R1403433-02	MRC-MW-68A-05131	11:48	143	*	87		101		85		91		99	
R1403433-02	MRC-MW-96A-05131	11:55	143	*	87		101		85		91		99	
R1403433-02	MRC-MW-96B-05131	12:01	115		84		93		81		86		91	
CCV4	CCV4	12:14	105		91		99		87		88		100	
CCB4	CCB4	12:20	105		92		98		88		90		100	
R1403433-02	MRC-MW-69A-05131	12:27	111		80		88		79		87		89	
R1403433-02	MRC-MW-96A-05131	12:33	198	*	81		93		80		96		95	
CCV5	CCV5	12:46	104		93		101		90		90		103	
CCB5	CCB5	12:53	107		96		101		93		94		101	
R1403433-02	MRC-MW-67A-05131	13:50	129	*	97		108		95		94		108	
R1403433-02	MRC-MW-67A-05131	13:56	126	*	100		108		95		97		105	
R1403433-02	MRC-MW-67A-05131	14:03	124		99		110		98		96		109	
R1403433-02	MRC-MW-67A-05131	14:09	123		100		108		95		96		105	
R1403433-02	MRC-MW-67A-05131	14:16	116		102		110		98		98		106	
CRDL2	CRDL2	14:35	107		90		96		83		88		94	
CCV6	CCV6	14:42	104		92		99		83		88		94	
CCB6	CCB6	14:48	104		91		99		84		89		94	

no Be from 6/6 (NA)

01206

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD 5/28, 6/6

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	51	102	50	50	100	52	104	MS
Arsenic	50	51	102	50	51	102	51	102	MS
Beryllium	50	47	94	50	47	94	48	96	MS
Cadmium	50	52	104	50	53	106	54	108	MS
Chromium	50	50	100	50	53	106	51	102	MS
Cobalt	50	50	100	50	49	98	50	100	MS
Copper	50	52	104	50	52	104	53	106	MS
Lead	50	52	104	50	55	110	55	110	MS
Manganese	750	713	95	750	706	94	702	94	P
Nickel	50	49	98	50	49	98	51	102	MS
Selenium	50	50	100	50	48	96	49	98	MS
Silver	50	53	106	50	54	108	54	108	MS
Thallium	50	52	104	50	52	104	53	106	MS
Molybdenum	50	53	106	50	55	110	54	108	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD 5/20, 6/6

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	51	102	51	102	MS
Arsenic				50	51	102	52	104	MS
Beryllium				50	49	98	49	98	MS
Cadmium				50	54	108	53	106	MS
Chromium				50	51	102	52	104	MS
Cobalt				50	50	100	49	98	MS
Copper				50	53	106	51	102	MS
Lead				50	54	108	55	110	MS
Manganese				750	703	94	684	91	P
Nickel				50	50	100	49	98	MS
Selenium				50	49	98	49	98	MS
Silver				50	54	108	53	106	MS
Thallium				50	52	104	52	104	MS
Molybdenum				50	54	108	55	110	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD 5/20/16

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	51	102	50	100	MS
Arsenic				50	52	104	51	102	MS
Cadmium				50	53	106	50	100	MS
Chromium				50	52	104	51	102	MS
Copper				50	53	106	50	100	MS
Lead				50	54	108	53	106	MS
Manganese				750	703	94	774	103	P
Selenium				50	49	98	51	102	MS
Silver				50	54	108	51	102	MS
Thallium				50	51	102	51	102	MS
Molybdenum				50	55	110	52	104	MS

Comments:

01130

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP Initial			CRDL Standard for ICP Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	1.12	112	1.11	111
Arsenic				1.0	1.03	103	1.01	101
Beryllium				1.0	1.01	101	1.03	103
Cadmium				1.0	1.07	107	1.04	104
Chromium				2.0	2.00	100	2.16	108
Cobalt				1.0	1.02	102	1.22	122
Copper				1.0	1.13	113	1.08	108
Lead				1.0	1.06	106	1.13	113
Manganese				15.0	14.66	98	14.37	96
Nickel				1.0	0.86	86	0.81	81
Selenium				2.0	1.95	98	2.45	122
Silver				1.0	1.08	108	1.03	103
Thallium				1.0	1.07	107	1.09	109
Molybdenum				1.0	1.07	107	1.04	104

Comments:

METALS

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BLANKS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

5/28, 6/6

5/21/14 6020A

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	0.157	U	0.157	U	0.157	U	0.157	U	✗ 0.212	J	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	-0.335	J	MS
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cadmium	0.008	U	-0.021	J	0.008	U	0.008	U	0.008	U	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	2.142		MS
Cobalt	0.008	U	-0.008	J	0.008	U	0.008	U	-0.054	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.252	U	MS
Lead	0.061	U	0.061	U	0.061	U	0.061	U	✗ 0.089	J	MS
Manganese	1.290	U	1.290	U	1.290	U	1.290	U			P
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS
Silver	0.015	U	0.015	U	✗ 0.039	J	0.036	J	0.028	J	MS
Thallium	0.031	U	0.031	U	0.031	U	✗ 0.037	J	0.031	U	MS
Molybdenum	0.068	U	0.068	U	0.068	U	0.068	U	0.068	U	MS

Comments:

METALS

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BLANKS

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.157	U	0.157	U	0.157	U			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Beryllium			0.020	U							MS
Cadmium			-0.011	J	-0.013	J	0.008	U			MS
Chromium			0.470	U	0.470	U	0.470	U			MS
Cobalt			0.097	J							MS
Copper			0.252	U	0.252	U	0.252	U			MS
Lead			0.061	U	0.061	U	0.061	U			MS
Manganese			1.290	U	1.290	U	1.290	U			P
Nickel			0.236	U							MS
Selenium			0.213	U	0.213	U	0.256	J			MS
Silver			0.029	J	0.025	J	0.024	J			MS
Thallium			0.031	U	0.031	U	0.031	U			MS
Molybdenum			0.068	U	0.068	U	0.068	U			MS

Comments:

METALS

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ICP INTERFERENCE CHECK SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	0.08	21.39	107			
Arsenic	0.00	20.00	0.03	18.99	95			
Beryllium	0.00	20.00	0.01	17.27	86			
Cadmium	0.00	20.00	0.10	19.98	100			
Chromium	0.00	20.00	0.49	21.49	107			
Cobalt	0.00	20.00	0.07	17.49	87			
Copper	0.00	20.00	0.55	18.65	93			
Lead	0.00	20.00	0.06	21.01	105			
Nickel	0.00	20.00	0.53	16.97	85			
Selenium	0.00	20.00	-0.07	18.59	93			
Silver	0.00	20.00	0.06	20.45	102			
Thallium	0.00	20.00	0.02	20.57	103			
Molybdenum	400.00	400.00	404.67	406.84	102			

METALS

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PREPARATION LOG

Be, Mn, V

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-05081

Method: P 6010C Fe, Si

Sample ID	Preparation Date	Initial Volume	Final Volume (mL)
LCSW	5/27/2014	50.0	50.0
LCSW	5/27/2014	50.0	50.0
PBW	5/27/2014	50.0	50.0
MRC-MW-102B-050814	5/27/2014	50.0	50.0
MRC-MW-30A-050814	5/27/2014	50.0	50.0
MRC-MW-30A-050814D	5/27/2014	50.0	50.0
MRC-MW-30A-050814S	5/27/2014	50.0	50.0
MRC-MW-30A-050814S	5/27/2014	50.0	50.0
MRC-MW-31A-050814	5/27/2014	50.0	50.0
MRC-MW-33A-050814	5/27/2014	50.0	50.0
MRC-MW-34B-051214	5/27/2014	50.0	50.0
MRC-MW-46A-051214	5/27/2014	50.0	50.0
MRC-MW-104B-051214	5/27/2014	50.0	50.0
MRC-MW-105A-051214	5/27/2014	50.0	50.0
MRC-MW-67A-051314	5/27/2014	50.0	50.0
MRC-MW-69A-051314	5/27/2014	50.0	50.0
MRC-MW-68A-051314	5/27/2014	50.0	50.0
MRC-MW-96A-051314	5/27/2014	50.0	50.0
MRC-MW-96B-051314	5/27/2014	50.0	50.0

Comments:

METALS

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SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-30A-050814S

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Barium	75 - 125	2060.00		98.30		2000.0	98		P
Iron	75 - 125	1160.00		132.00		1000.0	103		P
Manganese	75 - 125	513.00		18.00		500.0	99		P
Vanadium	75 - 125	513.00		10.20	J	500.0	101		P

Comments:

METALS

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SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-30A-050814S

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Silicon	75 - 125	7750.00		3420.00		5000.0	87		P

Comments:

METALS
-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-30A-050814A

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added(SA)	%R	Q	M
Barium		1910.00		98.30		2000.0	91		P
Iron		1050.00		132.00		1000.0	92		P
Manganese		470.00		18.00		500.0	90		P
Vanadium		469.00		10.20	J	500.0	92		P
Silicon		7690.00		3420.00		5000.0	85		P

Comments: _____

METALS
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DUPLICATES

SAMPLE NO.

MRC-MW-30A-050814D

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Barium	20.0	98.30		104.00		6		P
Iron	100.0	132.00		122.00		8		P
Manganese	10.0	18.00		19.10		6		P
Vanadium		10.20	J	10.90	J	7		P
Silicon	1000.0	3420.00		3220.00		6		P

Comments:

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-30A-050814L

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Barium	98.30		104.00		6		P
Iron	132.00		145.00	J	10		P
Manganese	18.00		16.60	J	8		P
Vanadium	10.20	J	11.30	J	11		P
Silicon	3420.00		3520.00	J	3		P

Comments: _____

METALS

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 5/28/2014 End Date: 5/28/2014 6010C

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	14:18					X										X							X		
Calib Std 1	1.00	14:25					X										X							X		
Calib Std 2	1.00	14:30																								
Calib Std 3	1.00	14:36																						X		
Calib Std 4	1.00	14:42					X										X							X		
Calib Std 5	1.00	14:48					X										X							X		
ICV1	1.00	14:55					X										X							X		
ICB1	1.00	15:01					X										X							X		
CRDL1	1.00	15:07					X										X							X		
ICS-A1	1.00	15:14					X										X							X		
ICS-AB1	1.00	15:20					X										X							X		
CCV1	1.00	15:27					X										X							X		
CCB1	1.00	15:33					X										X							X		
ZZZZZZ	1.00	15:40																								
ZZZZZZ	1.00	15:46																								
ZZZZZZ	10.00	15:52																								
ZZZZZZ	10.00	15:58																								
ZZZZZZ	10.00	16:04																								
PBW	1.00	16:11					X										X							X		
LCSW	1.00	16:17					X										X							X		
MRC-MW-102B-050814	1.00	16:23					X										X							X		
MRC-MW-30A-050814	1.00	16:29					X										X							X		
MRC-MW-30A-050814D	1.00	16:36					X										X							X		
CCV2	1.00	16:42					X										X							X		
CCB2	1.00	16:49					X										X							X		
MRC-MW-30A-050814S	1.00	16:55					X										X							X		
MRC-MW-30A-050814A	1.00	17:02					X										X							X		
MRC-MW-30A-050814L	5.00	17:08					X										X							X		
MRC-MW-31A-050814	1.00	17:14					X										X							X		
MRC-MW-33A-050814	1.00	17:21					X										X							X		
MRC-MW-34B-051214	1.00	17:27					X										X							X		
MRC-MW-46A-051214	1.00	17:34					X										X							X		
MRC-MW-104B-051214	1.00	17:40					X										X							X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 5/28/2014 End Date: 5/28/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-105A-051214	1.00	17:47					X										X								X		
MRC-MW-67A-051314	1.00	17:53					X																		X		
CCV3	1.00	18:00					X										X								X		
CCB3	1.00	18:06					X										X								X		
MRC-MW-69A-051314	1.00	18:13					X										X								X		
MRC-MW-68A-051314	1.00	18:19					X										X								X		
MRC-MW-96A-051314	1.00	18:26					X										X								X		
MRC-MW-96B-051314	1.00	18:32					X										X								X		
ZZZZZZ	1.00	18:39																									
ZZZZZZ	1.00	18:44																									
ZZZZZZ	1.00	18:50																									
CCV4	1.00	18:56					X										X								X		
CCB4	1.00	19:03					X										X								X		
CRDL2	1.00	19:10					X										X								X		
ICS-A2	1.00	19:16					X										X								X		
ICS-AB2	1.00	19:22					X										X								X		
ZZZZZZ	1.00	19:29																									
ZZZZZZ	1.00	19:34																									
CCV5	1.00	19:41					X										X								X		
CCB5	1.00	19:47					X										X								X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 5/29/2014 End Date: 5/29/2014 6010C

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	14:21															X										
Calib Std 1	1.00	14:28															X										
Calib Std 2	1.00	14:33																									
Calib Std 3	1.00	14:39																									
Calib Std 4	1.00	14:45															X										
Calib Std 5	1.00	14:51															X										
ICV2	1.00	14:58															X										
ICB2	1.00	15:04															X										
CRDL1	1.00	15:10															X										
ICS-A1	1.00	15:17															X										
ICS-AB1	1.00	15:23															X										
CCV1	1.00	15:30															X										
CCB1	1.00	15:36															X										
ZZZZZZ	1.00	15:42																									
ZZZZZZ	1.00	15:49																									
ZZZZZZ	1.00	15:55																									
ZZZZZZ	1.00	16:01																									
ZZZZZZ	1.00	16:08																									
ZZZZZZ	1.00	16:14																									
ZZZZZZ	1.00	16:21																									
ZZZZZZ	1.00	16:27																									
ZZZZZZ	1.00	16:34																									
ZZZZZZ	1.00	16:40																									
CCV2	1.00	16:47															X										
CCB2	1.00	16:53															X										
ZZZZZZ	1.00	16:59																									
CCV3	1.00	17:06															X										
CCB3	1.00	17:12															X										
CRDL2	1.00	17:18															X										
ICS-A2	1.00	17:25															X										
ICS-AB2	1.00	17:31															X										
ZZZZZZ	1.00	17:38																									
ZZZZZZ	1.00	17:43																									

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METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 5/29/2014 End Date: 5/29/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV4	1.00	17:50															X										
CCB4	1.00	17:56															X										
PBW	1.00	18:02																									
LCSW	1.00	18:09																									
ZZZZZZ	10.00	18:16																									
ZZZZZZ	10.00	18:22																									
ZZZZZZ	10.00	18:29																									
ZZZZZZ	10.00	18:35																									
ZZZZZZ	10.00	18:42																									
ZZZZZZ	10.00	18:48																									
MRC-MW-67A-051314	20.00	18:54															X										
ZZZZZZ	10.00	19:01																									
CCV5	1.00	19:07															X										
CCB5	1.00	19:13															X										
ZZZZZZ	10.00	19:20																									
ZZZZZZ	20.00	19:26																									
ZZZZZZ	1.00	19:32																									
ZZZZZZ	1.00	19:39																									
ZZZZZZ	1.00	19:45																									
ZZZZZZ	1.00	19:51																									
ZZZZZZ	1.00	19:58																									
ZZZZZZ	20.00	20:04																									
ZZZZZZ	20.00	20:11																									
ZZZZZZ	20.00	20:17																									
CCV6	1.00	20:23															X										
CCB6	1.00	20:30															X										
ZZZZZZ	20.00	20:36																									
ZZZZZZ	20.00	20:43																									
ZZZZZZ	1.00	20:49																									
ZZZZZZ	1.00	20:55																									
ZZZZZZ	1.00	21:01																									
ZZZZZZ	1.00	21:08																									
ZZZZZZ	1.00	21:14																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 5/29/2014 End Date: 5/29/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	100.00	21:20																												
ZZZZZZ	1.00	21:27																												
ZZZZZZ	1.00	21:33																												
CCV7	1.00	21:39															X													
CCB7	1.00	21:46															X													
ZZZZZZ	1.00	21:52																												
CCV8	1.00	21:58															X													
CCB8	1.00	22:05															X													
CRDL3	1.00	22:11															X													
ICS-A3	1.00	22:17															X													
ICS-AB3	1.00	22:24															X													
CCV9	1.00	22:30															X													
CCB9	1.00	22:37															X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 5/29/2014 End Date: 5/29/2014 6010C

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	14:25												X													
Calib Std 1	1.00	14:31																									
Calib Std 2	1.00	14:36																									
Calib Std 3	1.00	14:41												X													
Calib Std 4	1.00	14:47												X													
Calib Std 5	1.00	14:52												X													
ICV1	1.00	14:58												X													
ICB1	1.00	15:04												X													
ZZZZZZ	1.00	15:10																									
ZZZZZZ	1.00	15:16																									
ZZZZZZ	1.00	15:22																									
ZZZZZZ	1.00	15:33																									
ZZZZZZ	1.00	15:38																									
ZZZZZZ	1.00	15:45																									
ZZZZZZ	1.00	15:51																									
ZZZZZZ	10.00	15:57																									
ZZZZZZ	10.00	16:03																									
ZZZZZZ	10.00	16:09																									
ZZZZZZ	10.00	16:14																									
ZZZZZZ	10.00	16:20																									
ZZZZZZ	10.00	16:26																									
ZZZZZZ	10.00	16:32																									
ZZZZZZ	10.00	16:38																									
ZZZZZZ	1.00	16:44																									
ZZZZZZ	1.00	16:49																									
ZZZZZZ	10.00	16:55																									
ZZZZZZ	10.00	17:01																									
ZZZZZZ	10.00	17:07																									
ZZZZZZ	10.00	17:13																									
ZZZZZZ	10.00	17:19																									
ZZZZZZ	10.00	17:25																									
ZZZZZZ	10.00	17:31																									
ZZZZZZ	10.00	17:36																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 5/29/2014 End Date: 5/29/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	10.00	17:42																												
ZZZZZZ	10.00	17:48																												
ZZZZZZ	1.00	17:54																												
ZZZZZZ	1.00	17:59																												
ZZZZZZ	10.00	18:06																												
ZZZZZZ	10.00	18:12																												
ZZZZZZ	10.00	18:18																												
ZZZZZZ	10.00	18:24																												
ZZZZZZ	10.00	18:29																												
ZZZZZZ	10.00	18:35																												
ZZZZZZ	10.00	18:41																												
ZZZZZZ	10.00	18:47																												
ZZZZZZ	10.00	18:53																												
ZZZZZZ	10.00	18:59																												
CCV1	1.00	19:05												X																
CCB1	1.00	19:10												X																
CRDL1	1.00	19:17												X																
ICS-A1	1.00	19:23												X																
ICS-AB1	1.00	19:29												X																
ZZZZZZ	1.00	19:34																												
ZZZZZZ	1.00	19:40																												
CCV2	1.00	19:46												X																
CCB2	1.00	19:51												X																
PBW	1.00	19:58												X																
LCSW	1.00	20:04												X																
MRC-MW-102B-050814	1.00	20:10												X																
MRC-MW-30A-050814	1.00	20:16												X																
MRC-MW-30A-050814D	1.00	20:22												X																
MRC-MW-30A-050814S	1.00	20:28												X																
MRC-MW-30A-050814A	1.00	20:34												X																
MRC-MW-30A-050814L	5.00	20:40												X																
MRC-MW-31A-050814	1.00	20:46												X																
MRC-MW-33A-050814	1.00	20:53												X																

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 5/29/2014 End Date: 5/29/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
CCV3	1.00	20:59												X																
CCB3	1.00	21:04												X																
MRC-MW-34B-051214	1.00	21:11												X																
MRC-MW-46A-051214	1.00	21:17												X																
MRC-MW-104B-051214	1.00	21:23												X																
MRC-MW-105A-051214	1.00	21:29												X																
MRC-MW-67A-051314	1.00	21:35												X																
MRC-MW-69A-051314	1.00	21:41												X																
MRC-MW-68A-051314	1.00	21:46												X																
MRC-MW-96A-051314	1.00	21:52												X																
MRC-MW-96B-051314	1.00	21:59												X																
CCV4	1.00	22:05												X																
CCB4	1.00	22:10												X																
ZZZZZZ	1.00	22:17																												
ZZZZZZ	1.00	22:23																												
ZZZZZZ	1.00	22:29																												
ZZZZZZ	1.00	22:35																												
ZZZZZZ	1.00	22:42																												
ZZZZZZ	1.00	22:48																												
ZZZZZZ	10.00	22:54																												
ZZZZZZ	10.00	23:00																												
CCV5	1.00	23:07												X																
CCB5	1.00	23:12												X																
CRDL2	1.00	23:19												X																
ICS-A2	1.00	23:25												X																
ICS-AB2	1.00	23:31												X																
CCV6	1.00	23:37												X																
CCB6	1.00	23:42												X																

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

-14-

ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/5/2014 End Date: 6/5/2014

6010C

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Calib Blank 1	1.00	05:52										X																
Calib Std 1	1.00	05:57										X																
Calib Std 2	1.00	06:02										X																
Calib Std 3	1.00	06:06										X																
ICV1	1.00	06:11										X																
ICB1	1.00	06:15										X																
CRDL1	1.00	06:20										X																
ICS-A1	1.00	06:25										X																
ICS-AB1	1.00	06:29										X																
CCV1	1.00	06:34										X																
CCB1	1.00	06:38										X																
PBW	1.00	06:43										X																
LCSW	1.00	06:48										X																
MRC-MW-102B-050814	1.00	06:52										X																
MRC-MW-30A-050814	1.00	06:57										X																
MRC-MW-30A-050814D	1.00	07:02										X																
MRC-MW-30A-050814S	1.00	07:06										X																
MRC-MW-30A-050814A	1.00	07:11										X																
MRC-MW-30A-050814L	5.00	07:15										X																
MRC-MW-31A-050814	1.00	07:20										X																
MRC-MW-33A-050814	1.00	07:25										X																
CCV2	1.00	07:29										X																
CCB2	1.00	07:34										X																
MRC-MW-34B-051214	1.00	07:39										X																
MRC-MW-46A-051214	1.00	07:43										X																
MRC-MW-104B-051214	1.00	07:48										X																
MRC-MW-105A-051214	1.00	07:53										X																
MRC-MW-67A-051314	1.00	07:57										X																
MRC-MW-69A-051314	1.00	08:02										X																
MRC-MW-68A-051314	1.00	08:07										X																
MRC-MW-96A-051314	1.00	08:11										X																
MRC-MW-96B-051314	1.00	08:16										X																
ZZZZZZ	1.00	08:21																										
CCV3	1.00	08:25										X																

METALS

-14-

ANALYSIS RUN LOG

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/5/2014 End Date: 6/5/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
CCB3	1.00	08:30										X																
CRDL2	1.00	08:35										X																
ICS-A2	1.00	08:39										X																
ICS-AB2	1.00	08:44										X																
ZZZZZZ	1.00	08:48																										
ZZZZZZ	1.00	08:53																										
CCV4	1.00	08:58										X																
CCB4	1.00	09:02										X																

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Barium				10000	9700	97			P
Iron				5000	5180	104	5340	107	P
Manganese				750	721	96			P
Vanadium				2500	2370	95			P

Comments:

01127

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Manganese				750	691	92	716	95	P

Comments:

01131

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Manganese				750	704	94			P

Comments:

01132

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-102B-

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Manganese				15.0			15.06	100

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 4 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500	10.1	528	106	12.2	518	104
Manganese		500	-1.6	502	100	-0.4	491	98
Vanadium		500	-0.4	492	98	-1.0	482	96

01143

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 4 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Manganese		500	-1.2	461	92	-1.3	463	93

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 4 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Manganese		500				-1.0	451	90

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 5 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000	103000.0	101000	101	103000.0	102000	102

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403433

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-102B-

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon			-150.0	139		-158.0	128	

01144

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **T. APANAVAGE** **DATE: JULY 17, 2014**

FROM: **EDWARD SEDLMYER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC / 1,4-DIOXANE / PERHCLORATE**
LOCKHEED – MIDDLE RIVER CENTER (MRC)
SDG R1403723

SAMPLES: 16 / Aqueous / VOC

MRC-MW-16A-052014	MRC-MW-29A-052114	MRC-MW-50A-051914
MRC-MW-58A-051914	MRC-MW-71A-052014	MRC-MW-71B-052014
MRC-MW08A-052214	MRC-MW106B/C-052314	MRC-MW10A-052214
MRC-MW11C-052214	MRC-MW53A-052314	MRC-MW53B-052314
MRC-MW63A-052314	TB-051914	TB-052114
TB-052214		

12 / Aqueous / 1,4-Dioxane

MRC-MW-15A-052014	MRC-MW-16A-052014	MRC-MW-58A-051914
MRC-MW-71A-052014	MRC-MW-71B-052014	MRC-MW08A-052214
MRC-MW10A-052214	MRC-MW11C-052214	MRC-MW53A-052314
MRC-MW53B-052314	MRC-MW54A-052214	MRC-MW63A-052314

5 / Aqueous / Perchlorate

MRC-MW-50A-051914	MRC-MW08A-052214	MRC-MW53A-052314
MRC-MW53B-052314	MRC-MW54A-052214	

Overview

The sample set for Lockheed – MRC, SDG R1403723 consists of fifteen (15) aqueous environmental samples and three (3) trip blanks. The samples were analyzed for volatile organic compounds (VOC), 1,4-dioxane, and perchlorate as outlined above.

The samples were collected by Tetra Tech on May 19 thru 23, 2014 and analyzed by Test America. All analyses were conducted in accordance with SW-846 Methods 8260C, 6850, and EPA method 522 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

- None.

Minor

- The following contaminants were detected in the method and trip blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
1,2,4-Trichlorobenzene[1]	0.28 ug/L	1.4 ug/L
Bromomethane[1]	0.47 ug/L	2.35 ug/L
Naphthalene[1]	0.23 ug/L	1.15 ug/L
1,2,4-Trichlorobenzene[2]	0.30 ug/L	1.5 ug/L
Hexachlorobutadiene[2]	0.92 ug/L	4.6 ug/L
Naphthalene[2]	0.25 ug/L	1.25 ug/L
Acetone[3]	1.6 ug/L	16 ug/L

1 - Maximum concentration found in preparation blank (RQ1405637-04) affecting all samples, except MRC-MW08A-052214 and MRC-MW10A-052214.

2 - Maximum concentration found in preparation blank (RQ1405808-04) affecting samples MRC-MW08A-052214 and MRC-MW10A-052214.

3 - Maximum concentration found in TB-052214 affecting samples MRC-MW08A, MRC-MW10A-052214, and MRC-MW11C-052214.

An action level of 10X the maximum contaminant level for acetone; 5X for all other compounds have been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Detections less than the action level were qualified (U) due to blank contamination.

- The VOC continuing calibration percent differences (%Ds) were greater than the quality control limit of 20% for 1,1,2,2-tetrachloroethane and bromomethane for instrument R-MS-12 on 05/27/14 @11:36. The nondetected results for 1,1,2,2-tetrachloroethane and bromomethane in all samples, except MRC-MW08A-052214 and MRC-MW10A-052214 were qualified as estimated (UJ), unless previously qualified due to blank contamination.

- The VOC continuing calibration %Ds were greater than the quality control limit of 20% for 1,2-dichloroethane, 2-butanone, 2-hexanone, and acetone for instrument R-MS-12 on 05/29/14 @12:38. The nondetected results for the aforementioned compounds in samples MRC-MW08A-052214 and MRC-MW10A-052214 were qualified as estimated (UJ), unless previously qualified due to blank contamination.

- Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

Notes

Sample MRC-MW-102A-050814 was re-analyzed outside the 14 day VOC hold time. No action was taken on this basis because no results were reported from the re-analysis.

Nondetected results were reported to the MDL.

Sample MRC-MW53A-052314 required a 2.5 fold dilution due to a trichloroethene concentration greater than the linear calibration range of the instrument. Only trichloroethene was reported from the dilution.

Executive Summary

Laboratory Performance: Blank contamination was noted in the VOC fraction. Continuing calibration %D noncompliances resulted in the qualification of VOC data.

Other Factors Affecting Data Quality: Positive results less than the reporting limit (RL) were qualified as estimated, due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to USEPA National Functional Guidelines for Organic Data Validation (June 2008). The text of this report has been formulated to address only those problem areas affecting data quality.

FOR Tetra Tech
Edward Sedlmyer
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW08A-052214			MRC-MW106B/C-052314			MRC-MW10A-052214			MRC-MW11C-052214		
SDG: R1403723	LAB_ID	R1403723-015			R1403723-019			R1403723-016			R1403723-017		
FRACTION: OV	SAMP_DATE	5/22/2014			5/23/2014			5/22/2014			5/22/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U		0.25	UJ	C	0.25	U		0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE	0.2	U		0.2	U		0.22	J	P	0.2	U	
1,1-DICHLOROETHENE	0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.36	UJ	C	0.36	U		0.36	UJ	C	0.36	U	
1,2-DICHLOROPROPANE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE	0.81	UJ	C	0.81	U		0.81	UJ	C	0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE	1.7	UJ	C	1.7	U		1.7	UJ	C	1.7	U	
4-CHLOROTOLUENE	0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE	1.3	UJ	C	1.3	U		1.7	U	A	1.3	U	
BENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
BROMOBENZENE	0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM	0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE	0.29	U		0.29	UJ	C	0.29	U		0.29	UJ	C
CARBON DISULFIDE	0.22	U		0.55	J	P	0.22	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-16A-052014			MRC-MW-29A-052114			MRC-MW-50A-051914			MRC-MW53A-052314		
SDG: R1403723	LAB_ID	R1403723-009			R1403723-012			R1403723-004			R1403723-021		
FRACTION: OV	SAMP_DATE	5/20/2014			5/21/2014			5/19/2014			5/23/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	UJ	C	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		35			4.3			0.2	U		0.43	J	P
1,1-DICHLOROETHENE		96			2.9			0.57	U		18		
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.38	J	P
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE		1.3	U		1.3	U		1.3	U		1.3	U	
BENZENE		0.87	J	P	0.2	U		0.68	J	P	1.5		
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.31	U	A	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	U		0.45	U		0.45	U		1.3		

PROJ_NO: 06247	NSAMPLE	MRC-MW53A-052314-DL			MRC-MW53B-052314			MRC-MW-58A-051914			MRC-MW63A-052314		
SDG: R1403723	LAB_ID	R1403723-021			R1403723-022			R1403723-003			R1403723-020		
FRACTION: OV	SAMP_DATE	5/23/2014			5/23/2014			5/19/2014			5/23/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE				0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE				0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE				0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE				0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE				0.2	U		0.2	U		4.7		
1,1-DICHLOROETHENE				0.57	U		0.57	U		3.9		
1,1-DICHLOROPROPENE				0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE				0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE				0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE				0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE				0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE				0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE				0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE				0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE				0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE				0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE				0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE				0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE				0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE				0.27	U		0.27	U		0.27	U	
2-BUTANONE				0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER				0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE				0.2	U		0.2	U		0.2	U	
2-HEXANONE				1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE				0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE				0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE				0.67	U		0.67	U		0.67	U	
ACETONE				1.3	U		1.3	U		1.3	U	
BENZENE				13			0.2	U		0.2	U	
BROMOBENZENE				0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE				0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE				0.32	U		0.32	U		0.32	U	
BROMOFORM				0.42	U		0.42	U		0.42	U	
BROMOMETHANE				0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE				0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE				0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-71A-052014			MRC-MW-71B-052014			TB-051914			TB-052114		
SDG: R1403723	LAB_ID	R1403723-007			R1403723-006			R1403723-001			R1403723-011		
FRACTION: OV	SAMP_DATE	5/20/2014			5/20/2014			5/19/2014			5/21/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		0.39	J	P	0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE	0.71	J	P	2.4			0.2	U		0.2	U	
1,1-DICHLOROETHENE	9.1			30			0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE	0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE	1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE	0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE	1.3	U		1.3	U		1.3	U		1.3	U	
BENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
BROMOBENZENE	0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM	0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE	0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	TB-052214
SDG: R1403723	LAB_ID	R1403723-018
FRACTION: OV	SAMP_DATE	5/22/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U	
1,1-DICHLOROETHANE	0.2	U	
1,1-DICHLOROETHENE	0.57	U	
1,1-DICHLOROPROPENE	0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U	
1,2-DIBROMOETHANE	0.24	U	
1,2-DICHLOROBENZENE	0.21	U	
1,2-DICHLOROETHANE	0.36	U	
1,2-DICHLOROPROPANE	0.2	U	
1,3-DICHLOROBENZENE	0.2	U	
1,3-DICHLOROPROPANE	0.27	U	
1,4-DICHLOROBENZENE	0.2	U	
2,2-DICHLOROPROPANE	0.27	U	
2-BUTANONE	0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	U	
2-CHLOROTOLUENE	0.2	U	
2-HEXANONE	1.7	U	
4-CHLOROTOLUENE	0.24	U	
4-ISOPROPYLTOLUENE	0.2	U	
4-METHYL-2-PENTANONE	0.67	U	
ACETONE	1.6	J	P
BENZENE	0.2	U	
BROMOBENZENE	0.28	U	
BROMOCHLOROMETHANE	0.32	U	
BROMODICHLOROMETHANE	0.32	U	
BROMOFORM	0.42	U	
BROMOMETHANE	0.29	UJ	C
CARBON DISULFIDE	0.22	U	
CARBON TETRACHLORIDE	0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW08A-052214			MRC-MW106B/C-052314			MRC-MW10A-052214			MRC-MW11C-052214		
SDG: R1403723	LAB_ID	R1403723-015			R1403723-019			R1403723-016			R1403723-017		
FRACTION: OV	SAMP_DATE	5/22/2014			5/23/2014			5/22/2014			5/22/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.28	J	P	0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.27	J	P	0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		0.43	J	P	0.49	J	P	0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.22	U		2.9			0.22	U		0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-16A-052014			MRC-MW-29A-052114			MRC-MW-50A-051914			MRC-MW53A-052314		
SDG: R1403723	LAB_ID	R1403723-009			R1403723-012			R1403723-004			R1403723-021		
FRACTION: OV	SAMP_DATE	5/20/2014			5/21/2014			5/19/2014			5/23/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.29	J	P	0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		1.9		
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		13			3.2			0.81	J	P	17		
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.22	J	P	0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		3.4			0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	U	
TETRACHLOROETHENE		9.5			0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.47	J	P	0.33	U		0.39	J	P	0.33	J	P
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		26			9			14					
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		12			0.85	J	P	0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW53A-052314-DL			MRC-MW53B-052314			MRC-MW-58A-051914			MRC-MW63A-052314		
SDG: R1403723	LAB_ID	R1403723-021			R1403723-022			R1403723-003			R1403723-020		
FRACTION: OV	SAMP_DATE	5/23/2014			5/23/2014			5/19/2014			5/23/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE					0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE					0.31	U		0.31	U		0.31	U	
CHLOROETHANE					0.24	U		0.24	U		0.24	U	
CHLOROFORM					0.48	J	P	0.25	U		0.25	U	
CHLOROMETHANE					0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE					3.9			0.3	U		5.6		
CIS-1,3-DICHLOROPROPENE					0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE					0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE					0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER					0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER					0.2	U		0.2	U		0.2	U	
ETHYLBENZENE					0.6	J	P	0.2	U		0.2	U	
HEXACHLOROBUTADIENE					0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE					0.2	U		0.2	U		0.2	U	
M+P-XYLENES					0.84	J	P	0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER					3.5			0.29	U		0.29	U	
METHYLENE CHLORIDE					0.32	U		0.32	U		0.32	U	
NAPHTHALENE					0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE					0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE					0.2	U		0.2	U		0.2	U	
O-XYLENE					0.61	J	P	0.2	U		0.2	U	
SEC-BUTYLBENZENE					0.27	U		0.27	U		0.27	U	
STYRENE					0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER					0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE					0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL					11	U		11	U		11	U	
TETRACHLOROETHENE					0.3	U		0.3	U		0.3	U	
TOLUENE					0.2	U		0.2	U		0.2	U	
TOTAL XYLENES					1.5	J	P	0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE					0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE					0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		320			26			0.22	U		6.6		
TRICHLOROFLUOROMETHANE					0.2	U		0.2	U		0.2	U	
VINYL ACETATE					1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE					0.32	U		0.32	U		1.6		

PROJ_NO: 06247	NSAMPLE	MRC-MW-71A-052014			MRC-MW-71B-052014			TB-051914			TB-052114		
SDG: R1403723	LAB_ID	R1403723-007			R1403723-006			R1403723-001			R1403723-011		
FRACTION: OV	SAMP_DATE	5/20/2014			5/20/2014			5/19/2014			5/21/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		5			0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.4	J	P	0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.36	J	P	49			0.22	U		0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	TB-052214
SDG: R1403723	LAB_ID	R1403723-018
FRACTION: OV	SAMP_DATE	5/22/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CHLOROBENZENE	0.29	U	
CHLORODIBROMOMETHANE	0.31	U	
CHLOROETHANE	0.24	U	
CHLOROFORM	0.25	U	
CHLOROMETHANE	0.21	U	
CIS-1,2-DICHLOROETHENE	0.3	U	
CIS-1,3-DICHLOROPROPENE	0.24	U	
DIBROMOMETHANE	0.32	U	
DICHLORODIFLUOROMETHANE	0.46	U	
DIISOPROPYL ETHER	0.2	U	
ETHYL TERT-BUTYL ETHER	0.2	U	
ETHYLBENZENE	0.2	U	
HEXACHLOROBUTADIENE	0.62	U	
ISOPROPYLBENZENE	0.2	U	
M+P-XYLENES	0.33	U	
METHYL TERT-BUTYL ETHER	0.29	U	
METHYLENE CHLORIDE	0.32	U	
NAPHTHALENE	0.2	U	
N-BUTYLBENZENE	0.21	U	
N-PROPYLBENZENE	0.2	U	
O-XYLENE	0.2	U	
SEC-BUTYLBENZENE	0.27	U	
STYRENE	0.2	U	
TERT-AMYL METHYL ETHER	0.2	U	
TERT-BUTYLBENZENE	0.2	U	
TERTIARY-BUTYL ALCOHOL	11	U	
TETRACHLOROETHENE	0.3	U	
TOLUENE	0.2	U	
TOTAL XYLENES	0.53	U	
TRANS-1,2-DICHLOROETHENE	0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	0.22	U	
TRICHLOROFLUOROMETHANE	0.2	U	
VINYL ACETATE	1.1	U	
VINYL CHLORIDE	0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW08A-052214			MRC-MW10A-052214			MRC-MW11C-052214			MRC-MW-15A-052014		
SDG: R1403723	LAB_ID	R1403723-015			R1403723-016			R1403723-017			R1403723-008		
FRACTION: OS	SAMP_DATE	5/22/2014			5/22/2014			5/22/2014			5/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		0.39			1.32			0.02	U		22.5		

PROJ_NO: 06247	NSAMPLE	MRC-MW-16A-052014			MRC-MW53A-052314			MRC-MW53B-052314			MRC-MW54A-052214		
SDG: R1403723	LAB_ID	R1403723-009			R1403723-021			R1403723-022			R1403723-014		
FRACTION: OS	SAMP_DATE	5/20/2014			5/23/2014			5/23/2014			5/22/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		83.8			24.4			4.18			0.195	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-58A-051914			MRC-MW63A-052314			MRC-MW-71A-052014			MRC-MW-71B-052014		
SDG: R1403723	LAB_ID	R1403723-003			R1403723-020			R1403723-007			R1403723-006		
FRACTION: OS	SAMP_DATE	5/19/2014			5/23/2014			5/20/2014			5/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		0.788			9.73			1.43			19.9		

PROJ_NO: 06247	NSAMPLE	MRC-MW08A-052214			MRC-MW-50A-051914			MRC-MW53A-052314			MRC-MW53B-052314		
SDG: R1403723	LAB_ID	R1403723-015			R1403723-004			R1403723-021			R1403723-022		
FRACTION: MISC	SAMP_DATE	5/22/2014			5/19/2014			5/23/2014			5/23/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		0.026	U		0.38			9.7			2.4		

PROJ_NO: 06247	NSAMPLE	MRC-MW54A-052214		
SDG: R1403723	LAB_ID	R1403723-014		
FRACTION: MISC	SAMP_DATE	5/22/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PERCHLORATE		0.026	U	

Appendix B

Results as Reported by the Laboratory

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1539
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 18:58
Sample Name:	MRC-MW-16A-052014	**Units:**	µg/L
Lab Code:	R1403723-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5983.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**35**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**96**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**0.87**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.31**	BJ	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1539
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 18:58
Sample Name:	MRC-MW-16A-052014	**Units:**	µg/L
Lab Code:	R1403723-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5983.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	**0.29**	**J**	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**9.5**		1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**26**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**12**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**13**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.47**	J	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/20/14 1539
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 18:58
Sample Name:	MRC-MW-16A-052014	**Units:**	µg/L
Lab Code:	R1403723-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5983.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	5/27/14 18:58	
Dibromofluoromethane	106	89-119	5/27/14 18:58	
Toluene-d8	99	87-121	5/27/14 18:58	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/21/14 1159
Sample Matrix:	Water	**Date Received:**	5/22/14
		Date Analyzed:	5/27/14 19:30
Sample Name:	MRC-MW-29A-052114	**Units:**	µg/L
Lab Code:	R1403723-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5984.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**4.3**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**2.9**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/21/14 1159
Sample Matrix:	Water	**Date Received:**	5/22/14
		Date Analyzed:	5/27/14 19:30
Sample Name:	MRC-MW-29A-052114	**Units:**	µg/L
Lab Code:	R1403723-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5984.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**3.4**		1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**9.0**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.85**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**3.2**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/21/14 1159
Sample Matrix:	Water	**Date Received:**	5/22/14
		Date Analyzed:	5/27/14 19:30
Sample Name:	MRC-MW-29A-052114	**Units:**	µg/L
Lab Code:	R1403723-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5984.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	5/27/14 19:30	
Dibromofluoromethane	106	89-119	5/27/14 19:30	
Toluene-d8	99	87-121	5/27/14 19:30	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/19/14 1212
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 17:23
Sample Name:	MRC-MW-50A-051914	**Units:**	µg/L
Lab Code:	R1403723-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5980.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	0.68	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1212
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 17:23
Sample Name:	MRC-MW-50A-051914	**Units:**	µg/L
Lab Code:	R1403723-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5980.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	**0.22**	J	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**14**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.81**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.39**	J	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1212
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 17:23
Sample Name:	MRC-MW-50A-051914	**Units:**	µg/L
Lab Code:	R1403723-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5980.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	5/27/14 17:23	
Dibromofluoromethane	107	89-119	5/27/14 17:23	
Toluene-d8	98	87-121	5/27/14 17:23	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1043
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 16:52
Sample Name:	MRC-MW-58A-051914	**Units:**	µg/L
Lab Code:	R1403723-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5979.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1043
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 16:52
Sample Name:	MRC-MW-58A-051914	**Units:**	µg/L
Lab Code:	R1403723-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5979.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1043
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 16:52
Sample Name:	MRC-MW-58A-051914	**Units:**	µg/L
Lab Code:	R1403723-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5979.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	5/27/14 16:52	
Dibromofluoromethane	105	89-119	5/27/14 16:52	
Toluene-d8	88	87-121	5/27/14 16:52	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1213
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 18:26
Sample Name:	MRC-MW-71A-052014	**Units:**	µg/L
Lab Code:	R1403723-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5982.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.71**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**9.1**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1213
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 18:26
Sample Name:	MRC-MW-71A-052014	**Units:**	µg/L
Lab Code:	R1403723-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5982.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.36**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1213
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 18:26
Sample Name:	MRC-MW-71A-052014	**Units:**	µg/L
Lab Code:	R1403723-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5982.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	5/27/14 18:26	
Dibromofluoromethane	104	89-119	5/27/14 18:26	
Toluene-d8	101	87-121	5/27/14 18:26	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/20/14 1013
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 17:56
Sample Name:	MRC-MW-71B-052014	**Units:**	µg/L
Lab Code:	R1403723-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5981.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	**0.39**	J	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**2.4**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**30**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1013
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 17:56
Sample Name:	MRC-MW-71B-052014	**Units:**	µg/L
Lab Code:	R1403723-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5981.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**0.40**	J	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**49**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**5.0**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1013
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 17:56
Sample Name:	MRC-MW-71B-052014	**Units:**	µg/L
Lab Code:	R1403723-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5981.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	5/27/14 17:56	
Dibromofluoromethane	103	89-119	5/27/14 17:56	
Toluene-d8	96	87-121	5/27/14 17:56	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1045
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 20:08
Sample Name:	MRC-MW08A-052214	**Units:**	µg/L
Lab Code:	R1403723-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6070.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1045
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 20:08
Sample Name:	MRC-MW08A-052214	**Units:**	µg/L
Lab Code:	R1403723-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6070.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/22/14 1045
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 20:08
Sample Name:	MRC-MW08A-052214	**Units:**	µg/L
Lab Code:	R1403723-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6070.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	107	85-122	5/29/14 20:08	
Dibromofluoromethane	108	89-119	5/29/14 20:08	
Toluene-d8	99	87-121	5/29/14 20:08	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 0910
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 20:35
Sample Name:	MRC-MW106B/C-052314	**Units:**	µg/L
Lab Code:	R1403723-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5986.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 0910
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 20:35
Sample Name:	MRC-MW106B/C-052314	**Units:**	µg/L
Lab Code:	R1403723-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5986.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**0.55**	J	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	**0.28**	J	1.0	0.24	
67-66-3	Chloroform	**0.27**	J	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**2.9**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.43**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 0910
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 20:35
Sample Name:	MRC-MW106B/C-052314	**Units:**	µg/L
Lab Code:	R1403723-019	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5986.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	5/27/14 20:35	
Dibromofluoromethane	106	89-119	5/27/14 20:35	
Toluene-d8	88	87-121	5/27/14 20:35	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1245
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 20:40
Sample Name:	MRC-MW10A-052214	**Units:**	µg/L
Lab Code:	R1403723-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6071.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.22**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**1.7**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1245
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 20:40
Sample Name:	MRC-MW10A-052214	**Units:**	µg/L
Lab Code:	R1403723-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6071.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.49**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1245
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 20:40
Sample Name:	MRC-MW10A-052214	**Units:**	µg/L
Lab Code:	R1403723-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6071.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	5/29/14 20:40	
Dibromofluoromethane	107	89-119	5/29/14 20:40	
Toluene-d8	99	87-121	5/29/14 20:40	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 20:03
Sample Name:	MRC-MW11C-052214	**Units:**	µg/L
Lab Code:	R1403723-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5985.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/22/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 20:03
Sample Name:	MRC-MW11C-052214	**Units:**	µg/L
Lab Code:	R1403723-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5985.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 20:03
Sample Name:	MRC-MW11C-052214	**Units:**	µg/L
Lab Code:	R1403723-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5985.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	5/27/14 20:03	
Dibromofluoromethane	107	89-119	5/27/14 20:03	
Toluene-d8	101	87-121	5/27/14 20:03	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 21:39
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5988.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.43**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**18**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	**0.38**	J	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**1.5**		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 21:39
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5988.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	**1.3**		1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**1.9**		1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**340**	E	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**17**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.33**	J	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 21:39
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5988.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	5/27/14 21:39	
Dibromofluoromethane	105	89-119	5/27/14 21:39	
Toluene-d8	99	87-121	5/27/14 21:39	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 21:12
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.5	U	2.5	0.55	
71-55-6	1,1,1-Trichloroethane (TCA)	2.5	U	2.5	0.90	
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	2.5	0.63	
76-13-1	1,1,2-Trichlorotrifluoroethane	2.5	U	2.5	0.78	
75-34-3	1,1-Dichloroethane (1,1-DCA)	2.5	U	2.5	0.50	
75-35-4	1,1-Dichloroethene (1,1-DCE)	17	D	2.5	1.5	
563-58-6	1,1-Dichloropropene	2.5	U	2.5	0.73	
87-61-6	1,2,3-Trichlorobenzene	2.5	U	2.5	2.1	
96-18-4	1,2,3-Trichloropropane	2.5	U	2.5	1.8	
120-82-1	1,2,4-Trichlorobenzene	2.5	U	2.5	0.58	
95-63-6	1,2,4-Trimethylbenzene	2.5	U	2.5	0.50	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	5.0	U	5.0	1.9	
106-93-4	1,2-Dibromoethane	2.5	U	2.5	0.60	
95-50-1	1,2-Dichlorobenzene	2.5	U	2.5	0.53	
107-06-2	1,2-Dichloroethane	2.5	U	2.5	0.90	
78-87-5	1,2-Dichloropropane	2.5	U	2.5	0.50	
541-73-1	1,3-Dichlorobenzene	2.5	U	2.5	0.50	
142-28-9	1,3-Dichloropropane	2.5	U	2.5	0.68	
106-46-7	1,4-Dichlorobenzene	2.5	U	2.5	0.50	
594-20-7	2,2-Dichloropropane	2.5	U	2.5	0.68	
78-93-3	2-Butanone (MEK)	13	U	13	2.1	
110-75-8	2-Chloroethyl Vinyl Ether	2.5	U	2.5	1.1	
95-49-8	2-Chlorotoluene	2.5	U	2.5	0.50	
591-78-6	2-Hexanone	13	U	13	4.2	
75-65-0	tert-Butyl Alcohol	100	U	100	27	
106-43-4	4-Chlorotoluene	2.5	U	2.5	0.60	
99-87-6	4-Isopropyltoluene	2.5	U	2.5	0.50	
108-10-1	4-Methyl-2-pentanone	13	U	13	1.7	
67-64-1	Acetone	13	U	13	3.1	
71-43-2	Benzene	1.4	DJ	2.5	0.50	
108-86-1	Bromobenzene	2.5	U	2.5	0.71	
74-97-5	Bromochloromethane	2.5	U	2.5	0.80	
75-27-4	Bromodichloromethane	2.5	U	2.5	0.80	
75-25-2	Bromoform	2.5	U	2.5	1.1	
74-83-9	Bromomethane	2.5	U	2.5	0.73	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 21:12
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.5	U	2.5	0.55	
56-23-5	Carbon Tetrachloride	**1.7**	DJ	2.5	1.2	
108-90-7	Chlorobenzene	2.5	U	2.5	0.73	
75-00-3	Chloroethane	2.5	U	2.5	0.60	
67-66-3	Chloroform	**2.6**	D	2.5	0.63	
74-87-3	Chloromethane	2.5	U	2.5	0.53	
124-48-1	Dibromochloromethane	2.5	U	2.5	0.78	
74-95-3	Dibromomethane	2.5	U	2.5	0.80	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.5	U	2.5	1.2	
75-09-2	Methylene Chloride	2.5	U	2.5	0.80	
108-20-3	Diisopropyl Ether	2.5	U	2.5	0.50	
637-92-3	Ethyl tert-Butyl Ether	2.5	U	2.5	0.50	
100-41-4	Ethylbenzene	2.5	U	2.5	0.50	
87-68-3	Hexachlorobutadiene	5.0	U	5.0	1.6	
98-82-8	Isopropylbenzene (Cumene)	2.5	U	2.5	0.50	
1634-04-4	Methyl tert-Butyl Ether	2.5	U	2.5	0.73	
91-20-3	Naphthalene	2.5	U	2.5	0.50	
100-42-5	Styrene	2.5	U	2.5	0.50	
127-18-4	Tetrachloroethene (PCE)	2.5	U	2.5	0.75	
108-88-3	Toluene	2.5	U	2.5	0.50	
79-01-6	Trichloroethene (TCE)	**320**	D	2.5	0.55	
75-69-4	Trichlorofluoromethane (CFC 11)	2.5	U	2.5	0.50	
108-05-4	Vinyl Acetate	5.0	U	5.0	2.6	
75-01-4	Vinyl Chloride	2.5	U	2.5	0.80	
1330-20-7	Xylenes, Total	7.5	U	7.5	1.4	
156-59-2	cis-1,2-Dichloroethene	**17**	D	2.5	0.75	
10061-01-5	cis-1,3-Dichloropropene	2.5	U	2.5	0.60	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.83	
104-51-8	n-Butylbenzene	2.5	U	2.5	0.53	
103-65-1	n-Propylbenzene	2.5	U	2.5	0.50	
95-47-6	o-Xylene	2.5	U	2.5	0.50	
135-98-8	sec-Butylbenzene	2.5	U	2.5	0.68	
994-05-8	tert-Amyl Methyl Ether	2.5	U	2.5	0.50	
98-06-6	tert-Butylbenzene	2.5	U	2.5	0.50	
156-60-5	trans-1,2-Dichloroethene	2.5	U	2.5	0.83	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 21:12
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.5	U	2.5	0.50	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	108	85-122	5/29/14 21:12	
Dibromofluoromethane	108	89-119	5/29/14 21:12	
Toluene-d8	100	87-121	5/29/14 21:12	

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Collected: 5/23/14 1355
Date Received: 5/24/14
Date Analyzed: 5/27/14 22:12

Sample Name: MRC-MW53B-052314
Lab Code: R1403723-022

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\052714\J5989.D\

Analysis Lot: 394253
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	13		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 22:12
Sample Name:	MRC-MW53B-052314	**Units:**	µg/L
Lab Code:	R1403723-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5989.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**0.48**	J	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	**0.60**	J	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**3.5**		1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**26**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	**1.5**	J	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**3.9**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	**0.84**	J	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	**0.61**	J	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 22:12
Sample Name:	MRC-MW53B-052314	**Units:**	µg/L
Lab Code:	R1403723-022	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5989.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	5/27/14 22:12	
Dibromofluoromethane	106	89-119	5/27/14 22:12	
Toluene-d8	100	87-121	5/27/14 22:12	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1050
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 21:07
Sample Name:	MRC-MW63A-052314	**Units:**	µg/L
Lab Code:	R1403723-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5987.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**4.7**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**3.9**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1050
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 21:07
Sample Name:	MRC-MW63A-052314	**Units:**	µg/L
Lab Code:	R1403723-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5987.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**6.6**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**1.6**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**5.6**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1050
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 21:07
Sample Name:	MRC-MW63A-052314	**Units:**	µg/L
Lab Code:	R1403723-020	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5987.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	5/27/14 21:07	
Dibromofluoromethane	106	89-119	5/27/14 21:07	
Toluene-d8	98	87-121	5/27/14 21:07	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 0000
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 15:16
Sample Name:	TB-051914	**Units:**	µg/L
Lab Code:	R1403723-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5976.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 0000
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 15:16
Sample Name:	TB-051914	**Units:**	µg/L
Lab Code:	R1403723-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5976.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 0000
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Analyzed:	5/27/14 15:16
Sample Name:	TB-051914	**Units:**	µg/L
Lab Code:	R1403723-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5976.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	5/27/14 15:16	
Dibromofluoromethane	103	89-119	5/27/14 15:16	
Toluene-d8	96	87-121	5/27/14 15:16	

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Collected: 5/21/14 0000
Date Received: 5/22/14
Date Analyzed: 5/27/14 15:48

Sample Name: TB-052114
Lab Code: R1403723-011

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\052714\J5977.D\

Analysis Lot: 394253
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/21/14 0000
Sample Matrix:	Water	**Date Received:**	5/22/14
		Date Analyzed:	5/27/14 15:48
Sample Name:	TB-052114	**Units:**	µg/L
Lab Code:	R1403723-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5977.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/21/14 0000
Sample Matrix:	Water	**Date Received:**	5/22/14
		Date Analyzed:	5/27/14 15:48
Sample Name:	TB-052114	**Units:**	µg/L
Lab Code:	R1403723-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5977.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	5/27/14 15:48	
Dibromofluoromethane	104	89-119	5/27/14 15:48	
Toluene-d8	97	87-121	5/27/14 15:48	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 16:20
Sample Name:	TB-052214	**Units:**	µg/L
Lab Code:	R1403723-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5978.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	1.6	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 16:20
Sample Name:	TB-052214	**Units:**	µg/L
Lab Code:	R1403723-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5978.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/27/14 16:20
Sample Name:	TB-052214	**Units:**	µg/L
Lab Code:	R1403723-018	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5978.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	5/27/14 16:20	
Dibromofluoromethane	104	89-119	5/27/14 16:20	
Toluene-d8	99	87-121	5/27/14 16:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/20/14 1425
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/27/14 11:20
Sample Name:	MRC-MW-15A-052014	**Units:**	µg/L
Lab Code:	R1403723-008	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394225
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052714\Af801.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	22.5		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	106	70-130	5/27/14 11:20	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1539
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 13:10
Sample Name:	MRC-MW-16A-052014	**Units:**	µg/L
Lab Code:	R1403723-009	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394169
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052314\Af786.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**83.8**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	103	70-130	5/23/14 13:10	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1043
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 11:54
Sample Name:	MRC-MW-58A-051914	**Units:**	µg/L
Lab Code:	R1403723-003	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394169
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052314\Af782.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.788**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	92	70-130	5/23/14 11:54	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1213
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 12:32
Sample Name:	MRC-MW-71A-052014	**Units:**	µg/L
Lab Code:	R1403723-007	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394169
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052314\Af784.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**1.43**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	100	70-130	5/23/14 12:32	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1013
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 12:13
Sample Name:	MRC-MW-71B-052014	**Units:**	µg/L
Lab Code:	R1403723-006	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394169
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052314\Af783.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	19.9		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	70-130	5/23/14 12:13	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1045
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 17:32
Sample Name:	MRC-MW08A-052214	**Units:**	µg/L
Lab Code:	R1403723-015	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af817.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.390**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	100	70-130	5/28/14 17:32	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1245
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 17:49
Sample Name:	MRC-MW10A-052214	**Units:**	µg/L
Lab Code:	R1403723-016	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af818.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**1.32**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	70-130	5/28/14 17:49	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 18:07
Sample Name:	MRC-MW11C-052214	**Units:**	µg/L
Lab Code:	R1403723-017	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af819.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	105	70-130	5/28/14 18:07	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 18:43
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af821.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	24.4		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	116	70-130	5/28/14 18:43	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 19:19
Sample Name:	MRC-MW53B-052314	**Units:**	µg/L
Lab Code:	R1403723-022	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af823.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**4.18**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	107	70-130	5/28/14 19:19	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 0935
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 17:14
Sample Name:	MRC-MW54A-052214	**Units:**	µg/L
Lab Code:	R1403723-014	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af816.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.195**	J	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	100	70-130	5/28/14 17:14	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1050
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 18:25
Sample Name:	MRC-MW63A-052314	**Units:**	µg/L
Lab Code:	R1403723-020	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af820.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	9.73		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	105	70-130	5/28/14 18:25	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/19/14 1212
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 15:20
Sample Name:	MRC-MW-50A-051914	**Units:**	µg/L
Lab Code:	R1403723-004	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	394156
Prep Method:	Method	**Extraction Lot:**	209200
Data File Name:	I:\ACQUDATA\HPLC02\DATA\052314\B0031065.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.38**		0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 1045
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/30/14
		Date Analyzed:	6/2/14 12:12
Sample Name:	MRC-MW08A-052214	**Units:**	µg/L
Lab Code:	R1403723-015	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	395257
Prep Method:	Method	**Extraction Lot:**	209682
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060214\B0031115.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/30/14
		Date Analyzed:	6/3/14 10:15
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	395295
Prep Method:	Method	**Extraction Lot:**	209682
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060314\B0031130.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	9.7		2.0	0.26	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1355
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/30/14
		Date Analyzed:	6/2/14 12:39
Sample Name:	MRC-MW53B-052314	**Units:**	µg/L
Lab Code:	R1403723-022	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	395257
Prep Method:	Method	**Extraction Lot:**	209682
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060214\B0031117.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**2.4**		0.20	0.026	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/22/14 0935
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/30/14
		Date Analyzed:	6/2/14 11:59
Sample Name:	MRC-MW54A-052214	**Units:**	µg/L
Lab Code:	R1403723-014	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	395257
Prep Method:	Method	**Extraction Lot:**	209682
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060214\B0031114.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

Appendix C

Support Documentation

HOLDTIME

SDG R1403723

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	UG/L	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	06/04/2014	06/04/2014	12	0	12
HG	UG/L	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	06/04/2014	06/04/2014	15	0	15
HG	UG/L	MRC-MW-59A-051914	R1403723-002	NM	05/19/2014	06/04/2014	06/04/2014	16	0	16
HG	UG/L	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	06/04/2014	06/04/2014	12	0	12
HG	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	06/04/2014	06/04/2014	12	0	12
HG	UG/L	MRC-MW-50A-051914	R1403723-004	NM	05/19/2014	06/04/2014	06/04/2014	16	0	16
HG	UG/L	MRC-MW-49A-051914	R1403723-005	NM	05/19/2014	06/04/2014	06/04/2014	16	0	16
HG	UG/L	MRC-MW-26A-052114	R1403723-013	NM	05/21/2014	06/04/2014	06/04/2014	14	0	14
HG	UG/L	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	06/04/2014	06/04/2014	15	0	15
HG	UG/L	MRC-MW-15A-052014	R1403723-008	NM	05/20/2014	06/04/2014	06/04/2014	15	0	15
HG	UG/L	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	06/04/2014	06/04/2014	13	0	13
HG	UG/L	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	06/04/2014	06/04/2014	13	0	13
HG	UG/L	MRC-DUP03-052014	R1403723-010	NM	05/20/2014	06/04/2014	06/04/2014	15	0	15
HG	UG/L	MRC-MW-29A-052114	R1403723-012	NM	05/21/2014	06/04/2014	06/04/2014	14	0	14
HG	UG/L	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	06/04/2014	06/04/2014	15	0	15

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	06/09/2014	06/13/2014	17	4	21
M	UG/L	MRC-MW-49A-051914	R1403723-005	NM	05/19/2014	06/04/2014	06/11/2014	16	7	23
M	UG/L	MRC-MW-50A-051914	R1403723-004	NM	05/19/2014	06/04/2014	06/11/2014	16	7	23
M	UG/L	MRC-MW-50A-051914	R1403723-004	NM	05/19/2014	06/09/2014	06/13/2014	21	4	25
M	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	06/04/2014	06/11/2014	12	7	19
M	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	06/09/2014	06/13/2014	17	4	21
M	UG/L	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	06/04/2014	06/11/2014	12	7	19
M	UG/L	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	06/09/2014	06/13/2014	17	4	21
M	UG/L	MRC-MW-59A-051914	R1403723-002	NM	05/19/2014	06/04/2014	06/11/2014	16	7	23
M	UG/L	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	06/04/2014	06/11/2014	12	7	19
M	UG/L	MRC-MW-29A-052114	R1403723-012	NM	05/21/2014	06/04/2014	06/11/2014	14	7	21
M	UG/L	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	06/09/2014	06/13/2014	18	4	22
M	UG/L	MRC-MW-59A-051914	R1403723-002	NM	05/19/2014	06/09/2014	06/13/2014	21	4	25
M	UG/L	MRC-MW-26A-052114	R1403723-013	NM	05/21/2014	06/09/2014	06/13/2014	19	4	23
M	UG/L	MRC-MW-26A-052114	R1403723-013	NM	05/21/2014	06/04/2014	06/11/2014	14	7	21
M	UG/L	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	06/09/2014	06/13/2014	20	4	24
M	UG/L	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	06/04/2014	06/11/2014	15	7	22
M	UG/L	MRC-MW-15A-052014	R1403723-008	NM	05/20/2014	06/09/2014	06/13/2014	20	4	24

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	MRC-MW-15A-052014	R1403723-008	NM	05/20/2014	06/04/2014	06/11/2014	15	7	22
M	UG/L	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	06/04/2014	06/11/2014	15	7	22
M	UG/L	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	06/04/2014	06/11/2014	13	7	20
M	UG/L	MRC-MW-49A-051914	R1403723-005	NM	05/19/2014	06/09/2014	06/13/2014	21	4	25
M	UG/L	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	06/04/2014	06/11/2014	13	7	20
M	UG/L	MRC-DUP03-052014	R1403723-010	NM	05/20/2014	06/09/2014	06/13/2014	20	4	24
M	UG/L	MRC-DUP03-052014	R1403723-010	NM	05/20/2014	06/04/2014	06/11/2014	15	7	22
M	UG/L	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	06/09/2014	06/13/2014	18	4	22
M	UG/L	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	06/09/2014	06/13/2014	20	4	24
M	UG/L	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	06/04/2014	06/11/2014	15	7	22
M	UG/L	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	06/09/2014	06/13/2014	20	4	24
M	UG/L	MRC-MW-29A-052114	R1403723-012	NM	05/21/2014	06/09/2014	06/13/2014	19	4	23
PCL	UG/L	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	05/30/2014	06/02/2014	7	3	10
PCL	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/30/2014	06/03/2014	7	4	11
PCL	UG/L	MRC-MW-50A-051914	R1403723-004	NM	05/19/2014	05/23/2014	05/23/2014	4	0	4
PCL	UG/L	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	05/30/2014	06/02/2014	8	3	11
PCL	UG/L	MRC-MW54A-052214	R1403723-014	NM	05/22/2014	05/30/2014	06/02/2014	8	3	11
	PERCENT	MRC-MW11C-052214	R1403723-017	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	PERCENT	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	05/23/2014	05/23/2014	3	0	3
	PERCENT	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	05/28/2014	05/28/2014	5	0	5
	PERCENT	MRC-MW54A-052214	R1403723-014	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	PERCENT	MRC-MW-58A-051914	R1403723-003	NM	05/19/2014	05/23/2014	05/23/2014	4	0	4
	PERCENT	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	05/28/2014	05/28/2014	5	0	5
	PERCENT	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	PERCENT	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	05/23/2014	05/23/2014	3	0	3
	PERCENT	MRC-MW-15A-052014	R1403723-008	NM	05/20/2014	05/23/2014	05/27/2014	3	4	7
	PERCENT	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	05/23/2014	05/23/2014	3	0	3
	PERCENT	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	PERCENT	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/28/2014	05/28/2014	5	0	5
	UG/L	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/28/2014	05/28/2014	5	0	5
	UG/L	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	05/28/2014	05/28/2014	5	0	5
	UG/L	MRC-MW54A-052214	R1403723-014	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	UG/L	MRC-MW-58A-051914	R1403723-003	NM	05/19/2014	05/23/2014	05/23/2014	4	0	4
	UG/L	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	05/28/2014	05/28/2014	5	0	5
	UG/L	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	05/23/2014	05/23/2014	3	0	3

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	UG/L	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	05/23/2014	05/23/2014	3	0	3
	UG/L	MRC-MW-15A-052014	R1403723-008	NM	05/20/2014	05/23/2014	05/27/2014	3	4	7
	UG/L	MRC-MW11C-052214	R1403723-017	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	UG/L	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	05/28/2014	05/28/2014	6	0	6
	UG/L	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	05/23/2014	05/23/2014	3	0	3
OV	PERCE NT	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	05/29/2014	05/29/2014	7	0	7
OV	PERCE NT	TB-052114	R1403723-011	NM	05/21/2014	05/27/2014	05/27/2014	6	0	6
OV	PERCE NT	TB-052214	R1403723-018	NM	05/22/2014	05/27/2014	05/27/2014	5	0	5
OV	PERCE NT	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	05/27/2014	05/27/2014	7	0	7
OV	PERCE NT	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	05/27/2014	05/27/2014	7	0	7
OV	PERCE NT	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	PERCE NT	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	05/27/2014	05/27/2014	7	0	7
OV	PERCE NT	MRC-MW106B/C-052314	R1403723-019	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	PERCE NT	MRC-MW-50A-051914	R1403723-004	NM	05/19/2014	05/27/2014	05/27/2014	8	0	8
OV	PERCE NT	MRC-MW11C-052214	R1403723-017	NM	05/22/2014	05/27/2014	05/27/2014	5	0	5
OV	PERCE NT	MRC-MW-58A-051914	R1403723-003	NM	05/19/2014	05/27/2014	05/27/2014	8	0	8
OV	PERCE NT	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	PERCE NT	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/29/2014	05/29/2014	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	PERCENT	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	PERCENT	TB-051914	R1403723-001	NM	05/19/2014	05/27/2014	05/27/2014	8	0	8
OV	PERCENT	MRC-MW-29A-052114	R1403723-012	NM	05/21/2014	05/27/2014	05/27/2014	6	0	6
OV	PERCENT	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	05/29/2014	05/29/2014	7	0	7
OV	UG/L	MRC-MW-58A-051914	R1403723-003	NM	05/19/2014	05/27/2014	05/27/2014	8	0	8
OV	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	UG/L	MRC-MW08A-052214	R1403723-015	NM	05/22/2014	05/29/2014	05/29/2014	7	0	7
OV	UG/L	MRC-MW106B/C-052314	R1403723-019	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	UG/L	MRC-MW10A-052214	R1403723-016	NM	05/22/2014	05/29/2014	05/29/2014	7	0	7
OV	UG/L	MRC-MW11C-052214	R1403723-017	NM	05/22/2014	05/27/2014	05/27/2014	5	0	5
OV	UG/L	MRC-MW-16A-052014	R1403723-009	NM	05/20/2014	05/27/2014	05/27/2014	7	0	7
OV	UG/L	MRC-MW-71A-052014	R1403723-007	NM	05/20/2014	05/27/2014	05/27/2014	7	0	7
OV	UG/L	MRC-MW-50A-051914	R1403723-004	NM	05/19/2014	05/27/2014	05/27/2014	8	0	8
OV	UG/L	TB-052214	R1403723-018	NM	05/22/2014	05/27/2014	05/27/2014	5	0	5
OV	UG/L	MRC-MW53A-052314	R1403723-021	NM	05/23/2014	05/29/2014	05/29/2014	6	0	6
OV	UG/L	MRC-MW53B-052314	R1403723-022	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	UG/L	MRC-MW63A-052314	R1403723-020	NM	05/23/2014	05/27/2014	05/27/2014	4	0	4
OV	UG/L	MRC-MW-71B-052014	R1403723-006	NM	05/20/2014	05/27/2014	05/27/2014	7	0	7

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	TB-051914	R1403723-001	NM	05/19/2014	05/27/2014	05/27/2014	8	0	8
OV	UG/L	TB-052114	R1403723-011	NM	05/21/2014	05/27/2014	05/27/2014	6	0	6
OV	UG/L	MRC-MW-29A-052114	R1403723-012	NM	05/21/2014	05/27/2014	05/27/2014	6	0	6

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1403723
Project:	Middle River	**Date Received:**	5/21-5/24/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Twenty-two water samples were received for analysis at ALS-Environmental between 5/21-5/24/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 0.0-4.4°C within the 0-6°C temperature guidelines.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-71B-052014 (R1403723-006) was outside of the control limits for the duplicate analysis for Copper. All samples have been "*" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
5/27/14- 1,1,2,2-Tetrachloroethane and Bromomethane
5/29/14- 1,2-Dichloroethane, 2-Butanone, 2-Hexanone and Acetone(>40%)
All detected concentrations for these compounds in samples associated with their relevant CCV should be considered as estimated.

The Method Blanks contained low level hits of 1,2,4-Trichlorobenzene, Bromomethane and Naphthalene on 5/27/14 and 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 5/29/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The 5/16/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/25/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #:	112IC06247	Batch Complete:	Yes	Date Revised:	
Submission:	R1403723	Diskette Requested:	No	Date Due:	6/17/14
Client:	Tetra Tech GEO	Date:	5/29/14	Protocol:	SW846
Client Rep:	DPATTON	Custody Seal: Present/Absent:		Shipping No.:	
Project:	Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:	

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1403723-001	TB-051914	Water	8260C	5/19/14	5/21/14			
R1403723-002	MRC-MW-59A-051914	Water	7470A, 6020A, 6010C	5/19/14	5/21/14			
R1403723-003	MRC-MW-58A-051914	Water	522, 8260C	5/19/14	5/21/14			
R1403723-004	MRC-MW-50A-051914	Water	7470A, 8260C, 6010C, 6020A, 6850	5/19/14	5/21/14			
R1403723-005	MRC-MW-49A-051914	Water	7470A, 6020A, 6010C	5/19/14	5/21/14			
R1403723-006	MRC-MW-71B-052014	Water	6020A, 8260C, 522, 7470A, 6010C	5/20/14	5/21/14			
R1403723-007	MRC-MW-71A-052014	Water	7470A, 6010C, 6020A, 8260C, 522	5/20/14	5/21/14			
R1403723-008	MRC-MW-15A-052014	Water	6020A, 6010C, 7470A, 522	5/20/14	5/21/14			
R1403723-009	MRC-MW-16A-052014	Water	6020A, 6010C, 7470A, 522, 8260C	5/20/14	5/21/14			
R1403723-010	MRC-DUP03-052014	Water	7470A, 6010C, 6020A	5/20/14	5/21/14			
R1403723-011	TB-052114	Water	8260C	5/21/14	5/22/14			
R1403723-012	MRC-MW-29A-052114	Water	7470A, 8260C, 6020A, 6010C	5/21/14	5/22/14			
R1403723-013	MRC-MW-26A-052114	Water	7470A, 6020A, 6010C	5/21/14	5/22/14			
R1403723-014	MRC-MW54A-052214	Water	522, 6850	5/22/14	5/24/14			
R1403723-015	MRC-MW08A-052214	Water	6020A, 8260C, 522, 7470A, 6850, 6010C	5/22/14	5/24/14			
R1403723-016	MRC-MW10A-052214	Water	7470A, 6010C, 522, 8260C, 6020A	5/22/14	5/24/14			
R1403723-017	MRC-MW11C-052214	Water	522, 8260C	5/22/14	5/24/14			
R1403723-018	TB-052214	Water	8260C	5/22/14	5/24/14			
R1403723-019	MRC-MW106B/C-052314	Water	8260C	5/23/14	5/24/14			
R1403723-020	MRC-MW63A-052314	Water	7470A, 522, 8260C, 6020A, 6010C	5/23/14	5/24/14			
R1403723-021	MRC-MW53A-052314	Water	8260C, 7470A, 6020A, 6010C, 6850, 522	5/23/14	5/24/14			
R1403723-021.R01	MRC-MW53A-052314	Water	8260C	5/23/14	5/24/14			
R1403723-022	MRC-MW53B-052314	Water	6020A, 8260C, 522, 7470A, 6850, 6010C	5/23/14	5/24/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to
http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15142

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014
Project Number: 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: Tetra Tech INC
20251 Century Blvd STE 200
Germantown, MD 20874
Phone #: 301 528-3021
Email:
Sampler's Signature: Walt Payon
Sampler's Printed Name: Walt Payon

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl | HNO3 | NaOH SO4

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP VOCs	GC/MS SVOAs ◦ 8270 ◦ 625	GC VOAs ◦ 8021 ◦ 601/602	PESTICIDES ◦ 8081 ◦ 608	PCBs ◦ 8082 ◦ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	1,4 Dioxane	Perchlorate	REMARKS/ ALTERNATE DESCRIPTION
TB-051914		5-19-14	—	GW											
MRC-MW-59A-051914		↓	0850	↓	1						X				
MRC-MW-58A-051914		↓	1043	↓	5	X							X		
MRC-MW-50A-051914		↓	1212	↓	5	X					X			X	
MRC-MW-49A-051914		↓	1533	↓	1						X				
MRC-MW-71B-052014		5-20-14	1013	↓	6	X					X		X		
MRC-MW-71A-052014		↓	1213	↓	6	X					X		X		
MRC-MW-15A-052014		↓	1425	↓	3						X		X		
MRC-MW-16A-052014		↓	1539	↓	6	X					X		X		
MRC-DUP03-051914			0000		1						X				

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED: Maryland

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Payon	Signature: [signature]	Signature	Signature	Signature	
Printed Name: Walt Payon	Printed Name: Gary Vetra	Printed Name	Printed Name	Printed Name	
Firm: TT INC	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5-20-14	Date/Time: 5/21/14 0945	Date/Time	Date/Time	Date/Time	

R1403723 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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R1403723 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-3723

Cooler received on 5/21/14 by: [illegible] COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 5/21/14 Time: 1010 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	2.9°						
Correction Factor (°C)	+0.9°						
Corrected Temp (°C)	3.8°						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 5/21/14 at 1020
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [illegible]

Cooler Breakdown: Date: 5/21/14 Time: 1735 by: [illegible]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB2613513	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-	BDB2612314	4/15				
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 082613-2AAW, 021014-1BMC

Other Comments:

PC Secondary Review: [illegible]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15140

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: DRA Design characterization
Project Number: 112IC05482
Project Manager: Tony Apanavage
Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874
Phone #: 301-528-3000
Email: Tony.Apanavage@tetratech.com
Sampler's Signature: [signature]
Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl, HNO3

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GCMS VOAs ○ 8260 ○ 624 ○ GLP VOCs	GCMS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) Metals	METALS, DISSOLVED (List in comments below)	Hex Chrom (7199)							REMARKS/ ALTERNATE DESCRIPTION
MSA-MW-53S-052114		5/21/14	1145	Aq	1								X							
MSA-MW-53I-052114		5/21/14	1500	Aq	3								X							MS/MSD
TB-052114			—		2	X														
MRC-MW-29A-052114		5/21/14	1159	Aq	4	X					X									STANDARD TAT
MRC-MW-26A-052114		5/21/14	1436	Aq	1						X									

SPECIAL INSTRUCTIONS/COMMENTS
Metals
24 hour TAT FOR HEX CHROM
MS/MSD TAKEN FOR MSA-MW-53I
STANDARD TAT FOR MRC-MW-29A AND MRC-MW-26A
See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
X 1 day ____ 2 day ____ 3 day ____ 4 day ____ 5 day
REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: Walt Pryor	Printed Name: J. Seward	Printed Name	Printed Name	Printed Name	Printed Name
Firm: TT Inc	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5-21-14	Date/Time: 5/22/14 0750	Date/Time	Date/Time	Date/Time	Date/Time

R1403723 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

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Cooler Receipt and Preservation Check Form

R1403723 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Project/Client Tetra Tech Folder Number R14-3723

Cooler received on 5/22/14 by: JAS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y (N)	5a	Perchlorate samples have required headspace?	Y N (NA)
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: ~~Wet Ice~~ Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 5/22 Time: 0757 ID: (IR#3) IR#4 From: Temp Blank ~~Sample Bottle~~

Observed Temp (°C)	4.4						
Correction Factor (°C)	–						
Corrected Temp (°C)	4.4						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: rack by JAS on 5/22 at 0757
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 5/22/14 Time: 1438 by: (A)

1. Were all bottle labels complete (i.e. analysis, preservation, etc.)? ~~YES~~ NO
2. Did all bottle labels and tags agree with custody papers? ~~YES~~ NO Trip Blank (client) no label
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		RD326135B	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112120/Client	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, Client, 082613-2AAW
Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15144

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014
Project Number: 112IC~~06183~~ 06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874
Phone #: 301-528-3000
Email: Tony.Apanavage@tetratech.com
Sampler's Signature:
Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 | 2 | 7 | /

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs 8260 • 624 • CLP 8260C	GC/MS SVOAs 8270 • 625	GC VOAs 8021 • 601/602	PESTICIDES 8081 • 608	PCBs 8082 • 608	METALS, TOTAL (List in comments below) (6020A)	METALS, DISSOLVED (List in comments below)	1-4 dioxane (522)	Perchlorate (6850)	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW54A-052214		5/22/14	0935	Aq	3								X	X	
MRC-MW08A-052214			1045		7	X					X		X	X	
MRC-MW10A-052214			1245		6	X					X		X		
MRC-MW11C-052214			1355		5	X							X		
TB-052214			—		2	X									
MRC-MW106B/C-052314		5/23/14	0910	Aq	3	X									
MRC-MW63A-052314			1050		6	X					X		X		
MRC-MW53A-052314			1250		7	X					X		X	X	
MRC-MW53B-052314			1355		7	X					X		X	X	MW53B

SPECIAL INSTRUCTIONS/COMMENTS
Metals
STANDARD TAT
Total Metals, Beryllium, Cobalt, Nickel Method 6020A

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	
Printed Name: Josh Mullis	Printed Name: J. Sawdard	Printed Name	Printed Name	Printed Name	
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5/23/14 1600	Date/Time: 5/24/14 1030	Date/Time	Date/Time	Date/Time	

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Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-5723

Cooler received on 5/24/14 by: JS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

Temperature Readings Date: 5/23/14 Time: 1051 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	0.0						
Correction Factor (°C)	–						
Corrected Temp (°C)	0.0						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: 0002 by JS on 1050 at JS
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 5/27/14 Time: 1045 by: [initials]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB26135B	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$	✓		BDB126123H	4/15				
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: Client, 4-002-003, BDB26135I, 082613-2AAW, 021014-18MC

Other Comments:

* 522's rec'd 5/24/14, pres. check did not occur until 5/27/14; but all samples were OK

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 3/12/14 09:41

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\031214\U3873.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	18.96	83285	Pass
75	95	30	60	49.54	217600	Pass
95	95	100	100	100.00	439232	Pass
96	95	5	9	6.84	30035	Pass
173	174	0	2	1.18	3907	Pass
174	95	50	120	75.24	330475	Pass
175	174	5	9	7.57	25003	Pass
176	174	95	101	100.37	331712	Pass
177	176	5	9	6.54	21696	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3875.D\	3/12/14 10:45	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3876.D\	3/12/14 11:17	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3877.D\	3/12/14 11:49	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3878.D\	3/12/14 12:21	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3879.D\	3/12/14 12:53	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3880.D\	3/12/14 13:26	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3881.D\	3/12/14 13:58	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\031214\U3882.D\	3/12/14 14:30	

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09920	<=20	6.0
Acetonitrile	T	Average RF			0.01622	<=20	13.2
Acrolein	T	Quadratic	1/X2		0.01717	>=0.99	0.9978
Acrylonitrile	T	Average RF			0.1111	<=20	5.0
Benzene	T	Average RF		0.500	1.231	<=20	2.6
Bromobenzene	T	Average RF			0.7355	<=20	3.3
Bromochloromethane	T	Average RF			0.2832	<=20	8.2
Bromodichloromethane	T	Average RF		0.200	0.3677	<=20	5.4
Bromoform	T	Average RF		0.100	0.2840	<=20	15.6
Bromomethane	T	Average RF		0.100	0.2881	<=20	6.8
Carbon Disulfide	T	Average RF		0.100	1.262	<=20	4.8
Carbon Tetrachloride	T	Average RF		0.05	0.1199	<=20	6.9
Chlorobenzene	T	Average RF		0.500	0.8701	<=20	2.8
Chloroethane	T	Average RF		0.100	0.2851	<=20	8.6
Chloroform	T	Average RF		0.200	0.8292	<=20	4.7
Chloromethane	T	Average RF		0.100	0.5146	<=20	2.8
Cyclohexane	T	Average RF		0.100	0.2705	<=20	5.1
Cyclohexanone	T	Average RF			0.04011	<=20	5.9
Dibromochloromethane	T	Average RF		0.100	0.2588	<=20	11.9
Dibromomethane	T	Average RF			0.1497	<=20	3.1
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5939	<=20	7.1
Dichlorofluoromethane (CFC 21)	T	Average RF			0.7211	<=20	4.4
Dichloromethane	T	Average RF		0.100	0.4753	<=20	5.4
Diethyl Ether	T	Average RF			0.3614	<=20	6.8
Diisopropyl Ether	T	Average RF			1.648	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.2861	<=20	15.5
Ethyl tert-Butyl Ether	T	Average RF			1.379	<=20	4.3
Ethylbenzene	T	Average RF		0.100	0.4636	<=20	3.9
Hexachlorobutadiene	T	Average RF			0.3218	<=20	5.3
Iodomethane	T	Average RF			0.4820	<=20	15.6
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.581	<=20	6.3
Methacrylonitrile	T	Average RF			0.1295	<=20	10.3
Methyl Acetate	T	Average RF		0.100	0.2234	<=20	6.0
Methyl Methacrylate	T	Average RF			0.1481	<=20	9.0
Methyl tert-Butyl Ether	T	Average RF		0.100	1.153	<=20	3.5
Methylcyclohexane	T	Average RF		0.100	0.3206	<=20	5.3
Naphthalene	T	Average RF			1.327	<=20	6.2
Propionitrile	T	Average RF			0.04013	<=20	8.9
Styrene	T	Average RF		0.300	0.8888	<=20	9.8
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2583	<=20	7.1
Tetrahydrofuran (THF)	T	Average RF			0.09716	<=20	4.0
Toluene	T	Average RF		0.400	1.269	<=20	4.0
Trichloroethene (TCE)	T	Average RF		0.200	0.2982	<=20	2.1
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7340	<=20	4.6
Vinyl Acetate	T	Average RF			0.07534	<=20	7.4
Vinyl Chloride	T	Average RF		0.100	0.4781	<=20	2.7
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5073	<=20	2.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.4363	<=20	8.8
m,p-Xylenes	T	Average RF		0.100	0.5448	<=20	5.7
n-Butyl Acetate	T	Average RF			0.3502	<=20	8.0
n-Butylbenzene	T	Average RF			1.881	<=20	7.7
n-Heptane	T	Average RF			0.3075	<=20	4.6

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.020	<=20	7.6
o-Xylene	T	Average RF		0.300	0.5559	<=20	4.6
sec-Butylbenzene	T	Average RF			2.467	<=20	7.2
tert-Amyl Methyl Ether	T	Average RF			1.164	<=20	4.4
tert-Butylbenzene	T	Average RF			1.773	<=20	4.3
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4546	<=20	2.9
trans-1,3-Dichloropropene	T	Average RF		0.100	0.3517	<=20	12.9
trans-1,4-Dichloro-2-butene	T	Average RF			0.1346	<=20	13.1
1,2-Dichloroethane-d4	S	Average RF			0.3297	<=20	1.6
4-Bromofluorobenzene	S	Average RF			0.4538	<=20	1.8
Dibromofluoromethane	S	Average RF			0.2895	<=20	0.8
Toluene-d8	S	Average RF			1.216	<=20	0.5

Initial Calibration Verification Summary Report

KR 3/13/14

Calibration ID: RC1400023
WO31214 8260 waters

Instrument ID: R-MS-12
Column Name: 1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
1,1,1,2-Tetrachloroethane	RC1400023-09	T	Average RF	50	52.81	ppm	5.6	<=30
1,1,1-Trichloroethane (TCA)	RC1400023-09	T	Average RF	50	49.84	ppm	-0.3	<=30
1,1,2,2-Tetrachloroethane	RC1400023-09	T	Average RF	50	48.43	ppm	-3.1	<=30
1,1,2-Trichloroethane	RC1400023-09	T	Average RF	50	48.84	ppm	-2.3	<=30
1,1,2-Trichlorotrifluoroethane	RC1400023-09	T	Average RF	50	50.03	ppm	0.1	<=30
1,1-Dichloroethane (1,1-DCA)	RC1400023-09	T	Average RF	50	48.94	ppm	-2.1	<=30
1,1-Dichloroethene (1,1-DCE)	RC1400023-09	T	Average RF	50	57.52	ppm	15.0	<=30
1,1-Dichloropropene	RC1400023-09	T	Average RF	50	56.55	ppm	13.1	<=30
1,2,3-Trichlorobenzene	RC1400023-09	T	Average RF	50	50.70	ppm	1.4	<=30
1,2,3-Trichloropropane	RC1400023-09	T	Average RF	50	48.79	ppm	-2.4	<=30
1,2,4-Trichlorobenzene	RC1400023-09	T	Average RF	50	51.43	ppm	2.9	<=30
1,2,4-Trimethylbenzene	RC1400023-09	T	Average RF	50	52.17	ppm	4.3	<=30
1,2-Dibromo-3-chloropropane (DBCP)	RC1400023-09	T	Average RF	50	55.67	ppm	11.3	<=30
1,2-Dibromoethane	RC1400023-09	T	Average RF	50	52.14	ppm	4.3	<=30
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	RC1400023-09	T	Average RF	50	51.68	ppm	3.4	<=30
1,2-Dichlorobenzene	RC1400023-09	T	Average RF	50	50.95	ppm	1.9	<=30
1,2-Dichloroethane	RC1400023-09	T	Average RF	50	46.09	ppm	-7.8	<=30
1,2-Dichloropropane	RC1400023-09	T	Average RF	50	48.94	ppm	-2.1	<=30
1,3,5-Trichlorobenzene	RC1400023-09	T	Average RF	50	49.97	ppm	-0.1	<=30
1,3,5-Trimethylbenzene	RC1400023-09	T	Average RF	50	52.32	ppm	4.6	<=30
1,3-Dichlorobenzene	RC1400023-09	T	Average RF	50	51.41	ppm	2.8	<=30
1,3-Dichloropropane	RC1400023-09	T	Average RF	50	48.78	ppm	-2.4	<=30
1,4-Dichlorobenzene	RC1400023-09	T	Average RF	50	49.93	ppm	-0.1	<=30
1,4-Dioxane	RC1400023-09	T	Average RF	1000	938.8	ppm	-6.1	<=30
1-Butanol	RC1400023-09	T	Average RF	2500	2756	ppm	10.2	<=30
1-Chloro-4-(trifluoromethyl)benzene	RC1400023-09	T	Average RF	50	51.02	ppm	2.0	<=30
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	RC1400023-09	T	Average RF	50	51.23	ppm	2.5	<=30
2,2-Dichloropropane	RC1400023-09	T	Average RF	50	53.03	ppm	6.1	<=30
2,3,6-Trichlorotoluene	RC1400023-09	T	Average RF	50	52.46	ppm	4.9	<=30
2,4,5-Trichlorotoluene	RC1400023-09	T	Average RF	50	53.89	ppm	7.8	<=30
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	RC1400023-09	T	Average RF	150	151.4	ppm	0.9	<=30
2,4-Dichlorobenzotrifluoride	RC1400023-09	T	Average RF	50	50.93	ppm	1.9	<=30
2,5-Dichlorobenzotrifluoride	RC1400023-09	T	Average RF	50	50.16	ppm	0.3	<=30
2-Butanone (MEK)	RC1400023-09	T	Average RF	50	45.55	ppm	-8.9	<=30
2-Chloro-1,3-butadiene	RC1400023-09	T	Average RF	50	49.33	ppm	-1.3	<=30
2-Chlorobenzotrifluoride	RC1400023-09	T	Average RF	50	50.08	ppm	0.2	<=30
2-Chloroethyl Vinyl Ether	RC1400023-09	T	Average RF	50	52.52	ppm	5.0	<=30
2-Chlorotoluene	RC1400023-09	T	Average RF	50	50.46	ppm	0.9	<=30
2-Hexanone	RC1400023-09	T	Average RF	50	49.41	ppm	-1.2	<=30
2-Methyl-1-propanol	RC1400023-09	T	Average RF	1000	1010	ppm	1.0	<=30
2-Methyl-2-propanol	RC1400023-09	T	Average RF	1000	978.2	ppm	-2.2	<=30
2-Nitropropane	RC1400023-09	T	Average RF	100	102.0	ppm	2.0	<=30
2-Propanol	RC1400023-09	T	Average RF	1000	1025	ppm	2.5	<=30
3,4- and 2,3-Dichlorotoluene Coelution	RC1400023-09	T	Average RF	100	103.6	ppm	3.6	<=30
3,4-Dichlorobenzotrifluoride	RC1400023-09	T	Average RF	50	49.78	ppm	-0.4	<=30
3-Chloro-1-propene	RC1400023-09	T	Average RF	50	50.79	ppm	1.6	<=30
3-Chlorobenzotrifluoride	RC1400023-09	T	Average RF	50	49.64	ppm	-0.7	<=30
3-Chlorotoluene	RC1400023-09	T	Average RF	50	48.80	ppm	-2.4	<=30
4-Chlorotoluene	RC1400023-09	T	Average RF	50	51.03	ppm	2.1	<=30
4-Isopropyltoluene	RC1400023-09	T	Average RF	50	53.38	ppm	6.8	<=30
4-Methyl-2-pentanone	RC1400023-09	T	Average RF	50	50.35	ppm	0.7	<=30

Initial Calibration Verification Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Acetone	RC1400023-09	T	Average RF	50	39.48	ppm	-21.0	<=30
Acetonitrile	RC1400023-09	T	Average RF	250	225.5	ppm	-9.8	<=30
Acrolein	RC1400023-09	T	Quadratic	100	208.5	ppm	108.5	<=30
Acrylonitrile	RC1400023-09	T	Average RF	250	246.3	ppm	-1.5	<=30
Benzene	RC1400023-09	T	Average RF	50	49.93	ppm	-0.1	<=30
Bromobenzene	RC1400023-09	T	Average RF	50	49.66	ppm	-0.7	<=30
Bromochloromethane	RC1400023-09	T	Average RF	50	47.83	ppm	-4.3	<=30
Bromodichloromethane	RC1400023-09	T	Average RF	50	51.35	ppm	2.7	<=30
Bromoform	RC1400023-09	T	Average RF	50	54.02	ppm	8.0	<=30
Bromomethane	RC1400023-09	T	Average RF	50	47.24	ppm	-5.5	<=30
Carbon Disulfide	RC1400023-09	T	Average RF	50	47.03	ppm	-5.9	<=30
Carbon Tetrachloride	RC1400023-09	T	Average RF	50	50.06	ppm	0.1	<=30
Chlorobenzene	RC1400023-09	T	Average RF	50	50.84	ppm	1.7	<=30
Chloroethane	RC1400023-09	T	Average RF	50	45.68	ppm	-8.6	<=30
Chloroform	RC1400023-09	T	Average RF	50	48.21	ppm	-3.6	<=30
Chloromethane	RC1400023-09	T	Average RF	50	44.02	ppm	-12.0	<=30
Cyclohexane	RC1400023-09	T	Average RF	50	43.66	ppm	-12.7	<=30
Cyclohexanone	RC1400023-09	T	Average RF	1000	614.2	ppm	-38.6	<=30
Dibromochloromethane	RC1400023-09	T	Average RF	50	53.83	ppm	7.7	<=30
Dibromomethane	RC1400023-09	T	Average RF	50	49.61	ppm	-0.8	<=30
Dichlorodifluoromethane (CFC 12)	RC1400023-09	T	Average RF	50	38.90	ppm	-22.2	<=30
Dichlorofluoromethane (CFC 21)	RC1400023-09	T	Average RF	50	48.36	ppm	-3.3	<=30
Dichloromethane	RC1400023-09	T	Average RF	50	48.52	ppm	-3.0	<=30
Diethyl Ether	RC1400023-09	T	Average RF	50	49.25	ppm	-1.5	<=30
Diisopropyl Ether	RC1400023-09	T	Average RF	50	45.55	ppm	-8.9	<=30
Ethyl Methacrylate	RC1400023-09	T	Average RF	50	54.92	ppm	9.8	<=30
Ethyl tert-Butyl Ether	RC1400023-09	T	Average RF	50	47.03	ppm	-5.9	<=30
Ethylbenzene	RC1400023-09	T	Average RF	50	51.98	ppm	4.0	<=30
Hexachlorobutadiene	RC1400023-09	T	Average RF	50	52.06	ppm	4.1	<=30
Iodomethane	RC1400023-09	T	Average RF	50	55.23	ppm	10.5	<=30
Isopropylbenzene (Cumene)	RC1400023-09	T	Average RF	50	52.49	ppm	5.0	<=30
Methacrylonitrile	RC1400023-09	T	Average RF	50	49.67	ppm	-0.7	<=30
Methyl Acetate	RC1400023-09	T	Average RF	50	48.18	ppm	-3.6	<=30
Methyl Methacrylate	RC1400023-09	T	Average RF	50	50.68	ppm	1.4	<=30
Methyl tert-Butyl Ether	RC1400023-09	T	Average RF	50	49.16	ppm	-1.7	<=30
Methylcyclohexane	RC1400023-09	T	Average RF	50	44.63	ppm	-10.7	<=30
Naphthalene	RC1400023-09	T	Average RF	50	56.07	ppm	12.1	<=30
Propionitrile	RC1400023-09	T	Average RF	250	258.3	ppm	3.3	<=30
Styrene	RC1400023-09	T	Average RF	50	55.20	ppm	10.4	<=30
Tetrachloroethene (PCE)	RC1400023-09	T	Average RF	50	50.19	ppm	0.4	<=30
Tetrahydrofuran (THF)	RC1400023-09	T	Average RF	50	46.06	ppm	-7.9	<=30
Toluene	RC1400023-09	T	Average RF	50	50.32	ppm	0.6	<=30
Trichloroethene (TCE)	RC1400023-09	T	Average RF	50	51.42	ppm	2.8	<=30
Trichlorofluoromethane (CFC 11)	RC1400023-09	T	Average RF	50	45.53	ppm	-8.9	<=30
Vinyl Acetate	RC1400023-09	T	Average RF	50	47.09	ppm	-5.8	<=30
Vinyl Chloride	RC1400023-09	T	Average RF	50	46.08	ppm	-7.8	<=30
cis-1,2-Dichloroethene	RC1400023-09	T	Average RF	50	50.33	ppm	0.7	<=30
cis-1,3-Dichloropropene	RC1400023-09	T	Average RF	50	50.69	ppm	1.4	<=30
m,p-Xylenes	RC1400023-09	T	Average RF	100	107.8	ppm	7.8	<=30
n-Butyl Acetate	RC1400023-09	T	Average RF	50	52.20	ppm	4.4	<=30
n-Butylbenzene	RC1400023-09	T	Average RF	50	53.27	ppm	6.5	<=30

Initial Calibration Verification Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
n-Heptane	RC1400023-09	T	Average RF	50	47.14	ppm	-5.7	<=30
n-Propylbenzene	RC1400023-09	T	Average RF	50	51.09	ppm	2.2	<=30
o-Xylene	RC1400023-09	T	Average RF	50	52.18	ppm	4.4	<=30
sec-Butylbenzene	RC1400023-09	T	Average RF	50	51.80	ppm	3.6	<=30
tert-Amyl Methyl Ether	RC1400023-09	T	Average RF	50	49.25	ppm	-1.5	<=30
tert-Butylbenzene	RC1400023-09	T	Average RF	50	50.94	ppm	1.9	<=30
trans-1,2-Dichloroethene	RC1400023-09	T	Average RF	50	51.22	ppm	2.4	<=30
trans-1,3-Dichloropropene	RC1400023-09	T	Average RF	50	53.39	ppm	6.8	<=30
trans-1,4-Dichloro-2-butene	RC1400023-09	T	Average RF	50	50.06	ppm	0.1	<=30
1,2-Dichloroethane-d4	RC1400023-09	S	Average RF	50	47.74	ppm	-4.5	<=30
4-Bromofluorobenzene	RC1400023-09	S	Average RF	50	50.03	ppm	0.1	<=30
Dibromofluoromethane	RC1400023-09	S	Average RF	50	50.20	ppm	0.4	<=30
Toluene-d8	RC1400023-09	S	Average RF	50	49.47	ppm	-1.1	<=30

Exceptions

QAP	Method
CRA-OXY	8260C

Compound	Type	Criteria	Result
Acrolein	Percent Difference	<= 30	108.48
Cyclohexanone	Percent Difference	<= 30	-38.58

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14 10:55

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\052714\J5968.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 394253

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	19.11	79747	Pass
75	95	30	60	52.19	217792	Pass
95	95	100	100	100.00	417344	Pass
96	95	5	9	6.58	27459	Pass
173	174	0	2	0.55	2050	Pass
174	95	50	120	88.52	369451	Pass
175	174	5	9	7.31	27021	Pass
176	174	95	101	97.75	361131	Pass
177	176	5	9	6.61	23883	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405637-02	I:\ACQUDATA\MSVOA12\DATA\052714\J5969.D\	5/27/14 11:36	
Lab Control Sample	RQ1405637-03	I:\ACQUDATA\MSVOA12\DATA\052714\J5970.D\	5/27/14 12:07	
Method Blank	RQ1405637-04	I:\ACQUDATA\MSVOA12\DATA\052714\J5972.D\	5/27/14 13:10	
TB-051914	R1403723-001	I:\ACQUDATA\MSVOA12\DATA\052714\J5976.D\	5/27/14 15:16	
TB-052114	R1403723-011	I:\ACQUDATA\MSVOA12\DATA\052714\J5977.D\	5/27/14 15:48	
TB-052214	R1403723-018	I:\ACQUDATA\MSVOA12\DATA\052714\J5978.D\	5/27/14 16:20	
MRC-MW-58A-051914	R1403723-003	I:\ACQUDATA\MSVOA12\DATA\052714\J5979.D\	5/27/14 16:52	
MRC-MW-50A-051914	R1403723-004	I:\ACQUDATA\MSVOA12\DATA\052714\J5980.D\	5/27/14 17:23	
MRC-MW-71B-052014	R1403723-006	I:\ACQUDATA\MSVOA12\DATA\052714\J5981.D\	5/27/14 17:56	
MRC-MW-71A-052014	R1403723-007	I:\ACQUDATA\MSVOA12\DATA\052714\J5982.D\	5/27/14 18:26	
MRC-MW-16A-052014	R1403723-009	I:\ACQUDATA\MSVOA12\DATA\052714\J5983.D\	5/27/14 18:58	
MRC-MW-29A-052114	R1403723-012	I:\ACQUDATA\MSVOA12\DATA\052714\J5984.D\	5/27/14 19:30	
MRC-MW11C-052214	R1403723-017	I:\ACQUDATA\MSVOA12\DATA\052714\J5985.D\	5/27/14 20:03	
MRC-MW106B/C-052314	R1403723-019	I:\ACQUDATA\MSVOA12\DATA\052714\J5986.D\	5/27/14 20:35	
MRC-MW63A-052314	R1403723-020	I:\ACQUDATA\MSVOA12\DATA\052714\J5987.D\	5/27/14 21:07	
MRC-MW53A-052314	R1403723-021	I:\ACQUDATA\MSVOA12\DATA\052714\J5988.D\	5/27/14 21:39	
MRC-MW53B-052314	R1403723-022	I:\ACQUDATA\MSVOA12\DATA\052714\J5989.D\	5/27/14 22:12	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\052714\J5969.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 394253
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	53.4	0.3058	0.3264	6.8	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	50.8	0.7112	0.7229	1.6	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	39.8	0.5726	0.4558	-20.4 *	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	49.2	0.3971	0.3908	-1.6	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	47.6	0.8461	0.8055	-4.8	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.0	0.3628	0.3412	-6.0	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	50.3	0.3693	0.3714	0.6	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	46.6	0.6036	0.5622	-6.9	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	40.5	0.1713	0.1386	-19.1	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	47.8	0.7372	0.7045	-4.4	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	50.8	2.167	2.202	1.7	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	47.3	0.08773	0.08299	-5.4	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	47.7	0.2312	0.2206	-4.6	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	49.5	1.206	1.193	-1.1	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	52.9	0.3737	0.3956	5.8	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	45.8	0.3148	0.2881	-8.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	50.4	1.252	1.262	0.8	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	45.3	0.4501	0.4076	-9.5	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	47.8	1.332	1.273	-4.4	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	53.7	0.6713	0.7208	7.4	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	45.7	0.1390	0.1270	-8.6	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	47.6	0.1412	0.1344	-4.8	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	48.8	1.896	1.852	-2.4	NA	± 20 %	Average RF
2-Hexanone	50.0	47.2	0.1416	0.1338	-5.5	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	911	0.02773	0.02526	-8.9	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	49.7	2.236	2.224	-0.5	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	52.6	2.086	2.196	5.3	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	44.7	0.1899	0.1698	-10.6	NA	± 20 %	Average RF
Acetone	50.0	53.6	0.09920	0.1063	7.2	NA	± 20 %	Average RF
Benzene	50.0	48.1	1.231	1.183	-3.9	NA	± 20 %	Average RF
Bromobenzene	50.0	46.5	0.7355	0.6837	-7.0	NA	± 20 %	Average RF
Bromochloromethane	50.0	45.8	0.2832	0.2593	-8.5	NA	± 20 %	Average RF
Bromodichloromethane	50.0	54.3	0.3677	0.3995	8.6	NA	± 20 %	Average RF
Bromoform	50.0	51.2	0.2840	0.2909	2.5	NA	± 20 %	Average RF
Bromomethane	50.0	39.7	0.2881	0.2286	-20.6 *	NA	± 20 %	Average RF
Carbon Disulfide	50.0	49.2	1.262	1.242	-1.6	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	52.9	0.1199	0.1268	5.8	NA	± 20 %	Average RF
Chlorobenzene	50.0	49.1	0.8701	0.8537	-1.9	NA	± 20 %	Average RF
Chloroethane	50.0	53.4	0.2851	0.3043	6.7	NA	± 20 %	Average RF
Chloroform	50.0	48.6	0.8292	0.8056	-2.8	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\052714\J5969.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 394253
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	43.2	0.5146	0.4451	-13.5	NA	± 20 %	Average RF
Dibromochloromethane	50.0	54.8	0.2588	0.2834	9.5	NA	± 20 %	Average RF
Dibromomethane	50.0	47.6	0.1497	0.1426	-4.8	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	43.1	0.5939	0.5118	-13.8	NA	± 20 %	Average RF
Methylene Chloride	50.0	43.9	0.4753	0.4173	-12.2	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	45.3	1.648	1.495	-9.3	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	46.2	1.379	1.275	-7.5	NA	± 20 %	Average RF
Ethylbenzene	50.0	50.0	0.4636	0.4636	0.0	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	51.4	0.3218	0.3306	2.7	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	49.4	2.581	2.548	-1.3	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	45.3	1.153	1.044	-9.5	NA	± 20 %	Average RF
Naphthalene	50.0	45.8	1.327	1.215	-8.4	NA	± 20 %	Average RF
Styrene	50.0	53.9	0.8888	0.9586	7.9	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	50.7	0.2583	0.2619	1.4	NA	± 20 %	Average RF
Toluene	50.0	49.8	1.269	1.264	-0.4	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	50.9	0.2982	0.3034	1.7	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	51.1	0.7340	0.7504	2.2	NA	± 20 %	Average RF
Vinyl Acetate	50.0	45.9	0.07534	0.06915	-8.2	NA	± 20 %	Average RF
Vinyl Chloride	50.0	53.7	0.4781	0.5132	7.3	NA	± 20 %	Average RF
Xylenes, Total	150	154	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	47.2	0.5073	0.4791	-5.6	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	52.5	0.4363	0.4583	5.0	NA	± 20 %	Average RF
m,p-Xylenes	100	104	0.5448	0.5658	3.9	NA	± 20 %	Average RF
n-Butylbenzene	50.0	52.7	1.881	1.982	5.4	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.4	3.020	2.984	-1.2	NA	± 20 %	Average RF
o-Xylene	50.0	50.6	0.5559	0.5621	1.1	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	50.6	2.467	2.494	1.1	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	45.6	1.164	1.062	-8.8	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	49.5	1.773	1.754	-1.0	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	47.1	0.4546	0.4281	-5.8	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	55.5	0.3517	0.3902	11.0	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	51.9	0.4538	0.4706	3.7	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	51.7	0.2895	0.2992	3.4	NA	± 20 %	Average RF
Toluene-d8	50.0	49.9	1.216	1.213	-0.3	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/27/14 13:10
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1405637-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\052714\U5972.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405637-03	I:\ACQUDATA\MSVOA12\DATA\052714\U5970.D\	5/27/14 12:07
TB-051914	R1403723-001	I:\ACQUDATA\MSVOA12\DATA\052714\U5976.D\	5/27/14 15:16
TB-052114	R1403723-011	I:\ACQUDATA\MSVOA12\DATA\052714\U5977.D\	5/27/14 15:48
TB-052214	R1403723-018	I:\ACQUDATA\MSVOA12\DATA\052714\U5978.D\	5/27/14 16:20
MRC-MW-58A-051914	R1403723-003	I:\ACQUDATA\MSVOA12\DATA\052714\U5979.D\	5/27/14 16:52
MRC-MW-50A-051914	R1403723-004	I:\ACQUDATA\MSVOA12\DATA\052714\U5980.D\	5/27/14 17:23
MRC-MW-71B-052014	R1403723-006	I:\ACQUDATA\MSVOA12\DATA\052714\U5981.D\	5/27/14 17:56
MRC-MW-71A-052014	R1403723-007	I:\ACQUDATA\MSVOA12\DATA\052714\U5982.D\	5/27/14 18:26
MRC-MW-16A-052014	R1403723-009	I:\ACQUDATA\MSVOA12\DATA\052714\U5983.D\	5/27/14 18:58
MRC-MW-29A-052114	R1403723-012	I:\ACQUDATA\MSVOA12\DATA\052714\U5984.D\	5/27/14 19:30
MRC-MW11C-052214	R1403723-017	I:\ACQUDATA\MSVOA12\DATA\052714\U5985.D\	5/27/14 20:03
MRC-MW106B/C-052314	R1403723-019	I:\ACQUDATA\MSVOA12\DATA\052714\U5986.D\	5/27/14 20:35
MRC-MW63A-052314	R1403723-020	I:\ACQUDATA\MSVOA12\DATA\052714\U5987.D\	5/27/14 21:07
MRC-MW53A-052314	R1403723-021	I:\ACQUDATA\MSVOA12\DATA\052714\U5988.D\	5/27/14 21:39
MRC-MW53B-052314	R1403723-022	I:\ACQUDATA\MSVOA12\DATA\052714\U5989.D\	5/27/14 22:12

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/27/14 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405637-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\U5972.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.28**	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.47**	J	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/27/14 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405637-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5972.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.23**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/27/14 13:10
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405637-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394253
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052714\J5972.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	5/27/14 13:10	
Dibromofluoromethane	102	89-119	5/27/14 13:10	
Toluene-d8	100	87-121	5/27/14 13:10	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/27/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394253

Lab Control Sample
RQ1405637-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	20.7	20.0	103	79 - 119
1,1,1-Trichloroethane (TCA)	20.2	20.0	101	71 - 123
1,1,2,2-Tetrachloroethane	17.0	20.0	85	74 - 127
1,1,2-Trichlorotrifluoroethane	19.7	20.0	99	64 - 136
1,1-Dichloroethane (1,1-DCA)	18.6	20.0	93	76 - 128
1,1-Dichloroethene (1,1-DCE)	20.2	20.0	101	74 - 135
1,1-Dichloropropene	22.0	20.0	110	74 - 136
1,2,3-Trichlorobenzene	21.9	20.0	110	60 - 144
1,2,3-Trichloropropane	18.3	20.0	92	68 - 136
1,2,4-Trichlorobenzene	22.0	20.0	110	60 - 141
1,2,4-Trimethylbenzene	21.1	20.0	106	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	19.3	20.0	96	69 - 135
1,2-Dibromoethane	19.4	20.0	97	81 - 123
1,2-Dichlorobenzene	20.5	20.0	102	80 - 119
1,2-Dichloroethane	21.5	20.0	108	72 - 130
1,2-Dichloropropane	18.8	20.0	94	80 - 119
1,3-Dichlorobenzene	20.8	20.0	104	79 - 121
1,3-Dichloropropane	18.9	20.0	94	82 - 116
1,4-Dichlorobenzene	19.8	20.0	99	79 - 119
2,2-Dichloropropane	20.7	20.0	104	59 - 135
2-Butanone (MEK)	17.5	20.0	87	66 - 129
2-Chloroethyl Vinyl Ether	18.5	20.0	92	58 - 139
2-Chlorotoluene	20.0	20.0	100	71 - 125
2-Hexanone	17.5	20.0	88	61 - 131
tert-Butyl Alcohol	358	400	89	63 - 142
4-Chlorotoluene	20.8	20.0	104	73 - 127
4-Isopropyltoluene	21.7	20.0	108	74 - 130
4-Methyl-2-pentanone	19.1	20.0	95	68 - 129
Acetone	18.5	20.0	92	51 - 146
Benzene	19.1	20.0	95	76 - 118
Bromobenzene	19.2	20.0	96	79 - 121
Bromochloromethane	19.0	20.0	95	81 - 126
Bromodichloromethane	22.6	20.0	113	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/27/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394253

Lab Control Sample
RQ1405637-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	20.3	20.0	101	65 - 138
Bromomethane	14.9	20.0	75	41 - 159
Carbon Disulfide	21.1	20.0	105	63 - 141
Carbon Tetrachloride	20.4	20.0	102	66 - 128
Chlorobenzene	20.2	20.0	101	80 - 121
Chloroethane	22.1	20.0	110	71 - 128
Chloroform	19.4	20.0	97	76 - 120
Chloromethane	19.3	20.0	96	64 - 140
Dibromochloromethane	21.8	20.0	109	79 - 125
Dibromomethane	20.1	20.0	101	79 - 120
Dichlorodifluoromethane (CFC 12)	18.9	20.0	94	60 - 150
Methylene Chloride	18.0	20.0	90	73 - 122
Diisopropyl Ether	17.4	20.0	87	76 - 131
Ethyl tert-Butyl Ether	18.3	20.0	91	77 - 126
Ethylbenzene	20.0	20.0	100	76 - 120
Hexachlorobutadiene	23.3	20.0	117	57 - 147
Isopropylbenzene (Cumene)	20.8	20.0	104	76 - 126
Methyl tert-Butyl Ether	19.2	20.0	96	73 - 131
Naphthalene	21.3	20.0	106	73 - 133
Styrene	20.7	20.0	104	81 - 122
Tetrachloroethene (PCE)	20.1	20.0	100	69 - 124
Toluene	20.0	20.0	100	77 - 120
Trichloroethene (TCE)	20.5	20.0	102	76 - 123
Trichlorofluoromethane (CFC 11)	20.9	20.0	105	69 - 130
Vinyl Acetate	16.5	20.0	82	43 - 165
Vinyl Chloride	22.9	20.0	114	69 - 136
Xylenes, Total	61.4	60.0	102	78 - 121
cis-1,2-Dichloroethene	18.2	20.0	91	80 - 121
cis-1,3-Dichloropropene	20.5	20.0	102	77 - 125
m,p-Xylenes	41.3	40.0	103	78 - 123
n-Butylbenzene	21.8	20.0	109	69 - 135
n-Propylbenzene	20.6	20.0	103	76 - 125
o-Xylene	20.1	20.0	101	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/27/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394253

Lab Control Sample
RQ1405637-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	21.1	20.0	105	72 - 130
tert-Amyl Methyl Ether	17.6	20.0	88	76 - 123
tert-Butylbenzene	20.7	20.0	104	73 - 124
trans-1,2-Dichloroethene	18.3	20.0	92	78 - 124
trans-1,3-Dichloropropene	21.2	20.0	106	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/29/14 11:57

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\052914\M6055.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 394660

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	21.34	85523	Pass
75	95	30	60	55.14	220958	Pass
95	95	100	100	100.00	400747	Pass
96	95	5	9	6.72	26923	Pass
173	174	0	2	1.57	5481	Pass
174	95	50	120	87.11	349074	Pass
175	174	5	9	8.16	28475	Pass
176	174	95	101	97.13	339051	Pass
177	176	5	9	6.71	22741	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405808-02	I:\ACQUDATA\MSVOA12\DATA\052914\M6056.D\	5/29/14 12:38	
Lab Control Sample	RQ1405808-03	I:\ACQUDATA\MSVOA12\DATA\052914\M6057.D\	5/29/14 13:10	
Method Blank	RQ1405808-04	I:\ACQUDATA\MSVOA12\DATA\052914\M6059.D\	5/29/14 14:15	
MRC-MW08A-052214	R1403723-015	I:\ACQUDATA\MSVOA12\DATA\052914\M6070.D\	5/29/14 20:08	
MRC-MW10A-052214	R1403723-016	I:\ACQUDATA\MSVOA12\DATA\052914\M6071.D\	5/29/14 20:40	
MRC-MW53A-052314DL	R1403723-021	I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D\	5/29/14 21:12	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/29/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\052914\M6056.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 394660
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	55.7	0.3058	0.3405	11.3	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	57.4	0.7112	0.8161	14.8	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	42.3	0.5726	0.4842	-15.4	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	52.0	0.3971	0.4132	4.1	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	50.5	0.8461	0.8540	0.9	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	48.5	0.3628	0.3519	-3.0	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	54.8	0.3693	0.4049	9.6	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	49.2	0.6036	0.5944	-1.5	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	44.0	0.1713	0.1509	-11.9	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.9	0.7372	0.7500	1.7	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	52.0	2.167	2.255	4.1	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	50.4	0.08773	0.08837	0.7	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	49.7	0.2312	0.2299	-0.6	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	49.8	1.206	1.201	-0.4	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	60.4	0.3737	0.4516	20.8 *	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	49.3	0.3148	0.3105	-1.4	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	50.5	1.252	1.266	1.1	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	48.0	0.4501	0.4325	-3.9	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	48.7	1.332	1.297	-2.7	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	59.6	0.6713	0.8004	19.2	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	64.2	0.1390	0.1785	28.4 *	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	55.5	0.1412	0.1566	10.9	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	50.4	1.896	1.911	0.8	NA	± 20 %	Average RF
2-Hexanone	50.0	66.3	0.1416	0.1878	32.6 *	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1130	0.02773	0.03122	12.6	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	51.5	2.236	2.303	3.0	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	54.4	2.086	2.269	8.8	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	55.6	0.1899	0.2110	11.1	NA	± 20 %	Average RF
Acetone	50.0	77.7	0.09920	0.1541	55.4 *	NA	± 20 %	Average RF
Benzene	50.0	49.4	1.231	1.215	-1.3	NA	± 20 %	Average RF
Bromobenzene	50.0	46.2	0.7355	0.6789	-7.7	NA	± 20 %	Average RF
Bromochloromethane	50.0	45.9	0.2832	0.2597	-8.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	58.5	0.3677	0.4300	16.9	NA	± 20 %	Average RF
Bromoform	50.0	51.6	0.2840	0.2928	3.1	NA	± 20 %	Average RF
Bromomethane	50.0	52.0	0.2881	0.2994	3.9	NA	± 20 %	Average RF
Carbon Disulfide	50.0	54.7	1.262	1.380	9.3	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	59.9	0.1199	0.1436	19.8	NA	± 20 %	Average RF
Chlorobenzene	50.0	50.5	0.8701	0.8796	1.1	NA	± 20 %	Average RF
Chloroethane	50.0	58.1	0.2851	0.3315	16.3	NA	± 20 %	Average RF
Chloroform	50.0	52.5	0.8292	0.8703	5.0	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/29/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\052914\M6056.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 394660
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	52.7	0.5146	0.5423	5.4	NA	± 20 %	Average RF
Dibromochloromethane	50.0	57.4	0.2588	0.2969	14.7	NA	± 20 %	Average RF
Dibromomethane	50.0	51.7	0.1497	0.1547	3.3	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	46.5	0.5939	0.5526	-6.9	NA	± 20 %	Average RF
Methylene Chloride	50.0	45.6	0.4753	0.4332	-8.9	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	50.6	1.648	1.667	1.2	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	52.8	1.379	1.457	5.6	NA	± 20 %	Average RF
Ethylbenzene	50.0	52.3	0.4636	0.4851	4.7	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	56.8	0.3218	0.3656	13.6	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	50.8	2.581	2.621	1.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	49.7	1.153	1.146	-0.6	NA	± 20 %	Average RF
Naphthalene	50.0	48.2	1.327	1.278	-3.7	NA	± 20 %	Average RF
Styrene	50.0	55.9	0.8888	0.9940	11.8	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	54.4	0.2583	0.2809	8.8	NA	± 20 %	Average RF
Toluene	50.0	52.7	1.269	1.338	5.4	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	52.8	0.2982	0.3146	5.5	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	58.0	0.7340	0.8508	15.9	NA	± 20 %	Average RF
Vinyl Acetate	50.0	49.0	0.07534	0.07384	-2.0	NA	± 20 %	Average RF
Vinyl Chloride	50.0	59.1	0.4781	0.5655	18.3	NA	± 20 %	Average RF
Xylenes, Total	150	162	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	48.3	0.5073	0.4896	-3.5	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	55.3	0.4363	0.4825	10.6	NA	± 20 %	Average RF
m,p-Xylenes	100	109	0.5448	0.5960	9.4	NA	± 20 %	Average RF
n-Butylbenzene	50.0	54.3	1.881	2.043	8.6	NA	± 20 %	Average RF
n-Propylbenzene	50.0	51.3	3.020	3.101	2.7	NA	± 20 %	Average RF
o-Xylene	50.0	52.6	0.5559	0.5847	5.2	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	52.0	2.467	2.563	3.9	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	51.4	1.164	1.196	2.7	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	51.8	1.773	1.837	3.7	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	47.9	0.4546	0.4350	-4.3	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	59.7	0.3517	0.4199	19.4	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	55.6	0.4538	0.5050	11.3	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.6	0.2895	0.3100	7.1	NA	± 20 %	Average RF
Toluene-d8	50.0	51.0	1.216	1.240	2.0	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/29/14 14:15
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1405808-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\052914\M6059.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405808-03	I:\ACQUDATA\MSVOA12\DATA\052914\M6057.D\	5/29/14 13:10
MRC-MW08A-052214	R1403723-015	I:\ACQUDATA\MSVOA12\DATA\052914\M6070.D\	5/29/14 20:08
MRC-MW10A-052214	R1403723-016	I:\ACQUDATA\MSVOA12\DATA\052914\M6071.D\	5/29/14 20:40
MRC-MW53A-052314DL	R1403723-021	I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D\	5/29/14 21:12

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/29/14 14:15
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405808-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6059.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.30	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Collected: NA
Date Received: NA
Date Analyzed: 5/29/14 14:15

Sample Name: Method Blank
Lab Code: RQ1405808-04

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\052914\M6059.D\

Analysis Lot: 394660
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	**0.92**	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.25**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	5/29/14 14:15
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405808-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6059.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	5/29/14 14:15	
Dibromofluoromethane	106	89-119	5/29/14 14:15	
Toluene-d8	101	87-121	5/29/14 14:15	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/29/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394660

Lab Control Sample
RQ1405808-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	20.3	20.0	101	79 - 119
1,1,1-Trichloroethane (TCA)	22.1	20.0	111	71 - 123
1,1,2,2-Tetrachloroethane	17.1	20.0	85	74 - 127
1,1,2-Trichlorotrifluoroethane	21.1	20.0	105	64 - 136
1,1-Dichloroethane (1,1-DCA)	20.3	20.0	101	76 - 128
1,1-Dichloroethene (1,1-DCE)	22.2	20.0	111	74 - 135
1,1-Dichloropropene	24.4	20.0	122	74 - 136
1,2,3-Trichlorobenzene	22.2	20.0	111	60 - 144
1,2,3-Trichloropropane	17.6	20.0	88	68 - 136
1,2,4-Trichlorobenzene	21.5	20.0	108	60 - 141
1,2,4-Trimethylbenzene	20.8	20.0	104	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	20.6	20.0	103	69 - 135
1,2-Dibromoethane	19.8	20.0	99	81 - 123
1,2-Dichlorobenzene	19.8	20.0	99	80 - 119
1,2-Dichloroethane	23.5	20.0	117	72 - 130
1,2-Dichloropropane	19.7	20.0	98	80 - 119
1,3-Dichlorobenzene	19.9	20.0	100	79 - 121
1,3-Dichloropropane	18.9	20.0	95	82 - 116
1,4-Dichlorobenzene	19.8	20.0	99	79 - 119
2,2-Dichloropropane	23.6	20.0	118	59 - 135
2-Butanone (MEK)	20.9	20.0	105	66 - 129
2-Chloroethyl Vinyl Ether	19.6	20.0	98	58 - 139
2-Chlorotoluene	20.3	20.0	102	71 - 125
2-Hexanone	20.1	20.0	100	61 - 131
tert-Butyl Alcohol	418	400	105	63 - 142
4-Chlorotoluene	20.8	20.0	104	73 - 127
4-Isopropyltoluene	21.6	20.0	108	74 - 130
4-Methyl-2-pentanone	21.3	20.0	107	68 - 129
Acetone	23.5	20.0	118	51 - 146
Benzene	20.0	20.0	100	76 - 118
Bromobenzene	18.6	20.0	93	79 - 121
Bromochloromethane	18.9	20.0	94	81 - 126
Bromodichloromethane	22.5	20.0	113	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/29/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394660

Analyte Name	Lab Control Sample RQ1405808-03 Result	Spike Amount	% Rec	% Rec Limits
Bromoform	19.3	20.0	96	65 - 138
Bromomethane	22.8	20.0	114	41 - 159
Carbon Disulfide	21.7	20.0	109	63 - 141
Carbon Tetrachloride	22.9	20.0	115	66 - 128
Chlorobenzene	20.0	20.0	100	80 - 121
Chloroethane	24.0	20.0	120	71 - 128
Chloroform	21.2	20.0	106	76 - 120
Chloromethane	23.6	20.0	118	64 - 140
Dibromochloromethane	20.4	20.0	102	79 - 125
Dibromomethane	21.5	20.0	108	79 - 120
Dichlorodifluoromethane (CFC 12)	21.1	20.0	105	60 - 150
Methylene Chloride	18.7	20.0	94	73 - 122
Diisopropyl Ether	17.8	20.0	89	76 - 131
Ethyl tert-Butyl Ether	18.7	20.0	93	77 - 126
Ethylbenzene	20.6	20.0	103	76 - 120
Hexachlorobutadiene	23.9	20.0	120	57 - 147
Isopropylbenzene (Cumene)	20.8	20.0	104	76 - 126
Methyl tert-Butyl Ether	20.5	20.0	103	73 - 131
Naphthalene	20.5	20.0	103	73 - 133
Styrene	20.8	20.0	104	81 - 122
Tetrachloroethene (PCE)	21.2	20.0	106	69 - 124
Toluene	20.5	20.0	103	77 - 120
Trichloroethene (TCE)	20.7	20.0	103	76 - 123
Trichlorofluoromethane (CFC 11)	23.6	20.0	118	69 - 130
Vinyl Acetate	18.1	20.0	91	43 - 165
Vinyl Chloride	25.6	20.0	128	69 - 136
Xylenes, Total	62.5	60.0	104	78 - 121
cis-1,2-Dichloroethene	19.3	20.0	96	80 - 121
cis-1,3-Dichloropropene	20.6	20.0	103	77 - 125
m,p-Xylenes	42.2	40.0	106	78 - 123
n-Butylbenzene	21.5	20.0	107	69 - 135
n-Propylbenzene	20.7	20.0	104	76 - 125
o-Xylene	20.3	20.0	101	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/29/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 394660

Lab Control Sample
RQ1405808-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	20.5	20.0	103	72 - 130
tert-Amyl Methyl Ether	18.5	20.0	92	76 - 123
tert-Butylbenzene	20.5	20.0	103	73 - 124
trans-1,2-Dichloroethene	18.9	20.0	94	78 - 124
trans-1,3-Dichloropropene	22.2	20.0	111	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14 11:36

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\052714\U5969.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1405637-02
Analysis Lot: 394253
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	673,406	10.75	1,309,246	5.45	1,228,800	8.74
	Upper Limit ==>	1,346,812	11.25	2,618,492	5.95	2,457,600	9.24
	Lower Limit ==>	336,703	10.25	654,623	4.95	614,400	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1405637-03	657,973	10.75	1,321,298	5.45	1,243,457	8.74
Method Blank	RQ1405637-04	631,685	10.75	1,329,284	5.45	1,229,788	8.74
TB-051914	R1403723-001	596,722	10.75	1,249,892	5.45	1,159,515	8.74
TB-052114	R1403723-011	586,371	10.75	1,242,806	5.45	1,146,599	8.74
TB-052214	R1403723-018	582,350	10.75	1,231,784	5.45	1,148,100	8.74
MRC-MW-58A-051914	R1403723-003	577,929	10.75	1,199,022	5.45	1,115,243	8.74
MRC-MW-50A-051914	R1403723-004	574,552	10.75	1,194,845	5.45	1,098,014	8.74
MRC-MW-71B-052014	R1403723-006	556,828	10.75	1,184,113	5.45	1,101,858	8.74
MRC-MW-71A-052014	R1403723-007	564,706	10.75	1,166,539	5.45	1,087,881	8.74
MRC-MW-16A-052014	R1403723-009	558,514	10.75	1,161,438	5.45	1,096,153	8.74
MRC-MW-29A-052114	R1403723-012	566,912	10.75	1,149,680	5.45	1,083,015	8.74
MRC-MW11C-052214	R1403723-017	555,000	10.75	1,126,904	5.45	1,071,420	8.74
MRC-MW106B/C-052314	R1403723-019	553,030	10.75	1,132,172	5.45	1,060,480	8.74
MRC-MW63A-052314	R1403723-020	546,331	10.75	1,132,817	5.45	1,054,512	8.74
MRC-MW53A-052314	R1403723-021	547,942	10.75	1,120,368	5.45	1,045,175	8.74
MRC-MW53B-052314	R1403723-022	544,417	10.75	1,107,664	5.45	1,031,474	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14 11:36

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\052714\J5969.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1405637-02
Analysis Lot: 394253
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	875,427	4.25
	Upper Limit ==>	1,750,854	4.75
	Lower Limit ==>	437,714	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1405637-03	896,214	4.25
Method Blank	RQ1405637-04	895,387	4.25
TB-051914	R1403723-001	838,577	4.25
TB-052114	R1403723-011	835,911	4.25
TB-052214	R1403723-018	827,918	4.25
MRC-MW-58A-051914	R1403723-003	811,534	4.25
MRC-MW-50A-051914	R1403723-004	804,664	4.25
MRC-MW-71B-052014	R1403723-006	797,455	4.25
MRC-MW-71A-052014	R1403723-007	800,274	4.25
MRC-MW-16A-052014	R1403723-009	794,051	4.25
MRC-MW-29A-052114	R1403723-012	791,996	4.25
MRC-MW11C-052214	R1403723-017	770,102	4.25
MRC-MW106B/C-052314	R1403723-019	765,077	4.25
MRC-MW63A-052314	R1403723-020	771,601	4.25
MRC-MW53A-052314	R1403723-021	771,284	4.25
MRC-MW53B-052314	R1403723-022	758,228	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/29/14 12:38

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\052914\M6056.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1405808-02
Analysis Lot: 394660
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	645,068	10.75	1,194,096	5.45	1,135,029	8.74
	Upper Limit ==>	1,290,136	11.25	2,388,192	5.95	2,270,058	9.24
	Lower Limit ==>	322,534	10.25	597,048	4.95	567,515	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1405808-03	628,652	10.75	1,213,919	5.45	1,165,882	8.74
Method Blank	RQ1405808-04	606,138	10.75	1,219,919	5.45	1,165,645	8.74
MRC-MW08A-052214	R1403723-015	537,857	10.75	1,111,417	5.45	1,056,725	8.74
MRC-MW10A-052214	R1403723-016	550,669	10.75	1,100,757	5.45	1,042,860	8.74
MRC-MW53A-052314	R1403723-021	556,458	10.75	1,094,392	5.45	1,040,084	8.75

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/29/14 12:38

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\052914\M6056.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1405808-02
Analysis Lot: 394660
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	805,315	4.25
	Upper Limit ==>	1,610,630	4.75
	Lower Limit ==>	402,658	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1405808-03	811,442	4.25
Method Blank	RQ1405808-04	814,779	4.25
MRC-MW08A-052214	R1403723-015	767,142	4.25
MRC-MW10A-052214	R1403723-016	751,636	4.25
MRC-MW53A-052314	R1403723-021	745,293	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

SDG R1403723

SAMPLE ID MRC-MW53A-052314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST / IS AMOUNT (NG)	Final Volume (ML)	AVE RRF	CONCENTRATION ug/L
1094392	2.5	832539 / 50	5	0.2982	318.88
			Sample Volume (ML)		
			5		

Trichloroethene = 320 ug/L

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Analyzed:	5/29/14 21:12
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	394660
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2.5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.5	U	2.5	0.55	
56-23-5	Carbon Tetrachloride	**1.7**	DJ	2.5	1.2	
108-90-7	Chlorobenzene	2.5	U	2.5	0.73	
75-00-3	Chloroethane	2.5	U	2.5	0.60	
67-66-3	Chloroform	**2.6**	D	2.5	0.63	
74-87-3	Chloromethane	2.5	U	2.5	0.53	
124-48-1	Dibromochloromethane	2.5	U	2.5	0.78	
74-95-3	Dibromomethane	2.5	U	2.5	0.80	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.5	U	2.5	1.2	
75-09-2	Methylene Chloride	2.5	U	2.5	0.80	
108-20-3	Diisopropyl Ether	2.5	U	2.5	0.50	
637-92-3	Ethyl tert-Butyl Ether	2.5	U	2.5	0.50	
100-41-4	Ethylbenzene	2.5	U	2.5	0.50	
87-68-3	Hexachlorobutadiene	5.0	U	5.0	1.6	
98-82-8	Isopropylbenzene (Cumene)	2.5	U	2.5	0.50	
1634-04-4	Methyl tert-Butyl Ether	2.5	U	2.5	0.73	
91-20-3	Naphthalene	2.5	U	2.5	0.50	
100-42-5	Styrene	2.5	U	2.5	0.50	
127-18-4	Tetrachloroethene (PCE)	2.5	U	2.5	0.75	
108-88-3	Toluene	2.5	U	2.5	0.50	
79-01-6	Trichloroethene (TCE)	**320**	D	2.5	0.55	
75-69-4	Trichlorofluoromethane (CFC 11)	2.5	U	2.5	0.50	
108-05-4	Vinyl Acetate	5.0	U	5.0	2.6	
75-01-4	Vinyl Chloride	2.5	U	2.5	0.80	
1330-20-7	Xylenes, Total	7.5	U	7.5	1.4	
156-59-2	cis-1,2-Dichloroethene	**17**	D	2.5	0.75	
10061-01-5	cis-1,3-Dichloropropene	2.5	U	2.5	0.60	
179601-23-1	m,p-Xylenes	5.0	U	5.0	0.83	
104-51-8	n-Butylbenzene	2.5	U	2.5	0.53	
103-65-1	n-Propylbenzene	2.5	U	2.5	0.50	
95-47-6	o-Xylene	2.5	U	2.5	0.50	
135-98-8	sec-Butylbenzene	2.5	U	2.5	0.68	
994-05-8	tert-Amyl Methyl Ether	2.5	U	2.5	0.50	
98-06-6	tert-Butylbenzene	2.5	U	2.5	0.50	
156-60-5	trans-1,2-Dichloroethene	2.5	U	2.5	0.83	

Quantitation Report (Not Reviewed)

Sample : R1403723-021|2.5
Data File: I:\ACQUDATA\MSVOA12\DATA\052914\M6072.D
Misc : TETRATECH 11423 T4
Acq On : 29 May 2014 9:12 pm
Operator : K.Ruest
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: May 29 21:27:53 2014
QLast Update : Mon May 19 11:05:50 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.249	168	745293	50.00	ppb		0.00
43) 1,4-Difluorobenzene	5.450	114	1094392	50.00	ppb		0.00
71) d5-Chlorobenzene	8.748	117	1040084	50.00	ppb		0.00
86) 1,4-Dichlorobenzene-d4	10.748	152	556458	50.00	ppb		0.00
System Monitoring Compounds							
45) surr4,Dibrflmethane	4.158	113	340586	53.76	ppb		0.00
Spiked Amount 50.000	Range 89 - 119		Recovery = 107.52%				
48) surr1,1,2-dichloroetha...	4.664	65	461014	63.88	ppb		0.00
Spiked Amount 50.000	Range 78 - 122		Recovery = 127.76%# M				
65) SURR3,Toluene-d8	7.322	98	1332777	50.06	ppb		0.00
Spiked Amount 50.000	Range 87 - 121		Recovery = 100.12%				
70) SURR2,BFB	9.791	95	536167	53.98	ppb		0.00
Spiked Amount 50.000	Range 85 - 122		Recovery = 107.96%				
Target Compounds							Qvalue
~~12) Acrolein~~	~~1.957~~	~~56~~	~~305~~	~~1.22~~	~~ppb~~		~~91~~
13) 1,1-Diclethene	2.042	96	37696	6.97	ppb		86
~~15) Acetone~~	~~2.048~~	~~43~~	~~1273~~	~~0.86~~	~~ppb~~	~~#~~	~~52~~
~~16) 2-Propanol~~	~~2.115~~	~~45~~	~~385~~	~~1.60~~	~~ppb~~	~~#~~	~~41~~
~~20) Allyl Chloride~~	~~2.213~~	~~76~~	~~1095~~	~~0.30~~	~~ppb~~	~~#~~	~~1~~
34) cis-1,2-Dichloroethene	3.554	96	49875	6.60	ppb	#	81
~~39) Tetrahydrofuran~~	~~3.926~~	~~42~~	~~678~~	~~0.47~~	~~ppb~~	~~#~~	~~45~~
40) Chloroform	3.938	83	12864	1.04	ppb		96
46) Carbontetrachloride	4.456	121	761 ~~1138~~	0.67 ~~0.43~~	ppb	m # (12)	6
49) Benzene	4.786	78	15457	0.57	ppb		96
54) Trichloroethene	5.828	130	832539	127.57	ppb		99
~~90) Cyclohexanone~~	~~9.809~~	~~55~~	~~207~~	~~0.46~~	~~ppb~~		~~78~~

(#) = qualifier out of range (m) = manual integration (+) = signals summed

KR 5/30/14

ALS Environmental

1,4-DIOXANE
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp 112IC06247

Service Request: R1403723
Date Analyzed: 5/2/14 09:52

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\050214\Af625.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 393191

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	74.76	45403	Pass
175	174	5	9	7.72	3505	Pass
176	174	95	101	95.51	43363	Pass
177	176	5	9	6.47	2805	Pass
50	95	15	40	16.50	10021	Pass
75	95	30	60	45.23	27469	Pass
95	95	100	100	100.00	60728	Pass
96	95	5	9	6.97	4230	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	RQ1405292-02	I:\ACQUDATA\5975E\data\050214\Af629.D\	5/2/14 11:21	
Initial CalibrationICAL	RQ1405292-03	I:\ACQUDATA\5975E\data\050214\Af630.D\	5/2/14 11:39	
Initial CalibrationICAL	RQ1405292-04	I:\ACQUDATA\5975E\data\050214\Af631.D\	5/2/14 11:58	
Initial CalibrationICAL	RQ1405292-05	I:\ACQUDATA\5975E\data\050214\Af632.D\	5/2/14 12:17	
Initial CalibrationICAL	RQ1405292-06	I:\ACQUDATA\5975E\data\050214\Af633.D\	5/2/14 12:36	
Initial CalibrationICAL	RQ1405292-07	I:\ACQUDATA\5975E\data\050214\Af634.D\	5/2/14 12:55	
Initial CalibrationICAL	RQ1405292-08	I:\ACQUDATA\5975E\data\050214\Af635.D\	5/2/14 13:14	
Initial CalibrationICAL	RQ1405292-09	I:\ACQUDATA\5975E\data\050214\Af636.D\	5/2/14 13:42	

Response Factor Report 7975 E

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX050214.M
Title : 8270 BNA ANALYSIS
Last Update : Mon May 05 07:43:33 2014
Response Via : Initial Calibration

Calibration Files
2 =Af629.D 10 =Af630.D 20 =Af631.D 100 =Af632.D 200 =Af633.D 500 =Af634.D 1000=Af635.D 5000=Af636.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1) IR	d8-THF	----------ISTD----------									
2) T	1,4-Dioxane	1.161	1.195	1.093	1.239	1.188	1.055	1.305	1.204	1.180	6.67
3) S	SURR,1,4-DIOXA...	1.161	1.031	0.922	1.071	1.019	0.906	1.103	1.007	1.027	8.37

(#) = Out of Range

00465

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\050214\
Data File : Af637.D
Acq On : 2 May 2014 2:01 pm
Operator : m.pedro
Sample : icv
Misc : initial cal
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 07:44:00 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	98	-0.02
2	T	1,4-Dioxane	200.000	171.335	14.3	83	0.00
3	S	SURR,1,4-DIOXANE-d8	200.000	188.714	5.6	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00496

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/23/14 09:25

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\052314\Af775.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 394169

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	83.13	36744	Pass
175	174	5	9	8.39	3083	Pass
176	174	95	101	97.78	35928	Pass
177	176	5	9	5.70	2048	Pass
50	95	15	40	15.08	6667	Pass
75	95	30	60	44.22	19544	Pass
95	95	100	100	100.00	44200	Pass
96	95	5	9	6.96	3075	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405603-02	I:\ACQUDATA\5975E\data\052314\Af776.D\	5/23/14 09:48	
Lab Control Sample	RQ1405529-02	I:\ACQUDATA\5975E\data\052314\Af778.D\	5/23/14 10:41	
Duplicate Lab Control Sample	RQ1405529-03	I:\ACQUDATA\5975E\data\052314\Af779.D\	5/23/14 11:00	
Lab Control Sample	RQ1405529-04	I:\ACQUDATA\5975E\data\052314\Af780.D\	5/23/14 11:18	
Method Blank	RQ1405529-01	I:\ACQUDATA\5975E\data\052314\Af781.D\	5/23/14 11:35	
MRC-MW-58A-051914	R1403723-003	I:\ACQUDATA\5975E\data\052314\Af782.D\	5/23/14 11:54	
MRC-MW-71B-052014	R1403723-006	I:\ACQUDATA\5975E\data\052314\Af783.D\	5/23/14 12:13	
MRC-MW-71A-052014	R1403723-007	I:\ACQUDATA\5975E\data\052314\Af784.D\	5/23/14 12:32	
MRC-MW-16A-052014	R1403723-009	I:\ACQUDATA\5975E\data\052314\Af786.D\	5/23/14 13:10	
Continuing Cal. VerificationCCVA	RQ1405603-03	I:\ACQUDATA\5975E\data\052314\Af787.D\	5/23/14 13:29	

Data Path : I:\ACQUDATA\5975E\data\052314\
Data File : Af776.D
Acq On : 23 May 2014 9:48 am
Operator : m.pedro
Sample : ccv
Misc : .002ppm cal check
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 23 10:07:36 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	98	0.01
2	T	1,4-Dioxane	2.000	2.258	-12.9	110	0.06
3	S	SURR,1,4-DIOXANE-d8	2.000	1.862	6.9	91	0.06

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00502

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\052314\
Data File : Af787.D
Acq On : 23 May 2014 1:29 pm
Operator : m.pedro
Sample : ccv .2ppm
Misc : .2ppm cal check
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 27 07:35:50 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	90	-0.02
2	T	1,4-Dioxane	200.000	210.491	-5.2	94	-0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	213.458	-6.7	94	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00506

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14 10:39

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\052714\Af799.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 394225

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	82.07	43213	Pass
175	174	5	9	7.26	3138	Pass
176	174	95	101	96.44	41675	Pass
177	176	5	9	6.11	2548	Pass
50	95	15	40	15.86	8350	Pass
75	95	30	60	44.07	23203	Pass
95	95	100	100	100.00	52656	Pass
96	95	5	9	7.17	3774	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405617-02	I:\ACQUDATA\5975E\data\052714\Af800.D\	5/27/14 11:01	
MRC-MW-15A-052014	R1403723-008	I:\ACQUDATA\5975E\data\052714\Af801.D\	5/27/14 11:20	
Continuing Cal. VerificationCCVA	RQ1405617-03	I:\ACQUDATA\5975E\data\052714\Af804.D\	5/27/14 12:17	

Data Path : I:\ACQUDATA\5975E\data\052714\
Data File : Af800.D
Acq On : 27 May 2014 11:01 am
Operator : m.pedro
Sample : ccv .002ppm
Misc : cal check
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 27 11:18:05 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	101	0.01
2	T	1,4-Dioxane	2.000	2.082	-4.1	105	0.06
3	S	SURR,1,4-DIOXANE-d8	2.000	1.818	9.1	92	0.06

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00510

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\052714\
Data File : Af804.D
Acq On : 27 May 2014 12:17 pm
Operator : m.pedro
Sample : ccv .2ppm
Misc : cal check
ALS Vial : 7 Sample Multiplier: 1

Quant Time: May 27 12:34:36 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	81	-0.02
2	T	1,4-Dioxane	200.000	227.052	-13.5	91	-0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	224.992	-12.5	89	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00515

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO **Service Request:** R1403723
Project: Middle River- Lockheed Martin Corp/112IC06247 **Date Analyzed:** 5/28/14 14:54

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\052814\Af809.D\ **Analytical Method:** 522
Instrument ID: R-MS-56 **Analysis Lot:** 394593

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	79.55	35107	Pass
175	174	5	9	7.51	2638	Pass
176	174	95	101	100.59	35315	Pass
177	176	5	9	6.07	2142	Pass
50	95	15	40	15.06	6645	Pass
75	95	30	60	44.64	19701	Pass
95	95	100	100	100.00	44131	Pass
96	95	5	9	6.58	2906	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1405769-02	I:\ACQUDATA\5975E\data\052814\Af811.D\	5/28/14 15:43	
Lab Control Sample	RQ1405635-02	I:\ACQUDATA\5975E\data\052814\Af813.D\	5/28/14 16:22	
Duplicate Lab Control Sample	RQ1405635-03	I:\ACQUDATA\5975E\data\052814\Af814.D\	5/28/14 16:39	
Lab Control Sample	RQ1405635-04	I:\ACQUDATA\5975E\data\052814\Af815.D\	5/28/14 16:57	
MRC-MW54A-052214	R1403723-014	I:\ACQUDATA\5975E\data\052814\Af816.D\	5/28/14 17:14	
MRC-MW08A-052214	R1403723-015	I:\ACQUDATA\5975E\data\052814\Af817.D\	5/28/14 17:32	
MRC-MW10A-052214	R1403723-016	I:\ACQUDATA\5975E\data\052814\Af818.D\	5/28/14 17:49	
MRC-MW11C-052214	R1403723-017	I:\ACQUDATA\5975E\data\052814\Af819.D\	5/28/14 18:07	
MRC-MW63A-052314	R1403723-020	I:\ACQUDATA\5975E\data\052814\Af820.D\	5/28/14 18:25	
MRC-MW53A-052314	R1403723-021	I:\ACQUDATA\5975E\data\052814\Af821.D\	5/28/14 18:43	
Continuing Calibration Verification	RQ1405769-03	I:\ACQUDATA\5975E\data\052814\Af822.D\	5/28/14 19:01	
MRC-MW53B-052314	R1403723-022	I:\ACQUDATA\5975E\data\052814\Af823.D\	5/28/14 19:19	
Method Blank	RQ1405635-01	I:\ACQUDATA\5975E\data\052814\Af832.D\	5/28/14 22:04	
Continuing Cal. VerificationCCVA	RQ1405769-04	I:\ACQUDATA\5975E\data\052814\Af833.D\	5/28/14 22:22	

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\052814\
Data File : Af811.D
Acq On : 28 May 2014 3:43 pm
Operator : m.pedro
Sample : ccv .002ppm
Misc : cal check
ALS Vial : 4 Sample Multiplier: 1

Quant Time: May 28 15:57:24 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	86	0.00
2	T	1,4-Dioxane	2.000	2.127	-6.3	91	0.04
3	S	SURR,1,4-DIOXANE-d8	2.000	1.943	2.8	83	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

5/29

00519

Data Path : I:\ACQUDATA\5975E\data\052814\
Data File : Af822.D
Acq On : 28 May 2014 7:01 pm
Operator : m.pedro
Sample : ccv.2ppm
Misc : cal check
ALS Vial : 15 Sample Multiplier: 1

Quant Time: May 29 10:02:25 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	100	0.01
2 T	1,4-Dioxane	200.000	193.342	3.3	96	0.02
3 S	SURR,1,4-DIOXANE-d8	200.000	195.091	2.5	96	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00524

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\052814\
Data File : Af833.D
Acq On : 28 May 2014 10:22 pm
Operator : m.pedro
Sample : ccv 1.0 ppm
Misc : cal check
ALS Vial : 25 Sample Multiplier: 1

Quant Time: May 29 10:02:47 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	106	0.01
2	T	1,4-Dioxane	1000.000	1048.241	-4.8	101	0.00
3	S	SURR,1,4-DIOXANE-d8	1000.000	1044.820	-4.5	101	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00528

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/28/14 22:04
Sample Matrix:	Water	**Date Extracted:**	5/28/14

Method Blank Summary

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1405635-01	**File ID:**	I:\ACQUDATA\5975E\data\052814\Af832.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405635-02	I:\ACQUDATA\5975E\data\052814\Af813.D\	5/28/14 16:22
Duplicate Lab Control Sample	RQ1405635-03	I:\ACQUDATA\5975E\data\052814\Af814.D\	5/28/14 16:39
Lab Control Sample	RQ1405635-04	I:\ACQUDATA\5975E\data\052814\Af815.D\	5/28/14 16:57
MRC-MW54A-052214	R1403723-014	I:\ACQUDATA\5975E\data\052814\Af816.D\	5/28/14 17:14
MRC-MW08A-052214	R1403723-015	I:\ACQUDATA\5975E\data\052814\Af817.D\	5/28/14 17:32
MRC-MW10A-052214	R1403723-016	I:\ACQUDATA\5975E\data\052814\Af818.D\	5/28/14 17:49
MRC-MW11C-052214	R1403723-017	I:\ACQUDATA\5975E\data\052814\Af819.D\	5/28/14 18:07
MRC-MW63A-052314	R1403723-020	I:\ACQUDATA\5975E\data\052814\Af820.D\	5/28/14 18:25
MRC-MW53A-052314	R1403723-021	I:\ACQUDATA\5975E\data\052814\Af821.D\	5/28/14 18:43
MRC-MW53B-052314	R1403723-022	I:\ACQUDATA\5975E\data\052814\Af823.D\	5/28/14 19:19

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/28/14
		Date Analyzed:	5/28/14 22:04
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405635-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394593
Prep Method:	Method	**Extraction Lot:**	209336
Data File Name:	I:\ACQUDATA\5975E\data\052814\Af832.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	101	70-130	5/28/14 22:04	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/28/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 209336

Analyte Name	Lab Control Sample RQ1405635-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405635-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,4-Dioxane	11.3	10.1	111	9.82	10.1	97	70 - 130	14	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/28/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 209336

Analyte Name	Lab Control Sample RQ1405635-04 Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	0.0450	0.0405	111	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/23/14 11:35
Sample Matrix:	Water	**Date Extracted:**	5/23/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1405529-01	**File ID:**	I:\ACQUDATA\5975E\data\052314\Af781.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1405529-02	I:\ACQUDATA\5975E\data\052314\Af778.D\	5/23/14 10:41
Duplicate Lab Control Sample	RQ1405529-03	I:\ACQUDATA\5975E\data\052314\Af779.D\	5/23/14 11:00
Lab Control Sample	RQ1405529-04	I:\ACQUDATA\5975E\data\052314\Af780.D\	5/23/14 11:18
MRC-MW-58A-051914	R1403723-003	I:\ACQUDATA\5975E\data\052314\Af782.D\	5/23/14 11:54
MRC-MW-71B-052014	R1403723-006	I:\ACQUDATA\5975E\data\052314\Af783.D\	5/23/14 12:13
MRC-MW-71A-052014	R1403723-007	I:\ACQUDATA\5975E\data\052314\Af784.D\	5/23/14 12:32
MRC-MW-16A-052014	R1403723-009	I:\ACQUDATA\5975E\data\052314\Af786.D\	5/23/14 13:10
MRC-MW-15A-052014	R1403723-008	I:\ACQUDATA\5975E\data\052714\Af801.D\	5/27/14 11:20

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 11:35
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405529-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394169
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052314\Af781.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	84	70-130	5/23/14 11:35	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/23/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 209013

Analyte Name	Lab Control Sample RQ1405529-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405529-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,4-Dioxane	9.30	10.1	92	10.5	10.1	104	70 - 130	12	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/23/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 209013

Analyte Name	Lab Control Sample RQ1405529-04 Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	0.0428	0.0405	106	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/23/14 09:48

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\052314\Af776.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1405603-02
Analysis Lot: 394169
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	55,516	2.85
	Upper Limit ==>	72,171	3.35
	Lower Limit ==>	38,861	2.35
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Lab Control Sample	RQ1405529-02	61,974	2.84
Duplicate Lab Control Sample	RQ1405529-03	53,117	2.83
Lab Control Sample	RQ1405529-04	51,864	2.81
Method Blank	RQ1405529-01	54,104	2.84
MRC-MW-58A-051914	R1403723-003	57,933	2.84
MRC-MW-71B-052014	R1403723-006	54,069	2.80
MRC-MW-71A-052014	R1403723-007	57,011	2.84
MRC-MW-16A-052014	R1403723-009	55,505	2.84
Continuing Cal. Verification	RQ1405603-03	56,211	2.82

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/27/14 11:01

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\052714\Af800.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1405617-02
Analysis Lot: 394225
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	57,374	2.85
	Upper Limit ==>	74,586	3.35
	Lower Limit ==>	40,162	2.35
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-15A-052014	R1403723-008	55,815	2.84
Continuing Cal. Verification	RQ1405617-03	50,466	2.82

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/28/14 15:43

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\052814\Af811.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1405769-02
Analysis Lot: 394593
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	48,632	2.83
	Upper Limit ==>	63,222	3.33
	Lower Limit ==>	34,042	2.33
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Lab Control Sample	RQ1405635-02	48,520	2.81
Duplicate Lab Control Sample	RQ1405635-03	62,081	2.85
Lab Control Sample	RQ1405635-04	51,143	2.82
MRC-MW54A-052214	R1403723-014	60,481	2.85
MRC-MW08A-052214	R1403723-015	60,213	2.84
MRC-MW10A-052214	R1403723-016	59,934	2.83
MRC-MW11C-052214	R1403723-017	56,250	2.81
MRC-MW63A-052314	R1403723-020	52,347	2.80
MRC-MW53A-052314	R1403723-021	54,106	2.79

Results flagged with an asterisk (*) indicate values outside control criteria

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/28/14 19:01

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID:	I:\ACQUDATA\5975E\data\052814\Af822.D\	**Lab Code:**	RQ1405769-03
Instrument ID:	R-MS-56	**Analysis Lot:**	394593
Analytical Method:	522	**Signal ID:**	

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	62,868	2.85
	Upper Limit ==>	81,728	3.35
	Lower Limit ==>	44,008	2.35
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW53B-052314	R1403723-022	53,835	2.79
Method Blank	RQ1405635-01	56,508	2.81
Continuing Cal. Verification	RQ1405769-04	60,368	2.85

Results flagged with an asterisk (*) indicate values outside control criteria

Preparation Information Benchsheet

Prep Run#: 209013
Team: Semivoa GCMS/LPRUNOSKE

Prep WorkFlow: OrgExt SPE Aq28
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/23/14 09:00 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405529-01	MB		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
2	RQ1405529-02	LCS		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 200.0000 uL/69716; 10.0000 uL/69806	
3	RQ1405529-03	DLCS		100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69716; 200.0000 uL/69135	
4	RQ1405529-04	LCS		100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 1.0000 mL/68909; 200.0000 uL/69135	
5	R1403723-003	MRC-MW-58A-051914	.07	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
6	R1403723-006	MRC-MW-71B-051914	.07	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
7	R1403723-007	MRC-MW-71A-051914	.06	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
8	R1403723-008	MRC-MW-15A-051914	.06	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
9	R1403723-009	MRC-MW-16A-051914	.07	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	

Spiking Solutions

Name:	EPA 522 MDL Spike 4ppb	Inventory ID	68909	Logbook Ref:		Expires On:	08/05/2014
Name:	1,4-Dioxane-d8 1ppm Surr. Std.	Inventory ID	69135	Logbook Ref:		Expires On:	10/07/2014
Name:	EPA 522 LCS Spike 5ppm	Inventory ID	69716	Logbook Ref:		Expires On:	08/05/2014
Name:	SVOA Tetrahydrofuran-D8 100ppm	Inventory ID	69806	Logbook Ref:		Expires On:	07/30/2014

Preparation Materials

Method 522 400mg charcoal filters	(69964)	Water Deionized H2O	DI System (2262)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	canister (70650)
Methanol Purge & Trap MeOH	64288 (64288)	Sodium Bisulfate Monohydrate RG	(55717)	Prepared Sodium Sulfate Na2SO4	(70845)

Preparation Steps

Step: Extraction
Started: 5/23/14 09:00
Finished: 5/23/14 12:00
By: LPRUNOSKE
Comments

Preparation Information Benchsheet

ep Run#: 209336
am: Semivoa GCMS/MPEDRO

Prep WorkFlow: OrgExt SPE Aq28
Prep Method: Method

Status: Prepped
Prep Date/Time: 5/28/14 10:30 AM

	Lab Code	Client ID	B#	Amt. Ext	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405635-01	MB		100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
2	RQ1405635-02	LCS		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806; 200.0000 uL/69716	
3	RQ1405635-03	DLCS		100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69716; 10.0000 uL/69806; 200.0000 uL/69135	
4	RQ1405635-04	LCS		100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135; 1.0000 mL/68909	
5	R1403723-014	MRC-MW54A-052214	.06	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
6	R1403723-015	MRC-MW08A-052214	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
7	R1403723-016	MRC-MW10A-052214	.06	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
8	R1403723-017	MRC-MW11C-052214	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
9	R1403723-020	MRC-MW63A-052314	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
10	R1403723-021	MRC-MW53A-052314	.06	100mL	522/1,4-Dioxane FP				2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
11	R1403723-022	MRC-MW53B-052314	.06	100mL	522/1,4-Dioxane FP				2.00mL		10.0000 uL/69806; 200.0000 uL/69135	

iking Solutions

Name:	EPA 522 MDL Spike 4ppb	Inventory ID	68909	Logbook Ref:	Expires On:	08/05/2014
Name:	1,4-Dioxane-d8 1ppm Surr. Std.	Inventory ID	69135	Logbook Ref:	Expires On:	10/07/2014
Name:	EPA 522 LCS Spike 5ppm	Inventory ID	69716	Logbook Ref:	Expires On:	08/05/2014
Name:	SVOA Tetrahydrofuran-D8 100ppm	Inventory ID	69806	Logbook Ref:	Expires On:	07/30/2014

Preparation Materials

Method 522 400mg charcoal filters	(70422)	Eppendorf Pipette Repeater	EXT #15 (67588)	Water Deionized H2O	DI System (2262)
Dichloromethane (Methylene Chloride) 99.9% MeCl2	canister (70650)	Methanol Purge & Trap MeOH	64288 (64288)		

Preparation Steps

Step: Extraction
Started: 5/28/14 10:30
Finished: 5/28/14 14:13
By: MPEDRO
Comments

SAMPLE ID MSA-MW-16A-052014

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST /	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	CONCENTRATION PPB
55505	1	563098	0.5	2000	1.1800	85.97
			Amt. inj	Sample Volume (ML)		
			1	100		

1,4-Dioxane = 83.8 ug/L

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/20/14 1539
Sample Matrix:	Water	**Date Received:**	5/21/14
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 13:10
Sample Name:	MRC-MW-16A-052014	**Units:**	µg/L
Lab Code:	R1403723-009	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	394169
Prep Method:	Method	**Extraction Lot:**	209013
Data File Name:	I:\ACQUDATA\5975E\data\052314\Af786.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**83.8**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	103	70-130	5/23/14 13:10	

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\5975E\data\052314\
Data File : Af786.D
Acq On : 23 May 2014 1:10 pm
Operator : m.pedro
Sample : r1403723-009
Misc : 05/23/14 522
ALS Vial : 14 Sample Multiplier: 1

Quant Time: May 27 07:35:48 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d8-THF	2.836	46	55505	500.00	PPB	0.00
System Monitoring Compounds						
3) SURR,1,4-DIOXANE-d8	3.874	96	11425	102.81	PPB	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 102.81%			
Target Compounds						Qvalue
2) 1,4-Dioxane	3.902	88	563098	4191.03	PPB	94

(#) = qualifier out of range (m) = manual integration (+) = signals summed

00431

ALS Environmental

PERCHLORATE
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Response Factor Report Instrumen

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00611

(#) = Out of Range ### Number of calibration levels exceeded format ###

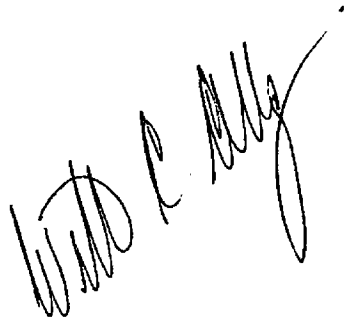
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\052314\B0031058.D Vial: 6
Acq On : 23 May 2014 1:46 pm Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	018LP	1.000	1.000	0.0	72	0.42
2	Perchlorate	1.085	1.082	0.3	68	0.45
3	#2 perc ion	0.366	0.347	5.2	67	0.42



00650

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031058.D PERC0129.M Tue May 27 08:33:22 2014 Page 1

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\052314\B0031069.D Vial: 6
Acq On : 23 May 2014 4:14 pm Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	018LP	1.000	1.000	0.0	71	0.45
2	Perchlorate	1.085	1.094	-0.8	67	0.45
3	#2 perc ion	0.366	0.342	6.6	65	0.42

00654

(#) = Out of Range SPCC's out = 0 CCC's out = 0

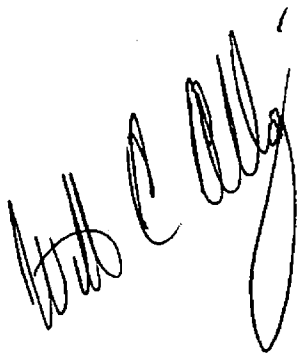
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\052314\B0031074.D Vial: 6
Acq On : 23 May 2014 5:21 pm Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	66	0.45
2	Perchlorate	1.085	1.105	-1.8	63	0.45
3	#2 perc ion	0.366	0.341	6.8	60	0.46



00660

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031074.D PERC0129.M Tue May 27 08:43:35 2014 Page 1

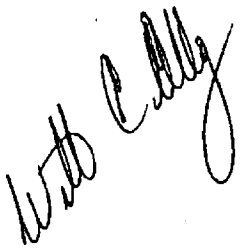
Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060214\B0031108.D Vial: 6
Acq On : 2 Jun 2014 10:38 am Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	83	0.42
2	Perchlorate	1.085	1.083	0.2	78	0.42
3	#2 perc ion	0.366	0.339	7.4	75	0.42



00664

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031108.D PERC0129.M Tue Jun 03 08:51:22 2014 Page 1

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060214\B0031119.D Vial: 6
Acq On : 2 Jun 2014 1:06 pm Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	71	0.42
2	Perchlorate	1.085	1.060	2.3	65	0.42
3	#2 perc ion	0.366	0.333	9.0	63	0.39

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060214\B0031124.D Vial: 6
Acq On : 2 Jun 2014 2:13 pm Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	76	0.42
2	Perchlorate	1.085	1.097	-1.1	72	0.42
3	#2 perc ion	0.366	0.343	6.3	70	0.39

Data File : I:\ACQUDATA\HPLC02\DATA\060314\B0031128.D Vial: 6
Acq On : 3 Jun 2014 9:49 am Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	80	0.38
2	Perchlorate	1.085	1.110	-2.3	77	0.38
3	#2 perc ion	0.366	0.348	4.9	74	0.39

Data File : I:\ACQUDATA\HPLC02\DATA\060314\B0031132.D Vial: 6
Acq On : 3 Jun 2014 10:42 am Operator: b.allgeier
Sample : CCV Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	81	0.42
2	Perchlorate	1.085	1.092	-0.6	77	0.45
3	#2 perc ion	0.366	0.345	5.7	75	0.42

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/23/14 13:59
Sample Matrix:	Water	**Date Extracted:**	5/23/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1405562-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\052314\B0031059.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1405562-04	I:\ACQUDATA\HPLC02\DATA\052314\B0031060.D\	5/23/14 14:13
Lab Control Sample	RQ1405562-02	I:\ACQUDATA\HPLC02\DATA\052314\B0031061.D\	5/23/14 14:26
Duplicate Lab Control Sample	RQ1405562-03	I:\ACQUDATA\HPLC02\DATA\052314\B0031062.D\	5/23/14 14:40
Interference Check StandardICS	RQ1405562-05	I:\ACQUDATA\HPLC02\DATA\052314\B0031063.D\	5/23/14 14:53
MRC-MW-50A-051914	R1403723-004	I:\ACQUDATA\HPLC02\DATA\052314\B0031065.D\	5/23/14 15:20
Limit of Detection VerificationLODV	RQ1405562-04	I:\ACQUDATA\HPLC02\DATA\052314\B0031073.D\	5/23/14 17:07

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/23/14
		Date Analyzed:	5/23/14 13:59
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405562-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	394156
Prep Method:	Method	**Extraction Lot:**	209200
Data File Name:	I:\ACQUDATA\HPLC02\DATA\052314\B0031059.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/23/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 209200

	Lab Control Sample RQ1405562-02			Duplicate Lab Control Sample RQ1405562-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.190	0.200	95	0.180	0.200	90	80 - 120	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/2/14 10:52
Sample Matrix:	Water	**Date Extracted:**	5/30/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1405868-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\060214\B0031109.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1405868-04	I:\ACQUDATA\HPLC02\DATA\060214\B0031110.D\	6/2/14 11:05
Lab Control Sample	RQ1405868-02	I:\ACQUDATA\HPLC02\DATA\060214\B0031111.D\	6/2/14 11:18
Duplicate Lab Control Sample	RQ1405868-03	I:\ACQUDATA\HPLC02\DATA\060214\B0031112.D\	6/2/14 11:32
Interference Check StandardICS	RQ1405868-05	I:\ACQUDATA\HPLC02\DATA\060214\B0031113.D\	6/2/14 11:45
MRC-MW54A-052214	R1403723-014	I:\ACQUDATA\HPLC02\DATA\060214\B0031114.D\	6/2/14 11:59
MRC-MW08A-052214	R1403723-015	I:\ACQUDATA\HPLC02\DATA\060214\B0031115.D\	6/2/14 12:12
MRC-MW53B-052314	R1403723-022	I:\ACQUDATA\HPLC02\DATA\060214\B0031117.D\	6/2/14 12:39
Limit of Detection VerificationLODV	RQ1405868-04	I:\ACQUDATA\HPLC02\DATA\060214\B0031123.D\	6/2/14 14:00
Limit of Detection VerificationLODV	RQ1405868-04	I:\ACQUDATA\HPLC02\DATA\060314\B0031129.D\	6/3/14 10:02
MRC-MW53A-052314	R1403723-021	I:\ACQUDATA\HPLC02\DATA\060314\B0031130.D\	6/3/14 10:15
Limit of Detection VerificationLODV	RQ1405868-04	I:\ACQUDATA\HPLC02\DATA\060314\B0031131.D\	6/3/14 10:29

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	5/30/14
		Date Analyzed:	6/2/14 10:52
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405868-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	395257
Prep Method:	Method	**Extraction Lot:**	209682
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060214\B0031109.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 6/ 2/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 209682

Analyte Name	Lab Control Sample RQ1405868-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405868-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Perchlorate	0.190	0.200	95	0.180	0.200	90	80 - 120	5	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 5/23/14
Time Analyzed: 14:13:00

Limit of Detection Verification
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method
File ID: I:\ACQUDATA\HPLC02\DATA\052314\B0031060.D\

Units: µg/L
Basis: NA

Extraction Lot: 209200

RQ1405562-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	5/23/14
Sample Matrix:	Water	**Time Analyzed:**	17:07:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\052314\B0031073.D\		
		Extraction Lot:	209200

	RQ1405562-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	**0.100**	0.100	100	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/ 2/14
Sample Matrix:	Water	**Time Analyzed:**	11:05:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\060214\B0031110.D\		
		Extraction Lot:	209682

Analyte Name	Result	RQ1405868-04 Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/ 2/14
Sample Matrix:	Water	**Time Analyzed:**	14:00:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\060214\B0031123.D\		
		Extraction Lot:	209682

RQ1405868-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 6/ 3/14
Time Analyzed: 10:02:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method
File ID: I:\ACQUDATA\HPLC02\DATA\060314\B0031129.D\

Units: µg/L
Basis: NA

Extraction Lot: 209682

RQ1405868-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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SuperSet Reference: 14-0000290170 rev 00

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1403723
Date Analyzed: 6/ 3/14
Time Analyzed: 10:29:00

Limit of Detection Verification
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method
File ID: I:\ACQUDATA\HPLC02\DATA\060314\B0031131.D\

Units: µg/L
Basis: NA

Extraction Lot: 209682

RQ1405868-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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SuperSet Reference: 14-0000290170 rev 00

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 5/23/14 13:46

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\052314\B0031058.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1405596-01
Analysis Lot: 394156
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1405596-01	145,402	8.26
Method Blank	RQ1405562-01	152,330	8.29
Limit of Detection Verification	RQ1405562-04	150,334	8.29
Lab Control Sample	RQ1405562-02	150,218	8.29
Duplicate Lab Control Sample	RQ1405562-03	153,963	8.29
Interference Check Standard	RQ1405562-05	147,889	8.01
MRC-MW-50A-051914	R1403723-004	123,143	7.95
Continuing Cal. Verification	RQ1405596-02	142,549	8.29
Limit of Detection Verification	RQ1405562-04	122,284	8.29
Continuing Cal. Verification	RQ1405596-03	131,972	8.29

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 6/2/14 10:38

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\060214\B0031108.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1405970-01
Analysis Lot: 395257
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1405970-01	167,594	8.26
Method Blank	RQ1405868-01	178,552	8.29
Limit of Detection Verification	RQ1405868-04	179,376	8.29
Lab Control Sample	RQ1405868-02	175,743	8.29
Duplicate Lab Control Sample	RQ1405868-03	174,186	8.29
Interference Check Standard	RQ1405868-05	157,633	8.01
MRC-MW54A-052214	R1403723-014	163,738	8.19
MRC-MW08A-052214	R1403723-015	156,211	8.05
MRC-MW53B-052314	R1403723-022	150,372	8.01
Continuing Cal. Verification	RQ1405970-02	142,158	8.26
Limit of Detection Verification	RQ1405868-04	163,990	8.26
Continuing Cal. Verification	RQ1405970-03	153,670	8.26

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1403723
Date Analyzed: 6/3/14 09:49

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\060314\B0031128.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1405986-01
Analysis Lot: 395295
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1405986-01	161,228	8.22
Limit of Detection Verification	RQ1405868-04	179,478	8.26
MRC-MW53A-052314	R1403723-021	158,397	8.22
Limit of Detection Verification	RQ1405868-04	176,477	8.29
Continuing Cal. Verification	RQ1405986-02	162,934	8.26

Results flagged with an asterisk (*) indicate values outside control criteria

Preparation Information Benchsheet

Prep Run#: 209200 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 5/23/14 12:54 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405562-01	MB		10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1405562-02	LCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/66005	
3	RQ1405562-03	DLCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/66005	
4	RQ1405562-04	LODV		10mL	6850/ClO4				10.00mL		1.0000 uL/66005; 10.0000 uL/68807	
5	RQ1405562-05	ICS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/66005	
6	R1403652-001	S/N 002 (SOUTH)	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1403666-001	1405161046Y BLM-28-470	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1403723-004	MRC-MW-30A-051914	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1403766-001	1405191352X WB-1-200	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
10	R1403766-002	1405201331X WB-1-330	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
11	R1403766-003	1405201415Y BLM-28-425	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
12	RQ1405562-06	R1403766-003 MS	.01	10mL	6850/ClO4				10.00mL		4.0000 uL/66005; 10.0000 uL/68807	
13	RQ1405562-07	R1403766-003 DMS	.01	10mL	6850/ClO4				10.00mL		4.0000 uL/66005; 10.0000 uL/68807	

Spiking Solutions

Name: Perchlorate 1000 ppb CLO4 Inventory ID 66005 Logbook Ref: Expires On: 05/31/2014

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Preparation Materials

Water (69963)

interference check standard for perchlorate (63899)

Preparation Steps

Step: Extraction
Started: 5/23/14 12:54
Finished: 5/23/14 13:30
By: BALLGEIER
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 209682 **Prep WorkFlow:** Org CLO4 **Status:** Prepped
Team: Semivoa GC/BALLGEIER **Prep Method:** Method **Prep Date/Time:** 5/30/14 03:39 PM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1405868-01	MB		10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
2	RQ1405868-04	LODV		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 1.0000 uL/66005	
3	RQ1405868-02	LCS		10mL	6850/ClO4				10.00mL		2.0000 uL/66005; 10.0000 uL/68807	
4	RQ1405868-03	DLCS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/66005	
5	RQ1405868-05	ICS		10mL	6850/ClO4				10.00mL		10.0000 uL/68807; 2.0000 uL/66005	
6	R1403723-014	MRC-MW54A-052214	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
7	R1403723-015	MRC-MW08A-052214	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
8	R1403723-021	MRC-MW53A-052314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
9	R1403723-022	MRC-MW53B-052314	.07	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
10	R1403833-001	1405220951A 600-C-173	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
11	R1403960-001	Paliza Spr-5-21-14-ClO4	.01	10mL	6850/ClO4				10.00mL		10.0000 uL/68807	
12	RQ1405868-06	R1403960-001 MS	.01	10mL	6850/ClO4				10.00mL		4.0000 uL/66005; 10.0000 uL/68807	
13	RQ1405868-07	R1403960-001 DMS	.01	10mL	6850/ClO4				10.00mL		4.0000 uL/66005; 10.0000 uL/68807	

Spiking Solutions

Name: Perchlorate 1000 ppb CLO4 Inventory ID 66005 Logbook Ref: Expires On: 05/31/2014

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Preparation Materials

Water (69963)

interference check standard for perchlorate (63899)

Preparation Steps

Step: Extraction
Started: 5/30/14 15:39
Finished: 5/30/14 16:00
By: BALLGEIER
Comments

6 0 7 9

Comments:

SAMPLE ID MRC-MW53A-052314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST AREA	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	CONCENTRATION PPB
158397	10	166987	1	10	1.0850	9.72
			Amt. inj	Sample Volume (ML)		
			1	10		

Perchlorate = 9.7 ug/L

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1403723
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/23/14 1250
Sample Matrix:	Water	**Date Received:**	5/24/14
		Date Extracted:	5/30/14
		Date Analyzed:	6/3/14 10:15
Sample Name:	MRC-MW53A-052314	**Units:**	µg/L
Lab Code:	R1403723-021	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	395295
Prep Method:	Method	**Extraction Lot:**	209682
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060314\B0031130.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	9.7		2.0	0.26	

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\060314\B0031130.D Vial: 18
Acq On : 3 Jun 2014 10:15 am Operator: b.allgeier
Sample : R1403723-021 Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 3 11:35 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	8.22	89	158397	1.00	ug/L	0.38
Target Compounds						Qvalue
2) Perchlorate	8.19	83	166987	0.97	ug/L	100
3) #2 perc ion	8.22	85	51815	0.89	ug/L	100

Ratio
3.22

BA6/3

(#) = qualifier out of range (m) = manual integration
B0031130.D PERC0129.M Tue Jun 03 11:37:08 2014

00603

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. APANAVAGE** **DATE:** **AUGUST 18, 2014**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – METALS**
LOCKHEED MARTIN CORPORATION (LMC)
GROUNDWATER 2014
SDG R1403723

SAMPLES: 15/Aqueous/Metals

MRC-DUP03-052014	MRC-MW-15A-052014	MRC-MW-16A-052014
MRC-MW-26A-052114	MRC-MW-29A-052114	MRC-MW-49A-051914
MRC-MW-50A-051914	MRC-MW-59A-051914	MRC-MW-71A-052014
MRC-MW-71B-052014	MRC-MW08A-052214	MRC-MW10A-052214
MRC-MW53A-052314	MRC-MW53B-052314	MRC-MW63A-052314

Overview

The sample set for LMC-Groundwater 2014, SDG R1403723 consisted of fifteen (15) aqueous environmental samples. All fifteen (15) aqueous samples were analyzed metals. One field duplicate sample pair was included in this SDG: MRC-DUP03-052014/MRC-MW-49A-051914.

The samples were collected by Tetra Tech, Inc. on May 19-23, 2014 and analyzed by ALS Environmental. All analyses were conducted in accordance with SW-846 Methods 6010C, 6020A, and 7470A analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, ICP/MS tuning, initial/continuing calibrations, laboratory method/calibration blanks, Interference Check Sample (ICS), laboratory control sample results, matrix spike/matrix spike duplicate results, internal standard areas and recoveries, ICP serial dilution results, field duplicate precision, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The following analytes below were detected in the laboratory method and preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Chromium [(1)]	1.332	6.66
Copper [(1)]	0.38	1.9
Cobalt [(2)]	0.016	0.08
Antimony [(3)]	0.232	1.16
Cadmium [(3)]	0.011	0.055
Silver [(3)]	0.017	0.085
Thallium [(3)]	0.035	0.175
Molybdenum [(3)]	0.092	0.46

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Barium [4]	7.32	36.6
Vanadium [4]	1.89	9.45
Iron [5]	22.086	110.43
Manganese [5]	0.702	3.51
Cadmium [6]	0.011	0.055

[1] - Maximum concentration detected in the laboratory preparation blank from preparation batch #210305 (indicated in the electronic deliverable) affecting all 6020A samples extracted on 06/09/14.
[2] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 06/12/14.
[3] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 06/13/14.
[4] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/11/14.
[5] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/6-7/14.
[6] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/16/14.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected results reported for these compounds in the affected samples below the established action level were qualified as non-detected, (U).

- The difference between the original and duplicate results for copper in sample MRC-MW-71B-052014 was greater than the Reporting Limit (RL) in the laboratory duplicate analysis associated with preparation batch #210305 (indicated in the electronic deliverable). All samples were affected. The detected results reported for copper in the affected samples were qualified as estimated, (J).

- The following internal standard Percent Recovery (%R) was above the 125% quality control limit:

Sample	Internal Standard(s)	Affected Analytes
MRC-MW-26A-052114	Sc	Be, Cr, Co, Cu, Ni

The detected results reported for the affected analytes were qualified as estimated, (J).

- The Relative Percent Difference (RPD) for copper in the field duplicate pair, MRC-DUP03-052014/MRC-MW-49A-051914, was greater than the 30% quality control limit. All samples were affected. The detected results reported for copper in the affected samples were qualified as estimated, (J).

- Detected results reported below the Reporting Limit (RL) limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

Non-detected results were reported to the MDL.

Executive Summary

Laboratory Performance: Contaminants were detected in the laboratory preparation and method blanks. One sample had a high %R for an internal standard that resulted in data qualification. The laboratory duplicate analysis for copper was noncompliant.

Other Factors Affecting Data Quality: Field duplicate imprecision was noted for copper. Results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review" (January 2010) and SW-846 Methods 6010C, 6020A, and 7470A analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-DUP03-052014			MRC-MW08A-052214			MRC-MW10A-052214			MRC-MW-15A-052014		
SDG: R1403723	LAB_ID	R1403723-010			R1403723-015			R1403723-016			R1403723-008		
FRACTION: M	SAMP_DATE	5/20/2014			5/22/2014			5/22/2014			5/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	MRC-MW-49A-051914											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.785	U		0.157	U		0.157	U		0.203	U	A
ARSENIC		3.3	J	P	2.2			2.1			2.8		
BARIUM		259			150			98.4			169		
BERYLLIUM		20.8			0.287			0.02	J	P	0.124	J	P
CADMIUM		0.04	U		0.008	U		0.008	U		0.008	U	
CHROMIUM		5.6	U	A	1.7	U	A	3.3	U	A	1.3	U	A
COBALT		763			149			92.2			24.4		
COPPER		236	J	FG	6.8	J	FG	2.6	J	FG	8.6	J	FG
IRON		35.3	U	A	44800			71400			38300		
LEAD		2.9	J	P	1.2			0.773	J	P	0.955	J	P
MANGANESE		923			42800			6900			5540		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.44	U	A	0.892	J	P	0.287	U	A	0.331	U	A
NICKEL		1380			372			67.1			5.9		
SELENIUM		6.2	J	P	0.213	U		1.5	J	P	0.213	U	
SILICON		6240			7270			4340			3890		
SILVER		0.875	J	P	0.015	U		0.02	U	A	0.015	U	
THALLIUM		0.153	U		0.031	U		0.031	U		0.031	U	
VANADIUM		0.927	U	A	0.169	U		5	U	A	1.8	U	A

PROJ_NO: 06247	NSAMPLE	MRC-MW-16A-052014			MRC-MW-26A-052114			MRC-MW-29A-052114			MRC-MW-49A-051914		
SDG: R1403723	LAB_ID	R1403723-009			R1403723-013			R1403723-012			R1403723-005		
FRACTION: M	SAMP_DATE	5/20/2014			5/21/2014			5/21/2014			5/19/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.207	U	A	0.157	U		0.157	U		0.785	U	
ARSENIC		0.547	J	P	0.32	J	P	0.708	J	P	2.7	J	P
BARIUM		299			426			319			246		
BERYLLIUM		7.9			0.04	J	N	7.5			20.1		
CADMIUM		1.5			1.3			0.533	J	P	0.04	U	
CHROMIUM		1.6	U	A	1.5	U	A	0.908	U	A	7.8	U	A
COBALT		369			361	J	N	382			772		
COPPER		13.3	J	FG	12.6	J	FGN	16.1	J	FG	134	J	FG
IRON		4750			27000			4830			39.4	U	A
LEAD		0.909	J	P	0.902	J	P	0.33	J	P	3.1	J	P
MANGANESE		6100			9080			4360			860		
MERCURY		0.024	U		0.024	U		0.252			0.024	U	
MOLYBDENUM		0.308	U	A	0.255	U	A	0.194	U	A	0.926	U	A
NICKEL		379			388	J	N	165			1290		
SELENIUM		1.9	J	P	1	J	P	1.8	J	P	4.8	J	P
SILICON		17700			6890			5270			6180		
SILVER		0.017	U	A	0.015	U		0.022	U	A	0.846	J	P
THALLIUM		0.031	U		0.031	U		0.053	U	A	0.153	U	
VANADIUM		0.502	U	A	0.169	U		0.835	U	A	1.3	U	A

PROJ_NO: 06247	NSAMPLE	MRC-MW-50A-051914			MRC-MW53A-052314			MRC-MW53B-052314			MRC-MW-59A-051914		
SDG: R1403723	LAB_ID	R1403723-004			R1403723-021			R1403723-022			R1403723-002		
FRACTION: M	SAMP_DATE	5/19/2014			5/23/2014			5/23/2014			5/19/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.157	U		1.4			0.157	U	
ARSENIC		0.283	J	P	0.211	U		0.288	J	P	2.9		
BARIUM		101			203			323			174		
BERYLLIUM		2.1			4.8			0.604	J	P	2.5		
CADMIUM		0.04	U		0.031	U	A	0.648	J	P	0.008	U	
CHROMIUM		1.3	U	A	2.2	U	A	3.8	U	A	2.3	U	A
COBALT		45.1			79			1040			504		
COPPER		35.2	J	FG	11.9	J	FG	28.1	J	FG	8.3	J	FG
IRON		3160			146			2330			52300		
LEAD		0.433	J	P	0.061	U		2.7			0.172	J	P
MANGANESE		250			824			1280			10900		
MERCURY		0.024	U		0.024	U		0.025	J	P	0.024	U	
MOLYBDENUM		0.218	U	A	0.385	U	A	0.474	J	P	0.914	J	P
NICKEL		47.7			131			923			306		
SELENIUM		1.7	J	P	0.315	J	P	0.213	U		0.213	U	
SILICON		2100			6270			9300			6490		
SILVER		0.726	J	P	0.015	U		0.056	U	A	0.015	U	
THALLIUM		0.011	U	A	0.031	U		0.031	U		0.031	U	
VANADIUM		2	U	A	0.169	U		5.5	U	A	0.169	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW63A-052314			MRC-MW-71A-052014			MRC-MW-71B-052014		
SDG: R1403723	LAB_ID	R1403723-020			R1403723-007			R1403723-006		
FRACTION: M	SAMP_DATE	5/23/2014			5/20/2014			5/20/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		2.6			0.999	U	A
ARSENIC		0.578	J	P	0.211	U		0.211	U	
BARIUM		408			33.8	U	A	98.4	U	A
BERYLLIUM		1.1			1			0.02	U	
CADMIUM		0.008	U		3.7			0.008	U	
CHROMIUM		1.9	U	A	2.7	U	A	1	U	A
COBALT		326			11.4			7.2		
COPPER		8.3	J	FG	7.5	J	FG	5.4	J	FG
IRON		66000			107	U	A	4830		
LEAD		0.88	J	P	0.179	J	P	0.541	J	P
MANGANESE		2700			279			670		
MERCURY		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.489	J	P	0.809	J	P	0.195	U	A
NICKEL		430			22.2			10.9		
SELENIUM		0.213	U		0.487	J	P	0.213	U	
SILICON		13900			9490			5170		
SILVER		0.037	U	A	0.015	U		0.015	U	
THALLIUM		0.031	U		0.031	U		0.031	U	
VANADIUM		3.6	U	A	4.8	U	A	1.1	U	A

Appendix B

Results as Reported by the Laboratory

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-DUP03-052014

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-010

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.785	U		MS
7440-38-2	Arsenic	3.3	J		MS
7440-39-3	Barium	259			P
7440-41-7	Beryllium	20.8			MS
7440-43-9	Cadmium	0.040	U		MS
7440-47-3	Chromium	5.6	J		MS
7440-48-4	Cobalt	763			MS
7440-50-8	Copper	236		*	MS
7439-89-6	Iron	35.3	J		P
7439-92-1	Lead	2.9	J		MS
7439-96-5	Manganese	923			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	1380			MS
7782-49-2	Selenium	6.2	J		MS
7440-22-4	Silver	0.875	J		MS
7440-28-0	Thallium	0.153	U		MS
7440-62-2	Vanadium	0.927	J		P
7440-21-3	Silicon	6240			P
7439-98-7	Molybdenum	0.440	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: MRC-MW-15A-052014

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-008

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.203	J		MS
7440-38-2	Arsenic	2.8			MS
7440-39-3	Barium	169			P
7440-41-7	Beryllium	0.124	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.3	J		MS
7440-48-4	Cobalt	24.4			MS
7440-50-8	Copper	8.6		*	MS
7439-89-6	Iron	38300			P
7439-92-1	Lead	0.955	J		MS
7439-96-5	Manganese	5540			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	5.9			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	1.8	J		P
7440-21-3	Silicon	3890			P
7439-98-7	Molybdenum	0.331	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-16A-052014

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-009

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.207	J		MS
7440-38-2	Arsenic	0.547	J		MS
7440-39-3	Barium	299			P
7440-41-7	Beryllium	7.9			MS
7440-43-9	Cadmium	1.5			MS
7440-47-3	Chromium	1.6	J		MS
7440-48-4	Cobalt	369			MS
7440-50-8	Copper	13.3		*	MS
7439-89-6	Iron	4750			P
7439-92-1	Lead	0.909	J		MS
7439-96-5	Manganese	6100			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	379			MS
7782-49-2	Selenium	1.9	J		MS
7440-22-4	Silver	0.017	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.502	J		P
7440-21-3	Silicon	17700			P
7439-98-7	Molybdenum	0.308	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-26A-052114

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-013

Level (low/med): LOW Date Received: 5/22/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.320	J		MS
7440-39-3	Barium	426			P
7440-41-7	Beryllium	7.1			MS
7440-43-9	Cadmium	1.3			MS
7440-47-3	Chromium	1.5	J		MS
7440-48-4	Cobalt	361			MS
7440-50-8	Copper	12.6		*	MS
7439-89-6	Iron	27000			P
7439-92-1	Lead	0.902	J		MS
7439-96-5	Manganese	9080			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	388			MS
7782-49-2	Selenium	1.0	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	6890			P
7439-98-7	Molybdenum	0.255	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-29A-052114

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-012

Level (low/med): LOW Date Received: 5/22/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.708	J		MS
7440-39-3	Barium	319			P
7440-41-7	Beryllium	7.5			MS
7440-43-9	Cadmium	0.533	J		MS
7440-47-3	Chromium	0.908	J		MS
7440-48-4	Cobalt	382			MS
7440-50-8	Copper	16.1		*	MS
7439-89-6	Iron	4830			P
7439-92-1	Lead	0.330	J		MS
7439-96-5	Manganese	4360			P
7439-97-6	Mercury	0.252			CV
7440-02-0	Nickel	165			MS
7782-49-2	Selenium	1.8	J		MS
7440-22-4	Silver	0.022	J		MS
7440-28-0	Thallium	0.053	J		MS
7440-62-2	Vanadium	0.835	J		P
7440-21-3	Silicon	5270			P
7439-98-7	Molybdenum	0.194	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: MRC-MW-49A-051914

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-005

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.785	U		MS
7440-38-2	Arsenic	2.7	J		MS
7440-39-3	Barium	246			P
7440-41-7	Beryllium	20.1			MS
7440-43-9	Cadmium	0.040	U		MS
7440-47-3	Chromium	7.8	J		MS
7440-48-4	Cobalt	772			MS
7440-50-8	Copper	134		*	MS
7439-89-6	Iron	39.4	J		P
7439-92-1	Lead	3.1	J		MS
7439-96-5	Manganese	860			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	1290			MS
7782-49-2	Selenium	4.8	J		MS
7440-22-4	Silver	0.846	J		MS
7440-28-0	Thallium	0.153	U		MS
7440-62-2	Vanadium	1.3	J		P
7440-21-3	Silicon	6180			P
7439-98-7	Molybdenum	0.926	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-50A-051914

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-004

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.283	J		MS
7440-39-3	Barium	101			P
7440-41-7	Beryllium	2.1			MS
7440-43-9	Cadmium	0.040	U		MS
7440-47-3	Chromium	1.3	J		MS
7440-48-4	Cobalt	45.1			MS
7440-50-8	Copper	35.2		*	MS
7439-89-6	Iron	3160			P
7439-92-1	Lead	0.433	J		MS
7439-96-5	Manganese	250			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	47.7			MS
7782-49-2	Selenium	1.7	J		MS
7440-22-4	Silver	0.726	J		MS
7440-28-0	Thallium	0.110	J		MS
7440-62-2	Vanadium	2.0	J		P
7440-21-3	Silicon	2100			P
7439-98-7	Molybdenum	0.218	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-59A-051914

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-002

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	2.9			MS
7440-39-3	Barium	174			P
7440-41-7	Beryllium	2.5			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.3			MS
7440-48-4	Cobalt	504			MS
7440-50-8	Copper	8.3		*	MS
7439-89-6	Iron	52300			P
7439-92-1	Lead	0.172	J		MS
7439-96-5	Manganese	10900			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	306			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	6490			P
7439-98-7	Molybdenum	0.914	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: MRC-MW-71A-052014

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-007

Level (low/med): LOW Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.6			MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	33.8			P
7440-41-7	Beryllium	1.0			MS
7440-43-9	Cadmium	3.7			MS
7440-47-3	Chromium	2.7			MS
7440-48-4	Cobalt	11.4			MS
7440-50-8	Copper	7.5		*	MS
7439-89-6	Iron	107			P
7439-92-1	Lead	0.179	J		MS
7439-96-5	Manganese	279			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	22.2			MS
7782-49-2	Selenium	0.487	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	4.8	J		P
7440-21-3	Silicon	9490			P
7439-98-7	Molybdenum	0.809	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

00107

ALS Environmental

METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: MRC-MW-71B-052014

Contract: R1403723

Lab Code: | Case No.: | SAS No.: | SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER | Lab Sample ID: R1403723-006

Level (low/med): LOW | Date Received: 5/21/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.999	J		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	28.4			P
7440-41-7	Beryllium	0.020	U		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.0	J		MS
7440-48-4	Cobalt	7.2			MS
7440-50-8	Copper	5.4		*	MS
7439-89-6	Iron	4830			P
7439-92-1	Lead	0.541	J		MS
7439-96-5	Manganese	670			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	10.9			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	1.1	J		P
7440-21-3	Silicon	5170			P
7439-98-7	Molybdenum	0.195	J		MS

Color Before: COLORLESS | Clarity Before: CLEAR | Texture:

Color After: COLORLESS | Clarity After: CLEAR | Artifacts:

Comments:

00106

METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
MRC-MW08A-052214

Contract: R1403723
Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0
Matrix (soil/water): WATER Lab Sample ID: R1403723-015
Level (low/med): LOW Date Received: 5/24/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	2.2			MS
7440-39-3	Barium	150			P
7440-41-7	Beryllium	1.6			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.7	J		MS
7440-48-4	Cobalt	149			MS
7440-50-8	Copper	6.8		*	MS
7439-89-6	Iron	44800			P
7439-92-1	Lead	1.2			MS
7439-96-5	Manganese	42800			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	372			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	7270			P
7439-98-7	Molybdenum	0.892	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

4LS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW10A-052214

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-016

Level (low/med): LOW Date Received: 5/24/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	2.1			MS
7440-39-3	Barium	98.4			P
7440-41-7	Beryllium	0.287	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	3.3			MS
7440-48-4	Cobalt	92.2			MS
7440-50-8	Copper	2.6		*	MS
7439-89-6	Iron	71400			P
7439-92-1	Lead	0.773	J		MS
7439-96-5	Manganese	6900			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	67.1			MS
7782-49-2	Selenium	1.5	J		MS
7440-22-4	Silver	0.020	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	5.0	J		P
7440-21-3	Silicon	4340			P
7439-98-7	Molybdenum	0.287	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

4LS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW53A-052314

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-021

Level (low/med): LOW Date Received: 5/24/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	203			P
7440-41-7	Beryllium	4.8			MS
7440-43-9	Cadmium	0.031	J		MS
7440-47-3	Chromium	2.2			MS
7440-48-4	Cobalt	79.0			MS
7440-50-8	Copper	11.9		*	MS
7439-89-6	Iron	146			P
7439-92-1	Lead	0.061	U		MS
7439-96-5	Manganese	824			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	131			MS
7782-49-2	Selenium	0.315	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	6270			P
7439-98-7	Molybdenum	0.385	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW53B-052314

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-022

Level (low/med): LOW Date Received: 5/24/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.4			MS
7440-38-2	Arsenic	0.288	J		MS
7440-39-3	Barium	323			P
7440-41-7	Beryllium	0.604	J		MS
7440-43-9	Cadmium	0.648	J		MS
7440-47-3	Chromium	3.8			MS
7440-48-4	Cobalt	1040			MS
7440-50-8	Copper	28.1		*	MS
7439-89-6	Iron	2330			P
7439-92-1	Lead	2.7			MS
7439-96-5	Manganese	1280			P
7439-97-6	Mercury	0.025	J		CV
7440-02-0	Nickel	923			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.056	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	5.5	J		P
7440-21-3	Silicon	9300			P
7439-98-7	Molybdenum	0.474	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW63A-052314

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Lab Sample ID: R1403723-020

Level (low/med): LOW Date Received: 5/24/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.578	J		MS
7440-39-3	Barium	408			P
7440-41-7	Beryllium	1.1			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.9	J		MS
7440-48-4	Cobalt	326			MS
7440-50-8	Copper	8.3		*	MS
7439-89-6	Iron	66000			P
7439-92-1	Lead	0.880	J		MS
7439-96-5	Manganese	2700			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	430			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.037	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	3.6	J		P
7440-21-3	Silicon	13900			P
7439-98-7	Molybdenum	0.489	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Appendix C

Support Documentation

LOCKHEED-MRC
WATER DATA
R1403723

FRACTION	CHEMICAL	MRC-MW-49A-051914	UNITS	MRC-DUP03-052014	RPD	D
M	ARSENIC	1.1 J	UG/L	1.1 J	0.00	0.00
M	BARIUM	246	UG/L	259	5.15	13.00
M	BERYLLIUM	20.1	UG/L	20.8	3.42	0.70
M	COBALT	772	UG/L	763	1.17	9.00
M	COPPER RL = 1	1.3 J	UG/L	5 J	117.46	3.70
M	LEAD	0.305 J	UG/L	0.305 J	0.00	0.00
M	MANGANESE	860	UG/L	923	7.07	63.00
M	NICKEL	1290	UG/L	1380	6.74	90.00
M	SELENIUM	1.1 J	UG/L	1.1 J	0.00	0.00
M	SILICON	6180	UG/L	6240	0.97	60.00
M	SILVER	0.076 J	UG/L	0.076 J	0.00	0.00

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15142

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: Tetra Tech INC 20251 Century Blvd STE 200 Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature: Walt Payun	Sampler's Printed Name: Walt Payun

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: HCl; HNO3; NaHSO4

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP VOCs	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	1,4 Dioxane	Perchlorate
TB-051914		5-19-14	—	GW										
MRC-MW-59A-051914			0850		1						X			
MRC-MW-58A-051914			1043		5	X							X	
MRC-MW-50A-051914			1212		5	X					X			X
MRC-MW-49A-051914		↓	1533		1						X			
MRC-MW-71B-052014		5-20-14	1013		6	X					X		X	
MRC-MW-71A-052014			1213		6	X					X		X	
MRC-MW-15A-052014			1425		3						X		X	
MRC-MW-16A-052014		↓	1539	4	6	X					X		X	
MRC-Dup03-051914			0000		1						X			

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day

REQUESTED REPORT DATE _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED: Maryland

	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Walt Payun					
Printed Name	Walt Payun					
Firm	TT INC					
Date/Time	5-20-14	5/21/14 0945				

R1403723 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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R1403723 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-3723

Cooler received on 5/21/14 by: [illegible] COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 5/21/14 Time: 1010 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	2.9°						
Correction Factor (°C)	+0.9°						
Corrected Temp (°C)	3.8°						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 5/21/14 at 1020
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [illegible]

Cooler Breakdown: Date: 5/21/14 Time: 1735 by: [illegible]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB261353	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-	BDB261234	4/15				
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 082613-2AAN, 021014-1BMC

Other Comments:

PC Secondary Review: [illegible]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15140

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: ORA Design characterization	Project Number: 112EC05482
Project Manager: Tony Aganarose	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: Tony.Aganarose@tetratech.com
Sampler's Signature:	Sampler's Printed Name: Josh Mills

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl | HNO3 | 1

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GCMS VOAs • 8260 • 624 TBLP VOCs	GCMS SVOAs • 8270 • 625	GC-HOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (List in comments below) Metals	METALS, DISSOLVED (List in comments below)	Hex Chrom (7196)								REMARKS/ ALTERNATE DESCRIPTION
MSA-MW-53S-052114		5/21/14	1145	Aq	1								X								
MSA-MW-53I-052114		5/21/14	1500	Aq	3								X								MS/MSD
TB-052114			—		2	X															
MRC-MW-29A-052114		5/21/14	1159	Aq	4	X				X											STANDARD
MRC-MW-26A-052114		5/21/14	1436	Aq	1					X											TAT

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

Metals

24 hour TAT FOR HEX CHROM

MS/MSD TAKEN FOR MSA-MW-53I

STANDARD TAT FOR MRC-MW-29A AND MRC-MW-26A

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

(1) 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION

PO #:

BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature:	Signature:	Signature:	Signature:
Printed Name: Matt Pavia	Printed Name: J. Seward	Printed Name:	Printed Name:	Printed Name:	Printed Name:
Firm: TT ENE	Firm: ALS	Firm:	Firm:	Firm:	Firm:
Date/Time: 5-21-14	Date/Time: 5/22/14 0750	Date/Time:	Date/Time:	Date/Time:	Date/Time:

Distribution: White - Lab Copy; Yellow - Return to Originator

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Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

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Cooler Receipt and Preservation Check Form

R1403723 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Project/Client Tetra Tech Folder Number R14-3723

Cooler received on 5/22/14 by: JBS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y (N)	5a	Perchlorate samples have required headspace?	Y N (NA)
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC (CLIENT)
4	Circle: Wet Ice Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 5/22 Time: 0754 ID: (IR#3) IR#4 From: Temp Blank ~~Sample Bottle~~

Observed Temp (°C)	4.4						
Correction Factor (°C)	–						
Corrected Temp (°C)	4.4						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: RAD by JBS on 5/22 at 0754
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 5/22/14 Time: 1438 by: _____

1. Were all bottle labels complete (i.e. analysis, preservation, etc.)? ~~YES~~ NO
2. Did all bottle labels and tags agree with custody papers? ~~YES~~ NO Trip blank (client) no label
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		RDB261358	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4/12/20/client	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, Client, 0826A3-2AAM)
Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15144

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014	Project Number: 112IC~~06487~~ 06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200 Germantown, MD 20874	
Phone #: 301-528-3000	Email: Tony.Apanavage@tetratech.com
Sampler's Signature:	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 | 2 | 7

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	SCMS VOAs 8260B ○ 624 ○ CLP	SCMS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 8011/504.1/8021	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (6020A) (List in comments below)	METALS, DISSOLVED (List in comments below)	1-4 dioxane (522)	Perchlorate (6850)	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW54A-052214		5/22/14	0935	AQ	3								X	X	
MRC-MW08A-052214			1045		7	X					X	~~X~~	X	X	
MRC-MW10A-052214			1245		6	X					X		X		
MRC-MW11C-052214			1355		5	X							X		
TB-052214			—		2	X									
MRC-MW106D/E-052314		5/23/14	0910	AQ	3	X									
MRC-MW63A-052314			1050		6	X					X		X		
MRC-MW53A-052314			1250		7	X					X		X	X	
MRC-MW53B-052314			1355		7	X					X		X	X	MW53B

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

Metals STANDARD TAT

Total Metals, Beryllium, Cobalt, Nickel Method 6020A

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

____ 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

STANDARD

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION

PO #

BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature	Signature	Signature	Signature	Signature	
Printed Name: Josh Mullis	Printed Name: J. Sheppard	Printed Name	Printed Name	Printed Name	
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5/23/14 1600	Date/Time: 5/24/14 1030	Date/Time	Date/Time	Date/Time	

R1403723 7

Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

R1403723 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Project/Client Tetra Tech Folder Number R14-5723

Cooler received on 5/21/14 by: ALS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y) N	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 5/23/14 Time: 1051 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	0.0						
Correction Factor (°C)	-						
Corrected Temp (°C)	0.0						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: Rm2 by JB on 1050 at JB
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: N

Cooler Breakdown: Date: 5/27/14 Time: 1045 by: @

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB26135B	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$	✓		BDB26123A	4/15				
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4/12/20	4/15				

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: Client, 7-002-003, BDB26135E, 082613-2AHN, 021014-1BHC
Other Comments:

* 522's rec'd 6/24/14, pres. check did not occur until 5/27/14; but all samples were OK

PC Secondary Review: N

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1403723
Project:	Middle River	**Date Received:**	5/21-5/24/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Twenty-two water samples were received for analysis at ALS-Environmental between 5/21-5/24/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 0.0-4.4°C within the 0-6°C temperature guidelines.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-71B-052014 (R1403723-006) was outside of the control limits for the duplicate analysis for Copper. All samples have been "*" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
5/27/14- 1,1,2,2-Tetrachloroethane and Bromomethane
5/29/14- 1,2-Dichloroethane, 2-Butanone, 2-Hexanone and Acetone(>40%)
All detected concentrations for these compounds in samples associated with their relevant CCV should be considered as estimated.

The Method Blanks contained low level hits of 1,2,4-Trichlorobenzene, Bromomethane and Naphthalene on 5/27/14 and 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 5/29/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The 5/16/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/25/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #: 112IC06247	Batch Complete: Yes		Date Revised:
Submission: R1403723	Diskette Requested: No		Date Due: 6/17/14
Client: Tetra Tech GEO	Date: 5/29/14		Protocol: SW846
Client Rep: DPATTON	Custody Seal: Present/Absent:		Shipping No.:
Project: Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1403723-001	TB-051914	Water	8260C	5/19/14	5/21/14			
R1403723-002	MRC-MW-59A-051914	Water	7470A, 6020A, 6010C	5/19/14	5/21/14			
R1403723-003	MRC-MW-58A-051914	Water	522, 8260C	5/19/14	5/21/14			
R1403723-004	MRC-MW-50A-051914	Water	7470A, 8260C, 6010C, 6020A, 6850	5/19/14	5/21/14			
R1403723-005	MRC-MW-49A-051914	Water	7470A, 6020A, 6010C	5/19/14	5/21/14			
R1403723-006	MRC-MW-71B-052014	Water	6020A, 8260C, 522, 7470A, 6010C	5/20/14	5/21/14			
R1403723-007	MRC-MW-71A-052014	Water	7470A, 6010C, 6020A, 8260C, 522	5/20/14	5/21/14			
R1403723-008	MRC-MW-15A-052014	Water	6020A, 6010C, 7470A, 522	5/20/14	5/21/14			
R1403723-009	MRC-MW-16A-052014	Water	6020A, 6010C, 7470A, 522, 8260C	5/20/14	5/21/14			
R1403723-010	MRC-DUP03-052014	Water	7470A, 6010C, 6020A	5/20/14	5/21/14			
R1403723-011	TB-052114	Water	8260C	5/21/14	5/22/14			
R1403723-012	MRC-MW-29A-052114	Water	7470A, 8260C, 6020A, 6010C	5/21/14	5/22/14			
R1403723-013	MRC-MW-26A-052114	Water	7470A, 6020A, 6010C	5/21/14	5/22/14			
R1403723-014	MRC-MW54A-052214	Water	522, 6850	5/22/14	5/24/14			
R1403723-015	MRC-MW08A-052214	Water	6020A, 8260C, 522, 7470A, 6850, 6010C	5/22/14	5/24/14			
R1403723-016	MRC-MW10A-052214	Water	7470A, 6010C, 522, 8260C, 6020A	5/22/14	5/24/14			
R1403723-017	MRC-MW11C-052214	Water	522, 8260C	5/22/14	5/24/14			
R1403723-018	TB-052214	Water	8260C	5/22/14	5/24/14			
R1403723-019	MRC-MW106B/C-052314	Water	8260C	5/23/14	5/24/14			
R1403723-020	MRC-MW63A-052314	Water	7470A, 522, 8260C, 6020A, 6010C	5/23/14	5/24/14			
R1403723-021	MRC-MW53A-052314	Water	8260C, 7470A, 6020A, 6010C, 6850, 522	5/23/14	5/24/14			
R1403723-021.R01	MRC-MW53A-052314	Water	8260C	5/23/14	5/24/14			
R1403723-022	MRC-MW53B-052314	Water	6020A, 8260C, 522, 7470A, 6850, 6010C	5/23/14	5/24/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to
http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Environmental

METALS
COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1403723 SDG No.: MRC-MW-59A-

Lab Code: Case No.: SAS No.:

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-59A-051914	R1403723-002
MRC-MW-59A-051914D	R1403723-002D
MRC-MW-59A-051914S	R1403723-002S
MRC-MW-50A-051914	R1403723-004
MRC-MW-50A-051914D	R1403723-004D
MRC-MW-50A-051914S	R1403723-004S
MRC-MW-49A-051914	R1403723-005
MRC-MW-71B-052014	R1403723-006
MRC-MW-71B-052014D	R1403723-006D
MRC-MW-71B-052014S	R1403723-006S
MRC-MW-71A-052014	R1403723-007
MRC-MW-15A-052014	R1403723-008
MRC-MW-16A-052014	R1403723-009
MRC-DUP03-052014	R1403723-010
MRC-MW-29A-052114	R1403723-012
MRC-MW-26A-052114	R1403723-013
MRC-MW08A-052214	R1403723-015
MRC-MW10A-052214	R1403723-016
MRC-MW63A-052314	R1403723-020
MRC-MW53A-052314	R1403723-021
MRC-MW53B-052314	R1403723-022

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: Name: Deb Patton

Date: 6/25/14 Title: Project Chemist

METALS

-10-

DETECTION LIMITS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Barium	233.527		20.0	0.5	P
Vanadium	292.402		50.0	0.2	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 Date: 3/20/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Silicon	252.851		1000.0	161.0	P

Comments:

00831

METALS

-10-

DETECTION LIMITS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 Date: 3/18/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Iron	273.955		100.0	12.9	P
Manganese	257.610		10.0	0.4	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Mercury	253.70	BD	0.200	0.024	CV

Comments:

60834

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 Date: 3/31/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.836	0.0954007	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0099568	0.0000000	-0.0801871	0.0000000
Barium	233.527	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	4.4044499	0.0000000
Cadmium	226.502	-0.0035345	0.0000000	0.1333330	0.0000000
Calcium	227.546	-2.9304600	0.0000000	-53.8955002	0.0000000
Chromium	267.716	0.0031845	0.0000000	-0.0140317	-0.1262880
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1145200	0.0000000
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1338530	0.0000000	0.0438866	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	-0.1267620	0.0000000
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0281652	0.0000000	-0.2522740	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.2778280	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0764274	0.0099938	-0.0434154	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0437078	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 Date: 3/28/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.5893060	0.8765780	0.1292730
Antimony	206.836	0.0000000	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0240560	0.0000000	0.0000000	0.0000000
Barium	233.527	0.0255740	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	0.4806460	0.0000000
Cadmium	226.502	0.0000000	0.0025720	0.0450680	0.0000000
Calcium	227.546	0.0000000	0.0000000	-3.4537430	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0949220	0.0000000
Cobalt	228.616	-0.0231900	0.0000000	0.0167570	0.0000000
Copper	324.752	0.0000000	0.0000000	0.0000000	0.0000000
Iron	273.955	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0205230	0.1069300	0.0825500	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	0.0000000	0.0000000
Molybdenum	202.031	0.0385450	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0247380	0.0148540	-0.6377590	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.1312780	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	-0.0222350	0.0000000	-0.0652490	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments: 00836

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Barium	0.200	40000	P
Vanadium	0.200	10000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Silicon	0.200	20000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 Date: 3/19/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Iron	0.200	100000	P
Manganese	0.200	8000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: PE ICPMS Date: 5/9/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Antimony	0.100	200	MS
Arsenic	0.100	200	MS
Beryllium	0.100	200	MS
Cadmium	0.100	200	MS
Chromium	0.100	200	MS
Cobalt	0.100	200	MS
Copper	0.100	200	MS
Lead	0.100	200	MS
Nickel	0.100	200	MS
Selenium	0.100	200	MS
Silver	0.100	100	MS
Thallium	0.100	200	MS
Molybdenum	0.100	200	MS

Comments: _____

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	2.977	579	2070	0.717	
Be	9.012	9.028	2035	2070	0.718	
Mg	23.985	23.978	5676	2075	0.698	
Co	58.933	58.929	14192	2070	0.724	
Rh	102.905	102.928	24902	2105	0.723	
In	114.904	114.878	27815	2130	0.720	
Ba	137.905	137.929	33414	2150	0.689	
Ce	139.905	139.928	33900	2145	0.693	
Pb	207.977	207.979	50464	2190	0.737	
U	238.050	238.027	57766	2220	0.738	

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	580	2070	0.713	
Be	9.012	9.028	2038	2070	0.677	
Mg	23.985	23.978	5674	2075	0.686	
Co	58.933	58.929	14190	2070	0.722	
Rh	102.905	102.878	24895	2105	0.730	
In	114.904	114.928	27820	2130	0.721	
Ba	137.905	137.929	33419	2150	0.692	
Ce	139.905	139.878	33893	2145	0.694	
Pb	207.977	207.929	50452	2190	0.726	
U	238.050	238.075	57771	2220	0.738	

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	583	2070	0.711	
Be	9.012	9.028	2055	2070	0.656	
Mg	23.985	23.979	5682	2075	0.701	
Co	58.933	58.928	14186	2070	0.715	
Rh	102.905	102.928	24893	2105	0.715	
In	114.904	114.928	27818	2130	0.716	
Ba	137.905	137.879	33417	2150	0.692	
Ce	139.905	139.929	33903	2145	0.697	
Pb	207.977	207.929	50464	2190	0.721	
U	238.050	238.025	57770	2220	0.735	

00345

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	583	2070	0.711	
Be	9.012	9.028	2055	2070	0.656	
Mg	23.985	23.979	5682	2075	0.701	
Co	58.933	58.928	14186	2070	0.715	
Rh	102.905	102.928	24893	2105	0.715	
In	114.904	114.928	27818	2130	0.716	
Ba	137.905	137.879	33417	2150	0.692	
Ce	139.905	139.929	33903	2145	0.697	
Pb	207.977	207.929	50464	2190	0.721	
U	238.050	238.025	57770	2220	0.735	

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403723

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/12/2014 End Date: 6/12/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	10:09	100		100		100		100		100			
Standard 1	Standard 1	10:15	97		101		97		98		97			
Standard 2	Standard 2	10:21	98		100		99		99		99			
Standard 3	Standard 3	10:28	97		100		95		95		98			
ICV1	ICV1	10:34	92		94		93		94		98			
ICB1	ICB1	10:41	92		95		92		94		97			
CRDL1	CRDL1	10:47	93		97		93		93		97			
ICS-A1	ICS-A1	10:53	91		98		97		94		95			
ICS-AB1	ICS-AB1	11:00	92		100		99		93		100			
CCV1	CCV1	11:06	97		103		101		98		107			
CCB1	CCB1	11:13	99		103		101		101		100			
QC Std 8	QC Std 8	11:19	102		105		103		101		104			
CRDL2	CRDL2	11:51	85		97		88		95		100			
HLCCV2	HLCCV2	11:58	91		101		93		97		104			
CCV2	CCV2	12:04	87		99		89		95		100			
CCB2	CCB2	12:11	88		101		90		98		97			
PBW-210305	PBW	12:17	85		102		87		97		98			
LCSW-210305	LCSW	12:24	82		99		86		95		100			
R1403723-00	MRC-MW-59A-05191	12:30	87		102		91		96		100			
R1403723-00	MRC-MW-50A-05191	12:36	74		94		80		89		97			
R1403723-00	MRC-MW-49A-05191	12:43	87		100		93		99		99			
R1403723-00	MRC-MW-71B-05201	12:49	83		100		89		98		101			
R1403723-00	MRC-MW-71B-05201	12:56	85		102		86		96		99			
CCV3	CCV3	13:02	90		103		94		97		106			
CCB3	CCB3	13:09	91		102		95		99		102			
R1403723-00	MRC-MW-71B-05201	13:15	84		103		86		95		102			
R1403723-00	MRC-MW-71B-05201	13:21	83		101		86		96		101			
R1403723-00	MRC-MW-71B-05201	13:28	88		104		92		96		105			
R1403723-00	MRC-MW-71A-05201	13:34	87		104		89		97		99			
R1403723-00	MRC-MW-15A-05201	13:41	74		92		85		93		89			
R1403723-00	MRC-MW-16A-05201	13:47	89		103		95		101		104			
R1403723-01	MRC-DUP03-052014	13:54	88		102		94		96		103			
R1403723-01	MRC-MW-29A-05211	14:00	88		105		92		101		103			
CCV4	CCV4	14:07	91		103		96		99		105			
CCB4	CCB4	14:13	94		104		97		103		102			
R1403723-01	MRC-MW-26A-05211	14:19	88		106		95		102		107			
R1403723-01	MRC-MW08A-052214	14:26	86		104		91		96		104			
R1403723-01	MRC-MW10A-052214	14:32	85		102		96		94		103			
R1403723-02	MRC-MW63A-052314	14:39	88		102		95		101		99			
R1403723-02	MRC-MW53A-052314	14:45	87		106		90		97		104			
R1403723-02	MRC-MW53B-052314	14:52	86		98		91		95		100			
CRDL3	CRDL3	14:58	92		102		96		101		98			
CCV5	CCV5	15:05	90		101		96		100		100			
CCB5	CCB5	15:11	89		99		93		97		100			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403723

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP-MS Instrument ID: PE_ICPMS Start Date: 6/13/2014 End Date: 6/13/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	15:34	100		100		100		100		100			
Standard 1	Standard 1	15:41	101		100		104		104		102			
Standard 2	Standard 2	15:47	101		99		105		105		107			
Standard 3	Standard 3	15:54	97		96		101		101		104			
ICV1	ICV1	16:00	99		99		103		101		106			
ICB1	ICB1	16:06	95		95		99		99		103			
CRDL1	CRDL1	16:13	94		96		99		99		101			
ICS-A1	ICS-A1	16:19	97		97		105		101		100			
ICS-AB1	ICS-AB1	16:26	101		103		107		103		106			
CCV1	CCV1	16:32	103		103		109		110		111			
CCB1	CCB1	16:39	103		103		106		108		105			
CCV2	CCV2	17:36	108		112		111		113		118			
CCB2	CCB2	17:43	107		106		110		113		115			
CRDL2	CRDL2	18:22	113		112		118		119		113			
CCV3	CCV3	18:34	116		115		120		120		117			
CCB3	CCB3	18:41	110		109		117		116		118			
PBW-210305	PBW	18:47	102		104		108		114		113			
LCSW-210305	LCSW	18:54	104		111		107		113		110			
R1403723-00	MRC-MW-16A-05201	19:00	96		101		103		122		109			
R1403723-01	MRC-MW-26A-05211	19:07	101		108		109		128	*	112		Be, Cu	
R1403723-01	MRC-MW08A-052214	19:13	95		104		106		112		107			
R1403723-02	MRC-MW53A-052314	19:20	101		109		103		113		112			
R1403723-02	MRC-MW53B-052314	19:26	90		100		96		109		102			
CRDL3	CRDL3	19:32	102		103		104		107		104			
CCV4	CCV4	19:39	103		103		108		110		112			
CCB4	CCB4	19:45	103		102		107		109		105			
R1403723-00	MRC-MW-59A-05191	19:52	84		94		97		103		99			
R1403723-00	MRC-MW-50A-05191	19:58	80		93		87		97		99			
R1403723-00	MRC-MW-49A-05191	20:05	87		99		94		101		103			
R1403723-00	MRC-MW-71B-05201	20:11	93		97		96		108		98			
R1403723-00	MRC-MW-71B-05201	20:17	91		96		96		109		102			
R1403723-00	MRC-MW-71B-05201	20:24	94		101		96		108		101			
R1403723-00	MRC-MW-71B-05201	20:30	94		99		100		115		105			
R1403723-00	MRC-MW-71B-05201	20:37	99		100		101		106		106			
R1403723-00	MRC-MW-71A-05201	20:43	91		99		97		114		98			
R1403723-00	MRC-MW-15A-05201	20:50	83		93		96		102		95			
CCV5	CCV5	20:56	100		102		105		107		108			
CCB5	CCB5	21:03	96		94		102		103		102			
R1403723-00	MRC-MW-16A-05201	21:09	86		91		96		122		98			
R1403723-01	MRC-DUP03-052014	21:15	86		99		93		100		105			
R1403723-01	MRC-MW-29A-05211	21:22	91		108		96		117		109			
R1403723-01	MRC-MW-26A-05211	21:28	93		102		99		129	*	110			
R1403723-01	MRC-MW08A-052214	21:35	83		97		100		109		103			
R1403723-01	MRC-MW10A-052214	21:41	93		101		115		111		105			
R1403723-02	MRC-MW63A-052314	21:48	88		95		111		123		99			

00371

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403723

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/13/2014 End Date: 6/13/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
R1403723-02	MRC-MW53A-052314	21:54	89		97		95		109		103			
R1403723-02	MRC-MW53B-052314	22:01	80		91		89		110		93			
CRDL4	CRDL4	22:07	97		98		103		104		101			
CCV6	CCV6	22:13	102		100		108		109		103			
CCB6	CCB6	22:20	95		93		101		100		98			

00872

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403723

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/16/2014 End Date: 6/16/2014

Sample No.	Client ID	Time	Internal Standards %RI For:													
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	09:55	100		100		100		100		100			
Standard 1	Standard 1	10:01	93		93		95		94		97			
Standard 2	Standard 2	10:07	94		96		95		95		96			
Standard 3	Standard 3	10:14	95		98		95		94		97			
ICV1	ICV1	10:20	91		93		93		93		95			
ICB1	ICB1	10:27	90		95		92		92		94			
CRDL1	CRDL1	10:33	89		93		92		92		93			
ICS-A1	ICS-A1	10:40	85		92		91		89		92			
ICS-AB1	ICS-AB1	10:46	86		92		93		89		93			
CCV1	CCV1	10:52	90		98		92		91		99			
CCB1	CCB1	10:59	89		95		94		93		97			
PBW-210305	PBW	11:12	87		99		89		95		96			
LCSW-210305	LCSW	11:18	82		95		84		91		96			
R1403723-00	MRC-MW-59A-05191	11:25	77		92		84		91		95			
R1403723-00	MRC-MW-50A-05191	11:31	82		96		86		94		97			
R1403723-00	MRC-MW-49A-05191	11:38	83		109		86		102		108			
R1403723-00	MRC-MW-71B-05201	11:44	85		101		85		101		100			
CCV2	CCV2	11:50	88		101		88		96		101			
CCB2	CCB2	11:57	87		98		88		95		101			
R1403723-00	MRC-MW-71B-05201	12:03	84		102		84		96		102			
R1403723-00	MRC-MW-71B-05201	12:10	79		92		81		93		94			
R1403723-00	MRC-MW-71B-05201	12:16	81		96		83		95		97			
R1403723-00	MRC-MW-71B-05201	12:23	89		100		90		99		101			
CRDL2	CRDL2	12:29	88		98		89		95		96			
CCV3	CCV3	12:42	89		99		88		96		97			
CCB3	CCB3	12:48	86		96		88		94		99			
R1403723-00	MRC-MW-71A-05201	12:55	85		104		85		103		106			
R1403723-00	MRC-MW-15A-05201	13:01	82		104		86		98		103			
R1403723-01	MRC-DUP03-052014	13:08	82		98		85		97		100			
R1403723-01	MRC-MW-29A-05211	13:14	88		118		88		108		119			
R1403723-01	MRC-MW10A-052214	13:21	84		105		101		106		106			
R1403723-02	MRC-MW63A-052314	13:27	84		102		92		108		102			
CRDL3	CRDL3	13:33	95		105		96		103		104			
CCV4	CCV4	13:40	95		106		97		103		109			
CCB4	CCB4	13:46	94		107		96		103		108			
R1403723-00	MRC-MW-16A-05201	13:53	86		106		91		127	*	108		Sc only	NA
CRDL4	CRDL4	13:59	94		105		97		104		109			
CCV5	CCV5	14:06	94		105		96		101		107			
CCB5	CCB5	14:12	95		107		96		103		104			

00873

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1403723

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/16/2014 End Date: 6/16/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	15:11	100		100		100		100		100			
Standard 1	Standard 1	15:17	105		103		106		104		100			
Standard 2	Standard 2	15:23	104		101		104		101		100			
Standard 3	Standard 3	15:30	103		101		102		100		103			
ICV1	ICV1	15:36	103		102		103		103		102			
ICB1	ICB1	15:43	103		105		104		102		105			
CRDL1	CRDL1	15:49	104		104		103		104		102			
ICS-A1	ICS-A1	15:55	96		96		99		97		99			
ICS-AB1	ICS-AB1	16:02	97		98		100		97		100			
CCV1	CCV1	16:08	98		100		95		97		99			
CCB1	CCB1	16:15	99		101		100		102		102			
QC Std 8	QC Std 8	16:21	101		102		100		100		104			
PBW-210305	PBW	16:27	97		108		95		103		106			
LCSW-210305	LCSW	16:35	98		108		93		101		106			
R1403723-00	MRC-MW-50A-05191	16:41	92		103		92		99		105			
R1403723-00	MRC-MW-50A-05191	16:48	101		106		102		104		104			
R1403723-01	MRC-DUP03-052014	16:54	93		101		96		102		101			
CRDL2	CRDL2	17:01	94		96		96		96		98			
HLCCV2	HLCCV2	17:07	88		89		89		90		91			
CCV2	CCV2	17:14	95		96		94		96		95			
CCB2	CCB2	17:20	95		96		95		97		99			

METALS

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PREPARATION LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-051914

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/9/2014	50.0	50.0
PBW	6/9/2014	50.0	50.0
MRC-MW-59A-051914	6/9/2014	50.0	50.0
MRC-MW-50A-051914	6/9/2014	50.0	50.0
MRC-MW-49A-051914	6/9/2014	50.0	50.0
MRC-MW-71B-052014	6/9/2014	50.0	50.0
MRC-MW-71B-052014D	6/9/2014	50.0	50.0
MRC-MW-71B-052014S	6/9/2014	50.0	50.0
MRC-MW-71A-052014	6/9/2014	50.0	50.0
MRC-MW-15A-052014	6/9/2014	50.0	50.0
MRC-MW-16A-052014	6/9/2014	50.0	50.0
MRC-DUP03-052014	6/9/2014	50.0	50.0
MRC-MW-29A-052114	6/9/2014	50.0	50.0
MRC-MW-26A-052114	6/9/2014	50.0	50.0
MRC-MW08A-052214	6/9/2014	50.0	50.0
MRC-MW10A-052214	6/9/2014	50.0	50.0
MRC-MW63A-052314	6/9/2014	50.0	50.0
MRC-MW53A-052314	6/9/2014	50.0	50.0
MRC-MW53B-052314	6/9/2014	50.0	50.0

Comments:

00842

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-71B-052014S

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	23.10		1.00	J	20.0	110		MS
Arsenic	75 - 125	21.30		0.21	U	20.0	106		MS
Beryllium	75 - 125	19.40		0.02	U	20.0	97		MS
Cadmium	75 - 125	20.70		0.01	U	20.0	104		MS
Chromium	75 - 125	21.20		1.01	J	20.0	101		MS
Cobalt	75 - 125	28.80		7.19		20.0	108		MS
Copper	75 - 125	24.60		5.38		20.0	96		MS
Lead	75 - 125	22.10		0.54	J	20.0	108		MS
Nickel	75 - 125	32.40		10.80		20.0	108		MS
Selenium	75 - 125	21.40		0.21	U	20.0	107		MS
Silver	75 - 125	21.10		0.02	U	20.0	106		MS
Thallium	75 - 125	20.300		0.031	U	20.0	102		MS
Molybdenum	75 - 125	23.60		0.19	J	20.0	117		MS

Comments:

METALS
-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-71B-052014A

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added(SA)	%R	Q	M
Antimony		23.90		1.00	J	20	114		MS
Arsenic		22.60		0.21	U	20	113		MS
Beryllium		20.80		0.02	U	20	104		MS
Cadmium		23.00		0.01	U	20	115		MS
Chromium		20.80		1.01	J	20	99		MS
Cobalt		25.70		3.59		20	111		MS
Copper		23.10		2.69		20	102		MS
Lead		23.80		0.54	J	20	116		MS
Nickel		26.30		5.43		20	104		MS
Selenium		21.10		0.21	U	20	106		MS
Silver		12.20		0.02	U	20	61		MS
Thallium		23.60		0.03	U	20	118		MS
Molybdenum		24.40		0.19	J	20	121		MS

Comments:

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-71B-052014D

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		1.00	J	0.97	J	3		MS
Arsenic		0.21	U	0.21	U			MS
Beryllium		0.02	U	0.02	U			MS
Cadmium		0.01	U	0.01	U			MS
Chromium		1.01	J	1.29	J	24		MS
Cobalt	2.0	7.19		6.92		4		MS
Copper	2.0	5.38		2.60		70	*	MS
Lead		0.54	J	0.48	J	12		MS
Nickel		10.80		10.80		0		MS
Selenium		0.21	U	0.21	U			MS
Silver		0.02	U	0.02	U			MS
Thallium		0.031	U	0.031	U			MS
Molybdenum		0.19	J	0.24	J	23		MS

$C_0 < 5 \times RL$ (2)

Difference = 2.78

Comments:

00826

METALS

-9-

ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-71B-052014L

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	1.00	J	0.79	U	100.0		MS
Arsenic	0.21	U	1.06	U			MS
Beryllium	0.02	U	0.10	U			MS
Cadmium	0.01	U	0.04	U			MS
Chromium	1.01	J	2.35	U	100.0		MS
Cobalt	3.59		3.41	J	5		MS
Copper	2.69		1.26	U	100.0		MS
Lead	0.54	J	0.36	J	33		MS
Nickel	5.43		5.71		5		MS
Selenium	0.21	U	1.07	U			MS
Silver	0.02	U	0.08	U			MS
Thallium	0.03	U	0.15	U			MS
Molybdenum	0.19	J	0.34	U	100.0		MS

Comments: _____

00829

METALS

-13-

PREPARATION LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-051914

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/4/2014	25.0	25.0
PBW	6/4/2014	25.0	25.0
MRC-MW-59A-051914	6/4/2014	25.0	25.0
MRC-MW-59A-051914D	6/4/2014	25.0	25.0
MRC-MW-59A-051914S	6/4/2014	25.0	25.0
MRC-MW-50A-051914	6/4/2014	25.0	25.0
MRC-MW-50A-051914D	6/4/2014	25.0	25.0
MRC-MW-50A-051914S	6/4/2014	25.0	25.0
MRC-MW-49A-051914	6/4/2014	25.0	25.0
MRC-MW-71B-052014	6/4/2014	25.0	25.0
MRC-MW-71A-052014	6/4/2014	25.0	25.0
MRC-MW-15A-052014	6/4/2014	25.0	25.0
MRC-MW-16A-052014	6/4/2014	25.0	25.0
MRC-DUP03-052014	6/4/2014	25.0	25.0
MRC-MW-29A-052114	6/4/2014	25.0	25.0
MRC-MW-26A-052114	6/4/2014	25.0	25.0
MRC-MW08A-052214	6/4/2014	25.0	25.0
MRC-MW10A-052214	6/4/2014	25.0	25.0
MRC-MW63A-052314	6/4/2014	25.0	25.0
MRC-MW53A-052314	6/4/2014	25.0	25.0
MRC-MW53B-052314	6/4/2014	25.0	25.0

Comments:

ALS Environmental

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-59A-051914S

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75 - 125	0.881		0.024	U	1.00	88		CV

Comments:

ALS Environmental

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-59A-051914D

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 100.0 % Solids for Duplicate: 100.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Mercury		0.024	U	0.024	U			CV

Comments:

00824

METALS

-13-

PREPARATION LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-051914

Method: P

Sample ID	Preparation Date	Initial Volume	Final Volume (mL)
LCSW	6/4/2014	50.0	50.0
PBW	6/4/2014	50.0	50.0
MRC-MW-59A-051914	6/4/2014	50.0	50.0
MRC-MW-50A-051914	6/4/2014	50.0	50.0
MRC-MW-50A-051914D	6/4/2014	50.0	50.0
MRC-MW-50A-051914S	6/4/2014	50.0	50.0
MRC-MW-49A-051914	6/4/2014	50.0	50.0
MRC-MW-71B-052014	6/4/2014	50.0	50.0
MRC-MW-71A-052014	6/4/2014	50.0	50.0
MRC-MW-15A-052014	6/4/2014	50.0	50.0
MRC-MW-16A-052014	6/4/2014	50.0	50.0
MRC-DUP03-052014	6/4/2014	50.0	50.0
MRC-MW-29A-052114	6/4/2014	50.0	50.0
MRC-MW-26A-052114	6/4/2014	50.0	50.0
MRC-MW08A-052214	6/4/2014	50.0	50.0
MRC-MW10A-052214	6/4/2014	50.0	50.0
MRC-MW63A-052314	6/4/2014	50.0	50.0
MRC-MW53A-052314	6/4/2014	50.0	50.0
MRC-MW53B-052314	6/4/2014	50.0	50.0

Comments:

ALS Environmental

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-50A-051914S

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Barium	75 - 125	2150.00		101.00		2000.0	102		P
Iron	75 - 125	4010.00		3160.00		1000.0	85		P
Manganese	75 - 125	730.00		250.00		500.0	96		P
Mercury	75 - 125	1.120		0.024	U	1.00	112		CV
Vanadium	75 - 125	489.00		2.00	J	500.0	97		P
Silicon	75 - 125	6580.0000		2100.0000		5000.00	89.6		P

Comments:

METALS
-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-50A-051914A

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added(SA)	%R	Q	M
Barium		2140.00		101.00		2000.0	102		P
Iron		3890.00		3160.00		1000.0	73		P
Manganese		701.00		250.00		500.0	90		P
Vanadium		486.00		2.00	J	500.0	97		P
Silicon		6500.00		2100.00		5000.0	88.0		P

Comments:

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-50A-051914D

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Barium		101.00		105.00		4		P
Iron		3160.00		2960.00		7		P
Manganese		250.00		238.00		5		P
Mercury		0.024	U	0.024	U			CV
Vanadium		2.00	J	1.85	J	8		P
Silicon	1000.0	2100.0000		2030.0000		3.4		P

Comments:

00825

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-50A-051914L

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Barium	101.00		100.00		1		P
Cadmium	0.01	U	0.04	U			MS
Iron	3160.00		3230.00		2		P
Manganese	250.00		260.00		4		P
Vanadium	2.00	J	1.92	J	4		P
Silicon	2105		1955		7.1		P

TC 6/23/14

Comments: _____

00828

METALS

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LABORATORY CONTROL SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	20	20.20	101					
Arsenic	20	19.80	99					
Barium	2000	1970	98					
Beryllium	20	18.80	94					
Cadmium	20	20.00	100					
Chromium	20	22.50	112					
Cobalt	20	21.70	108					
Copper	20	20.60	103					
Iron	1000	909	91					
Lead	20	20.40	102					
Manganese	500	467	93					
Mercury	1.000	0.916	92					
Nickel	20	21.50	108					
Selenium	20	20.30	102					
Silver	20	21.10	106					
Thallium	20	19.30	96					
Vanadium	500	492	98					
Silicon	5000.0	4610.00	92.2					
Molybdenum	20	22.10	110					

Comments: _____

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/4/2014 End Date: 6/4/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	02:04																X									
0.2ppb std	1.00	02:06																X									
0.5ppb std	1.00	02:07																X									
1.0ppb std	1.00	02:09																X									
2.0ppb std	1.00	02:10																X									
5.0ppb std	1.00	02:12																X									
10.0ppb std	1.00	02:14																X									
ICV1	1.00	02:15																X									
ICB1	1.00	02:17																X									
CRDL1	1.00	02:19																X									
CCV1	1.00	02:20																X									
CCB1	1.00	02:22																X									
PBW	1.00	02:23																X									
LCSW	1.00	02:25																X									
MRC-MW-59A-051914	1.00	02:27																X									
MRC-MW-59A-051914D	1.00	02:28																X									
MRC-MW-59A-051914S	1.00	02:30																X									
MRC-MW-50A-051914	1.00	02:32																X									
MRC-MW-50A-051914D	1.00	02:33																X									
MRC-MW-50A-051914S	1.00	02:35																X									
MRC-MW-49A-051914	1.00	02:36																X									
CCV2	1.00	02:38																X									
CCB2	1.00	02:40																X									
MRC-MW-71B-052014	1.00	02:41																X									
MRC-MW-71A-052014	1.00	02:43																X									
MRC-MW-15A-052014	1.00	02:45																X									
MRC-MW-16A-052014	1.00	02:46																X									
MRC-DUP03-052014	1.00	02:48																X									
MRC-MW-29A-052114	1.00	02:50																X									
MRC-MW-26A-052114	1.00	02:51																X									
MRC-MW08A-052214	1.00	02:53																X									
MRC-MW10A-052214	1.00	02:54																X									
CCV3	1.00	02:56																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/4/2014 End Date: 6/4/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB3	1.00	02:58																X									
MRC-MW63A-052314	1.00	02:59																X									
MRC-MW53A-052314	1.00	03:01																X									
MRC-MW53B-052314	1.00	03:03																X									
ZZZZZZ	1.00	03:04																									
ZZZZZZ	1.00	03:06																									
ZZZZZZ	1.00	03:07																									
CRDL2	1.00	03:09																X									
CCV4	1.00	03:11																X									
CCB4	1.00	03:12																X									

00869

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/6/2014 End Date: 6/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank 1	1.00	14:44												X			X													
Calib Std 1	1.00	14:50															X													
Calib Std 2	1.00	14:55																												
Calib Std 3	1.00	15:00												X																
Calib Std 4	1.00	15:06												X			X													
Calib Std 5	1.00	15:12												X			X													
ICV1	1.00	15:17												X			X													
ICB1	1.00	15:23												X			X													
CRDL1	1.00	15:29												X			X													
ICS-A1	1.00	15:36												X			X													
ICS-AB1	1.00	15:41												X			X													
CCV1	1.00	15:47												X			X													
CCB1	1.00	15:53												X			X													
ZZZZZZ	1.00	15:59																												
ZZZZZZ	1.00	16:06																												
ZZZZZZ	5.00	16:12																												
ZZZZZZ	10.00	16:18																												
ZZZZZZ	2.00	16:24																												
ZZZZZZ	5.00	16:30																												
ZZZZZZ	5.00	16:36																												
ZZZZZZ	5.00	16:43																												
ZZZZZZ	5.00	16:49																												
ZZZZZZ	5.00	16:55																												
CCV2	1.00	17:01												X			X													
CCB2	1.00	17:07												X			X													
ZZZZZZ	5.00	17:13																												
ZZZZZZ	5.00	17:20																												
ZZZZZZ	5.00	17:26																												
ZZZZZZ	5.00	17:32																												
ZZZZZZ	5.00	17:38																												
ZZZZZZ	5.00	17:44																												
ZZZZZZ	5.00	17:51																												
ZZZZZZ	5.00	17:57																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/6/2014 End Date: 6/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	10.00	18:03																												
ZZZZZZ	1.00	18:09																												
CCV3	1.00	18:15												X			X													
CCB3	1.00	18:21												X			X													
ZZZZZZ	5.00	18:28																												
ZZZZZZ	5.00	18:34																												
ZZZZZZ	1.00	18:40																												
ZZZZZZ	5.00	18:46																												
ZZZZZZ	5.00	18:52																												
ZZZZZZ	1.00	18:58																												
ZZZZZZ	5.00	19:05																												
CCV4	1.00	19:11												X			X													
CCB4	1.00	19:17												X			X													
CRDL2	1.00	19:23												X			X													
ICS-A2	1.00	19:29												X			X													
ICS-AB2	1.00	19:35												X			X													
ZZZZZZ	1.00	19:41																												
ZZZZZZ	1.00	19:46																												
CCV5	1.00	19:52												X			X													
CCB5	1.00	19:58												X			X													
HLCCV1	1.00	20:02												X			X													
CCV6	1.00	20:08												X			X													
CCB6	1.00	20:14												X			X													
ZZZZZZ	1.00	20:20																												
ZZZZZZ	1.00	20:26																												
ZZZZZZ	100.00	20:32																												
ZZZZZZ	100.00	20:39																												
ZZZZZZ	100.00	20:45																												
ZZZZZZ	100.00	20:51																												
ZZZZZZ	100.00	20:57																												
ZZZZZZ	500.00	21:04																												
ZZZZZZ	1000.00	21:10																												
ZZZZZZ	100.00	21:16																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/6/2014 End Date: 6/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
CCV7	1.00	21:23												X			X													
CCB7	1.00	21:29												X			X													
CRDL3	1.00	21:35												X			X													
ICS-A3	1.00	21:41												X			X													
ICS-AB3	1.00	21:47												X			X													
CCV8	1.00	21:53												X			X													
CCB8	1.00	21:59												X			X													
PBW	1.00	22:05												X			X													
LCSW	1.00	22:12												X			X													
MRC-MW-59A-051914	1.00	22:18												X																
MRC-MW-50A-051914	1.00	22:24												X			X													
MRC-MW-50A-051914D	1.00	22:30												X			X													
MRC-MW-50A-051914S	1.00	22:36												X			X													
MRC-MW-50A-051914A	1.00	22:42												X			X													
MRC-MW-50A-051914L	5.00	22:48												X			X													
MRC-MW-49A-051914	1.00	22:54												X			X													
MRC-MW-71B-052014	1.00	23:00												X			X													
CCV9	1.00	23:06												X			X													
CCB9	1.00	23:12												X			X													
MRC-MW-71A-052014	1.00	23:18												X			X													
MRC-MW-15A-052014	1.00	23:24												X			X													
MRC-MW-16A-052014	1.00	23:30												X			X													
MRC-DUP03-052014	1.00	23:37												X			X													
MRC-MW-29A-052114	1.00	23:43												X			X													
MRC-MW-26A-052114	1.00	23:49												X																
MRC-MW08A-052214	1.00	23:55												X																
MRC-MW10A-052214	1.00	00:01												X			X													
MRC-MW63A-052314	1.00	00:07												X			X													
MRC-MW53A-052314	1.00	00:13												X			X													
CCV10	1.00	00:19												X			X													
CCB10	1.00	00:25												X			X													
MRC-MW53B-052314	1.00	00:31												X			X													
CCV11	1.00	00:37												X			X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/6/2014 End Date: 6/7/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB11	1.00	00:43												X			X										
CRDL4	1.00	00:50												X			X										
ICS-A4	1.00	00:56												X			X										
ICS-AB4	1.00	01:02												X			X										
CCV12	1.00	01:07												X			X										
CCB12	1.00	01:13												X			X										

90851

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Calib Blank 1	1.00	12:37										X																
Calib Std 1	1.00	12:42										X																
Calib Std 2	1.00	12:46										X																
Calib Std 3	1.00	12:51										X																
ICV1	1.00	12:56										X																
ICB1	1.00	13:00										X																
CRDL1	1.00	13:05										X																
ICS-A1	1.00	13:09										X																
ICS-AB1	1.00	13:14										X																
CCV1	1.00	13:19										X																
CCB1	1.00	13:23										X																
PBW	1.00	13:28										X																
LCSW	1.00	13:33										X																
MRC-MW-59A-051914	1.00	13:37										X																
MRC-MW-50A-051914	1.00	13:42										X																
MRC-MW-50A-051914D	1.00	13:46										X																
MRC-MW-50A-051914S	1.00	13:51										X																
MRC-MW-50A-051914A	1.00	13:56										X																
MRC-MW-50A-051914L	5.00	14:00										X																
MRC-MW-49A-051914	1.00	14:05										X																
MRC-MW-71B-052014	1.00	14:10										X																
CCV2	1.00	14:14										X																
CCB2	1.00	14:18										X																
MRC-MW-71A-052014	1.00	14:23										X																
MRC-MW-15A-052014	1.00	14:28										X																
MRC-MW-16A-052014	1.00	14:32										X																
MRC-DUP03-052014	1.00	14:37										X																
MRC-MW-29A-052114	1.00	14:42										X																
MRC-MW-26A-052114	1.00	14:46										X																
MRC-MW08A-052214	1.00	14:51										X																
MRC-MW10A-052214	1.00	14:56										X																
MRC-MW63A-052314	1.00	15:00										X																
MRC-MW53A-052314	1.00	15:05										X																
CCV3	1.00	15:09										X																

00855

METALS

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
CCB3	1.00	15:14										X																
MRC-MW53B-052314	1.00	15:19										X																
CCV4	1.00	15:23										X																
CCB4	1.00	15:28										X																
CRDL2	1.00	15:33										X																
ICS-A2	1.00	15:37										X																
ICS-AB2	1.00	15:42										X																
ZZZZZZ	1.00	15:47																										
ZZZZZZ	1.00	15:51																										
CCV5	1.00	15:56										X																
CCB5	1.00	16:00										X																

00856

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	18:32					X																	X		
Calib Std 1	1.00	18:38					X																	X		
Calib Std 2	1.00	18:44																								
Calib Std 3	1.00	18:50																						X		
Calib Std 4	1.00	18:55					X																	X		
Calib Std 5	1.00	19:01					X																	X		
ICV1	1.00	19:07					X																	X		
ICB1	1.00	19:14					X																	X		
CRDL1	1.00	19:20					X																	X		
ICS-A1	1.00	19:26					X																	X		
ICS-AB1	1.00	19:31					X																	X		
CCV1	1.00	19:37					X																	X		
CCB1	1.00	19:43					X																	X		
PBW	1.00	19:49					X																	X		
LCSW	1.00	19:55					X																	X		
MRC-MW-59A-051914	1.00	20:01					X																	X		
MRC-MW-50A-051914	1.00	20:07					X																	X		
MRC-MW-50A-051914D	1.00	20:14					X																	X		
MRC-MW-50A-051914S	1.00	20:20					X																	X		
MRC-MW-50A-051914A	1.00	20:25					X																	X		
MRC-MW-50A-051914L	5.00	20:32					X																	X		
CCV2	1.00	20:38					X																	X		
CCB2	1.00	20:44					X																	X		
MRC-MW-49A-051914	1.00	20:50					X																	X		
MRC-MW-71B-052014	1.00	20:56					X																	X		
MRC-MW-71A-052014	1.00	21:02					X																	X		
MRC-MW-15A-052014	1.00	21:08					X																	X		
MRC-MW-16A-052014	1.00	21:14					X																	X		
MRC-DUP03-052014	1.00	21:20					X																	X		
MRC-MW-29A-052114	1.00	21:26					X																	X		
MRC-MW-26A-052114	1.00	21:32					X																	X		
CCV3	1.00	21:38					X																	X		
CCB3	1.00	21:44					X																	X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW08A-052214	1.00	21:50					X																	X		
MRC-MW10A-052214	1.00	21:56					X																	X		
MRC-MW63A-052314	1.00	22:02					X																	X		
MRC-MW53A-052314	1.00	22:08					X																	X		
MRC-MW53B-052314	1.00	22:14					X																	X		
CCV4	1.00	22:21					X																	X		
CCB4	1.00	22:27					X																	X		
CRDL2	1.00	22:32					X																	X		
ICS-A2	1.00	22:38					X																	X		
ICS-AB2	1.00	22:44					X																	X		
ZZZZZZ	1.00	22:50																								
ZZZZZZ	1.00	22:56																								
CCV5	1.00	23:02					X																	X		
CCB5	1.00	23:08					X																	X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/12/2014 End Date: 6/12/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	10:09										X							X								
Standard 1	1.00	10:15										X							X								
Standard 2	1.00	10:21										X							X								
Standard 3	1.00	10:28										X							X								
ICV1	1.00	10:34										X							X								
ICB1	1.00	10:41										X							X								
CRDL1	1.00	10:47										X							X								
ICS-A1	1.00	10:53										X							X								
ICS-AB1	1.00	11:00										X							X								
CCV1	1.00	11:06										X							X								
CCB1	1.00	11:13										X							X								
QC Std 8	1.00	11:19										X							X								
ZZZZZZ	1.00	11:26																									
ZZZZZZ	1.00	11:32																									
ZZZZZZ	1.00	11:39																									
ZZZZZZ	5.00	11:45																									
CRDL2	1.00	11:51										X							X								
HLCCV2	1.00	11:58										X							X								
CCV2	1.00	12:04										X							X								
CCB2	1.00	12:11										X							X								
PBW	1.00	12:17										X							X								
LCSW	1.00	12:24										X							X								
MRC-MW-59A-051914	10.00	12:30										X							X								
MRC-MW-50A-051914	2.00	12:36										X							X								
MRC-MW-49A-051914	50.00	12:43										X							X								
MRC-MW-71B-052014	2.00	12:49										X							X								
MRC-MW-71B-052014D	2.00	12:56										X							X								
CCV3	1.00	13:02										X							X								
CCB3	1.00	13:09										X							X								
MRC-MW-71B-052014S	2.00	13:15										X							X								
MRC-MW-71B-052014A	2.00	13:21										X							X								
MRC-MW-71B-052014L	10.00	13:28										X							X								
MRC-MW-71A-052014	5.00	13:34										X							X								

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/12/2014 End Date: 6/12/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN				
MRC-MW-15A-052014	1.00	13:41										X							X											
MRC-MW-16A-052014	10.00	13:47										X							X											
MRC-DUP03-052014	50.00	13:54										X							X											
MRC-MW-29A-052114	5.00	14:00										X							X											
CCV4	1.00	14:07										X							X											
CCB4	1.00	14:13										X							X											
MRC-MW-26A-052114	5.00	14:19										X							X											
MRC-MW08A-052214	5.00	14:26										X							X											
MRC-MW10A-052214	2.00	14:32										X							X											
MRC-MW63A-052314	5.00	14:39										X							X											
MRC-MW53A-052314	5.00	14:45										X							X											
MRC-MW53B-052314	20.00	14:52										X							X											
CRDL3	1.00	14:58										X							X											
CCV5	1.00	15:05										X							X											
CCB5	1.00	15:11										X							X											

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	15:34			X	X		X	X		X		X		X						X	X		X				*
Standard 1	1.00	15:41			X	X		X	X		X		X		X						X	X		X				*
Standard 2	1.00	15:47			X	X		X	X		X		X		X						X	X		X				*
Standard 3	1.00	15:54			X	X		X	X		X		X		X						X	X		X				*
ICV1	1.00	16:00			X	X		X	X		X		X		X						X	X		X				*
ICB1	1.00	16:06			X	X		X	X		X		X		X						X	X		X				*
CRDL1	1.00	16:13			X	X		X	X		X		X		X						X	X		X				*
ICS-A1	1.00	16:19			X	X		X	X		X		X		X						X	X		X				*
ICS-AB1	1.00	16:26			X	X		X	X		X		X		X						X	X		X				*
CCV1	1.00	16:32			X	X		X	X		X		X		X						X	X		X				*
CCB1	1.00	16:39			X	X		X	X		X		X		X						X	X		X				*
ZZZZZZ	1.00	16:45																										
ZZZZZZ	1.00	16:51																										
ZZZZZZ	1.00	16:58																										
ZZZZZZ	1.00	17:04																										
ZZZZZZ	1.00	17:11																										
ZZZZZZ	1.00	17:17																										
ZZZZZZ	1.00	17:24																										
ZZZZZZ	1.00	17:30																										
CCV2	1.00	17:36			X	X		X	X		X		X		X						X	X		X				*
CCB2	1.00	17:43			X	X		X	X		X		X		X						X	X		X				*
ZZZZZZ	1.00	17:49																										
ZZZZZZ	1.00	17:56																										
ZZZZZZ	1.00	18:02																										
ZZZZZZ	1.00	18:09																										
ZZZZZZ	5.00	18:15																										
CRDL2	1.00	18:22			X	X		X	X		X		X		X						X	X		X				*
ZZZZZZ	1.00	18:28																										
CCV3	1.00	18:34			X	X		X	X		X		X		X						X	X		X				*
CCB3	1.00	18:41			X	X		X	X		X		X		X						X	X		X				*
PBW	1.00	18:47			X	X		X	X		X		X		X						X	X		X				*
LCSW	1.00	18:54			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-16A-052014	2.00	19:00						X					X															

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
MRC-MW-26A-052114	2.00	19:07						X					X																	
MRC-MW08A-052214	2.00	19:13											X																	
MRC-MW53A-052314	2.00	19:20											X																	
MRC-MW53B-052314	2.00	19:26											X																	
CRDL3	1.00	19:32			X	X		X	X		X		X		X						X	X		X						*
CCV4	1.00	19:39			X	X		X	X		X		X		X						X	X		X						*
CCB4	1.00	19:45			X	X		X	X		X		X		X						X	X		X						*
MRC-MW-59A-051914	1.00	19:52			X	X		X	X		X				X						X	X		X						*
MRC-MW-50A-051914	1.00	19:58			X	X		X			X				X							X		X						*
MRC-MW-49A-051914	5.00	20:05			X	X		X	X		X				X						X	X		X						*
MRC-MW-71B-052014	1.00	20:11			X	X		X	X		X				X						X	X		X						*
MRC-MW-71B-052014D	1.00	20:17			X	X		X	X		X				X						X	X		X						*
MRC-MW-71B-052014S	1.00	20:24			X	X		X	X		X				X						X	X		X						*
MRC-MW-71B-052014A	1.00	20:30			X	X		X	X		X				X						X	X		X						*
MRC-MW-71B-052014L	5.00	20:37			X	X		X	X		X				X						X	X		X						*
MRC-MW-71A-052014	1.00	20:43			X	X		X	X		X				X						X	X		X						*
MRC-MW-15A-052014	1.00	20:50			X	X		X	X		X				X						X	X		X						*
CCV5	1.00	20:56			X	X		X	X		X		X		X						X	X		X						*
CCB5	1.00	21:03			X	X		X	X		X		X		X						X	X		X						*
MRC-MW-16A-052014	1.00	21:09			X	X			X		X				X							X		X						*
MRC-DUP03-052014	5.00	21:15			X	X		X	X		X				X						X	X		X						*
MRC-MW-29A-052114	1.00	21:22			X	X		X	X		X				X						X	X		X						*
MRC-MW-26A-052114	1.00	21:28			X	X			X		X				X						X	X		X						*
MRC-MW08A-052214	1.00	21:35			X	X		X	X		X				X						X	X		X						*
MRC-MW10A-052214	1.00	21:41			X	X		X	X		X				X						X	X		X						*
MRC-MW63A-052314	1.00	21:48			X	X		X	X		X				X						X	X		X						*
MRC-MW53A-052314	1.00	21:54			X	X		X	X		X				X						X	X		X						*
MRC-MW53B-052314	1.00	22:01			X	X		X	X		X				X						X	X		X						*
CRDL4	1.00	22:07			X	X		X	X		X		X		X						X	X		X						*
CCV6	1.00	22:13			X	X		X	X		X		X		X						X	X		X						*
CCB6	1.00	22:20			X	X		X	X		X		X		X						X	X		X						*

00862

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	15:34					X																					
Standard 1	1.00	15:41					X																					
Standard 2	1.00	15:47					X																					
Standard 3	1.00	15:54					X																					
ICV1	1.00	16:00					X																					
ICB1	1.00	16:06					X																					
CRDL1	1.00	16:13					X																					
ICS-A1	1.00	16:19					X																					
ICS-AB1	1.00	16:26					X																					
CCV1	1.00	16:32					X																					
CCB1	1.00	16:39					X																					
ZZZZZZ	1.00	16:45																										
ZZZZZZ	1.00	16:51																										
ZZZZZZ	1.00	16:58																										
ZZZZZZ	1.00	17:04																										
ZZZZZZ	1.00	17:11																										
ZZZZZZ	1.00	17:17																										
ZZZZZZ	1.00	17:24																										
ZZZZZZ	1.00	17:30																										
CCV2	1.00	17:36					X																					
CCB2	1.00	17:43					X																					
ZZZZZZ	1.00	17:49																										
ZZZZZZ	1.00	17:56																										
ZZZZZZ	1.00	18:02																										
ZZZZZZ	1.00	18:09																										
ZZZZZZ	5.00	18:15																										
CRDL2	1.00	18:22					X																					
ZZZZZZ	1.00	18:28																										
CCV3	1.00	18:34					X																					
CCB3	1.00	18:41					X																					
PBW	1.00	18:47					X																					
LCSW	1.00	18:54					X																					
MRC-MW-16A-052014	2.00	19:00																										
MRC-MW-26A-052114	2.00	19:07																										

METALS

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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																										
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH										
MRC-MW08A-052214	2.00	19:13																												
MRC-MW53A-052314	2.00	19:20																												
MRC-MW53B-052314	2.00	19:26																												
CRDL3	1.00	19:32					X																							
CCV4	1.00	19:39					X																							
CCB4	1.00	19:45					X																							
MRC-MW-59A-051914	1.00	19:52					X																							
MRC-MW-50A-051914	1.00	19:58					X																							
MRC-MW-49A-051914	5.00	20:05					X																							
MRC-MW-71B-052014	1.00	20:11					X																							
MRC-MW-71B-052014D	1.00	20:17					X																							
MRC-MW-71B-052014S	1.00	20:24					X																							
MRC-MW-71B-052014A	1.00	20:30					X																							
MRC-MW-71B-052014L	5.00	20:37					X																							
MRC-MW-71A-052014	1.00	20:43					X																							
MRC-MW-15A-052014	1.00	20:50					X																							
CCV5	1.00	20:56					X																							
CCB5	1.00	21:03					X																							
MRC-MW-16A-052014	1.00	21:09					X																							
MRC-DUP03-052014	5.00	21:15					X																							
MRC-MW-29A-052114	1.00	21:22					X																							
MRC-MW-26A-052114	1.00	21:28					X																							
MRC-MW08A-052214	1.00	21:35					X																							
MRC-MW10A-052214	1.00	21:41					X																							
MRC-MW63A-052314	1.00	21:48					X																							
MRC-MW53A-052314	1.00	21:54					X																							
MRC-MW53B-052314	1.00	22:01					X																							
CRDL4	1.00	22:07					X																							
CCV6	1.00	22:13					X																							
CCB6	1.00	22:20					X																							

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibration					
	True		Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony	6/13	50	47	94	50	48	96	47	94	MS
Arsenic	↓	50	50	100	50	49	98	50	100	MS
Barium	6/11	10000	10700	107	10000	10600	106	10600	106	P
Beryllium	6/13	50	50	100	50	48	96	49	98	MS
Cadmium	↓	50	49	98	50	51	102	50	100	MS
Chromium	↓	50	49	98	50	47	94	48	96	MS
Cobalt	6/12	50	53	106	50	50	100	52	104	MS
Copper	6/13	50	49	98	50	49	98	50	100	MS
Iron	6/6-6/7	5000	5050	101	5000	5030	101	4940	99	P
Lead	6/13	50	50	100	50	50	100	51	102	MS
Manganese	6/6-6/7	750	777	104	750	766	102	752	100	P
Mercury	6/14	3.00	2.95	98	3.00	2.99	100	3.08	103	CV
Nickel	6/12	50	52	104	50	52	104	50	100	MS
Selenium	6/13	50	50	100	50	50	100	51	102	MS
Silver	↓	50	50	100	50	52	104	51	102	MS
Thallium	↓	50	48	96	50	50	100	48	96	MS
Vanadium	6/11	2500	2600	104	2500	2630	105	2500	100	P
Silicon	6/11	5000.0	4970.00	99.4	5000.0	5000.00	100.0	4830.00	96.6	P
Molybdenum	6/13	50	51	102	50	51	102	52	104	MS

Comments:

00783

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	47	94	48	96	MS
Arsenic				50	50	100	49	98	MS
Barium				10000	10900	109	10700	107	P
Beryllium				50	47	94	49	98	MS
Cadmium				50	48	96	51	102	MS
Chromium				50	50	100	48	96	MS
Cobalt				50	50	100	51	102	MS
Copper				50	50	100	50	100	MS
Iron				5000	4950	99	5020	100	P
Lead				50	48	96	50	100	MS
Manganese				750	776	103	786	105	P
Mercury				3.00	3.11	104	3.12	104	CV
Nickel				50	50	100	50	100	MS
Selenium				50	51	102	49	98	MS
Silver				50	50	100	52	104	MS
Thallium				50	47	94	50	100	MS
Vanadium				2500	2480	99	2560	102	P
Silicon				5000.0	4820.00	96.4	4690.00	93.8	P
Molybdenum				50	52	104	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	47	94	47	94	MS
Arsenic				50	50	100	47	94	MS
Barium				10000	10700	107			P
Beryllium				50	50	100	47	94	MS
Cadmium				50	50	100	49	98	MS
Chromium				50	48	96	48	96	MS
Cobalt				50	51	102			MS
Copper				50	49	98	48	96	MS
Iron				5000	5060	101	4940	99	P
Lead				50	49	98	49	98	MS
Manganese				750	752	100	731	97	P
Nickel				50	49	98			MS
Selenium				50	50	100	48	96	MS
Silver				50	51	102	51	102	MS
Thallium				50	48	96	49	98	MS
Vanadium				2500	2620	105			P
Silicon				5000.0	4780.00	95.6			P
Molybdenum				50	53	106	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Iron				5000	5050	101	5100	102	P
Manganese				750	780	104	770	103	P

Comments:

00786

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Iron				5000	4940	99	5050	101	P
Manganese				750	759	101	786	105	P

Comments:

00787

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Iron				5000	5060	101	5140	103	P
Manganese				750	782	104	804	107	P

Comments:

00788

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP Initial			CRDL Standard for ICP Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	0.95	95	0.87	87
Arsenic				1.0	0.99	99	1.04	104
Beryllium				1.0	1.01	101	0.91	91
Barium				200.0	218.29	109	217.52	109
Cadmium				1.0	0.92	92	0.91	91
Chromium				2.0	2.12	106	1.96	98
Cobalt				1.0	1.04	104	1.05	105
Copper				1.0	1.09	109	1.20	120
Iron				100.0	102.82	103	103.51	104
Lead				1.0	0.95	95	0.95	95
Manganese				15.0	15.91	106	16.30	109
Mercury	0.200	0.201	100					
Nickel				1.0	1.06	106	1.02	102
Selenium				2.0	1.95	98	2.05	102
Silver				1.0	1.05	105	1.02	102
Thallium				1.0	0.88	88	0.89	89
Vanadium				50.0	54.54	109	52.16	104
Silicon				1000.0	969.00	96.9	954.00	95.4
Molybdenum				1.0	1.06	106	1.05	105

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			0.87	87
Arsenic				1.0			1.08	108
Beryllium				1.0			0.94	94
Cadmium				1.0			0.88	88
Chromium				2.0			2.16	108
Cobalt				1.0			1.01	101
Copper				1.0			1.23	123
Iron				100.0			103.47	103
Lead				1.0			0.99	99
Manganese				15.0			15.67	104
Mercury	0.200	0.198	99					
Nickel				1.0			0.96	96
Selenium				2.0			2.13	106
Silver				1.0			1.02	102
Thallium				1.0			0.88	88
Molybdenum				1.0			1.05	105

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			0.86	86
Arsenic				1.0			1.07	107
Beryllium				1.0			0.98	98
Cadmium				1.0			0.86	86
Chromium				2.0			2.25	112
Copper				1.0			1.60	160
Iron				100.0			107.80	108
Lead				1.0			0.98	98
Manganese				15.0			17.33	116
Selenium				2.0			1.97	98
Silver				1.0			1.03	103
Thallium				1.0			0.84	84
Molybdenum				1.0			1.05	105

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Copper				1.0			1.17	117
Selenium				2.0			2.19	110

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	0.202	U	0.177	J	0.180	J	0.232	J	0.157	U	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	-0.295	J	MS
Barium	5.52	J	2.62	J	3.20	J	3.49	J	0.549	U	P
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cadmium	0.011	J	0.008	U	0.008	U	0.008	U	-0.091	J	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	1.332	J	MS
Cobalt	0.014	J	-0.008	J	0.016	U	0.013	J	-0.086	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.380	J	MS
Iron 6/6-6/7	12.900	U	13.110	J	12.900	U	12.900	U	12.900	U	P
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Manganese 6/6/6/7	0.403	U	0.403	U	0.403	U	0.403	U	0.403	U	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	MS
Thallium	0.031	U	0.031	U	0.031	J	0.031	U	-0.126	J	MS
Vanadium	1.51	J	0.84	J	0.33	J	0.78	J	0.169	U	P
Silicon	161.0	U	161.0	U	161.0	U	161.0	U	161.000	U	P
Molybdenum	0.068	U	0.092	J	0.068	U	0.086	J	0.073	J	MS

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.206	J	0.217	J	0.228	J			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			3.24	J	7.32	J					P
Beryllium			0.020	U	0.020	U	0.020	U			MS
Cadmium			0.008	U	-0.009	J	0.008	U			MS
Chromium			0.470	U	0.470	U	0.470	U			MS
Cobalt			0.014	J	0.008	U					MS
Copper			0.252	U	0.252	U	0.255	J			MS
Iron			12.900	U	17.811	J	12.900	U			P
Lead			0.061	U	0.061	U	0.061	U			MS
Manganese			0.403	U	0.702	J	0.403	U			P
Mercury			0.024	U							CV
Nickel			0.236	U	0.236	U					MS
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.015	U	0.015	U	0.017	J			MS
Thallium			0.031	U	0.041	J	0.035	J			MS
Vanadium			0.95	J	1.89	J					P
Silicon			161.0	U	161.0	U					P
Molybdenum			0.068	U	0.068	U	0.068	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron			12.900	U	22.086	J	12.900	U			P
Manganese			0.403	U	0.403	U	0.425	J			P

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron			12.900	U	12.900	U	13.850	U			P
Manganese			2.031	J	0.842	J	0.580	J			P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000	93600.0	97100	97	96500.0	97200	97
Manganese		500	1.7	518	104	1.7	512	102

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000				95100.0	95000	95
Manganese		500				1.6	494	99

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000				97700.0	97400	97
Manganese		500				2.0	530	106

00811

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium	0	500	3.9	515	103	3.9	525	105
Vanadium	0	500	1.6	489	98	2.8	488	98
Silicon	0		-214	160.0				

00812

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon	611					-174	218.0	

00813

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	-0.07	20.37	102			
Arsenic	0.00	20.00	0.10	18.77	94			
Beryllium	0.00	20.00	0.02	18.77	94			
Cadmium	0.00	20.00	0.06	19.04	95			
Chromium	0.00	20.00	0.39	21.19	106			
Cobalt	0.00	20.00	0.06	19.46	97			
Copper	0.00	20.00	0.64	18.40	92			
Lead	0.00	20.00	-0.02	19.82	99			
Nickel	0.00	20.00	0.67	19.27	96			
Selenium	0.00	20.00	-0.22	18.96	95			
Silver	0.00	20.00	0.04	19.81	99			
Thallium	0.00	20.00	-0.11	19.10	96			
Molybdenum	400.00	400.00	404.05	413.42	103			

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/8/2014 End Date: 6/8/2014

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	11:32															X										
Calib Std 1	1.00	11:38															X										
Calib Std 2	1.00	11:43																									
Calib Std 3	1.00	11:48																									
Calib Std 4	1.00	11:54															X										
Calib Std 5	1.00	12:00															X										
ICV2	1.00	12:05															X										
ICB2	1.00	12:11															X										
CRDL1	1.00	12:18															X										
ICS-A1	1.00	12:24															X										
ICS-AB1	1.00	12:35															X										
CCV1	1.00	12:41															X										
CCB1	1.00	12:46															X										
ZZZZZZ	1.00	12:53																									
ZZZZZZ	1.00	13:00																									
ZZZZZZ	5.00	13:06																									
ZZZZZZ	5.00	13:12																									
ZZZZZZ	5.00	13:19																									
ZZZZZZ	5.00	13:25																									
ZZZZZZ	1.00	13:31																									
ZZZZZZ	1.00	13:38																									
ZZZZZZ	100.00	13:44																									
ZZZZZZ	100.00	13:51																									
CCV2	1.00	13:57															X										
CCB2	1.00	14:03															X										
ZZZZZZ	100.00	14:09																									
ZZZZZZ	100.00	14:16																									
ZZZZZZ	100.00	14:22																									
ZZZZZZ	500.00	14:28																									
ZZZZZZ	1000.00	14:35																									
ZZZZZZ	100.00	14:41																									
CCV3	1.00	14:48															X										
CCB3	1.00	14:53															X										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/8/2014 End Date: 6/8/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CRDL2	1.00	15:00															X										
ICS-A2	1.00	15:11															X										
ICS-AB2	1.00	15:17															X										
ZZZZZZ	1.00	15:23																									
ZZZZZZ	1.00	15:28																									
CCV4	1.00	15:34															X										
CCB4	1.00	15:40															X										
PBW	1.00	15:46																									
LCSW	1.00	15:53																									
MRC-MW-59A-051914	10.00	15:59															X										
MRC-MW-50A-051914	50.00	16:05																									
MRC-MW-50A-051914D	50.00	16:11																									
MRC-MW-50A-051914S	50.00	16:17																									
MRC-MW-50A-051914A	50.00	16:24																									
MRC-MW-50A-051914L	250.00	16:30																									
MRC-MW-49A-051914	50.00	16:36																									
MRC-MW-71B-052014	1.00	16:42																									
CCV5	1.00	16:48															X										
CCB5	1.00	16:54															X										
MRC-MW-71A-052014	1.00	17:01																									
MRC-MW-15A-052014	10.00	17:07																									
MRC-MW-16A-052014	5.00	17:13																									
MRC-DUP03-052014	50.00	17:19																									
MRC-MW-29A-052114	5.00	17:25																									
MRC-MW-26A-052114	2.00	17:31															X										
MRC-MW08A-052214	20.00	17:37															X										
MRC-MW10A-052214	1.00	17:43																									
MRC-MW63A-052314	10.00	17:50																									
MRC-MW53A-052314	5.00	17:56																									
CCV6	1.00	18:02															X										
CCB6	1.00	18:08															X										
MRC-MW53B-052314	20.00	18:14																									
CCV7	1.00	18:20															X										

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METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: Optima ICP 5 Method: P

Start Date: 6/8/2014 End Date: 6/8/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB7	1.00	18:26															X										
CRDL3	1.00	18:33															X										
ICS-A3	1.00	18:39															X										
ICS-AB3	1.00	18:45															X										
CCV8	1.00	18:50															X										
CCB8	1.00	18:56															X										

00854

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	09:55											X								X									
Standard 1	1.00	10:01											X								X									
Standard 2	1.00	10:07											X								X									
Standard 3	1.00	10:14											X								X									
ICV2	1.00	10:20											X								X									
ICB2	1.00	10:27											X								X									
CRDL1	1.00	10:33											X								X									
ICS-A1	1.00	10:40											X								X									
ICS-AB1	1.00	10:46											X								X									
CCV1	1.00	10:52											X								X									
CCB1	1.00	10:59											X								X									
ZZZZZZ	1.00	11:05																												
PBW	1.00	11:12																												
LCSW	1.00	11:18																												
MRC-MW-59A-051914	2.00	11:25											X																	
MRC-MW-50A-051914	5.00	11:31											X								X									
MRC-MW-49A-051914	5.00	11:38											X																	
MRC-MW-71B-052014	2.00	11:44											X																	
CCV2	1.00	11:50											X								X									
CCB2	1.00	11:57											X								X									
MRC-MW-71B-052014D	2.00	12:03											X																	
MRC-MW-71B-052014S	2.00	12:10											X																	
MRC-MW-71B-052014A	2.00	12:16											X																	
MRC-MW-71B-052014L	10.00	12:23											X																	
CRDL2	1.00	12:29											X								X									
ZZZZZZ	1.00	12:35																												
CCV3	1.00	12:42											X								X									
CCB3	1.00	12:48											X								X									
MRC-MW-71A-052014	2.00	12:55											X																	
MRC-MW-15A-052014	2.00	13:01											X																	
MRC-DUP03-052014	3.00	13:08																												
MRC-MW-29A-052114	2.00	13:14											X																	
MRC-MW10A-052214	1.00	13:21											X																	

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW63A-052314	2.00	13:27											X																	
CRDL3	1.00	13:33											X								X									
CCV4	1.00	13:40											X								X									
CCB4	1.00	13:46											X								X									
MRC-MW-16A-052014	1.00	13:53																			X									
CRDL4	1.00	13:59											X								X									
CCV5	1.00	14:06											X								X									
CCB5	1.00	14:12											X								X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration					Continuing Calibration					M
	True			Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Copper	6	16	50	53	106	50	52	104	54	108	MS
Manganese	16	8	750	717	96	750	790	105	739	99	P
Selenium	6	16	50	49	98	50	50	100	51	102	MS

Comments:

00789

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Copper				50	52	104	55	110	MS
Manganese				750	600	80	773	103	P
Selenium				50	51	102	51	102	MS

Comments:

00790

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Copper				50	54	108			MS
Manganese				750	727	97	785	105	P
Selenium				50	50	100			MS

Comments:

00791

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Manganese				750	785	105	769	103	P

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Copper				1.0	1.11	111	0.96	96
Manganese				15.0	12.24	82	11.81	79
Selenium				2.0	2.04	102	2.03	102

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Copper				1.0			1.17	117
Manganese				15.0			14.82	99
Selenium				2.0			2.20	110

Comments:

00798

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C		Preparation Blank	C		M
Copper 6|16	0.252	U	0.252	U	0.252	U	0.252	U					MS
Manganese 6|8	0.403	U	0.403	U	0.403	U	-0.575	J					P
Selenium 6|16	0.213	U	0.213	U	0.213	U	0.213	U					MS

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C		Preparation Blank	C		M
Copper			0.252	U	0.252	U							MS
Manganese			0.403	U	0.403	U	0.403	U					P
Selenium			0.213	U	0.213	U							MS

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Manganese			0.403	U	0.403	U					P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Manganese		500	0.1	519	104	0.6	526	105

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: Optima ICP 5 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Manganese		500				0.6	514	103

00816

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Copper	0.00	20.00	0.92	19.34	97			
Selenium	0.00	20.00	-0.08	18.60	93			

00817

METALS
-14-

ANALYSIS RUN LOG

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Blank	1.00	15:11							X				X																	
Standard 1	1.00	15:17							X				X																	
Standard 2	1.00	15:23							X				X																	
Standard 3	1.00	15:30							X				X																	
ICV3	1.00	15:36							X				X																	
ICB3	1.00	15:43							X				X																	
CRDL1	1.00	15:49							X				X																	
ICS-A1	1.00	15:55							X				X																	
ICS-AB1	1.00	16:02							X				X																	
CCV1	1.00	16:08							X				X																	
CCB1	1.00	16:15							X				X																	
ZZZZZZ	1.00	16:21																												
PBW	1.00	16:27																												
LCSW	1.00	16:35																												
MRC-MW-50A-051914	5.00	16:41							X																					
MRC-MW-50A-051914L	25.00	16:48							X																					
MRC-DUP03-052014	20.00	16:54											X																	
CRDL2	1.00	17:01							X				X																	
ZZZZZZ	1.00	17:07																												
CCV2	1.00	17:14							X				X																	
CCB2	1.00	17:20							X				X																	

00867

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

ALS Environmental

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L 6/16 14

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Cadmium	50	52	104	50	52	104	53	106	MS
Copper	50	51	102	50	52	104	51	102	MS

Comments:

00793

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-59A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Cadmium				1.0	1.01	101	1.05	105
Copper				1.0	1.07	107	1.11	111

Comments:

METALS

-3-

BLANKS

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

6/16/14

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Cadmium	0.011	J	0.008	U	0.008	U					MS
Copper	0.252	U	0.252	U	0.252	U					MS

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1403723

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-59A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Cadmium	0.00	20.00	0.09	19.52	98			
Copper	0.00	20.00	0.65	18.19	91			

00818

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. APANAVAGE** **DATE:** **AUGUST 19, 2014**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – METALS/MISCELLANEOUS**
LOCKHEED MARTIN CORPORATION (LMC)
GROUNDWATER 2014
SDG R1404021

SAMPLES: 6/Aqueous/Metals

MRC-MW-12A-053014	MRC-MW-12B-053014	MRC-MW-24A-052914
MRC-MW-27A-052914	MRC-MW-27B-052914	MRC-MW-87B-052814

5/Aqueous/Miscellaneous

MRC-MW-12A-053014	MRC-MW-12B-053014	MRC-MW-24A-052914
MRC-MW-27A-052914	MRC-MW-27B-052914	

Overview

The sample set for LMC-Groundwater 2014, SDG R1404021 consisted of six (6) aqueous environmental samples. All six (6) aqueous samples were analyzed metals. Five (5) aqueous samples were analyzed for miscellaneous parameters (alkalinity (as $CaCO_3$), ammonia as N, Dissolved Organic Carbon (DOC), nitrate, nitrite, orthophosphate as P, silica, Total Dissolved Solids (TDS), and sulfate). No field duplicate sample pair was included in this SDG.

The samples were collected by Tetra Tech, Inc. on May 28 - 30, 2014 and analyzed by ALS Environmental. All analyses were conducted in accordance with SW-846 Methods 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, and 365.1, and Standard Methods 2320B, 2540C, and 5310 B/C analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, ICP/MS tuning, initial/continuing calibrations, laboratory method/calibration blanks, Interference Check Sample (ICS), laboratory control sample results, matrix spike/matrix spike duplicate results, internal standard areas and recoveries, ICP serial dilution results, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The following analytes were detected in the laboratory method and/or preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Chromium [(1)]	1.154	5.77
Silver [(1)]	0.017	0.085
Molybdenum [(1)]	0.1	0.5
Iron [(2)]	74.056	370.28

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Cobalt [3]	0.062	0.31
Antimony [4]	0.232	1.16
Cadmium [4]	0.011	0.055
Thallium [4]	0.031	0.155
Barium [5]	4.70	23.5
Vanadium	0.93	4.65
Manganese [6]	2.253	11.265

[1] - Maximum concentration detected in the laboratory preparation blank from preparation batch # 210312 (indicated in the electronic deliverable) affecting all 6020A samples extracted on 06/09/14.
[2] - Maximum concentration detected in the laboratory preparation blank from preparation batch # 210339 (indicated in the electronic deliverable) affecting all 6010C samples extracted on 06/09/14.
[3] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 06/12-13/14.
[4] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 06/13/14.
[5] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/10-11/14.
[6] - Maximum concentration detected in the continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/11/14.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected results reported for these compounds in the affected samples below the established action level were qualified as non-detected, (U).

- The following internal standard Percent Recoveries (%R) were above the 125% quality control limit:

Sample	Internal Standard(s)	Affected Analytes
MRC-MW-24A-052914	Ho, Tb	Sb, Th, Pb

The detected and non-detected results reported for the affected analytes were qualified as estimated, (J) and (UJ), respectively.

- The Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses associated with preparation batch #395138 had %Rs for chloride below the 90% quality control limit. The detected results reported for chloride in the affected samples, MRC-MW-12A-053014 and MRC-MW-12B-053014, were qualified as estimated, (J).

- The MS analysis associated with preparation batch #395242 for orthophosphate (as P) had a %R that was below the 90% quality control limit. The detected results reported for orthophosphate

(as P) in the affected samples, MRC-MW-12A-053014 and MRC-MW-12B-053014, were qualified as estimated, (J).

- Detected results reported below the Reporting Limit (RL) limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The following parameters were detected in the laboratory method and/or preparation blanks at the following maximum concentrations:

Parameter	Maximum Concentration (mg/L)	Action Level (mg/L)
Alkalinity (as $CaCO_3$) [1]	1.1	5.5
Silica, dissolved [2]	0.006	0.030
Alkalinity (as $CaCO_3$) [2]	1.2	6.0
Orthophosphate (as P) [2]	0.007	0.035

[1] - Maximum concentration detected in the laboratory preparation blank, R1404021-MB1, from preparation batch #396204 (indicated in the electronic deliverable) affecting samples MRC-MW-12A-053014, MRC-MW-24A-052914, MRC-MW-27A-052914, and MRC-MW-27B-052914.
[2] - Maximum concentration detected in the laboratory preparation blank, R1404021-MB1, from preparation batch #396184 (indicated in the electronic deliverable) and in the continuing calibration blanks affecting all samples.
[3] - Maximum concentration detected in the laboratory preparation blank, R1404021-MB1, from preparation batch #396429 (indicated in the electronic deliverable) affecting sample MRC-MW-12B-053014.
[4] - Maximum concentration detected in the laboratory preparation blank, R1404021-MB1, from preparation batch #395242 (indicated in the electronic deliverable) and in the continuing calibration blanks affecting samples MRC-MW-12A-053014 and MRC-MW-12B-053014.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. No action was necessary because the detected results reported for these parameters in the affected samples were above the established action levels.

Non-detected results were reported to the MDL.

Executive Summary

Laboratory Performance: Contaminants were detected in the laboratory preparation and method blanks. Two internal standards had high %Rs.

Other Factors Affecting Data Quality: Some miscellaneous parameters had low MS/MSD %Rs. Results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review" (January 2010) and SW-846 Methods 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, and 365.1, and Standard Methods 2320B, 2540C, and 5310 B/C analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-12A-053014			MRC-MW-12B-053014			MRC-MW-24A-052914			MRC-MW-27A-052914		
SDG: R1404021	LAB_ID	R1404021-016			R1404021-014			R1404021-004			R1404021-001		
FRACTION: M	SAMP_DATE	5/30/2014			5/30/2014			5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.157	U		0.157	UJ	N	0.157	U	
ARSENIC		0.975	J	P	0.634	J	P	0.366	J	P	4.4		
BARIUM		112			84.6			245			503		
BERYLLIUM		1			0.088	J	P	24			1.7		
CADMIUM		0.008	U		0.008	U		1.2			0.008	U	
CHROMIUM		1.7	U	A	1.7	U	A	1.8	U	A	0.621	U	A
COBALT		65.7			10.4			219			589		
COPPER		1.8			3.4			50.3			4.3		
IRON		55000			9900			256	U	A	90200		
LEAD		0.547	J	P	1.2			0.232	J	NP	0.061	U	
MANGANESE		2610			815			27200			31100		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.228	U	A	0.154	U	A	0.208	U	A	0.287	U	A
NICKEL		115			38.5			690			247		
SELENIUM		0.213	J	P	0.213	U		0.213	J	P	0.213	J	P
SILICON		8210			5570			5940			5270		
SILVER		0.015	U		0.015	U		0.209	J	P	0.016	U	A
THALLIUM		0.031	U		0.031	U		0.031	UJ	N	0.031	U	
VANADIUM		1.7	U	A	2.9	U	A	0.169	U		0.169	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-27B-052914			MRC-MW-87B-052814		
SDG: R1404021	LAB_ID	R1404021-002			R1404021-007		
FRACTION: M	SAMP_DATE	5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.57	U	A
ARSENIC		0.447	J	P	0.459	J	P
BARIUM		43.2			97.7		
BERYLLIUM		1.1			0.074	J	P
CADMIUM		0.04	U	A	0.008	U	
CHROMIUM		2.3	U	A	2.3	U	A
COBALT		249			12.4		
COPPER		8			8.9		
IRON		386			3260		
LEAD		0.254	J	P	0.061	U	
MANGANESE		136			561		
MERCURY		0.024	U		0.024	U	
MOLYBDENUM		0.116	U	A	2.6		
NICKEL		264			21.4		
SELENIUM		2			0.213	J	P
SILICON		3070			4080		
SILVER		0.015	U		0.015	U	
THALLIUM		0.459	J	P	0.031	U	
VANADIUM		0.255	U	A	0.749	U	A

PROJ_NO: 06247	NSAMPLE	MRC-MW-12A-053014			MRC-MW-12B-053014			MRC-MW-24A-052914			MRC-MW-27A-052914		
SDG: R1404021	LAB_ID	R1404021-016			R1404021-014			R1404021-004			R1404021-001		
FRACTION: MISC	SAMP_DATE	5/30/2014			5/30/2014			5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.024	J	P	0.091			0.259			1.66		
CARBONATE ALKALINITY		28.1			34.2			0.3	U		73.7		
CHLORIDE		59.1	J	D	13.1	J	D	506			660		
DISSOLVED ORGANIC CARBON		1.7			1	U		1.2			3.4		
NITRATE-N		0.2	U		0.2	U		0.2	U		0.2	U	
NITRITE-N		0.3	U		0.3	U		0.3	U		0.3	U	
ORTHOPHOSPHATE-P		0.02	J	D	0.016	J	D	0.002	J	P	0.013		
SILICA		15.1			8.13			13			12.9		
SULFATE		23.7			9.6			1.9	U		4.1		
TOTAL DISSOLVED SOLIDS		178			74			824			1090		

PROJ_NO: 06247	NSAMPLE	MRC-MW-27B-052914
SDG: R1404021	LAB_ID	R1404021-002
FRACTION: MISC	SAMP_DATE	5/29/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	MG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
AMMONIA-N	0.008	U	
CARBONATE ALKALINITY	25.1		
CHLORIDE	82.2		
DISSOLVED ORGANIC CARBON	1	U	
NITRATE-N	0.2	U	
NITRITE-N	0.3	U	
ORTHOPHOSPHATE-P	0.003	J	P
SILICA	6.75		
SULFATE	5.9		
TOTAL DISSOLVED SOLIDS	172		

Appendix B

Results as Reported by the Laboratory

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-12A-053014

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Lab Sample ID: R1404021-016

Level (low/med): LOW Date Received: 5/31/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.975	J		MS
7440-39-3	Barium	112			P
7440-41-7	Beryllium	1.0			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.7	J		MS
7440-48-4	Cobalt	65.7			MS
7440-50-8	Copper	1.8			MS
7439-89-6	Iron	55000			P
7439-92-1	Lead	0.547	J		MS
7439-96-5	Manganese	2610			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	115			MS
7782-49-2	Selenium	0.638	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	1.7	J		P
7440-21-3	Silicon	8210			P
7439-98-7	Molybdenum	0.228	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-12B-053014

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Lab Sample ID: R1404021-014

Level (low/med): LOW Date Received: 5/31/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.634	J		MS
7440-39-3	Barium	84.6			P
7440-41-7	Beryllium	0.088	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.7	J		MS
7440-48-4	Cobalt	10.4			MS
7440-50-8	Copper	3.4			MS
7439-89-6	Iron	9900			P
7439-92-1	Lead	1.2			MS
7439-96-5	Manganese	815			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	38.5			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	2.9	J		P
7440-21-3	Silicon	5570			P
7439-98-7	Molybdenum	0.154	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-24A-052914

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Lab Sample ID: R1404021-004

Level (low/med): LOW Date Received: 5/30/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.366	J		MS
7440-39-3	Barium	245			P
7440-41-7	Beryllium	24.0			MS
7440-43-9	Cadmium	1.2			MS
7440-47-3	Chromium	1.8	J		MS
7440-48-4	Cobalt	219			MS
7440-50-8	Copper	50.3			MS
7439-89-6	Iron	256			P
7439-92-1	Lead	0.232	J		MS
7439-96-5	Manganese	27200			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	690			MS
7782-49-2	Selenium	1.8	J		MS
7440-22-4	Silver	0.209	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	5940			P
7439-98-7	Molybdenum	0.208	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-27A-052914

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Lab Sample ID: R1404021-001

Level (low/med): LOW Date Received: 5/30/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	4.4			MS
7440-39-3	Barium	503			P
7440-41-7	Beryllium	1.7			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	0.621	J		MS
7440-48-4	Cobalt	589			MS
7440-50-8	Copper	4.3			MS
7439-89-6	Iron	90200			P
7439-92-1	Lead	0.061	U		MS
7439-96-5	Manganese	31100			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	247			MS
7782-49-2	Selenium	0.249	J		MS
7440-22-4	Silver	0.016	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	5270			P
7439-98-7	Molybdenum	0.287	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-27B-052914

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Lab Sample ID: R1404021-002

Level (low/med): LOW Date Received: 5/30/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.447	J		MS
7440-39-3	Barium	43.2			P
7440-41-7	Beryllium	1.1			MS
7440-43-9	Cadmium	0.040	J		MS
7440-47-3	Chromium	2.3			MS
7440-48-4	Cobalt	249			MS
7440-50-8	Copper	8.0			MS
7439-89-6	Iron	386			P
7439-92-1	Lead	0.254	J		MS
7439-96-5	Manganese	136			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	264			MS
7782-49-2	Selenium	2.0			MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.459	J		MS
7440-62-2	Vanadium	0.255	J		P
7440-21-3	Silicon	3070			P
7439-98-7	Molybdenum	0.116	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-87B-052814

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Lab Sample ID: R1404021-007

Level (low/med): LOW Date Received: 5/30/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.570	J		MS
7440-38-2	Arsenic	0.459	J		MS
7440-39-3	Barium	97.7			P
7440-41-7	Beryllium	0.074	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.3			MS
7440-48-4	Cobalt	12.4			MS
7440-50-8	Copper	8.9			MS
7439-89-6	Iron	3260			P
7439-92-1	Lead	0.061	U		MS
7439-96-5	Manganese	561			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	21.4			MS
7782-49-2	Selenium	1.8	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.749	J		P
7440-21-3	Silicon	4080			P
7439-98-7	Molybdenum	2.6			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

00638

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
Sample Name:	MRC-MW-12A-053014		
Lab Code:	R1404021-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**28.1**		mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	**0.024**	**J**	mg/L	0.050	0.004	1	NA	6/16/14 11:42	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**1.7**		mg/L	1.0		1	NA	6/17/14 21:40	
Chloride	300.0	**59.1**		mg/L	2.0	0.3	10	NA	6/1/14 09:58	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/1/14 09:58	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/1/14 09:58	
Orthophosphate as Phosphorus	365.1	**0.020**		mg/L	0.010	0.002	1	NA	5/31/14 15:13	
Silica, Dissolved as SiO2	USGS I-2700-85	**15.1**		mg/L	0.20	0.06	20	NA	6/9/14 13:57	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**178**		mg/L	10	5	1	NA	6/2/14 09:08	
Sulfate	300.0	**23.7**		mg/L	2.0	1.9	10	NA	6/1/14 09:58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/30/14 0955
Date Received: 5/31/14

Sample Name: MRC-MW-12B-053014
Lab Code: R1404021-014

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**34.2**		mg/L	2.0	0.3	1	NA	6/10/14 08:40	
Ammonia as Nitrogen, undistilled	350.1	**0.091**		mg/L	0.050	0.004	1	NA	6/16/14 11:41	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0		1	NA	6/17/14 21:19	
Chloride	300.0	**13.1**		mg/L	2.0	0.3	10	NA	6/1/14 09:48	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/1/14 09:48	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/1/14 09:48	
Orthophosphate as Phosphorus	365.1	**0.016**		mg/L	0.010	0.002	1	NA	5/31/14 15:13	
Silica, Dissolved as SiO2	USGS I-2700-85	**8.13**		mg/L	0.10	0.03	10	NA	6/9/14 13:56	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**74**		mg/L	10	5	1	NA	6/2/14 09:08	
Sulfate	300.0	**9.6**		mg/L	2.0	1.9	10	NA	6/1/14 09:48	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1350
Sample Matrix:	Water	**Date Received:**	5/30/14
Sample Name:	MRC-MW-24A-052914		
Lab Code:	R1404021-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0	U	mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	**0.259**		mg/L	0.050	0.004	1	NA	6/16/14 11:40	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**1.2**		mg/L	1.0		1	NA	6/17/14 20:58	
Chloride	300.0	**506**		mg/L	20	3	100	NA	6/3/14 16:57	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	5/30/14 16:12	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	5/30/14 16:12	
Orthophosphate as Phosphorus	365.1	**0.002**	J	mg/L	0.010	0.002	1	NA	5/30/14 17:45	
Silica, Dissolved as SiO2	USGS I-2700-85	**13.0**		mg/L	0.20	0.06	20	NA	6/9/14 14:07	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**824**		mg/L	10	5	1	NA	6/2/14 09:08	
Sulfate	300.0	2.0	U	mg/L	2.0	1.9	10	NA	5/30/14 16:12	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14 0915
Date Received: 5/30/14

Sample Name: MRC-MW-27A-052914
Lab Code: R1404021-001

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**73.7**		mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	**1.66**		mg/L	0.050	0.004	1	NA	6/16/14 11:38	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**3.4**		mg/L	1.0		1	NA	6/17/14 20:16	
Chloride	300.0	**660**		mg/L	20	3	100	NA	6/3/14 16:47	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	5/30/14 16:02	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	5/30/14 16:02	
Orthophosphate as Phosphorus	365.1	**0.013**		mg/L	0.010	0.002	1	NA	5/30/14 17:43	
Silica, Dissolved as SiO2	USGS I-2700-85	**12.9**		mg/L	0.20	0.06	20	NA	6/9/14 13:51	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**1090**		mg/L	10	5	1	NA	6/2/14 09:08	
Sulfate	300.0	**4.1**		mg/L	2.0	1.9	10	NA	5/30/14 16:02	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/1121C06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14 1030
Date Received: 5/30/14

Sample Name: MRC-MW-27B-052914
Lab Code: R1404021-002

Basis: NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**25.1**		mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	0.10	U	mg/L	0.10	0.008	2	NA	6/16/14 11:52	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0		1	NA	6/17/14 20:37	
Chloride	300.0	**82.2**		mg/L	2.0	0.3	10	NA	5/30/14 16:23	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	5/30/14 16:23	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	5/30/14 16:23	
Orthophosphate as Phosphorus	365.1	**0.003**	J	mg/L	0.010	0.002	1	NA	5/30/14 17:44	
Silica, Dissolved as SiO2	USGS I-2700-85	**6.75**		mg/L	0.10	0.03	10	NA	6/9/14 13:53	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**172**		mg/L	10	5	1	NA	6/2/14 09:08	
Sulfate	300.0	**5.9**		mg/L	2.0	1.9	10	NA	5/30/14 16:23	

Appendix C

Support Documentation

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15147

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: Tony.apanavage@tetratech.com
Sampler's Signature:	Sampler's Printed Name: Josh Mills

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 — — — — 2 — 1 3 0 0 0 — —

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS		SCAMS VOAs ○ 8260 ○ 624 ○ CLP	SCMS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS: TOTAL (List in comments below)	METALS: DISSOLVED (List in comments below)	RSK-175	NH3	Alkalinity	Silica	TDS, NO3, NO2, SO4, Cl, PO4	1,4 Dioxane			REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-27A-052914		5/29/14	0915	Aq	11	3	—	—	—		1	—	3	1	1	1	1					
MRC-MW-27B-052914			1030		11	3	—	—	—		1	—	3	1	1	1	1					
MRC-MW-27C-052914			1145		3	3	—	—	—													
MRC-MW-24A-052914			1350		8		—	—	—		1	—	3	1	1	1	1					
TB-052914			—		2	2	—	—	—													
MRC-MW-94B-052914		5-29-14	0942		3	3																
MRC-MW-87B-052914			1135		4	3					1											
MRC-MW-98B-052914		5-29-14	1029		3	3																
MRC-MW-95B-052914			1156		3	3																
MRC-MW-87A-052914			1230		3	3																
MRC-MW-91A-052914			1523		2													2				

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #:
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature:	Signature:	Signature:	
Printed Name: Walt Pryor	Printed Name: J. Stewart	Printed Name:	Printed Name:	Printed Name:	
Firm: TT	Firm: ALS	Firm:	Firm:	Firm:	
Date/Time: 5-29-14 / 1630	Date/Time: 5/30/14 0955	Date/Time:	Date/Time:	Date/Time:	

R1404021 7
Tetra Tech NUS, Inc.
Middle River - Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number

Cooler received on 5/30/14 by: JKS COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y)	N
2	**Custody papers** properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good **condition** (unbroken)?	(Y)	N
4	Circle: **Wet Ice Dry Ice Gel packs** present?	(Y)	N

5a	**Perchlorate** samples have required headspace?	Y	N	(NA)
5b	Did VOA vials, Alk,or Sulfide have sig* **bubbles**?	Y	(N)	NA
6	Where did the bottles originate?	(ALS/ROC)		CLIENT
7	Soil VOA received as: Bulk Encore 5035set			(NA)

8. Temperature Readings Date: 5/30/14 Time: 1047 ID: (IR#3) IR#4 From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.9						
Correction Factor (°C)	+0.2						
Corrected Temp (°C)	4.1						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: ROOM by JKS on 5/30/14 at 1047
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: _____ Time: _____ by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN / Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: _____
Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15149

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 1 3 1 0 7 2 / 0 0

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	TDS, NO_2, NO_3, NH_4, Cl, SO_4	Alkalinity	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-13A-053014		5/30/14	0840	Aq	5	3	2	—	—	—	—	—	—		
DUP-01-053014			—		5	3	2	—	—	—	—	—	—		
MRC-MW-12B-053014			0955		13	3	2	3	1	1	1	/	1	1	
MRC-MW-12C-053014			1140		5	3	2	—	—	—	—	—	—		
MRC-MW-12A-053014			1250		13	3	2	3	1	1	1	/	1	1	
TB-053014			—		2	2	—	—	—	—	—	—	—		

JAM

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: Josh Mullis	Printed Name: Gregory O. Esmerian	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/30/14 1500	Date/Time: 5-31-14 9:10	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number N14-4021

Cooler received on 5-31-14 by: HE COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 5-31-14 Time: 09:36 ID IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.3°						
Correction Factor (°C)	+0.2°						
Corrected Temp (°C)	3.5°						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by HE on 5-31-14 at 9:40

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 6/2/14 Time: 1241 by: JFS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BOB261360	5/15				
≤2	H_2SO_4	✓		WC126250E	5/15				
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 100713-24AW, 112612-2VV, 4-002-003, 021014-1BMC

Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1404021
Project:	Middle River	**Date Received:**	5/30-5/31/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Seventeen water samples were received for analysis at ALS-Environmental between 5/30-5/31/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 3.5-4.1°C within the 0-6°C temperature guidelines.

Wet Chemistry

The Continuing Calibration Blank (CCB4, CCB5) for Orthophosphate contained low level hits and have been flagged with a "J". No data was affected.

The Method Blanks for Alkalinity (MB1 and MB2) and Dissolved Silica (MB1) contained low level hits and have been flagged with a "J". No data was affected.

Site QC was not requested but was analyzed. All exceedences have been flagged with a "*".

No analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-12A-053014 (R1404021-016) was not applicable for Nickel as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
6/6/14- 2-Hexanone, Acetone (>40%) and Methylene Chloride
6/9/14- Dibromochloromethane
6/10/14- 1,1,2,2-Tetrachloroethane, Carbon Tetrachloride, Dibromochloromethane, Diisopropyl Ether and Vinyl Acetate
All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

The Method Blanks contained low level hits of 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 6/6/14, 6/9/14 and 1,2,4-Trichlorobenzene, Bromomethane, Hexachlorobutadiene and Naphthalene on 6/10/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on sample MRC-MW-27B-052914 (R1404021-002). All exceedences have been flagged with a "*".

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/27/14

Volatile Organics-RSK

The 6/3/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/27/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #: 112IC06247	Batch Complete: Yes		Date Revised:
Submission: R1404021	Diskette Requested: No		Date Due: 6/23/14
Client: Tetra Tech GEO	Date: 6/4/14		Protocol: SW846
Client Rep: DPATTON	Custody Seal: Present/Absent:		Shipping No.:
Project: Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1404021-001	MRC-MW-27A-052914	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, SM 2320 B-1997(2011), SM 2540 C-1997(2011)	5/29/14	5/30/14			
R1404021-001.R01	MRC-MW-27A-052914	Water	RSK 175	5/29/14	5/30/14			
R1404021-002	MRC-MW-27B-052914	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, SM 2320 B-1997(2011), SM 2540 C-1997(2011)	5/29/14	5/30/14			
R1404021-003	MRC-MW-27C-052914	Water	8260C	5/29/14	5/30/14			
R1404021-004	MRC-MW-24A-052914	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, SM 2320 B-1997(2011), SM 2540 C-1997(2011)	5/29/14	5/30/14			
R1404021-004.R01	MRC-MW-24A-052914	Water	RSK 175	5/29/14	5/30/14			
R1404021-005	TB-052914	Water	8260C	5/29/14	5/30/14			
R1404021-006	MRC-MW-94B-052814	Water	8260C	5/28/14	5/30/14			
R1404021-007	MRC-MW-87B-052814	Water	6010C, 6020A, 7470A, 8260C	5/28/14	5/30/14			
R1404021-008	MRC-MW-88B-052914	Water	8260C	5/29/14	5/30/14			
R1404021-009	MRC-MW-95B-052914	Water	8260C	5/29/14	5/30/14			
R1404021-010	MRC-MW-87A-052914	Water	8260C	5/29/14	5/30/14			
R1404021-011	MRC-MW-91A-052914	Water	522	5/29/14	5/30/14			
R1404021-012	MRC-MW-13A-053014	Water	522, 8260C	5/30/14	5/31/14			
R1404021-013	DUP-01-053014	Water	522, 8260C	5/30/14	5/31/14			
R1404021-014	MRC-MW-12B-053014	Water	365.1, 350.1, USGS I-2700-85, 6010C, RSK 175, 300.0, 7470A, SM 2540 C-1997(2011), 6020A, 8260C, 522, SM 2320 B-1997(2011)	5/30/14	5/31/14			
R1404021-015	MRC-MW-12C-053014	Water	8260C, 522	5/30/14	5/31/14			
R1404021-016	MRC-MW-12A-053014	Water	6020A, 8260C, 522, SM 2320 B-1997(2011), SM 2540 C-1997(2011), 7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C	5/30/14	5/31/14			
R1404021-017	TB-053014	Water	8260C	5/30/14	5/31/14			

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Environmental

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1404021 SDG No.: MRC-MW-27A-

Lab Code: Case No.: SAS No.:

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-27A-052914	R1404021-001
MRC-MW-27A-052914D	R1404021-001D
MRC-MW-27A-052914S	R1404021-001S
MRC-MW-27B-052914	R1404021-002
MRC-MW-24A-052914	R1404021-004
MRC-MW-87B-052814	R1404021-007
MRC-MW-12B-053014	R1404021-014
MRC-MW-12A-053014	R1404021-016
MRC-MW-12A-053014D	R1404021-016D
MRC-MW-12A-053014S	R1404021-016S

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: Name: Deb Par

Date: 6/27/14 Title: Project Chemist

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METALS

-10-

DETECTION LIMITS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Barium	233.527		20.0	0.5	P
Iron	259.939		100.0	10.0	P
Manganese	257.610		10.0	0.4	P
Vanadium	292.402		50.0	0.2	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 Date: 3/20/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Silicon	252.851		1000.0	161.0	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 4 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Iron	259.939		100.0	7.8	P
Manganese	257.610		10.0	1.3	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: _____ Date: 3/15/2013

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

TC 6/26/14

Analyte	Wave-length (nm)	Back-ground	PQL ug/L ~~mg/Kg~~	MDL ug/L ~~mg/Kg~~	M
Mercury	253.70	BD	0.200	0.024	CV

Comments:

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 Date: 3/31/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.836	0.0954007	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0099568	0.0000000	-0.0801871	0.0000000
Barium	233.527	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	4.4044499	0.0000000
Cadmium	226.502	-0.0035345	0.0000000	0.1333330	0.0000000
Calcium	227.546	-2.9304600	0.0000000	-53.8955002	0.0000000
Chromium	267.716	0.0031845	0.0000000	-0.0140317	-0.1262880
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1145200	0.0000000
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1338530	0.0000000	0.0438866	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	-0.1267620	0.0000000
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0281652	0.0000000	-0.2522740	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.2778280	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0764274	0.0099938	-0.0434154	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0437078	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments: _____

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 4 Date: 6/4/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Mo
Aluminum	308.215	0.0000000	0.2492820	0.0000000	0.0882606	20.5888996
Antimony	206.836	-0.0272623	0.0000000	0.0000000	0.0000000	-2.1883199
Arsenic	188.979	0.0137033	0.0000000	-0.1297730	0.0000000	3.6756201
Barium	233.527	0.0102780	0.0191006	0.0734537	0.0068788	-0.0972404
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.1799100	0.0000000	3.6729901	0.0000000	0.0000000
Cadmium	226.502	-0.0024061	0.0000000	0.1129860	0.0000000	0.0000000
Calcium	227.546	0.0000000	0.0000000	3.5172000	0.0000000	0.0000000
Chromium	267.716	-0.0028476	-0.0040839	-0.0343265	-0.0197957	-0.1552690
Cobalt	228.616	0.0000000	0.0000000	0.0274548	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1358600	0.0000000	0.7647630
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1026960	-0.0128851	0.0000000	0.0000000	-1.8077000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	-0.0122028	0.0000000	-0.0461992	0.0000000	-0.2899630
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	0.0307649	0.0121338	-0.5742380	0.0138029	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0422032	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0103575	0.0000000	-0.0522143	0.0000000	-0.4455970
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000	1.8036700
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	-0.0403524	0.0000000	-0.1660290
Zinc	206.200	0.0000000	0.0000000	0.0000000	-0.0274378	0.0000000

Comments:

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Barium	0.200	40000	P
Iron	0.200	50000	P
Manganese	0.200	10000	P
Vanadium	0.200	10000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Silicon	0.200	20000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 4 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Iron	0.200	50000	P
Manganese	0.200	10000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: PE ICPMS Date: 5/9/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Antimony	0.100	200	MS
Arsenic	0.100	200	MS
Beryllium	0.100	200	MS
Cadmium	0.100	200	MS
Chromium	0.100	200	MS
Cobalt	0.100	200	MS
Copper	0.100	200	MS
Lead	0.100	200	MS
Nickel	0.100	200	MS
Selenium	0.100	200	MS
Silver	0.100	100	MS
Thallium	0.100	200	MS
Molybdenum	0.100	200	MS

Comments: _____

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	2.977	579	2070	0.717	
Be	9.012	9.028	2035	2070	0.718	
Mg	23.985	23.978	5676	2075	0.698	
Co	58.933	58.929	14192	2070	0.724	
Rh	102.905	102.928	24902	2105	0.723	
In	114.904	114.878	27815	2130	0.720	
Ba	137.905	137.929	33414	2150	0.689	
Ce	139.905	139.928	33900	2145	0.693	
Pb	207.977	207.979	50464	2190	0.737	
U	238.050	238.027	57766	2220	0.738	

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	580	2070	0.713	
Be	9.012	9.028	2038	2070	0.677	
Mg	23.985	23.978	5674	2075	0.686	
Co	58.933	58.929	14190	2070	0.722	
Rh	102.905	102.878	24895	2105	0.730	
In	114.904	114.928	27820	2130	0.721	
Ba	137.905	137.929	33419	2150	0.692	
Ce	139.905	139.878	33893	2145	0.694	
Pb	207.977	207.929	50452	2190	0.726	
U	238.050	238.075	57771	2220	0.738	

00686

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404021

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/12/2014 End Date: 6/13/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	19:02	100		100		100		100		100			
Standard 1	Standard 1	19:08	99		98		99		97		98			
Standard 2	Standard 2	19:14	100		101		99		98		101			
Standard 3	Standard 3	19:21	99		101		96		97		99			
ICV1	ICV1	19:27	97		99		96		96		95			
ICB1	ICB1	19:33	100		101		100		101		99			
CRDL1	CRDL1	19:40	99		101		97		98		96			
ICS-A1	ICS-A1	19:46	91		96		95		89		96			
ICS-AB1	ICS-AB1	19:53	92		98		97		91		99			
CCV1	CCV1	19:59	98		102		97		95		103			
CCB1	CCB1	20:06	102		103		101		102		103			
QC Std 8	QC Std 8	20:12	106		106		104		101		104			
CCV2	CCV2	21:12	100		104		98		100		101			
CCB2	CCB2	21:18	101		105		99		101		106			
CRDL2	CRDL2	21:44	99		105		97		98		105			
CCV3	CCV3	21:57	99		106		96		99		101			
CCB3	CCB3	22:03	100		107		97		99		104			
CCV4	CCV4	22:48	90		96		89		94		96			
CCB4	CCB4	22:54	91		99		89		96		99			
CCV5	CCV5	23:59	90		97		86		93		92			
CCB5	CCB5	00:05	91		99		88		95		96			
CRDL3	CRDL3	00:37	90		99		85		90		97			
CCV6	CCV6	00:44	89		98		85		90		94			
CCB6	CCB6	00:50	90		97		86		92		94			
PBW-210312	PBW	00:57	82		94		82		88		88			
LCSW-210312	LCSW	01:03	77		88		78		86		88			
R1404021-00	MRC-MW-27A-05291	01:10	72		82		73		77		79			
R1404021-00	MRC-MW-27B-05291	01:16	80		86		76		83		83			
R1404021-00	MRC-MW-24A-05291	01:22	76		88		75		84		88			
R1404021-00	MRC-MW87B-052814	01:29	78		87		76		84		83			
CCV7	CCV7	01:35	89		94		86		92		95			
CCB7	CCB7	01:42	89		96		88		93		97			
R1404021-01	MRC-MW-12B-05301	01:48	78		85		77		84		85			
R1404021-01	MRC-MW-12A-05301	01:55	81		88		81		89		83			
R1404021-01	MRC-MW-12A-05301	02:01	84		93		83		90		89			
R1404021-01	MRC-MW-12A-05301	02:08	82		91		80		88		86			
R1404021-01	MRC-MW-12A-05301	02:14	82		91		81		86		85			
R1404021-01	MRC-MW-12A-05301	02:21	81		87		80		85		88			
CRDL4	CRDL4	02:27	91		96		90		93		96			
CCV8	CCV8	02:33	91		96		90		91		97			
CCB8	CCB8	02:40	93		100		90		95		96			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404021

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/13/2014 End Date: 6/13/2014

Sample No.	Client ID	Time	Internal Standards %RI For:													
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q		
Blank	Blank	15:34	100		100		100		100		100					
Standard 1	Standard 1	15:41	101		100		104		104		102					
Standard 2	Standard 2	15:47	101		99		105		105		107					
Standard 3	Standard 3	15:54	97		96		101		101		104					
ICV1	ICV1	16:00	99		99		103		101		106					
ICB1	ICB1	16:06	95		95		99		99		103					
CRDL1	CRDL1	16:13	94		96		99		99		101					
ICS-A1	ICS-A1	16:19	97		97		105		101		100					
ICS-AB1	ICS-AB1	16:26	101		103		107		103		106					
CCV1	CCV1	16:32	103		103		109		110		111					
CCB1	CCB1	16:39	103		103		106		108		105					
PBW-210312	PBW	16:51	99		104		100		106		104					
LCSW-210312	LCSW	16:58	100		108		104		110		109					
R1404021-00	MRC-MW-27A-05291	17:04	87		91		113		108		97					
R1404021-00	MRC-MW-27B-05291	17:11	102		109		105		117		111					
R1404021-00	MRC-MW-24A-05291	17:17	98		133	*	99		119		142	*				
R1404021-00	MRC-MW-87B-05281	17:24	96		106		95		108		106					
R1404021-01	MRC-MW-12B-05301	17:30	103		109		102		112		109					
CCV2	CCV2	17:36	108		112		111		113		118					
CCB2	CCB2	17:43	107		106		110		113		115					
R1404021-01	MRC-MW-12A-05301	17:49	103		111		121		125		115		OK ✓			
R1404021-01	MRC-MW-12A-05301	17:56	107		115		126	*	130	*	114		DUPLICATE			
R1404021-01	MRC-MW-12A-05301	18:02	103		110		124		127	*	110		QC			
R1404021-01	MRC-MW-12A-05301	18:09	101		105		123		127	*	108		QC			
R1404021-01	MRC-MW-12A-05301	18:15	104		106		114		114		114					
CRDL2	CRDL2	18:22	113		112		118		119		113					
CCV3	CCV3	18:34	116		115		120		120		117					
CCB3	CCB3	18:41	110		109		117		116		118					

METALS

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PREPARATION LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-052914

Method: P

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/9/2014	50.0	50.0
LCSW	6/9/2014	50.0	50.0
PBW	6/9/2014	50.0	50.0
MRC-MW-27A-052914	6/9/2014	50.0	50.0
MRC-MW-27B-052914	6/9/2014	50.0	50.0
MRC-MW-24A-052914	6/9/2014	50.0	50.0
MRC-MW-87B-052814	6/9/2014	50.0	50.0
MRC-MW-12B-053014	6/9/2014	50.0	50.0
MRC-MW-12A-053014	6/9/2014	50.0	50.0

Comments:

METALS

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PREPARATION LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-052914

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume (mL)
LCSW	6/9/2014	50.0	50.0
PBW	6/9/2014	50.0	50.0
MRC-MW-27A-052914	6/9/2014	50.0	50.0
MRC-MW-27B-052914	6/9/2014	50.0	50.0
MRC-MW-24A-052914	6/9/2014	50.0	50.0
MRC-MW-87B-052814	6/9/2014	50.0	50.0
MRC-MW-12B-053014	6/9/2014	50.0	50.0
MRC-MW-12A-053014	6/9/2014	50.0	50.0
MRC-MW-12A-053014D	6/9/2014	50.0	50.0
MRC-MW-12A-053014S	6/9/2014	50.0	50.0

Comments:

METALS

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PREPARATION LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-052914

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/11/2014	25.0	25.0
PBW	6/11/2014	25.0	25.0
MRC-MW-27A-052914	6/11/2014	25.0	25.0
MRC-MW-27A-052914D	6/11/2014	25.0	25.0
MRC-MW-27A-052914S	6/11/2014	25.0	25.0
MRC-MW-27B-052914	6/11/2014	25.0	25.0
MRC-MW-24A-052914	6/11/2014	25.0	25.0
MRC-MW-87B-052814	6/11/2014	25.0	25.0
MRC-MW-12B-053014	6/11/2014	25.0	25.0
MRC-MW-12A-053014	6/11/2014	25.0	25.0

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	20	19.50	98					
Arsenic	20	19.20	96					
Barium	2000	1980	99					
Beryllium	20	18.20	91					
Cadmium	20	19.10	96					
Chromium	20	20.40	102					
Cobalt	20	23.80	119					
Copper	20	19.30	96					
Iron	1000	1030	103					
Lead	20	20.10	100					
Manganese	500	489	98					
Mercury	1.000	0.976	98					
Nickel	20	22.30	112					
Selenium	20	19.70	98					
Silver	20	19.40	97					
Thallium	20	18.60	93					
Vanadium	500	502	100					
Silicon	5000	4500	90					
Molybdenum	20	21.00	105					

Comments: _____

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-27A-052914S

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75 - 125	0.787		0.024	U	1.00	79		CV

Comments:

METALS
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DUPLICATES

SAMPLE NO.

MRC-MW-27A-052914D

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Mercury		0.024	U	0.024	U			CV

Comments:

METALS

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SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-12A-053014S

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	21.90		0.16	U	20.0	109		MS
Arsenic	75 - 125	19.00		0.98	J	20.0	90		MS
Beryllium	75 - 125	17.20		1.03		20.0	81		MS
Cadmium	75 - 125	21.60		0.01	U	20.0	108		MS
Chromium	75 - 125	21.30		1.69	J	20.0	98		MS
Cobalt	75 - 125	85.10		65.70		20.0	97		MS
Copper	75 - 125	19.20		1.79		20.0	87		MS
Lead	75 - 125	22.20		0.55	J	20.0	108		MS
Nickel		131.00		115.00		20.0	80		MS
Selenium	75 - 125	18.40		0.64	J	20.0	89		MS
Silver	75 - 125	22.30		0.02	U	20.0	112		MS
Thallium	75 - 125	21.300		0.031	U	20.0	106		MS
Molybdenum	75 - 125	23.30		0.23	J	20.0	115		MS

Comments: _____

METALS
-5B-
POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.: MRC-MW-12A-053014A

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony		22.20		0.16	U	20	110		MS
Arsenic		19.40		0.98	J	20	92		MS
Beryllium		18.20		1.03		20	86		MS
Cadmium		22.30		0.01	U	20	112		MS
Chromium		21.40		1.69	J	20	99		MS
Cobalt		39.20		13.10		20	130		MS
Copper		19.90		1.79		20	91		MS
Lead		23.10		0.55	J	20	113		MS
Nickel		47.90		23.00		20	124		MS
Selenium		18.60		0.64	J	20	90		MS
Silver		17.90		0.02	U	20	90		MS
Thallium		22.70		0.03	U	20	114		MS
Molybdenum		24.00		0.23	J	20	119		MS

Comments: _____

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-12A-053014D

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		0.16	U	0.16	U			MS
Arsenic		0.98	J	0.93	J	5		MS
Beryllium	1.0	1.03		1.02		1		MS
Cadmium		0.01	U	0.01	U			MS
Chromium	2.0	1.69	J	2.16		24		MS
Cobalt		65.70		61.50		7		MS
Copper	1.0	1.79		1.54		15		MS
Lead		0.55	J	0.49	J	12		MS
Nickel		115.00		110.00		4		MS
Selenium		0.64	J	0.67	J	5		MS
Silver		0.02	U	0.02	U			MS
Thallium		0.031	U	0.031	U			MS
Molybdenum		0.23	J	0.21	J	9		MS

Comments:

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-12A-053014L

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	0.16	U	0.79	U			MS
Arsenic	0.98	J	1.58	J	61		MS
Barium	112.00		118.00		5		P
Beryllium	1.03		1.22	J	18		MS
Cadmium	0.01	U	0.04	U			MS
Chromium	1.69	J	2.83	J	67		MS
Cobalt	13.14		13.08		0		MS
Copper	1.79		2.54	J	42		MS
Iron	5500.00		5480.00		0		P
Lead	0.55	J	0.40	J	27		MS
Manganese	2610.00		2690.00		3		P
Nickel	23.05		23.27		1		MS
Selenium	0.64	J	1.07	U	100.0		MS
Silver	0.02	U	0.08	U			MS
Thallium	0.03	U	0.15	U			MS
Vanadium	1.69	J	1.10	J	35		P
Silicon	8210.00		8000.00		3		P
Molybdenum	0.23	J	0.34	U	100.0		MS

Comments: _____

METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/10/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank 1	1.00	19:37					X							X			X								X					
Calib Std 1	1.00	19:43					X										X								X					
Calib Std 2	1.00	19:49																												
Calib Std 3	1.00	19:54												X											X					
Calib Std 4	1.00	20:00					X							X			X								X					
Calib Std 5	1.00	20:06					X							X			X								X					
ICV1	1.00	20:13					X							X			X								X					
ICB1	1.00	20:18					X							X			X								X					
CRDL1	1.00	20:24					X							X			X								X					
ICS-A1	1.00	20:30					X							X			X								X					
ICS-AB1	1.00	20:36					X							X			X								X					
CCV1	1.00	20:42					X							X			X								X					
CCB1	1.00	20:48					X							X			X								X					
ZZZZZZ	1.00	20:54																												
ZZZZZZ	1.00	21:00																												
ZZZZZZ	1.00	21:06																												
ZZZZZZ	1.00	21:12																												
ZZZZZZ	1.00	21:18																												
ZZZZZZ	1.00	21:24																												
ZZZZZZ	1.00	21:30																												
ZZZZZZ	5.00	21:36																												
CCV2	1.00	21:41					X							X			X								X					
CCB2	1.00	21:47					X							X			X								X					
ZZZZZZ	1.00	21:53																												
ZZZZZZ	1.00	21:59																												
ZZZZZZ	1.00	22:05																												
ZZZZZZ	5.00	22:11																												
ZZZZZZ	1.00	22:17																												
CCV3	1.00	22:23					X							X			X								X					
CCB3	1.00	22:29					X							X			X								X					
CRDL2	1.00	22:35					X							X			X								X					
ICS-A2	1.00	22:41					X							X			X								X					
ICS-AB2	1.00	22:46					X							X			X								X					

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/10/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.00	22:52																												
ZZZZZZ	1.00	22:59																												
CCV4	1.00	23:05					X							X			X								X					
CCB4	1.00	23:11					X							X			X								X					
PBW	1.00	23:16					X							X			X								X					
LCSW	1.00	23:22					X							X			X								X					
MRC-MW-27A-052914	1.00	23:28					X																		X					
MRC-MW-27B-052914	1.00	23:35					X							X			X								X					
MRC-MW-24A-052914	1.00	23:41					X							X											X					
MRC-MW-87B-052814	1.00	23:47					X							X			X								X					
MRC-MW-12B-053014	1.00	23:53					X							X			X								X					
MRC-MW-12A-053014	1.00	23:59					X										X								X					
MRC-MW-12A-053014L	5.00	00:05					X										X								X					
CCV5	1.00	00:11					X							X			X								X					
CCB5	1.00	00:16					X							X			X								X					
ZZZZZZ	1.00	00:22																												
ZZZZZZ	1.00	00:29																												
ZZZZZZ	1.00	00:35																												
ZZZZZZ	1.00	00:41																												
ZZZZZZ	1.00	00:46																												
ZZZZZZ	5.00	00:52																												
ZZZZZZ	1.00	00:58																												
ZZZZZZ	1.00	01:04																												
ZZZZZZ	1.00	01:10																												
CCV6	1.00	01:17					X							X			X								X					
CCB6	1.00	01:22					X							X			X								X					
ZZZZZZ	1.00	01:28																												
ZZZZZZ	1.00	01:34																												
ZZZZZZ	5.00	01:41																												
ZZZZZZ	1.00	01:46																												
ZZZZZZ	1.00	01:52																												
ZZZZZZ	1.00	01:58																												
ZZZZZZ	1.00	02:04																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/10/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	02:10																												
ZZZZZZ	1.00	02:16																												
CCV7	1.00	02:23					X							X			X								X					
CCB7	1.00	02:29					X							X			X								X					
ZZZZZZ	1.00	02:34																												
ZZZZZZ	5.00	02:40																												
ZZZZZZ	1.00	02:47																												
CCV8	1.00	02:53					X							X			X								X					
CCB8	1.00	02:59					X							X			X								X					
CRDL3	1.00	03:05					X							X			X								X					
ICS-A3	1.00	03:11					X							X			X								X					
ICS-AB3	1.00	03:17					X							X			X								X					
CCV9	1.00	03:23					X							X			X								X					
CCB9	1.00	03:29					X							X			X								X					

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
Calib Blank 1	1.00	12:37										X															
Calib Std 1	1.00	12:42										X															
Calib Std 2	1.00	12:46										X															
Calib Std 3	1.00	12:51										X															
ICV1	1.00	12:56										X															
ICB1	1.00	13:00										X															
CRDL1	1.00	13:05										X															
ICS-A1	1.00	13:09										X															
ICS-AB1	1.00	13:14										X															
CCV1	1.00	13:19										X															
CCB1	1.00	13:23										X															
ZZZZZZ	1.00	13:28																									
ZZZZZZ	1.00	13:33																									
ZZZZZZ	1.00	13:37																									
ZZZZZZ	1.00	13:42																									
ZZZZZZ	1.00	13:46																									
ZZZZZZ	1.00	13:51																									
ZZZZZZ	1.00	13:56																									
ZZZZZZ	5.00	14:00																									
ZZZZZZ	1.00	14:05																									
ZZZZZZ	1.00	14:10																									
CCV2	1.00	14:14										X															
CCB2	1.00	14:18										X															
ZZZZZZ	1.00	14:23																									
ZZZZZZ	1.00	14:28																									
ZZZZZZ	1.00	14:32																									
ZZZZZZ	1.00	14:37																									
ZZZZZZ	1.00	14:42																									
ZZZZZZ	1.00	14:46																									
ZZZZZZ	1.00	14:51																									
ZZZZZZ	1.00	14:56																									
ZZZZZZ	1.00	15:00																									
ZZZZZZ	1.00	15:05																									
CCV3	1.00	15:09										X															

METALS

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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
CCB3	1.00	15:14										X															
ZZZZZZ	1.00	15:19																									
CCV4	1.00	15:23										X															
CCB4	1.00	15:28										X															
CRDL2	1.00	15:33										X															
ICS-A2	1.00	15:37										X															
ICS-AB2	1.00	15:42										X															
ZZZZZZ	1.00	15:47																									
ZZZZZZ	1.00	15:51																									
CCV5	1.00	15:56										X															
CCB5	1.00	16:00										X															
PBW	1.00	16:05										X															
LCSW	1.00	16:10										X															
MRC-MW-27A-052914	1.00	16:14										X															
MRC-MW-27B-052914	1.00	16:19										X															
MRC-MW-24A-052914	1.00	16:24										X															
MRC-MW-87B-052814	1.00	16:29										X															
MRC-MW-12B-053014	1.00	16:33										X															
MRC-MW-12A-053014	1.00	16:38										X															
MRC-MW-12A-053014L	5.00	16:43										X															
CCV6	1.00	16:47										X															
CCB6	1.00	16:52										X															
CRDL3	1.00	16:57										X															
ICS-A3	1.00	17:01										X															
ICS-AB3	1.00	17:06										X															
CCV7	1.00	17:10										X															
CCB7	1.00	17:15										X															

METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/12/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	19:02										X							X								
Standard 1	1.00	19:08										X							X								
Standard 2	1.00	19:14										X							X								
Standard 3	1.00	19:21										X							X								
ICV1	1.00	19:27										X							X								
ICB1	1.00	19:33										X							X								
CRDL1	1.00	19:40										X							X								
ICS-A1	1.00	19:46										X							X								
ICS-AB1	1.00	19:53										X							X								
CCV1	1.00	19:59										X							X								
CCB1	1.00	20:06										X							X								
ZZZZZZ	1.00	20:12																										
ZZZZZZ	1.00	20:18																										
ZZZZZZ	1.00	20:25																										
ZZZZZZ	1.00	20:31																										
ZZZZZZ	1.00	20:39																										
ZZZZZZ	1.00	20:46																										
ZZZZZZ	1.00	20:52																										
ZZZZZZ	1.00	20:59																										
ZZZZZZ	1.00	21:05																										
CCV2	1.00	21:12										X							X								
CCB2	1.00	21:18										X							X								
ZZZZZZ	1.00	21:24																										
ZZZZZZ	1.00	21:31																										
ZZZZZZ	5.00	21:37																										
CRDL2	1.00	21:44										X							X								
ZZZZZZ	1.00	21:50																										
CCV3	1.00	21:57										X							X								
CCB3	1.00	22:03										X							X								
ZZZZZZ	1.00	22:09																										
ZZZZZZ	1.00	22:16																										
ZZZZZZ	1.00	22:22																										
ZZZZZZ	1.00	22:29																										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/12/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	22:35																												
ZZZZZZ	5.00	22:42																												
CCV4	1.00	22:48										X							X											
CCB4	1.00	22:54										X							X											
ZZZZZZ	1.00	23:01																												
ZZZZZZ	1.00	23:07																												
ZZZZZZ	1.00	23:14																												
ZZZZZZ	1.00	23:20																												
ZZZZZZ	1.00	23:27																												
ZZZZZZ	1.00	23:33																												
ZZZZZZ	1.00	23:40																												
ZZZZZZ	1.00	23:46																												
ZZZZZZ	5.00	23:52																												
CCV5	1.00	23:59										X							X											
CCB5	1.00	00:05										X							X											
ZZZZZZ	1.00	00:12																												
ZZZZZZ	1.00	00:18																												
ZZZZZZ	1.00	00:25																												
ZZZZZZ	1.00	00:31																												
CRDL3	1.00	00:37										X							X											
CCV6	1.00	00:44										X							X											
CCB6	1.00	00:50										X							X											
PBW	1.00	00:57										X							X											
LCSW	1.00	01:03										X							X											
MRC-MW-27A-052914	5.00	01:10										X							X											
MRC-MW-27B-052914	5.00	01:16										X							X											
MRC-MW-24A-052914	5.00	01:22										X							X											
MRC-MW-87B-052814	5.00	01:29										X							X											
CCV7	1.00	01:35										X							X											
CCB7	1.00	01:42										X							X											
MRC-MW-12B-053014	5.00	01:48										X							X											
MRC-MW-12A-053014	5.00	01:55										X							X											
MRC-MW-12A-053014D	5.00	02:01										X							X											

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METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/12/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-12A-053014S	5.00	02:08										X							X								
MRC-MW-12A-053014A	5.00	02:14										X							X								
MRC-MW-12A-053014L	25.00	02:21										X							X								
CRDL4	1.00	02:27										X							X								
CCV8	1.00	02:33										X							X								
CCB8	1.00	02:40										X							X								

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METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	15:34			X	X		X	X		X		X		X						X	X		X				*
Standard 1	1.00	15:41			X	X		X	X		X		X		X						X	X		X				*
Standard 2	1.00	15:47			X	X		X	X		X		X		X						X	X		X				*
Standard 3	1.00	15:54			X	X		X	X		X		X		X						X	X		X				*
ICV1	1.00	16:00			X	X		X	X		X		X		X						X	X		X				*
ICB1	1.00	16:06			X	X		X	X		X		X		X						X	X		X				*
CRDL1	1.00	16:13			X	X		X	X		X		X		X						X	X		X				*
ICS-A1	1.00	16:19			X	X		X	X		X		X		X						X	X		X				*
ICS-AB1	1.00	16:26			X	X		X	X		X		X		X						X	X		X				*
CCV1	1.00	16:32			X	X		X	X		X		X		X						X	X		X				*
CCB1	1.00	16:39			X	X		X	X		X		X		X						X	X		X				*
ZZZZZZ	1.00	16:45																										
PBW	1.00	16:51			X	X		X	X		X		X		X						X	X		X				*
LCSW	1.00	16:58			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-27A-052914	1.00	17:04			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-27B-052914	1.00	17:11			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-24A-052914	1.00	17:17			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-87B-052814	1.00	17:24			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-12B-053014	1.00	17:30			X	X		X	X		X		X		X						X	X		X				*
CCV2	1.00	17:36			X	X		X	X		X		X		X						X	X		X				*
CCB2	1.00	17:43			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-12A-053014	1.00	17:49			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-12A-053014D	1.00	17:56			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-12A-053014S	1.00	18:02			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-12A-053014A	1.00	18:09			X	X		X	X		X		X		X						X	X		X				*
MRC-MW-12A-053014L	5.00	18:15			X	X		X	X		X		X		X						X	X		X				*
CRDL2	1.00	18:22			X	X		X	X		X		X		X						X	X		X				*
ZZZZZZ	1.00	18:28																										
CCV3	1.00	18:34			X	X		X	X		X		X		X						X	X		X				*
CCB3	1.00	18:41			X	X		X	X		X		X		X						X	X		X				*

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METALS

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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	15:34					X																					
Standard 1	1.00	15:41					X																					
Standard 2	1.00	15:47					X																					
Standard 3	1.00	15:54					X																					
ICV1	1.00	16:00					X																					
ICB1	1.00	16:06					X																					
CRDL1	1.00	16:13					X																					
ICS-A1	1.00	16:19					X																					
ICS-AB1	1.00	16:26					X																					
CCV1	1.00	16:32					X																					
CCB1	1.00	16:39					X																					
ZZZZZZ	1.00	16:45																										
PBW	1.00	16:51					X																					
LCSW	1.00	16:58					X																					
MRC-MW-27A-052914	1.00	17:04					X																					
MRC-MW-27B-052914	1.00	17:11					X																					
MRC-MW-24A-052914	1.00	17:17					X																					
MRC-MW-87B-052814	1.00	17:24					X																					
MRC-MW-12B-053014	1.00	17:30					X																					
CCV2	1.00	17:36					X																					
CCB2	1.00	17:43					X																					
MRC-MW-12A-053014	1.00	17:49					X																					
MRC-MW-12A-053014D	1.00	17:56					X																					
MRC-MW-12A-053014S	1.00	18:02					X																					
MRC-MW-12A-053014A	1.00	18:09					X																					
MRC-MW-12A-053014L	5.00	18:15					X																					
CRDL2	1.00	18:22					X																					
ZZZZZZ	1.00	18:28																										
CCV3	1.00	18:34					X																					
CCB3	1.00	18:41					X																					

METALS
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ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank	1.00	06:13																X												
0.2ppb std	1.00	06:15																X												
0.5ppb std	1.00	06:17																X												
1.0ppb std	1.00	06:18																X												
2.0ppb std	1.00	06:20																X												
5.0ppb std	1.00	06:21																X												
10.0ppb std	1.00	06:23																X												
ICV1	1.00	06:25																X												
ICB1	1.00	06:26																X												
CRDL1	1.00	06:28																X												
CCV1	1.00	06:29																X												
CCB1	1.00	06:31																X												
PBW	1.00	06:33																X												
LCSW	1.00	06:34																X												
MRC-MW-27A-052914	1.00	06:36																X												
MRC-MW-27A-052914D	1.00	06:38																X												
MRC-MW-27A-052914S	1.00	06:39																X												
MRC-MW-27B-052914	1.00	06:41																X												
MRC-MW-24A-052914	1.00	06:42																X												
MRC-MW-87B-052814	1.00	06:44																X												
CCV2	1.00	06:46																X												
CCB2	1.00	06:47																X												
MRC-MW-12B-053014	1.00	06:49																X												
MRC-MW-12A-053014	1.00	06:51																X												
ZZZZZZ	1.00	06:52																												
ZZZZZZ	1.00	06:54																												
ZZZZZZ	1.00	06:55																												
ZZZZZZ	1.00	06:57																												
ZZZZZZ	1.00	06:59																												
ZZZZZZ	1.00	07:00																												
CCV3	1.00	07:02																X												
CCB3	1.00	07:03																X												
ZZZZZZ	1.00	07:05																												

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METALS
-14-

ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	07:07																												
ZZZZZZ	1.00	07:08																												
ZZZZZZ	1.00	07:10																												
ZZZZZZ	1.00	07:12																												
CRDL2	1.00	07:13																X												
CCV4	1.00	07:15																X												
CCB4	1.00	07:16																X												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibration					M
	True		Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	6/13	50	47	94	50	48	96	47	94	MS
Arsenic	↓	50	50	100	50	49	98	50	100	MS
Beryllium	↓	50	50	100	50	48	96	49	98	MS
Barium	6/10-11	10000	10400	104	10000	10200	102	10300	103	P
Cadmium	6/13	50	49	98	50	51	102	50	100	MS
Chromium	↓	50	49	98	50	47	94	48	96	MS
Cobalt	6/12-13	50	52	104	50	51	102	51	102	MS
Copper	6/13	50	49	98	50	49	98	50	100	MS
Iron	6/10-11	5000	5120	102	5000	5040	101	5020	100	P
Lead	6/13	50	50	100	50	50	100	51	102	MS
Manganese	6/10-11	750	771	103	750	756	101	757	101	P
Mercury	6/14	3.00	3.12	104	3.00	3.11	104	3.11	104	CV
Nickel	6/12-13	50	49	98	50	49	98	48	96	MS
Selenium	6/13	50	50	100	50	50	100	51	102	MS
Silver	↓	50	50	100	50	52	104	51	102	MS
Thallium	↓	50	48	96	50	50	100	48	96	MS
Vanadium	6/10-11	2500	2570	103	2500	2520	101	2540	102	P
Silicon	6/11	5000	4960	99	5000	5000	100	4830	97	P
Molybdenum	6/13	50	51	102	50	51	102	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	47	94			MS
Arsenic				50	50	100			MS
Beryllium				50	47	94			MS
Barium				10000	10200	102	10300	103	P
Cadmium				50	48	96			MS
Chromium				50	50	100			MS
Cobalt				50	51	102	53	106	MS
Copper				50	50	100			MS
Iron				5000	5010	100	5020	100	P
Lead				50	48	96			MS
Manganese				750	754	101	756	101	P
Mercury				3.00	3.08	103	3.07	102	CV
Nickel				50	49	98	50	100	MS
Selenium				50	51	102			MS
Silver				50	50	100			MS
Thallium				50	47	94			MS
Vanadium				2500	2530	101	2540	102	P
Silicon				5000	4820	96	4690	94	P
Molybdenum				50	52	104			MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Barium				10000	10100	101	10200	102	P
Cobalt				50	53	106	53	106	MS
Iron				5000	4960	99	5060	101	P
Manganese				750	749	100	762	102	P
Nickel				50	50	100	52	104	MS
Vanadium				2500	2530	101	2540	102	P
Silicon				5000	4780	96	4940	99	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Barium				10000	10400	104	10500	105	P
Cobalt				50	54	108	53	106	MS
Iron				5000	5070	101	5080	102	P
Manganese				750	766	102	765	102	P
Nickel				50	51	102	52	104	MS
Vanadium				2500	2510	100	2490	100	P
Silicon				5000	4710	94			P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Barium				10000	10600	106			P
Iron				5000	5190	104			P
Manganese				750	776	103			P
Vanadium				2500	2520	101			P

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	0.95	95	0.87	87
Arsenic				1.0	0.99	99	1.04	104
Beryllium				1.0	1.01	101	0.91	91
Barium				200.0	215.81	108	215.46	108
Cadmium				1.0	0.92	92	0.91	91
Chromium				2.0	2.12	106	1.96	98
Cobalt				1.0	0.99	99	1.08	108
Copper				1.0	1.09	109	1.20	120
Iron				100.0	105.80	106	107.34	107
Lead				1.0	0.95	95	0.95	95
Manganese				15.0	14.86	99	14.13	94
Mercury	0.200	0.191	96					
Nickel				1.0	0.91	91	0.91	91
Selenium				2.0	1.95	98	2.05	102
Silver				1.0	1.05	105	1.02	102
Thallium				1.0	0.88	88	0.89	89
Vanadium				50.0	52.70	105	53.06	106
Silicon				1000.0	969.48	97	953.97	95
Molybdenum				1.0	1.06	106	1.05	105

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Barium				200.0			218.92	109
Cobalt				1.0			1.03	103
Iron				100.0			111.64	112
Manganese				15.0			14.32	95
Mercury	0.200	0.195	98					
Nickel				1.0			0.96	96
Vanadium				50.0			52.02	104
Silicon				1000.0			972.00	97

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Cobalt				1.0			1.04	104
Nickel				1.0			0.94	94

Comments:

METALS

-3-

BLANKS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank - (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	0.202	J	0.177	J	0.180	J	0.232	J	0.157	U	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	-0.381	J	MS
Barium	2.92	J	1.95	J	1.87	J	1.92	J	1.457	J	P
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cadmium	0.011	J	0.008	U	0.008	U	0.008	U	-0.077	J	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	1.154	J	MS
Cobalt	0.020	J	0.008	U	0.033	J	0.062	J	-0.116	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.252	U	MS
Iron	9.97	U	11.11	J	9.97	U	9.97	U	74.056	J	P
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Manganese	-0.54	J	-0.85	J	-1.23	J	-1.39	J	0.353	U	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U	0.017	J	MS
Thallium	0.031	U	0.031	U	0.031	J	0.031	U	-0.120	J	MS
Vanadium	0.93	J	0.35	J	0.51	J	0.22	J	0.169	U	P
Silicon	161.00	U	161.00	U	161.00	U	161.00	U	161.000	U	P
Molybdenum	0.068	U	0.092	J	0.068	U	0.086	J	0.100	J	MS

Comments:

METALS

-3-

BLANKS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Barium			4.70	J	3.50	J	4.05	J			P
Cobalt			-0.011	J	-0.015	J	-0.021	J			MS
Iron			9.97	U	9.97	U	11.10	J			P
Manganese			0.35	U	0.65	J	-0.68	J			P
Mercury			0.024	U							CV
Nickel			0.236	U	0.236	U	0.236	U			MS
Vanadium			0.82	J	0.47	J	0.71	J			P
Silicon			161.00	U	161.00	U	161.00	U			P

Comments:

METALS

-3-

BLANKS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Barium			3.86	J	3.19	J	3.37	J			P
Cobalt			-0.011	J	-0.022	J					MS
Iron			12.87	J	10.18	J	28.79	J			P
Manganese			-0.65	J	-0.83	J	-0.74	J			P
Nickel			0.236	U	0.236	U					MS
Vanadium			0.64	J	0.62	J	0.17	U			P
Silicon			161.00	U							P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon			-214.0	160		-174.0	218	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon						-159.0	147	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500	3.6	524	105	3.7	519	104
Iron	100000	100000	87700.0	88400	88	87600.0	87500	88
Manganese		500	-5.2	500	100	-5.8	494	99
Vanadium		500	2.2	493	99	2.0	493	99

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500				5.0	532	106
Iron	100000	100000				90500.0	89800	90
Manganese		500				-6.3	502	100
Vanadium		500				2.5	487	97

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	-0.07	20.37	102			
Arsenic	0.00	20.00	0.10	18.77	94			
Beryllium	0.00	20.00	0.02	18.77	94			
Cadmium	0.00	20.00	0.06	19.04	95			
Chromium	0.00	20.00	0.39	21.19	106			
Cobalt	0.00	20.00	0.03	19.62	98			
Copper	0.00	20.00	0.64	18.40	92			
Lead	0.00	20.00	-0.02	19.82	99			
Nickel	0.00	20.00	0.60	18.42	92			
Selenium	0.00	20.00	-0.22	18.96	95			
Silver	0.00	20.00	0.04	19.81	99			
Thallium	0.00	20.00	-0.11	19.10	96			
Molybdenum	400.00	400.00	404.05	413.42	103			

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank 1	1.00	13:31												X			X													
Calib Std 1	1.00	13:37															X													
Calib Std 2	1.00	13:43																												
Calib Std 3	1.00	13:48												X																
Calib Std 4	1.00	13:55												X			X													
Calib Std 5	1.00	14:01												X			X													
ICV2	1.00	14:08												X			X													
ICB2	1.00	14:14												X			X													
CRDL1	1.00	14:20												X			X													
ICS-A1	1.00	14:26												X			X													
ICS-AB1	1.00	14:33												X			X													
CCV1	1.00	14:40												X			X													
CCB1	1.00	14:46												X			X													
ZZZZZZ	1.00	14:52																												
ZZZZZZ	1.00	14:59																												
ZZZZZZ	10.00	15:05																												
ZZZZZZ	10.00	15:11																												
ZZZZZZ	10.00	15:18																												
ZZZZZZ	10.00	15:24																												
PBW	1.00	15:30																												
LCSW	1.00	15:36																												
MRC-MW-27A-052914	10.00	15:43												X			X													
MRC-MW-24A-052914	10.00	15:50															X													
CCV2	1.00	15:56												X			X													
CCB2	1.00	16:02												X			X													
MRC-MW-12A-053014	10.00	16:08												X																
MRC-MW-12A-053014L	10.00	16:15												X																
ZZZZZZ	5.00	16:21																												
ZZZZZZ	5.00	16:27																												
ZZZZZZ	5.00	16:34																												
ZZZZZZ	10.00	16:40																												
ZZZZZZ	10.00	16:46																												
ZZZZZZ	1.00	16:52																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 6/11/2014 End Date: 6/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	16:59																												
ZZZZZZ	1.00	17:05																												
CCV3	1.00	17:12												X			X													
CCB3	1.00	17:18												X			X													
ZZZZZZ	1.00	17:25																												
ZZZZZZ	5.00	17:31																												
ZZZZZZ	1.00	17:38																												
ZZZZZZ	1.00	17:44																												
ZZZZZZ	1.00	17:50																												
ZZZZZZ	1.00	17:57																												
ZZZZZZ	5.00	18:03																												
ZZZZZZ	1.00	18:10																												
CCV4	1.00	18:17												X			X													
CCB4	1.00	18:23												X			X													
CRDL2	1.00	18:29												X			X													
ICS-A2	1.00	18:35												X			X													
ICS-AB2	1.00	18:42												X			X													
ZZZZZZ	1.00	18:49																												
ZZZZZZ	1.00	18:54																												
CCV5	1.00	19:01												X			X													
CCB5	1.00	19:07												X			X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Iron	5000	5080	102	5000	5120	102	5040	101	P
Manganese	750	769	103	750	766	102	760	101	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Iron				5000	5090	102	5060	101	P
Manganese				750	765	102	767	102	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Iron				5000	5130	103			P
Manganese				750	766	102			P

Comments:

00642

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-27A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Iron				100.0	100.51	101	98.99	99
Manganese				15.0	16.08	107	16.12	107

Comments:

METALS

-3-

BLANKS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron	7.800	U	23.992	J	7.800	U	7.800	U			P
Manganese	1.290	U	1.290	U	1.794	J	1.290	U			P

Comments:

METALS

-3-

BLANKS

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron			7.800	U	12.534	J					P
Manganese			1.290	U	2.253	J					P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404021

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-27A-0

ICP ID Number: Optima ICP 4 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000	88100.0	88900	89	90500.0	89300	89
Manganese		500	7.8	509	102	7.9	517	103

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404021-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	1.1	J	mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	6/16/14 11:13	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0		1	NA	6/17/14 18:10	
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	5/30/14 11:24	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	0.02	1	NA	5/30/14 11:24	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	0.03	1	NA	5/30/14 11:24	
Orthophosphate as Phosphorus	365.1	0.010	U	mg/L	0.010	0.002	1	NA	5/30/14 17:25	
Silica, Dissolved as SiO2	USGS I-2700-85	0.006	J	mg/L	0.010	0.003	1	NA	6/9/14 13:47	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10	U	mg/L	10	5	1	NA	6/2/14 09:08	
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	5/30/14 11:24	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 5/30/14 - 6/17/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404021-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	18.2	20.0	91	81 - 112
Ammonia as Nitrogen, undistilled	350.1	0.507	0.500	101	90 - 110
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	9.19	10.0	92	76 - 123
Chloride	300.0	1.88	2.00	94	90 - 110
Nitrate as Nitrogen	300.0	0.946	1.00	95	90 - 110
Nitrite as Nitrogen	300.0	0.937	1.0	94	90 - 110
Orthophosphate as Phosphorus	365.1	0.0243	0.025	97	90 - 110
Silica, Dissolved as SiO2	USGS I-2700-85	0.240	0.250	96	90 - 110
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	858	914	94	90 - 110
Sulfate	300.0	1.90	2.00	95	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404021-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	1.2	J	mg/L	2.0	0.3	1	NA	6/10/14 08:40	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	6/16/14 11:48	
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	6/1/14 09:27	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	0.02	1	NA	6/1/14 09:27	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	0.03	1	NA	6/1/14 09:27	
Orthophosphate as Phosphorus	365.1	0.007	J	mg/L	0.010	0.002	1	NA	5/31/14 15:11	
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	6/1/14 09:27	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 5/31/14 - 6/16/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404021-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	17.8	20.0	89	81 - 112
Ammonia as Nitrogen, undistilled	350.1	0.508	0.500	102	90 - 110
Chloride	300.0	1.87	2.00	94	90 - 110
Nitrate as Nitrogen	300.0	0.944	1.00	94	90 - 110
Nitrite as Nitrogen	300.0	0.971	1.0	97	90 - 110
Orthophosphate as Phosphorus	365.1	0.227	0.250	91	90 - 110
Sulfate	300.0	1.93	2.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/30/14
Date Received: 5/31/14
Date Analyzed: 5/31/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name: MRC-MW-12B-053014
Lab Code: R1404021-014

Units: mg/L
Basis: NA

Analytical Method: 365.1

MRC-MW-12B-053014MS
Matrix Spike
R1404021-014MS

batch # 395242

Analyte Name	Sample Result	Result	Spike Amount	% Rec		% Rec Limits
Orthophosphate as Phosphorus	0.016	0.223	0.250	83	*	90 - 110

MB2

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/1121C06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/30/14
Date Received: 5/31/14
Date Analyzed: 5/31/14

Replicate Sample Summary
General Chemistry Parameters

Sample Name: MRC-MW-12B-053014
Lab Code: R1404021-014

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	MRC-MW-12B-053014DUP Duplicate Sample R1404021-014DUP Result	Average	RPD	RPD Limit
Orthophosphate as Phosphorus	365.1	0.010	0.002	0.016	0.016	0.0160	<1	20

batch # 395242

MB2

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/30/14
Date Received: 5/31/14
Date Analyzed: 6/ 1/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name: MRC-MW-12A-053014
Lab Code: R1404021-016

Units: mg/L
Basis: NA

Analytical Method: 300.0

Analyte Name	Sample Result	MRC-MW-12A-053014MS Matrix Spike R1404021-016MS Result	Spike Amount	% Rec	MRC-MW-12A-053014DMS Duplicate Matrix Spike R1404021-016DMS Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Chloride	59.1	74.6	20.0	78 *	74.9	20.0	79 *	90 - 110	<1	20
Nitrate as Nitrogen	ND	9.4	10.0	94	9.4	10.0	94	90 - 110	<1	20
Nitrite as Nitrogen	ND	9.5	10	95	9.8	10	98	90 - 110	3	20
Sulfate	23.7	45.3	20.0	108	45.7	20.0	110	90 - 110	<1	20

batch # 395138

wkg2

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404021-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	6/3/14 12:06	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 3/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

		Lab Control Sample R1404021-LCS3			
Analyte Name	**Method**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Chloride	300.0	1.91	2.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14
Date Received: 5/30/14
Date Analyzed: 6/ 3/14

Matrix Spike Summary
General Chemistry Parameters

Sample Name: MRC-MW-24A-052914
Lab Code: R1404021-004

Units: mg/L
Basis: NA

Analytical Method: 300.0

Analyte Name	Sample Result	MRC-MW-24A-052914MS Matrix Spike R1404021-004MS Result	Spike Amount	% Rec	MRC-MW-24A-052914DMS Duplicate Matrix Spike R1404021-004DMS Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Chloride	506	692	200	93	693	200	94	90 - 110	<1	20

batch # 395477
wl MB 3

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397250	RQ1406627-01	6/16/14 11:12	0.900	0.900	100	90 - 110
CCV2	397250	RQ1406627-06	6/16/14 11:24	0.900	0.911	101	90 - 110
CCV3	397250	RQ1406627-11	6/16/14 11:35	0.900	0.911	101	90 - 110
CCV4	397250	RQ1406627-14	6/16/14 11:47	0.900	0.903	100	90 - 110
CCV5	397262	RQ1406631-01	6/16/14 11:47	0.900	0.903	100	90 - 110
CCV6	397262	RQ1406631-07	6/16/14 12:01	0.900	0.910	101	90 - 110
CCV7	397262	RQ1406631-10	6/16/14 12:25	0.900	0.910	101	90 - 110
CCV8	397262	RQ1406631-14	6/16/14 12:36	0.900	0.909	101	90 - 110
CCV9	397262	RQ1406631-16	6/16/14 12:48	0.900	0.905	101	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Blank (CCB) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	397250	RQ1406627-02	6/16/14 11:13	0.004	0.050	0.050	U
CCB2	397250	RQ1406627-05	6/16/14 11:24	0.004	0.050	0.050	U
CCB3	397250	RQ1406627-12	6/16/14 11:36	0.004	0.050	0.050	U
CCB4	397250	RQ1406627-13	6/16/14 11:48	0.004	0.050	0.050	U
CCB5	397262	RQ1406631-02	6/16/14 11:48	0.004	0.050	0.050	U
CCB6	397262	RQ1406631-08	6/16/14 12:02	0.004	0.050	0.050	U
CCB7	397262	RQ1406631-11	6/16/14 12:26	0.004	0.050	0.050	U
CCB8	397262	RQ1406631-13	6/16/14 12:37	0.004	0.050	0.050	U
CCB9	397262	RQ1406631-15	6/16/14 12:49	0.004	0.050	0.050	U

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/1121C06247

Continuing Calibration Verification (CCV) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397670	RQ1406779-01	6/17/14 17:49	15.0	13.5	90	85 - 115
CCV2	397670	RQ1406779-07	6/17/14 22:01	15.0	13.9	93	85 - 115
CCV3	397670	RQ1406779-09	6/18/14 02:11	15.0	14.4	96	85 - 115

Client: Tetra Tech GEO **Service Request:** R1404021
Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Blank (CCB) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	397670	RQ1406779-02	6/17/14 18:10		1.0	1.0	U
CCB2	397670	RQ1406779-08	6/17/14 22:21		1.0	1.0	U
CCB3	397670	RQ1406779-10	6/18/14 02:32		1.0	1.0	U

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395070	RQ1405902-11	5/30/14 11:13	3.25	3.23	99	90 - 110
CCV2	395070	RQ1405902-12	5/30/14 13:24	3.25	3.23	99	90 - 110
CCV3	395070	RQ1405902-13	5/30/14 15:31	3.25	3.29	101	90 - 110
CCV4	395070	RQ1405902-14	5/30/14 17:36	3.25	3.23	99	90 - 110
CCV5	395138	RQ1405929-05	6/1/14 09:17	3.25	3.24	100	90 - 110
CCV6	395138	RQ1405929-06	6/1/14 10:29	3.25	3.22	99	90 - 110
CCV7	395477	RQ1406046-10	6/3/14 11:56	3.25	3.24	100	90 - 110
CCV8	395477	RQ1406046-09	6/3/14 13:56	3.25	3.36	103	90 - 110
CCV9	395477	RQ1406046-08	6/3/14 15:57	3.25	3.40	105	90 - 110
CCV10	395477	RQ1406046-07	6/3/14 17:57	3.25	3.49	108	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Blank (CCB) Summary
Chloride

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395070	RQ1405902-07	5/30/14 11:24	0.03	0.20	0.20	U
CCB2	395070	RQ1405902-08	5/30/14 13:34	0.03	0.20	0.20	U
CCB3	395070	RQ1405902-09	5/30/14 15:41	0.03	0.20	0.20	U
CCB4	395070	RQ1405902-10	5/30/14 17:46	0.03	0.20	0.20	U
CCB5	395138	RQ1405929-03	6/1/14 09:27	0.03	0.20	0.20	U
CCB6	395138	RQ1405929-04	6/1/14 10:40	0.03	0.20	0.20	U
CCB7	395477	RQ1406046-14	6/3/14 12:06	0.03	0.20	0.20	U
CCB8	395477	RQ1406046-13	6/3/14 14:07	0.03	0.20	0.20	U
CCB9	395477	RQ1406046-12	6/3/14 16:07	0.03	0.20	0.20	U
CCB10	395477	RQ1406046-11	6/3/14 18:07	0.03	0.20	0.20	U

Client: Tetra Tech GEO **Service Request:** R1404021
Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395070	RQ1405902-11	5/30/14 11:13	1.80	1.80	100	90 - 110
CCV2	395070	RQ1405902-12	5/30/14 13:24	1.80	1.81	100	90 - 110
CCV3	395070	RQ1405902-13	5/30/14 15:31	1.80	1.80	100	90 - 110
CCV4	395070	RQ1405902-14	5/30/14 17:36	1.80	1.81	100	90 - 110
CCV5	395138	RQ1405929-05	6/1/14 09:17	1.80	1.80	100	90 - 110
CCV6	395138	RQ1405929-06	6/1/14 10:29	1.80	1.80	100	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021

Continuing Calibration Blank (CCB) Summary
Nitrate as Nitrogen

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395070	RQ1405902-07	5/30/14 11:24	0.02	0.10	0.10	U
CCB2	395070	RQ1405902-08	5/30/14 13:34	0.02	0.10	0.10	U
CCB3	395070	RQ1405902-09	5/30/14 15:41	0.02	0.10	0.10	U
CCB4	395070	RQ1405902-10	5/30/14 17:46	0.02	0.10	0.10	U
CCB5	395138	RQ1405929-03	6/1/14 09:27	0.02	0.10	0.10	U
CCB6	395138	RQ1405929-04	6/1/14 10:40	0.02	0.10	0.10	U

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Nitrite as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395070	RQ1405902-11	5/30/14 11:13	1.80	1.81	100	90 - 110
CCV2	395070	RQ1405902-12	5/30/14 13:24	1.80	1.80	100	90 - 110
CCV3	395070	RQ1405902-13	5/30/14 15:31	1.80	1.81	100	90 - 110
CCV4	395070	RQ1405902-14	5/30/14 17:36	1.80	1.82	101	90 - 110
CCV5	395138	RQ1405929-05	6/1/14 09:17	1.80	1.89	105	90 - 110
CCV6	395138	RQ1405929-06	6/1/14 10:29	1.80	1.85	103	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Blank (CCB) Summary
Nitrite as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395070	RQ1405902-07	5/30/14 11:24	0.03	0.10	0.10	U
CCB2	395070	RQ1405902-08	5/30/14 13:34	0.03	0.10	0.10	U
CCB3	395070	RQ1405902-09	5/30/14 15:41	0.03	0.10	0.10	U
CCB4	395070	RQ1405902-10	5/30/14 17:46	0.03	0.10	0.10	U
CCB5	395138	RQ1405929-03	6/1/14 09:27	0.03	0.10	0.10	U
CCB6	395138	RQ1405929-04	6/1/14 10:40	0.03	0.10	0.10	U

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395193	RQ1405951-01	5/30/14 17:24	0.0450	0.0489	109	90 - 110
CCV2	395193	RQ1405951-07	5/30/14 17:36	0.0450	0.0474	105	90 - 110
CCV3	395193	RQ1405951-11	5/30/14 17:48	0.0450	0.0463	103	90 - 110
CCV4	395242	RQ1405961-02	5/31/14 15:10	0.360	0.338	94	90 - 110
CCV5	395242	RQ1405961-06	5/31/14 15:16	0.360	0.346	96	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Blank (CCB) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395193	RQ1405951-02	5/30/14 17:25	0.002	0.010	0.010	U
CCB2	395193	RQ1405951-08	5/30/14 17:37	0.002	0.010	0.010	U
CCB3	395193	RQ1405951-12	5/30/14 17:49	0.002	0.010	0.010	U
CCB4	395242	RQ1405961-01	5/31/14 15:11	0.002	0.010	0.007	J
CCB5	395242	RQ1405961-05	5/31/14 15:17	0.002	0.010	0.007	J

Author: ANDIEGRAHAM

Date : 5/31/2014

Original Run Filename: OM_5-31-2014_02-56-37PM.OMN Created: 5/31/2014 2:56:37 PM
Original Run Author's Signature: [ANDIEGRAHAM]
Current Run Filename: OM_5-31-2014_02-56-37PM.OMN Last Modified: 5/31/2014 3:19:01 PM
Current Run Author's Signature: [ANDIEGRAHAM]
Description: Default New Run

Sample	Cup No.	Channel 2 OPO4-RL 365.1 QC8500 Conc. (mg/L)	Area (V.s)	Detection Time	MDF
STD 1.00	S1	1.00000	8.75994	5/31/2014@2:57:31 PM	
STD 0.500	S2	0.50000	4.37813	5/31/2014@2:58:27 PM	
STD 0.200	S3	0.20000	1.69791	5/31/2014@2:59:24 PM	
STD 0.100	S4	0.10000	0.76265	5/31/2014@3:00:21 PM	
STD 0.050	S5	0.05000	0.37945	5/31/2014@3:01:19 PM	
STD 0.020	S6	0.02000	0.14803	5/31/2014@3:02:15 PM	
STD 0.010	S7	0.01000	0.07567	5/31/2014@3:03:12 PM	
STD 0.000	S8	0.00000	-0.00717	5/31/2014@3:04:08 PM	
DQM Test: Minimum Correlation Coefficient					
Result:		0.99993 > 0.99700			
Message		Pass			
Action					
ICV TV= 0.36	1	0.33915	2.94132	5/31/2014@3:06:19 PM	
Calibration:		Table/Fig. : 1			
ICB	2	0.00716	0.01817	5/31/2014@3:07:16 PM	
CRDL 0.020	3	0.02098	0.13989	5/31/2014@3:08:14 PM	
CRDL 0.010	4	0.01349	0.07390	5/31/2014@3:09:13 PM	
CCV	5	0.33811	2.93216	5/31/2014@3:10:10 PM	
CCB	6	0.00658	0.01307	5/31/2014@3:11:07 PM	
LCS	7	0.22735	1.95693	5/31/2014@3:12:04 PM	
12 A	8	0.01973	0.12886	5/31/2014@3:13:01 PM	
12 B	9	0.01600	0.09602	5/31/2014@3:13:58 PM	
12 B DUP	10	0.01606	0.09658	5/31/2014@3:14:55 PM	
12 B SPK	11	0.22335	1.92176	5/31/2014@3:15:52 PM	
CCV	12	0.34562	2.99831	5/31/2014@3:16:48 PM	
CCB	13	0.00671	0.01426	5/31/2014@3:17:45 PM	

(AH04021-016)
(AH04021-014)
(4021-014 DUP)
(4021-014 SPK)

Analyte Properties Table for : OM_5-31-2014_02-56-37PM.OMN

Property	Channel 2 OPO4-RL 365.1 QC8500
Concentration Units	mg/L
Calibration Fit Type	First Order
Clear Calibration	Yes
Force through Zero	No
Calibration Weighting	None
Auto Dilution Trigger	No
% of High Standard	110
Quik Chem Method	10-115-01-1-B
Chemistry	Direct/Bipolar
Calibration by Height	No
Inject to Peak Start	8
Peak Base Width	37

01589

Client: Tetra Tech GEO **Service Request:** R1404021
Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396184	RQ1406299-01	6/9/14 13:46	0.400	0.417	104	90 - 110
CCV2	396184	RQ1406299-04	6/9/14 14:03	0.400	0.422	105	90 - 110
CCV3	396184	RQ1406299-10	6/9/14 14:15	0.400	0.421	105	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021

Continuing Calibration Blank (CCB) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	396184	RQ1406299-02	6/9/14 13:47	0.003	0.010	0.006	J
CCB2	396184	RQ1406299-03	6/9/14 14:04	0.003	0.010	0.006	J
CCB3	396184	RQ1406299-09	6/9/14 14:17	0.003	0.010	0.006	J

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Verification (CCV) Summary
Sulfate

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395070	RQ1405902-11	5/30/14 11:13	3.20	2.98	93	90 - 110
CCV2	395070	RQ1405902-12	5/30/14 13:24	3.20	2.98	93	90 - 110
CCV3	395070	RQ1405902-13	5/30/14 15:31	3.20	2.98	93	90 - 110
CCV4	395070	RQ1405902-14	5/30/14 17:36	3.20	2.98	93	90 - 110
CCV5	395138	RQ1405929-05	6/1/14 09:17	3.20	2.98	93	90 - 110
CCV6	395138	RQ1405929-06	6/1/14 10:29	3.20	3.07	96	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404021

Project: Middle River- Lockheed Martin Corp/112IC06247

Continuing Calibration Blank (CCB) Summary
Sulfate

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395070	RQ1405902-07	5/30/14 11:24	0.19	0.20	0.20	U
CCB2	395070	RQ1405902-08	5/30/14 13:34	0.19	0.20	0.20	U
CCB3	395070	RQ1405902-09	5/30/14 15:41	0.19	0.20	0.20	U
CCB4	395070	RQ1405902-10	5/30/14 17:46	0.19	0.20	0.20	U
CCB5	395138	RQ1405929-03	6/1/14 09:27	0.19	0.20	0.20	U
CCB6	395138	RQ1405929-04	6/1/14 10:40	0.19	0.20	0.20	U

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **T. APANAVAGE** **DATE:** **AUGUST 25, 2014**

FROM: **J. KALINYAK** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC / 1,4-DIOXANE / OVG**
LOCKHEED MIDDLE RIVER COMPLEX (MRC)
SAMPLE DELIVERY GROUP (SDG) R1404021

SAMPLES: 15 / Aqueous - VOC

DUP-01-053014	MRC-MW-12A-053014	MRC-MW-12B-053014
MRC-MW-12C-053014	MRC-MW-13A-053014	MRC-MW-27A-052914
MRC-MW-27B-052914	MRC-MW-27C-052914	MRC-MW-87A-052914
MRC-MW-87B-052814	MRC-MW-88B-052914	MRC-MW-94B-052814
MRC-MW-95B-052914	TB-052914	TB-053014

6 / Aqueous – 1.4-Dioxane

DUP-01-053014	MRC-MW-12A-053014	MRC-MW-12B-053014
MRC-MW-12C-053014	MRC-MW-13A-053014	MRC-MW-91A-052914

5 / Aqueous - OVG

MRC-MW-12A-053014	MRC-MW-12B-053014	MRC-MW-24A-052914
MRC-MW-27A-052914	MRC-MW-27B-052914	

Overview

The sample set for Lockheed MRC, SDG R1404021, consisted of seventeen (17) aqueous samples including two (2) aqueous trip blank samples. Fifteen (15) samples were analyzed for volatile organic compounds (VOCs) as listed above. Six (6) aqueous samples were analyzed for the semi-volatile organic compound (SVOC) 1,4-dioxane as listed above. Five (5) aqueous samples were analyzed for organic volatile compounds (OVG) as listed above. One field duplicate sample pair was included in the sample delivery group (SDG); DUP-01-053014 / MRC-MW-13A-053014.

The samples were collected by Tetra Tech on May 28, 29, and 30, 2014 and analyzed by ALS Environmental laboratory for all analyses. All analyses were conducted in accordance with EPA SW-846 Method 8260C for VOCs, EPA Method 522 for 1,4-dioxane, and RSK-175 for OVG, analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, blank results, blank spike/blank spike duplicate results, matrix spike/matrix spike duplicate results, surrogate spike recoveries, internal standard recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major Problems

- The VOC matrix spike (MS) and MS duplicate (MSD) percent recoveries (%Rs) were less than the quality control limit at 0% for 2-chloroethyl vinyl ether for spiked sample MRC-MW-27B-052914. The non-detected 2-chloroethyl vinyl ether result was qualified rejected, (UR).

Minor Problems

- The following laboratory VOC contaminants were detected in the method blank and trip blank samples at the following maximum concentrations.

Analytes	Maximum Conc.	Action Level
Acetone [1]	1.7 µg/l	17.0 µg/l
1,2,4-Trichlorobenzene [2]	0.31 µg/l	1.55 µg/l
Hexachlorobutadiene [2]	0.87 µg/l	4.35 µg/l
Naphthalene [2]	0.21 µg/l	1.05 µg/l
1,2,4-Trichlorobenzene [3]	0.35 µg/l	1.75 µg/l
Hexachlorobutadiene [3]	0.83 µg/l	4.15 µg/l
Naphthalene [3]	0.24 µg/l	1.20 µg/l
1,2,4-Trichlorobenzene [4]	0.31 µg/l	1.55 µg/l
Bromomethane [4]	0.29 µg/l	1.45 µg/l
Hexachlorobutadiene [4]	0.86 µg/l	4.30 µg/l
Naphthalene [4]	0.24 µg/l	1.20 µg/l

[1] Trip blank sample TB-052914 result – Maximum result from all trip blank samples used to qualify all samples.
[2] Method blank sample RQ14006207-04 affecting samples MRC-MW-27B-052914, MRC-MW-27C-052914, MRC-MW-87A-052914, MRC-MW-87B-052814, MRC-MW-88B-052914, MRC-MW-94B-052814, MRC-MW-95B-052914, and TB-052914.
[3] Method blank sample RQ14006304-04 affecting samples DUP-01-053014, MRC-MW-12B-053014, MRC-MW-12C-053014, MRC-MW-13A-053014, MRC-MW-27A-052914, and TB-053014.
[4] Method blank sample RQ14006376-04 affecting sample MRC-MW-12A-053014.

An action level of ten times the maximum level for the common laboratory contaminant acetone, and five times the maximum level for the other contaminants was used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive sample results less than the action level were qualified non-detected, (U), for blank contamination. The trip blank samples were not qualified for blank contamination.

- The VOC continuing calibration verification (CCV) percent differences (%Ds) were greater than the 20% quality control limit for 2-hexanone, acetone, and methylene chloride for instrument R-MS-12 on 06/06/14 @ 10:49.

  Affected Samples:

MRC-MW-27B-052914	MRC-MW-27C-052914	MRC-MW-87A-052914
MRC-MW-87B-052814	MRC-MW-88B-052914	MRC-MW-94B-052814
MRC-MW-95B-052914	TB-052914	

  Action: The aforementioned sample detected and non-detected analyte results were qualified estimated, (J) and (UJ), respectively, except where qualified non-detected for blank contamination.

- The VOC CCV %Ds were greater than the 20% quality control limit for chlorodibromomethane for instrument R-MS-12 on 06/9/14 @ 11:11.

  Affected Samples:

DUP-01-053014	MRC-MW-12B-053014	MRC-MW-12C-053014
MRC-MW-13A-053014	MRC-MW-27A-052914	TB-053014

  Action: The sample non-detected chlorodibromomethane results were qualified estimated, (UJ).

- The VOC CCV %Ds were greater than the 20% quality control limit for 1,1,2,2-tetrachloroethane, trichlorofluoromethane, carbon tetrachloride, chlorodibromomethane, diisopropyl ether, and vinyl - acetate for instrument R-MS-12 on 06/10/14 @ 13:56.
  Affected Sample: MRC-MW-12A-053014
  Action: The sample non-detected aforementioned analyte results were qualified estimated, (UJ).

- The following laboratory OVG contaminant was detected in the method blank sample at the following maximum concentration.

Analytes	Maximum Conc.	Action Level
Methane [1]	0.40 µg/l	2.0 µg/l

[1] Method blank sample RQ1405968-01 affecting all OVG analysis.

An action level of five times the maximum level for methane was used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive sample results less than the action level were qualified non-detected, (U), for blank contamination.

- Detected results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J).

Notes

The laboratory did not report the surrogate recoveries for the VOC and 1,4-dioxane sample analyses on a separate Form II. Surrogate %Rs were listed on the sample data form only (Appendix B results).

Samples were diluted as listed below for the VOC analysis resulting in elevated levels reported for non-detected VOC analytes.

Sample	Dilution
MRC-MW-12A-053014	10X
MRC-MW-12B-053014	2X
MRC-MW-27B-052914	10X

Sample MRC-MW-12A-053014 was diluted 10X for the 1,4-dioxane analysis.

Samples were undiluted and diluted as listed below for the OVG analyses.

Sample	Dilution
MRC-MW-24A-052914	1X, 5X for methane
MRC-MW-27A-052914	1X, 25X for methane

Sample analyte results were reported to the Method Detection Limit (MDL).

EXECUTIVE SUMMARY

Laboratory Performance Issues: VOC and OVG sample results were qualified for blank contamination. VOC sample results were qualified for CCV %D non-compliances.

Other Factors Affecting Data Quality: Detected results reported below the quantitation limit but above the method detection limit were qualified as estimated, (J). The non-detected 2-chloroethyl vinyl ether result in sample MRC-MW-27B-052914 was rejected due to poor MS/MSD %Rs.

The data for these analyses were reviewed with reference to EPA SW-846 Method 8260C, EPA Method 522, RSK-175, and the USEPA National Functional Guidelines for Organic Data Validation (June 2008).

Tetra Tech
Joseph Kalinyak
Data Validator/Environmental Scientist

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 06247	NSAMPLE	DUP-01-053014	MRC-MW-12A-053014	MRC-MW-12B-053014	MRC-MW-12C-053014
SDG: R1404021	LAB_ID	R1404021-013	R1404021-016	R1404021-014	R1404021-015
FRACTION: OV	SAMP_DATE	5/30/2014	5/30/2014	5/30/2014	5/30/2014
MEDIA: WATER	QC_TYPE	NM	NM	NM	NM
	UNITS	UG/L	UG/L	UG/L	UG/L
	PCT_SOLIDS	0.0	0.0	0.0	0.0
	DUP_OF	MRC-MW-13A-053014			

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		2.2	UJ	C	0.44	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		3.6	U		0.72	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U		2.5	U		0.5	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		3.1	U		0.62	U		0.31	U	
1,1-DICHLOROETHANE	0.2	U		25			4.8			0.2	U	
1,1-DICHLOROETHENE	0.57	U		220			38			0.57	U	
1,1-DICHLOROPROPENE	0.29	U		2.9	U		0.58	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		8.2	U		1.7	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		7	U		1.4	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		2.5	U	A	0.46	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U		2	U		0.4	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		7.4	U		1.5	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		2.4	U		0.48	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		2.1	U		0.42	U		0.21	U	
1,2-DICHLOROETHANE	0.36	U		3.6	U		0.78	J	P	0.36	U	
1,2-DICHLOROPROPANE	0.2	U		2	U		0.4	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		2	U		0.4	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		2.7	U		0.54	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		2	U		0.4	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		2.7	U		0.54	U		0.27	U	
2-BUTANONE	0.81	U		8.2	U		1.7	U		0.81	U	
2-CHLOROETHYL VINYL ETHER	1	U		10	U		2	U		1	U	
2-CHLOROTOLUENE	0.2	U		2	U		0.4	U		0.2	U	
2-HEXANONE	1.7	U		17	U		3.4	U		1.7	U	
4-CHLOROTOLUENE	0.24	U		2.4	U		0.48	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	U		2	U		0.4	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	U		6.7	U		1.4	U		0.67	U	
ACETONE	1.3	U		13	U		2.5	U		1.3	U	
BENZENE	0.2	U		4.7	J	P	1.2	J	P	0.2	U	
BROMOBENZENE	0.28	U		2.9	U		0.56	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		3.2	U		0.64	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		3.2	U		0.64	U		0.32	U	
BROMOFORM	0.42	U		4.2	U		0.84	U		0.42	U	
BROMOMETHANE	0.29	U		2.9	U		0.58	U		0.29	U	
CARBON DISULFIDE	0.22	U		2.2	U		0.44	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		4.5	UJ	C	0.9	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-13A-053014			MRC-MW-27A-052914			MRC-MW-27B-052914			MRC-MW-27C-052914		
SDG: R1404021	LAB_ID	R1404021-012			R1404021-001			R1404021-002			R1404021-003		
FRACTION: OV	SAMP_DATE	5/30/2014			5/29/2014			5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		2.2	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		0.36	U		3.6	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U		0.25	U		2.5	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		0.31	U		3.1	U		0.31	U	
1,1-DICHLOROETHANE	0.2	U		1.3			7.7	J	P	0.2	U	
1,1-DICHLOROETHENE	0.57	U		1.7			14			0.57	U	
1,1-DICHLOROPROPENE	0.29	U		0.29	U		2.9	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		8.2	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		2.4	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U		0.2	U		2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		7.4	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		0.24	U		2.4	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		0.21	U		2.1	U		0.21	U	
1,2-DICHLOROETHANE	0.36	U		0.36	U		3.6	U		0.36	U	
1,2-DICHLOROPROPANE	0.2	U		0.2	U		2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		0.2	U		2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		0.27	U		2.7	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		0.2	U		2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		0.27	U		2.7	U		0.27	U	
2-BUTANONE	0.81	U		0.81	U		8.2	U		0.81	U	
2-CHLOROETHYL VINYL ETHER	1	U		1	U		10	UR	D	1	U	
2-CHLOROTOLUENE	0.2	U		0.2	U		2	U		0.2	U	
2-HEXANONE	1.7	U		1.7	U		17	UJ	C	1.7	UJ	C
4-CHLOROTOLUENE	0.24	U		0.24	U		2.4	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	U		0.2	U		2	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	U		0.67	U		6.7	U		0.67	U	
ACETONE	1.3	U		1.3	U		13	UJ	C	1.3	UJ	C
BENZENE	0.2	U		1.3			2	U		0.2	U	
BROMOBENZENE	0.28	U		0.28	U		2.9	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		0.32	U		3.2	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		0.32	U		3.2	U		0.32	U	
BROMOFORM	0.42	U		0.42	U		4.2	U		0.42	U	
BROMOMETHANE	0.29	U		0.29	U		2.9	U		0.29	U	
CARBON DISULFIDE	0.22	U		0.22	U		2.2	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		0.45	U		4.5	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-87A-052914			MRC-MW-87B-052814			MRC-MW-88B-052914			MRC-MW-94B-052814		
SDG: R1404021	LAB_ID	R1404021-010			R1404021-007			R1404021-008			R1404021-006		
FRACTION: OV	SAMP_DATE	5/29/2014			5/28/2014			5/29/2014			5/28/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	U		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		1	U		1	U		1	U		1	U	
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	UJ	C	1.7	UJ	C	1.7	UJ	C	1.7	UJ	C
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE		1.9	U	B	1.6	U	B	1.3	UJ	C	1.3	UJ	C
BENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	U		0.3	J	P	0.29	U		0.29	U	
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-95B-052914			TB-052914			TB-053014		
SDG: R1404021	LAB_ID	R1404021-009			R1404021-005			R1404021-017		
FRACTION: OV	SAMP_DATE	5/29/2014			5/29/2014			5/30/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		0.2	U		0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		1	U		1	U		1	U	
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	UJ	C	1.7	UJ	C	1.7	U	
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U	
ACETONE		1.3	UJ	C	1.7	J	CP	1.4	J	P
BENZENE		0.2	U		0.2	U		0.2	U	
BROMOBENZENE		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	U		0.29	U		0.29	U	
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	DUP-01-053014			MRC-MW-12A-053014			MRC-MW-12B-053014			MRC-MW-12C-053014		
SDG: R1404021	LAB_ID	R1404021-013			R1404021-016			R1404021-014			R1404021-015		
FRACTION: OV	SAMP_DATE	5/30/2014			5/30/2014			5/30/2014			5/30/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	MRC-MW-13A-053014											

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE	0.29	U		2.9	U		0.58	U		0.29	U	
CHLORODIBROMOMETHANE	0.31	UJ	C	3.1	UJ	C	0.62	UJ	C	0.31	UJ	C
CHLOROETHANE	0.24	U		2.4	U		0.48	U		0.24	U	
CHLOROFORM	0.25	U		4.6	J	P	0.62	J	P	0.25	U	
CHLOROMETHANE	0.21	U		2.1	U		0.42	U		0.21	U	
CIS-1,2-DICHLOROETHENE	0.62	J	P	82			19			0.3	U	
CIS-1,3-DICHLOROPROPENE	0.24	U		2.4	U		0.48	U		0.24	U	
DIBROMOMETHANE	0.32	U		3.2	U		0.64	U		0.32	U	
DICHLORODIFLUOROMETHANE	0.46	U		4.7	U		0.92	U		0.46	U	
DIISOPROPYL ETHER	0.2	U		2	UJ	C	0.4	U		0.2	U	
ETHYL TERT-BUTYL ETHER	0.2	U		2	U		0.4	U		0.2	U	
ETHYLBENZENE	0.2	U		2	U		0.4	U		0.2	U	
HEXACHLOROBUTADIENE	0.62	U		7.1	U	A	1.3	U		0.62	U	
ISOPROPYLBENZENE	0.2	U		2	U		0.4	U		0.2	U	
M+P-XYLENES	0.33	U		3.4	U		0.66	U		0.33	U	
METHYL TERT-BUTYL ETHER	0.29	U		2.9	U		0.58	U		0.29	U	
METHYLENE CHLORIDE	0.32	U		3.2	U		0.64	U		0.32	U	
NAPHTHALENE	0.2	U		2	U		0.4	U		0.2	U	
N-BUTYLBENZENE	0.21	U		2.1	U		0.42	U		0.21	U	
N-PROPYLBENZENE	0.2	U		2	U		0.4	U		0.2	U	
O-XYLENE	0.2	U		2	U		0.4	U		0.2	U	
SEC-BUTYLBENZENE	0.27	U		2.7	U		0.54	U		0.27	U	
STYRENE	0.2	U		2	U		0.4	U		0.2	U	
TERT-AMYL METHYL ETHER	0.2	U		2	U		0.4	U		0.2	U	
TERT-BUTYLBENZENE	0.2	U		2	U		0.4	U		0.2	U	
TERTIARY-BUTYL ALCOHOL	11	U		110	U		22	U		11	U	
TETRACHLOROETHENE	0.3	U		3	U		0.6	U		0.3	U	
TOLUENE	0.2	U		2	U		0.4	U		0.2	U	
TOTAL XYLENES	0.53	U		5.4	U		1.1	U		0.53	U	
TRANS-1,2-DICHLOROETHENE	0.33	U		3.4	U		0.66	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U		2	U		0.4	U		0.2	U	
TRICHLOROETHENE	0.22	U		1300			320			0.22	U	
TRICHLOROFLUOROMETHANE	0.2	U		2	UJ	C	0.4	U		0.2	U	
VINYL ACETATE	1.1	U		11	UJ	C	2.1	U		1.1	U	
VINYL CHLORIDE	0.32	J	P	3.2	U		0.64	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-13A-053014			MRC-MW-27A-052914			MRC-MW-27B-052914			MRC-MW-27C-052914		
SDG: R1404021	LAB_ID	R1404021-012			R1404021-001			R1404021-002			R1404021-003		
FRACTION: OV	SAMP_DATE	5/30/2014			5/29/2014			5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		2.9	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	UJ	C	0.31	UJ	C	3.1	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		2.4	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		2.5	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		2.1	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.61	J	P	33			350			0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		2.4	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		3.2	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		4.7	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.23	J	P	2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		6.2	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		3.4	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		18			5	J	P	0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		3.2	UJ	C	0.32	UJ	C
NAPHTHALENE		0.2	U		0.2	U		2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		2.1	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		2.7	U		0.27	U	
STYRENE		0.2	U		0.2	U		2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		110	U		11	U	
TETRACHLOROETHENE		0.3	U		0.38	J	P	3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		5.4	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		2.8			5.4	J	P	0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		2	U		0.2	U	
TRICHLOROETHENE		0.22	U		110			1300			0.25	J	P
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		11	U		1.1	U	
VINYL CHLORIDE		0.41	J	P	19			12			0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-87A-052914			MRC-MW-87B-052814			MRC-MW-88B-052914			MRC-MW-94B-052814		
SDG: R1404021	LAB_ID	R1404021-010			R1404021-007			R1404021-008			R1404021-006		
FRACTION: OV	SAMP_DATE	5/29/2014			5/28/2014			5/29/2014			5/28/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		1.4			0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	UJ	C	0.32	UJ	C	0.32	UJ	C	0.32	UJ	C
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.22	U		49			0.3	J	P	0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-95B-052914			TB-052914			TB-053014		
SDG: R1404021	LAB_ID	R1404021-009			R1404021-005			R1404021-017		
FRACTION: OV	SAMP_DATE	5/29/2014			5/29/2014			5/30/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	UJ	C
CHLOROETHANE		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	UJ	C	0.32	UJ	C	0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		2.1			0.22	U		0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	DUP-01-053014			MRC-MW-12A-053014			MRC-MW-12B-053014			MRC-MW-12C-053014		
SDG: R1404021	LAB_ID	R1404021-013			R1404021-016			R1404021-014			R1404021-015		
FRACTION: OS	SAMP_DATE	5/30/2014			5/30/2014			5/30/2014			5/30/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	MRC-MW-13A-053014											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		0.546			374			71.8			0.02	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-13A-053014			MRC-MW-91A-052914		
SDG: R1404021	LAB_ID	R1404021-012			R1404021-011		
FRACTION: OS	SAMP_DATE	5/30/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		0.554			3.55		

PROJ_NO: 06247	NSAMPLE	MRC-MW-12A-053014			MRC-MW-12B-053014			MRC-MW-24A-052914			MRC-MW-24A-052914-DL		
SDG: R1404021	LAB_ID	R1404021-016			R1404021-014			R1404021-004			R1404021-004		
FRACTION: OVG	SAMP_DATE	5/30/2014			5/30/2014			5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		0.2	U		0.2	U		1					
ETHENE		0.52	J	P	0.11	U		0.11	U				
METHANE		46			2	U	A				380		

PROJ_NO: 06247	NSAMPLE	MRC-MW-27A-052914			MRC-MW-27A-052914-DL			MRC-MW-27B-052914		
SDG: R1404021	LAB_ID	R1404021-001			R1404021-001			R1404021-002		
FRACTION: OVG	SAMP_DATE	5/29/2014			5/29/2014			5/29/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		6.3						0.2	U	
ETHENE		3.3						0.11	U	
METHANE					2400			14		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 14:22
Sample Name:	DUP-01-053014	**Units:**	µg/L
Lab Code:	R1404021-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6369.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 14:22
Sample Name:	DUP-01-053014	**Units:**	µg/L
Lab Code:	R1404021-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6369.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.32**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.62**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 14:22
Sample Name:	DUP-01-053014	**Units:**	µg/L
Lab Code:	R1404021-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6369.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/9/14 14:22	
Dibromofluoromethane	103	89-119	6/9/14 14:22	
Toluene-d8	96	87-121	6/9/14 14:22	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/10/14 16:21
Sample Name:	MRC-MW-12A-053014	**Units:**	µg/L
Lab Code:	R1404021-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396450
Data File Name:	I:\ACQUDATA\msvoa12\Data\061014\M6417.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	10	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	10	U	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	10	U	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**25**		10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**220**		10	5.7	
563-58-6	1,1-Dichloropropene	10	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	10	U	10	8.2	
96-18-4	1,2,3-Trichloropropane	10	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	**2.5**	J	10	2.4	
95-63-6	1,2,4-Trimethylbenzene	10	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	20	U	20	7.4	
106-93-4	1,2-Dibromoethane	10	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	10	U	10	2.1	
107-06-2	1,2-Dichloroethane	10	U	10	3.6	
78-87-5	1,2-Dichloropropane	10	U	10	2.0	
541-73-1	1,3-Dichlorobenzene	10	U	10	2.0	
142-28-9	1,3-Dichloropropane	10	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	10	U	10	2.0	
594-20-7	2,2-Dichloropropane	10	U	10	2.7	
78-93-3	2-Butanone (MEK)	50	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	10	U	10	4.4	
95-49-8	2-Chlorotoluene	10	U	10	2.0	
591-78-6	2-Hexanone	50	U	50	17	
75-65-0	tert-Butyl Alcohol	400	U	400	110	
106-43-4	4-Chlorotoluene	10	U	10	2.4	
99-87-6	4-Isopropyltoluene	10	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	50	U	50	6.7	
67-64-1	Acetone	50	U	50	13	
71-43-2	Benzene	**4.7**	J	10	2.0	
108-86-1	Bromobenzene	10	U	10	2.9	
74-97-5	Bromochloromethane	10	U	10	3.2	
75-27-4	Bromodichloromethane	10	U	10	3.2	
75-25-2	Bromoform	10	U	10	4.2	
74-83-9	Bromomethane	10	U	10	2.9	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/10/14 16:21
Sample Name:	MRC-MW-12A-053014	**Units:**	µg/L
Lab Code:	R1404021-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396450
Data File Name:	I:\ACQUDATA\msvoa12\Data\061014\M6417.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	10	U	10	2.2	
56-23-5	Carbon Tetrachloride	10	U	10	4.5	
108-90-7	Chlorobenzene	10	U	10	2.9	
75-00-3	Chloroethane	10	U	10	2.4	
67-66-3	Chloroform	**4.6**	J	10	2.5	
74-87-3	Chloromethane	10	U	10	2.1	
124-48-1	Dibromochloromethane	10	U	10	3.1	
74-95-3	Dibromomethane	10	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	10	U	10	4.7	
75-09-2	Methylene Chloride	10	U	10	3.2	
108-20-3	Diisopropyl Ether	10	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	10	U	10	2.0	
100-41-4	Ethylbenzene	10	U	10	2.0	
87-68-3	Hexachlorobutadiene	**7.1**	BJ	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	10	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	10	U	10	2.9	
91-20-3	Naphthalene	10	U	10	2.0	
100-42-5	Styrene	10	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	10	U	10	3.0	
108-88-3	Toluene	10	U	10	2.0	
79-01-6	Trichloroethene (TCE)	**1300**		10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	10	U	10	2.0	
108-05-4	Vinyl Acetate	20	U	20	11	
75-01-4	Vinyl Chloride	10	U	10	3.2	
1330-20-7	Xylenes, Total	30	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	**82**		10	3.0	
10061-01-5	cis-1,3-Dichloropropene	10	U	10	2.4	
179601-23-1	m,p-Xylenes	20	U	20	3.4	
104-51-8	n-Butylbenzene	10	U	10	2.1	
103-65-1	n-Propylbenzene	10	U	10	2.0	
95-47-6	o-Xylene	10	U	10	2.0	
135-98-8	sec-Butylbenzene	10	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	10	U	10	2.0	
98-06-6	tert-Butylbenzene	10	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	10	U	10	3.4	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/10/14 16:21
Sample Name:	MRC-MW-12A-053014	**Units:**	µg/L
Lab Code:	R1404021-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396450
Data File Name:	I:\ACQUDATA\msvoa12\Data\061014\M6417.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	10	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/10/14 16:21	
Dibromofluoromethane	105	89-119	6/10/14 16:21	
Toluene-d8	97	87-121	6/10/14 16:21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0955
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 15:57
Sample Name:	MRC-MW-12B-053014	**Units:**	µg/L
Lab Code:	R1404021-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6372.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.0	U	2.0	0.44	
71-55-6	1,1,1-Trichloroethane (TCA)	2.0	U	2.0	0.72	
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	2.0	0.50	
76-13-1	1,1,2-Trichlorotrifluoroethane	2.0	U	2.0	0.62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**4.8**		2.0	0.40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**38**		2.0	1.2	
563-58-6	1,1-Dichloropropene	2.0	U	2.0	0.58	
87-61-6	1,2,3-Trichlorobenzene	2.0	U	2.0	1.7	
96-18-4	1,2,3-Trichloropropane	2.0	U	2.0	1.4	
120-82-1	1,2,4-Trichlorobenzene	2.0	U	2.0	0.46	
95-63-6	1,2,4-Trimethylbenzene	2.0	U	2.0	0.40	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	4.0	U	4.0	1.5	
106-93-4	1,2-Dibromoethane	2.0	U	2.0	0.48	
95-50-1	1,2-Dichlorobenzene	2.0	U	2.0	0.42	
107-06-2	1,2-Dichloroethane	**0.78**	J	2.0	0.72	
78-87-5	1,2-Dichloropropane	2.0	U	2.0	0.40	
541-73-1	1,3-Dichlorobenzene	2.0	U	2.0	0.40	
142-28-9	1,3-Dichloropropane	2.0	U	2.0	0.54	
106-46-7	1,4-Dichlorobenzene	2.0	U	2.0	0.40	
594-20-7	2,2-Dichloropropane	2.0	U	2.0	0.54	
78-93-3	2-Butanone (MEK)	10	U	10	1.7	
110-75-8	2-Chloroethyl Vinyl Ether	2.0	U	2.0	0.88	
95-49-8	2-Chlorotoluene	2.0	U	2.0	0.40	
591-78-6	2-Hexanone	10	U	10	3.4	
75-65-0	tert-Butyl Alcohol	80	U	80	22	
106-43-4	4-Chlorotoluene	2.0	U	2.0	0.48	
99-87-6	4-Isopropyltoluene	2.0	U	2.0	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	1.4	
67-64-1	Acetone	10	U	10	2.5	
71-43-2	Benzene	**1.2**	J	2.0	0.40	
108-86-1	Bromobenzene	2.0	U	2.0	0.56	
74-97-5	Bromochloromethane	2.0	U	2.0	0.64	
75-27-4	Bromodichloromethane	2.0	U	2.0	0.64	
75-25-2	Bromoform	2.0	U	2.0	0.84	
74-83-9	Bromomethane	2.0	U	2.0	0.58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0955
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 15:57
Sample Name:	MRC-MW-12B-053014	**Units:**	µg/L
Lab Code:	R1404021-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6372.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.0	U	2.0	0.44	
56-23-5	Carbon Tetrachloride	2.0	U	2.0	0.90	
108-90-7	Chlorobenzene	2.0	U	2.0	0.58	
75-00-3	Chloroethane	2.0	U	2.0	0.48	
67-66-3	Chloroform	**0.62**	J	2.0	0.50	
74-87-3	Chloromethane	2.0	U	2.0	0.42	
124-48-1	Dibromochloromethane	2.0	U	2.0	0.62	
74-95-3	Dibromomethane	2.0	U	2.0	0.64	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.0	U	2.0	0.92	
75-09-2	Methylene Chloride	2.0	U	2.0	0.64	
108-20-3	Diisopropyl Ether	2.0	U	2.0	0.40	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	2.0	0.40	
100-41-4	Ethylbenzene	2.0	U	2.0	0.40	
87-68-3	Hexachlorobutadiene	4.0	U	4.0	1.3	
98-82-8	Isopropylbenzene (Cumene)	2.0	U	2.0	0.40	
1634-04-4	Methyl tert-Butyl Ether	2.0	U	2.0	0.58	
91-20-3	Naphthalene	2.0	U	2.0	0.40	
100-42-5	Styrene	2.0	U	2.0	0.40	
127-18-4	Tetrachloroethene (PCE)	2.0	U	2.0	0.60	
108-88-3	Toluene	2.0	U	2.0	0.40	
79-01-6	Trichloroethene (TCE)	**320**		2.0	0.44	
75-69-4	Trichlorofluoromethane (CFC 11)	2.0	U	2.0	0.40	
108-05-4	Vinyl Acetate	4.0	U	4.0	2.1	
75-01-4	Vinyl Chloride	2.0	U	2.0	0.64	
1330-20-7	Xylenes, Total	6.0	U	6.0	1.1	
156-59-2	cis-1,2-Dichloroethene	**19**		2.0	0.60	
10061-01-5	cis-1,3-Dichloropropene	2.0	U	2.0	0.48	
179601-23-1	m,p-Xylenes	4.0	U	4.0	0.66	
104-51-8	n-Butylbenzene	2.0	U	2.0	0.42	
103-65-1	n-Propylbenzene	2.0	U	2.0	0.40	
95-47-6	o-Xylene	2.0	U	2.0	0.40	
135-98-8	sec-Butylbenzene	2.0	U	2.0	0.54	
994-05-8	tert-Amyl Methyl Ether	2.0	U	2.0	0.40	
98-06-6	tert-Butylbenzene	2.0	U	2.0	0.40	
156-60-5	trans-1,2-Dichloroethene	2.0	U	2.0	0.66	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0955
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 15:57
Sample Name:	MRC-MW-12B-053014	**Units:**	µg/L
Lab Code:	R1404021-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6372.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	2.0	0.40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/9/14 15:57	
Dibromofluoromethane	104	89-119	6/9/14 15:57	
Toluene-d8	88	87-121	6/9/14 15:57	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1140
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 14:54
Sample Name:	MRC-MW-12C-053014	**Units:**	µg/L
Lab Code:	R1404021-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6370.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1140
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 14:54
Sample Name:	MRC-MW-12C-053014	**Units:**	µg/L
Lab Code:	R1404021-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6370.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1140
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 14:54
Sample Name:	MRC-MW-12C-053014	**Units:**	µg/L
Lab Code:	R1404021-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6370.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/9/14 14:54	
Dibromofluoromethane	106	89-119	6/9/14 14:54	
Toluene-d8	96	87-121	6/9/14 14:54	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0840
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 13:50
Sample Name:	MRC-MW-13A-053014	**Units:**	µg/L
Lab Code:	R1404021-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6368.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0840
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 13:50
Sample Name:	MRC-MW-13A-053014	**Units:**	µg/L
Lab Code:	R1404021-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6368.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.41**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.61**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0840
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 13:50
Sample Name:	MRC-MW-13A-053014	**Units:**	µg/L
Lab Code:	R1404021-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6368.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/9/14 13:50	
Dibromofluoromethane	103	89-119	6/9/14 13:50	
Toluene-d8	97	87-121	6/9/14 13:50	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14 0915
Date Received: 5/30/14
Date Analyzed: 6/9/14 15:25

Sample Name: MRC-MW-27A-052914
Lab Code: R1404021-001

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\060914\M6371.D\

Analysis Lot: 396198
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**1.3**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**1.7**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**1.3**		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14 0915
Date Received: 5/30/14
Date Analyzed: 6/9/14 15:25

Sample Name: MRC-MW-27A-052914
Lab Code: R1404021-001

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\060914\M6371.D\

Analysis Lot: 396198
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	**0.23**	J	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**18**		1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**0.38**	J	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**110**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**19**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**33**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**2.8**		1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 0915
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/9/14 15:25
Sample Name:	MRC-MW-27A-052914	**Units:**	µg/L
Lab Code:	R1404021-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6371.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/9/14 15:25	
Dibromofluoromethane	105	89-119	6/9/14 15:25	
Toluene-d8	97	87-121	6/9/14 15:25	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1030
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 20:30
Sample Name:	MRC-MW-27B-052914	**Units:**	µg/L
Lab Code:	R1404021-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	10	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	10	U	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	10	U	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	7.7	J	10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	14		10	5.7	
563-58-6	1,1-Dichloropropene	10	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	10	U	10	8.2	
96-18-4	1,2,3-Trichloropropane	10	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	10	U	10	2.4	
95-63-6	1,2,4-Trimethylbenzene	10	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	20	U	20	7.4	
106-93-4	1,2-Dibromoethane	10	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	10	U	10	2.1	
107-06-2	1,2-Dichloroethane	10	U	10	3.6	
78-87-5	1,2-Dichloropropane	10	U	10	2.0	
541-73-1	1,3-Dichlorobenzene	10	U	10	2.0	
142-28-9	1,3-Dichloropropane	10	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	10	U	10	2.0	
594-20-7	2,2-Dichloropropane	10	U	10	2.7	
78-93-3	2-Butanone (MEK)	50	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	10	U	10	4.4	
95-49-8	2-Chlorotoluene	10	U	10	2.0	
591-78-6	2-Hexanone	50	U	50	17	
75-65-0	tert-Butyl Alcohol	400	U	400	110	
106-43-4	4-Chlorotoluene	10	U	10	2.4	
99-87-6	4-Isopropyltoluene	10	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	50	U	50	6.7	
67-64-1	Acetone	50	U	50	13	
71-43-2	Benzene	10	U	10	2.0	
108-86-1	Bromobenzene	10	U	10	2.9	
74-97-5	Bromochloromethane	10	U	10	3.2	
75-27-4	Bromodichloromethane	10	U	10	3.2	
75-25-2	Bromoform	10	U	10	4.2	
74-83-9	Bromomethane	10	U	10	2.9	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1030
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 20:30
Sample Name:	MRC-MW-27B-052914	**Units:**	µg/L
Lab Code:	R1404021-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	10	U	10	2.2	
56-23-5	Carbon Tetrachloride	10	U	10	4.5	
108-90-7	Chlorobenzene	10	U	10	2.9	
75-00-3	Chloroethane	10	U	10	2.4	
67-66-3	Chloroform	10	U	10	2.5	
74-87-3	Chloromethane	10	U	10	2.1	
124-48-1	Dibromochloromethane	10	U	10	3.1	
74-95-3	Dibromomethane	10	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	10	U	10	4.7	
75-09-2	Methylene Chloride	10	U	10	3.2	
108-20-3	Diisopropyl Ether	10	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	10	U	10	2.0	
100-41-4	Ethylbenzene	10	U	10	2.0	
87-68-3	Hexachlorobutadiene	20	U	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	10	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	**5.0**	J	10	2.9	
91-20-3	Naphthalene	10	U	10	2.0	
100-42-5	Styrene	10	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	10	U	10	3.0	
108-88-3	Toluene	10	U	10	2.0	
79-01-6	Trichloroethene (TCE)	**1300**		10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	10	U	10	2.0	
108-05-4	Vinyl Acetate	20	U	20	11	
75-01-4	Vinyl Chloride	**12**		10	3.2	
1330-20-7	Xylenes, Total	30	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	**350**		10	3.0	
10061-01-5	cis-1,3-Dichloropropene	10	U	10	2.4	
179601-23-1	m,p-Xylenes	20	U	20	3.4	
104-51-8	n-Butylbenzene	10	U	10	2.1	
103-65-1	n-Propylbenzene	10	U	10	2.0	
95-47-6	o-Xylene	10	U	10	2.0	
135-98-8	sec-Butylbenzene	10	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	10	U	10	2.0	
98-06-6	tert-Butylbenzene	10	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	**5.4**	J	10	3.4	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1030
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 20:30
Sample Name:	MRC-MW-27B-052914	**Units:**	µg/L
Lab Code:	R1404021-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	10	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/6/14 20:30	
Dibromofluoromethane	108	89-119	6/6/14 20:30	
Toluene-d8	98	87-121	6/6/14 20:30	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14 1145
Date Received: 5/30/14
Date Analyzed: 6/6/14 17:16

Sample Name: MRC-MW-27C-052914
Lab Code: R1404021-003

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\060614\M6350.D\

Analysis Lot: 395915
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14 1145
Date Received: 5/30/14
Date Analyzed: 6/6/14 17:16

Sample Name: MRC-MW-27C-052914
Lab Code: R1404021-003

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\060614\M6350.D\

Analysis Lot: 395915
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.25**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1145
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 17:16
Sample Name:	MRC-MW-27C-052914	**Units:**	µg/L
Lab Code:	R1404021-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6350.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/6/14 17:16	
Dibromofluoromethane	106	89-119	6/6/14 17:16	
Toluene-d8	94	87-121	6/6/14 17:16	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1230
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 19:57
Sample Name:	MRC-MW-87A-052914	**Units:**	µg/L
Lab Code:	R1404021-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6355.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	1.9	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1230
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 19:57
Sample Name:	MRC-MW-87A-052914	**Units:**	µg/L
Lab Code:	R1404021-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6355.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1230
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 19:57
Sample Name:	MRC-MW-87A-052914	**Units:**	µg/L
Lab Code:	R1404021-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6355.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/6/14 19:57	
Dibromofluoromethane	109	89-119	6/6/14 19:57	
Toluene-d8	95	87-121	6/6/14 19:57	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/28/14 1135
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 18:20
Sample Name:	MRC-MW-87B-052814	**Units:**	µg/L
Lab Code:	R1404021-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6352.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**1.6**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.30**	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/28/14 1135
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 18:20
Sample Name:	MRC-MW-87B-052814	**Units:**	µg/L
Lab Code:	R1404021-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6352.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**49**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.4**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/28/14 1135
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 18:20
Sample Name:	MRC-MW-87B-052814	**Units:**	µg/L
Lab Code:	R1404021-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6352.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/6/14 18:20	
Dibromofluoromethane	107	89-119	6/6/14 18:20	
Toluene-d8	97	87-121	6/6/14 18:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1029
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 18:53
Sample Name:	MRC-MW-88B-052914	**Units:**	µg/L
Lab Code:	R1404021-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6353.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1029
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 18:53
Sample Name:	MRC-MW-88B-052914	**Units:**	µg/L
Lab Code:	R1404021-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6353.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.30**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1029
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 18:53
Sample Name:	MRC-MW-88B-052914	**Units:**	µg/L
Lab Code:	R1404021-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6353.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/6/14 18:53	
Dibromofluoromethane	107	89-119	6/6/14 18:53	
Toluene-d8	95	87-121	6/6/14 18:53	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/28/14 0942
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 17:48
Sample Name:	MRC-MW-94B-052814	**Units:**	µg/L
Lab Code:	R1404021-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6351.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/28/14 0942
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 17:48
Sample Name:	MRC-MW-94B-052814	**Units:**	µg/L
Lab Code:	R1404021-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6351.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/28/14 0942
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 17:48
Sample Name:	MRC-MW-94B-052814	**Units:**	µg/L
Lab Code:	R1404021-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6351.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/6/14 17:48	
Dibromofluoromethane	104	89-119	6/6/14 17:48	
Toluene-d8	94	87-121	6/6/14 17:48	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1156
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 19:25
Sample Name:	MRC-MW-95B-052914	**Units:**	µg/L
Lab Code:	R1404021-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6354.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1156
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 19:25
Sample Name:	MRC-MW-95B-052914	**Units:**	µg/L
Lab Code:	R1404021-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6354.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	2.1		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1156
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 19:25
Sample Name:	MRC-MW-95B-052914	**Units:**	µg/L
Lab Code:	R1404021-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6354.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/6/14 19:25	
Dibromofluoromethane	106	89-119	6/6/14 19:25	
Toluene-d8	96	87-121	6/6/14 19:25	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 16:12
Sample Name:	TB-052914	**Units:**	µg/L
Lab Code:	R1404021-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6348.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	1.7	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	5/29/14
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 16:12
Sample Name:	TB-052914	**Units:**	µg/L
Lab Code:	R1404021-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6348.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/6/14 16:12
Sample Name:	TB-052914	**Units:**	µg/L
Lab Code:	R1404021-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6348.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/6/14 16:12	
Dibromofluoromethane	107	89-119	6/6/14 16:12	
Toluene-d8	98	87-121	6/6/14 16:12	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 13:17
Sample Name:	TB-053014	**Units:**	µg/L
Lab Code:	R1404021-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6367.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	1.4	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 13:17
Sample Name:	TB-053014	**Units:**	µg/L
Lab Code:	R1404021-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6367.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/9/14 13:17
Sample Name:	TB-053014	**Units:**	µg/L
Lab Code:	R1404021-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6367.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/9/14 13:17	
Dibromofluoromethane	105	89-119	6/9/14 13:17	
Toluene-d8	95	87-121	6/9/14 13:17	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 15:16
Sample Name:	DUP-01-053014	**Units:**	µg/L
Lab Code:	R1404021-013	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af875.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.546**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	100	70-130	6/5/14 15:16	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/6/14 11:19
Sample Name:	MRC-MW-12A-053014	**Units:**	µg/L
Lab Code:	R1404021-016	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395922
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060614\Af907.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	374		2.00	0.200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	114	70-130	6/6/14 11:19	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0955
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 15:34
Sample Name:	MRC-MW-12B-053014	**Units:**	µg/L
Lab Code:	R1404021-014	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af876.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**71.8**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	114	70-130	6/5/14 15:34	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1140
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 15:53
Sample Name:	MRC-MW-12C-053014	**Units:**	µg/L
Lab Code:	R1404021-015	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af877.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	100	70-130	6/5/14 15:53	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0840
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 14:57
Sample Name:	MRC-MW-13A-053014	**Units:**	µg/L
Lab Code:	R1404021-012	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af874.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.554**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	70-130	6/5/14 14:57	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1523
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 14:39
Sample Name:	MRC-MW-91A-052914	**Units:**	µg/L
Lab Code:	R1404021-011	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af873.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**3.55**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	95	70-130	6/5/14 14:39	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/3/14 12:24
Sample Name:	MRC-MW-12A-053014	**Units:**	µg/L
Lab Code:	R1404021-016	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1009.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	**0.52**	J	1.0	0.11	
74-82-8	Methane	**46**		1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 0955
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Analyzed:	6/3/14 12:14
Sample Name:	MRC-MW-12B-053014	**Units:**	µg/L
Lab Code:	R1404021-014	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1008.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	**2.0**		1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1350
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/3/14 12:03
Sample Name:	MRC-MW-24A-052914	**Units:**	µg/L
Lab Code:	R1404021-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1007.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**1.0**		1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	**300**	E	1.0	0.21	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1350
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/3/14 12:45
Sample Name:	MRC-MW-24A-052914	**Units:**	µg/L
Lab Code:	R1404021-004	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1011.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**1.1**	DJ	5.0	0.98	
74-85-1	Ethene	5.0	U	5.0	0.54	
74-82-8	Methane	**380**	D	5.0	1.1	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 0915
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/3/14 11:43
Sample Name:	MRC-MW-27A-052914	**Units:**	µg/L
Lab Code:	R1404021-001	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1005.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	6.3		1.0	0.20	
74-85-1	Ethene	3.3		1.0	0.11	
74-82-8	Methane	530	E	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 0915
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/3/14 12:34
Sample Name:	MRC-MW-27A-052914	**Units:**	µg/L
Lab Code:	R1404021-001	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1010.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**5.5**	DJ	25	4.9	
74-85-1	Ethene	25	U	25	2.7	
74-82-8	Methane	**2400**	D	25	5.1	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 1030
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/3/14 11:53
Sample Name:	MRC-MW-27B-052914	**Units:**	µg/L
Lab Code:	R1404021-002	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1006.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	**14**		1.0	0.21	

APPENDIX C

SUPPORT DOCUMENTATION

HOLDTIME

SDG R1404021

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
	MG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
HG	UG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/11/2014	06/11/2014	12	0	12
HG	UG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/11/2014	06/11/2014	13	0	13
HG	UG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/11/2014	06/11/2014	13	0	13
HG	UG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/11/2014	06/11/2014	13	0	13
HG	UG/L	MRC-MW-87B-052814	R1404021-007	NM	05/29/2014	06/11/2014	06/11/2014	13	0	13
HG	UG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/11/2014	06/11/2014	12	0	12
M	UG/L	MRC-MW-87B-052814	R1404021-007	NM	05/29/2014	06/09/2014	06/10/2014	11	1	12
M	UG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/09/2014	06/13/2014	11	4	15
M	UG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/09/2014	06/10/2014	11	1	12
M	UG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/09/2014	06/10/2014	11	1	12

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/09/2014	06/10/2014	10	1	11
M	UG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/09/2014	06/13/2014	11	4	15
M	UG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/09/2014	06/13/2014	10	4	14
M	UG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/09/2014	06/10/2014	11	1	12
M	UG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/09/2014	06/13/2014	10	4	14
M	UG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/09/2014	06/13/2014	11	4	15
M	UG/L	MRC-MW-87B-052814	R1404021-007	NM	05/29/2014	06/09/2014	06/13/2014	11	4	15
M	UG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/09/2014	06/10/2014	10	1	11
	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	05/31/2014	05/31/2014	1	0	1
	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/17/2014	06/17/2014	19	0	19
	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/03/2014	06/03/2014	5	0	5
	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/02/2014	06/02/2014	4	0	4
	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	05/30/2014	05/30/2014	1	0	1
	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/17/2014	06/17/2014	18	0	18
	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/01/2014	06/01/2014	2	0	2
	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/02/2014	06/02/2014	3	0	3
	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	05/31/2014	05/31/2014	1	0	1
	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	05/30/2014	05/30/2014	1	0	1

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/17/2014	06/17/2014	18	0	18
	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/02/2014	06/02/2014	3	0	3
	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/03/2014	06/03/2014	5	0	5
	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/17/2014	06/17/2014	19	0	19
	MG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	05/30/2014	05/30/2014	1	0	1
	MG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/02/2014	06/02/2014	4	0	4
	MG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/17/2014	06/17/2014	19	0	19
	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/01/2014	06/01/2014	2	0	2
	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/02/2014	06/02/2014	4	0	4
ALK	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
ALK	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
ALK	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/10/2014	06/10/2014	11	0	11
ALK	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
ALK	MG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
NH3	MG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/16/2014	06/16/2014	17	0	17
NH3	MG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/16/2014	06/16/2014	18	0	18
NH3	MG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/16/2014	06/16/2014	18	0	18
NH3	MG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/16/2014	06/16/2014	18	0	18

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
NH3	MG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/16/2014	06/16/2014	17	0	17
	PERCENT	MRC-MW-13A-053014	R1404021-012	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	PERCENT	DUP-01-053014	R1404021-013	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	PERCENT	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/05/2014	06/06/2014	6	1	7
	PERCENT	MRC-MW-91A-052914	R1404021-011	NM	05/29/2014	06/05/2014	06/05/2014	7	0	7
	PERCENT	MRC-MW-12C-053014	R1404021-015	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	PERCENT	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	UG/L	DUP-01-053014	R1404021-013	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	UG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	UG/L	MRC-MW-13A-053014	R1404021-012	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	UG/L	MRC-MW-91A-052914	R1404021-011	NM	05/29/2014	06/05/2014	06/05/2014	7	0	7
	UG/L	MRC-MW-12C-053014	R1404021-015	NM	05/30/2014	06/05/2014	06/05/2014	6	0	6
	UG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/05/2014	06/06/2014	6	1	7
OV	PERCENT	MRC-MW-87B-052814	R1404021-007	NM	05/28/2014	06/06/2014	06/06/2014	9	0	9
OV	PERCENT	DUP-01-053014	R1404021-013	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	PERCENT	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/10/2014	06/10/2014	11	0	11
OV	PERCENT	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	PERCENT	MRC-MW-12C-053014	R1404021-015	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	PERCENT	MRC-MW-13A-053014	R1404021-012	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	PERCENT	TB-053014	R1404021-017	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	PERCENT	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	PERCENT	MRC-MW-87A-052914	R1404021-010	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	PERCENT	MRC-MW-88B-052914	R1404021-008	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	PERCENT	MRC-MW-94B-052814	R1404021-006	NM	05/28/2014	06/06/2014	06/06/2014	9	0	9
OV	PERCENT	MRC-MW-95B-052914	R1404021-009	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	PERCENT	TB-052914	R1404021-005	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	PERCENT	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11
OV	PERCENT	MRC-MW-27C-052914	R1404021-003	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-27C-052914	R1404021-003	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-95B-052914	R1404021-009	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-94B-052814	R1404021-006	NM	05/28/2014	06/06/2014	06/06/2014	9	0	9
OV	UG/L	TB-053014	R1404021-017	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	UG/L	MRC-MW-87B-052814	R1404021-007	NM	05/28/2014	06/06/2014	06/06/2014	9	0	9
OV	UG/L	MRC-MW-87A-052914	R1404021-010	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/09/2014	06/09/2014	11	0	11

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	TB-052914	R1404021-005	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-88B-052914	R1404021-008	NM	05/29/2014	06/06/2014	06/06/2014	8	0	8
OV	UG/L	MRC-MW-12C-053014	R1404021-015	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	UG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	UG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/10/2014	06/10/2014	11	0	11
OV	UG/L	DUP-01-053014	R1404021-013	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
OV	UG/L	MRC-MW-13A-053014	R1404021-012	NM	05/30/2014	06/09/2014	06/09/2014	10	0	10
	UG/L	MRC-MW-24A-052914	R1404021-004	NM	05/29/2014	06/03/2014	06/03/2014	5	0	5
	UG/L	MRC-MW-12A-053014	R1404021-016	NM	05/30/2014	06/03/2014	06/03/2014	4	0	4
	UG/L	MRC-MW-12B-053014	R1404021-014	NM	05/30/2014	06/03/2014	06/03/2014	4	0	4
	UG/L	MRC-MW-27A-052914	R1404021-001	NM	05/29/2014	06/03/2014	06/03/2014	5	0	5
	UG/L	MRC-MW-27B-052914	R1404021-002	NM	05/29/2014	06/03/2014	06/03/2014	5	0	5

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15147

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature:	Sampler's Printed Name: Josh Mills

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 1 — — — — 2 — 1 3 0 0 0 — —

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS		SCANS VOAs + 8260 + 624 + CLP	SCANS SVOAs + 8270 + 625	OC VOAs + 8021 + 624/602	PESTICIDES + 8081 + 608	PCBs + 8082 + 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	RSK-175	NH_3	Alkalinity	Silica	TDS, NH_3, NO_2, Soil, Cl, SO_4	1,4 Dioxane		
MRC-MW-27A-052914		5/29/14	0915	Aq	11	3						1	—	3	1	1	1	1			
MRC-MW-27B-052914			1030		11	3						1	—	3	1	1	1	1			
MRC-MW-27C-052914			1145		3	3															
MRC-MW-24A-052914			1350		8							1	—	3	1	1	1	1			
TB-052914			—		2	2															
MRC-MW-94B-052814		5-29-14	0942		3	3															
MRC-MW-87B-052814			1135		4	3						1									
MRC-MW-88B-052914		5-29-14	1029		3	3															
MRC-MW-95B-052914			1156		3	3															
MRC-MW-87A-052914			1230		3	3															
MRC-MW-91A-052914			1523		2													2			

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
STANDARD
REQUESTED REPORT DATE
_____

REPORT REQUIREMENTS
_____ I. Results Only
_____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature	Signature	Signature	
Printed Name: Walt Pryor	Printed Name: J. Stevens	Printed Name	Printed Name	Printed Name	
Firm: TT Inc	Firm: ALS	Firm	Firm	Firm	
Date/Time: 5-29-14 / 1630	Date/Time: 5/30/14 0955	Date/Time	Date/Time	Date/Time	

R1404021 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number

Cooler received on 5/30/14 by: JKS COURIER: ALS DPS GSDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	N/A

8. Temperature Readings Date: 5/30/14 Time: 1047 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.9						
Correction Factor (°C)	+0.2						
Corrected Temp (°C)	4.1						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: rack by JKS on 5/30/14 at 1047
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: _____ Time: _____ by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3								
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN ( ) Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: _____
Other Comments:

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15149

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: 1 3 1 0 7 2 / 0 0

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	TDS, NO_2, NO_3, PO_4, Cl, SO_4	Alkalinity						REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-13A-053014		5/30/14	0840	Aq	5	3	2	—	—	—	—	—	—	—						
DUP-01-053014			—		5	3	2	—	—	—	—	—	—	—						
MRC-MW-12B-053014			0955		13	3	2	3	1	1	1	/	1	1						
MRC-MW-12C-053014			1140		5	3	2	—	—	—	—	—	—	—						
MRC-MW-12A-053014			1250		13	3	2	3	1	1	1	/	1	1						
TB-053014			—		2	2	—	—	—	—	—	—	—	—						

JAM

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	Signature
Printed Name: Josh Mullis	Printed Name: Gregory O. Esmerian	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 5/30/14 1500	Date/Time: 5-31-14 9:10	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number N14-4021

Cooler received on 5-31-14 by: HE COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 5-31-14 Time: 09:36 ID IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.3°						
Correction Factor (°C)	+0.2°						
Corrected Temp (°C)	3.5°						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by HE on 5-31-14 at 9:40

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 6/2/14 Time: 1241 by: JFS

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BOB261360	5/15				
≤2	H_2SO_4	✓		WC126250E	5/15				
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 100713-24AW, 112612-2VV, 4-002-003, 021014-1BMC

Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #: 112IC06247	Batch Complete: Yes		Date Revised:
Submission: R1404021	Diskette Requested: No		Date Due: 6/23/14
Client: Tetra Tech GEO	Date: 6/4/14		Protocol: SW846
Client Rep: DPATTON	Custody Seal: Present/Absent:		Shipping No.:
Project: Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1404021-001	MRC-MW-27A-052914	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, SM 2320 B-1997(2011), SM 2540 C-1997(2011)	5/29/14	5/30/14			
R1404021-001.R01	MRC-MW-27A-052914	Water	RSK 175	5/29/14	5/30/14			
R1404021-002	MRC-MW-27B-052914	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, SM 2320 B-1997(2011), SM 2540 C-1997(2011)	5/29/14	5/30/14			
R1404021-003	MRC-MW-27C-052914	Water	8260C	5/29/14	5/30/14			
R1404021-004	MRC-MW-24A-052914	Water	7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C, 6020A, SM 2320 B-1997(2011), SM 2540 C-1997(2011)	5/29/14	5/30/14			
R1404021-004.R01	MRC-MW-24A-052914	Water	RSK 175	5/29/14	5/30/14			
R1404021-005	TB-052914	Water	8260C	5/29/14	5/30/14			
R1404021-006	MRC-MW-94B-052814	Water	8260C	5/28/14	5/30/14			
R1404021-007	MRC-MW-87B-052814	Water	6010C, 6020A, 7470A, 8260C	5/28/14	5/30/14			
R1404021-008	MRC-MW-88B-052914	Water	8260C	5/29/14	5/30/14			
R1404021-009	MRC-MW-95B-052914	Water	8260C	5/29/14	5/30/14			
R1404021-010	MRC-MW-87A-052914	Water	8260C	5/29/14	5/30/14			
R1404021-011	MRC-MW-91A-052914	Water	522	5/29/14	5/30/14			
R1404021-012	MRC-MW-13A-053014	Water	522, 8260C	5/30/14	5/31/14			
R1404021-013	DUP-01-053014	Water	522, 8260C	5/30/14	5/31/14			
R1404021-014	MRC-MW-12B-053014	Water	365.1, 350.1, USGS I-2700-85, 6010C, RSK 175, 300.0, 7470A, SM 2540 C-1997(2011), 6020A, 8260C, 522, SM 2320 B-1997(2011)	5/30/14	5/31/14			
R1404021-015	MRC-MW-12C-053014	Water	8260C, 522	5/30/14	5/31/14			
R1404021-016	MRC-MW-12A-053014	Water	6020A, 8260C, 522, SM 2320 B-1997(2011), SM 2540 C-1997(2011), 7470A, 300.0, RSK 175, 365.1, 350.1, USGS I-2700-85, 6010C	5/30/14	5/31/14			
R1404021-017	TB-053014	Water	8260C	5/30/14	5/31/14			

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1404021
Project:	Middle River	**Date Received:**	5/30-5/31/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Seventeen water samples were received for analysis at ALS-Environmental between 5/30-5/31/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 3.5-4.1°C within the 0-6°C temperature guidelines.

Wet Chemistry

The Continuing Calibration Blank (CCB4, CCB5) for Orthophosphate contained low level hits and have been flagged with a "J". No data was affected.

The Method Blanks for Alkalinity (MB1 and MB2) and Dissolved Silica (MB1) contained low level hits and have been flagged with a "J". No data was affected.

Site QC was not requested but was analyzed. All exceedences have been flagged with a "*".

No analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-12A-053014 (R1404021-016) was not applicable for Nickel as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
6/6/14- 2-Hexanone, Acetone (>40%) and Methylene Chloride
6/9/14- Dibromochloromethane
6/10/14- 1,1,2,2-Tetrachloroethane, Carbon Tetrachloride, Dibromochloromethane, Diisopropyl Ether and Vinyl Acetate
All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

The Method Blanks contained low level hits of 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 6/6/14, 6/9/14 and 1,2,4-Trichlorobenzene, Bromomethane, Hexachlorobutadiene and Naphthalene on 6/10/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on sample MRC-MW-27B-052914 (R1404021-002). All exceedences have been flagged with a "*".

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/27/14

Volatile Organics-RSK

The 6/3/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/27/14

ALS Environmental

VOLATILE ORGANICS
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 3/12/14 09:41

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\031214\J3873.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	18.96	83285	Pass
75	95	30	60	49.54	217600	Pass
95	95	100	100	100.00	439232	Pass
96	95	5	9	6.84	30035	Pass
173	174	0	2	1.18	3907	Pass
174	95	50	120	75.24	330475	Pass
175	174	5	9	7.57	25003	Pass
176	174	95	101	100.37	331712	Pass
177	176	5	9	6.54	21696	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3875.D\	3/12/14 10:45	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3876.D\	3/12/14 11:17	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3877.D\	3/12/14 11:49	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3878.D\	3/12/14 12:21	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3879.D\	3/12/14 12:53	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3880.D\	3/12/14 13:26	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3881.D\	3/12/14 13:58	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3882.D\	3/12/14 14:30	

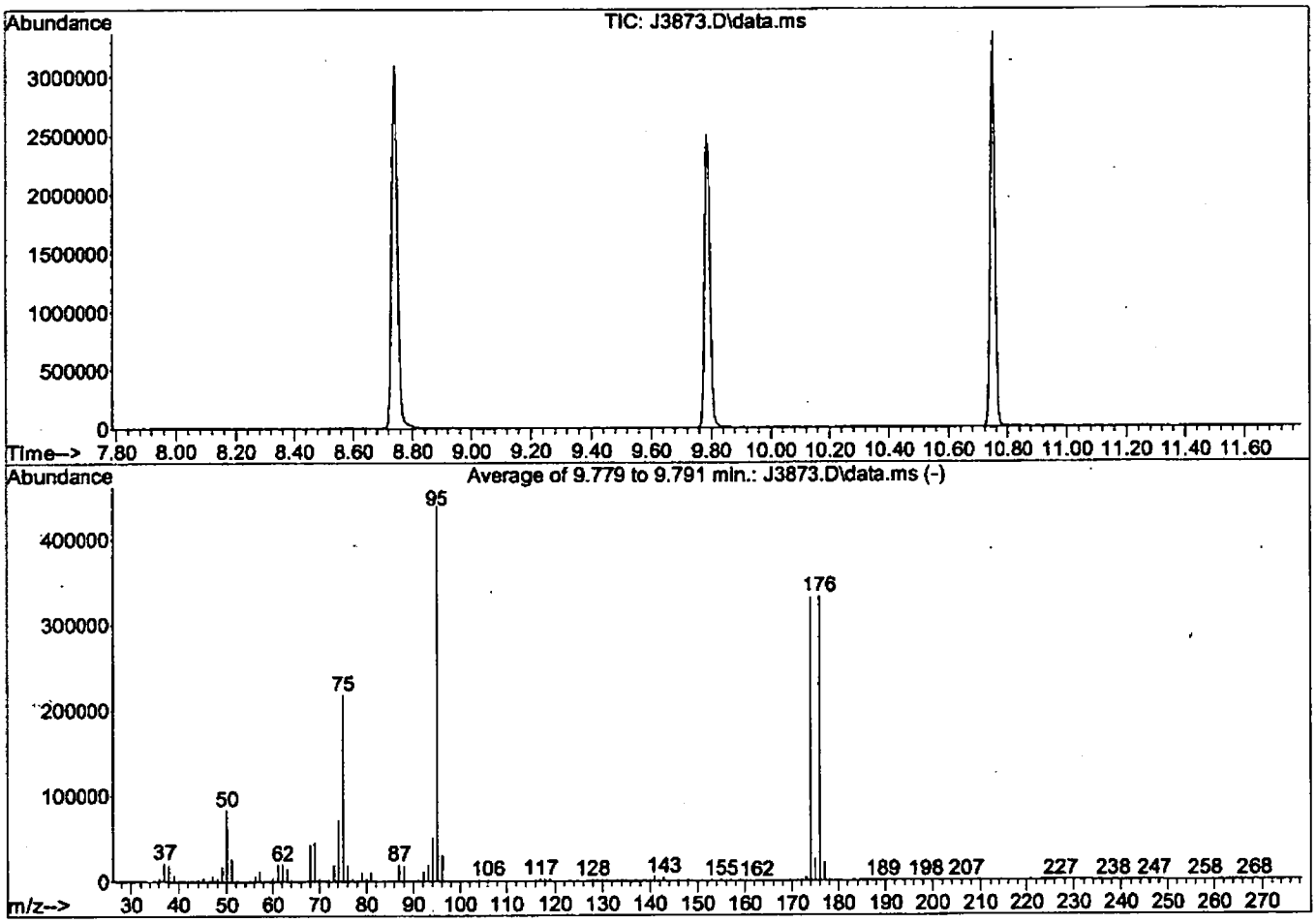
BFB

Data Path : I:\ACQUDATA\msvoa12\Data\031214\
Data File : J3873.D
Acq On : 12 Mar 2014 9:41 am
Operator : K.Ruest
Sample : TUNE
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: INTP60.P

KR 3/12/14

Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Thu Jan 16 12:02:56 2014



AutoFind: Scans 1424, 1425, 1426; Background Corrected with Scan 1419

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.0	83285	PASS
75	95	30	60	49.5	217600	PASS
95	95	100	100	100.0	439232	PASS
96	95	5	9	6.8	30035	PASS
173	174	0.00	2	1.2	3907	PASS
174	95	50	120	75.2	330475	PASS
175	174	5	9	7.6	25003	PASS
176	174	95	101	100.4	331712	PASS
177	176	5	9	6.5	21696	PASS

Initial Calibration - Summary Report

KR 3/13/14

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
	W031214 8260 Waters	**Column Name:**	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3058	<=20	7.3
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7112	<=20	2.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5726	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2220	<=20	5.6
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.3971	<=20	1.9
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8461	<=20	3.1
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3628	<=20	3.7
1,1-Dichloropropene	T	Average RF			0.3693	<=20	4.9
1,2,3-Trichlorobenzene	T	Average RF			0.6036	<=20	8.2
1,2,3-Trichloropropane	T	Average RF			0.1713	<=20	7.2
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7372	<=20	6.4
1,2,4-Trimethylbenzene	T	Average RF			2.167	<=20	7.0
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.08773	<=20	12.9
1,2-Dibromoethane	T	Average RF		0.100	0.2312	<=20	5.1
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5388	<=20	4.7
1,2-Dichlorobenzene	T	Average RF		0.400	1.206	<=20	3.3
1,2-Dichloroethane	T	Average RF		0.100	0.3737	<=20	3.9
1,2-Dichloropropane	T	Average RF		0.100	0.3148	<=20	4.5
1,3,5-Trichlorobenzene	T	Average RF			0.8315	<=20	4.0
1,3,5-Trimethylbenzene	T	Average RF			2.106	<=20	6.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.252	<=20	4.2
1,3-Dichloropropane	T	Average RF			0.4501	<=20	2.3
1,4-Dichlorobenzene	T	Average RF		0.500	1.332	<=20	8.0
1,4-Dioxane	T	Average RF			0.002062	<=20	6.8
1-Butanol	T	Average RF			0.004645	<=20	18.2
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.3856	<=20	7.0
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6154	<=20	3.4
2,2-Dichloropropane	T	Average RF			0.6713	<=20	3.9
2,3,6-Trichlorotoluene	T	Average RF			0.3641	<=20	7.5
2,4,5-Trichlorotoluene	T	Average RF			0.3978	<=20	7.2
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			0.9535	<=20	5.8
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5359	<=20	4.0
2,5-Dichlorobenzotrifluoride	T	Average RF			0.6128	<=20	3.4
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1390	<=20	1.9
2-Chloro-1,3-butadiene	T	Average RF			0.7288	<=20	7.9
2-Chlorobenzotrifluoride	T	Average RF			0.8330	<=20	4.8
2-Chloroethyl Vinyl Ether	T	Average RF			0.1412	<=20	5.8
2-Chlorotoluene	T	Average RF			1.896	<=20	5.7
2-Hexanone	T	Average RF		0.05	0.1416	<=20	9.6
2-Methyl-1-propanol	T	Average RF			0.008458	<=20	8.6
2-Methyl-2-propanol	T	Average RF			0.02773	<=20	8.6
2-Nitropropane	T	Average RF			0.03954	<=20	10.8
2-Propanol	T	Average RF			0.01610	<=20	13.7
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.010	<=20	7.1
3,4-Dichlorobenzotrifluoride	T	Average RF			0.6160	<=20	4.0
3-Chloro-1-propene	T	Average RF			0.2488	<=20	4.3
3-Chlorobenzotrifluoride	T	Average RF			0.4304	<=20	7.2
3-Chlorotoluene	T	Average RF			1.973	<=20	5.3
4-Chlorotoluene	T	Average RF			2.236	<=20	8.4
4-Isopropyltoluene	T	Average RF			2.086	<=20	6.7
4-Methyl-2-pentanone	T	Average RF		0.05	0.1899	<=20	6.0

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09920	<=20	6.0
Acetonitrile	T	Average RF			0.01622	<=20	13.2
Acrolein	T	Quadratic	1/X2		0.01717	>=0.99	0.9978
Acrylonitrile	T	Average RF			0.1111	<=20	5.0
Benzene	T	Average RF		0.500	1.231	<=20	2.6
Bromobenzene	T	Average RF			0.7355	<=20	3.3
Bromochloromethane	T	Average RF			0.2832	<=20	8.2
Bromodichloromethane	T	Average RF		0.200	0.3677	<=20	5.4
Bromoform	T	Average RF		0.100	0.2840	<=20	15.6
Bromomethane	T	Average RF		0.100	0.2881	<=20	6.8
Carbon Disulfide	T	Average RF		0.100	1.262	<=20	4.8
Carbon Tetrachloride	T	Average RF		0.05	0.1199	<=20	6.9
Chlorobenzene	T	Average RF		0.500	0.8701	<=20	2.8
Chloroethane	T	Average RF		0.100	0.2851	<=20	8.6
Chloroform	T	Average RF		0.200	0.8292	<=20	4.7
Chloromethane	T	Average RF		0.100	0.5146	<=20	2.8
Cyclohexane	T	Average RF		0.100	0.2705	<=20	5.1
Cyclohexanone	T	Average RF			0.04011	<=20	5.9
Dibromochloromethane	T	Average RF		0.100	0.2588	<=20	11.9
Dibromomethane	T	Average RF			0.1497	<=20	3.1
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5939	<=20	7.1
Dichlorofluoromethane (CFC 21)	T	Average RF			0.7211	<=20	4.4
Dichloromethane	T	Average RF		0.100	0.4753	<=20	5.4
Diethyl Ether	T	Average RF			0.3614	<=20	6.8
Diisopropyl Ether	T	Average RF			1.648	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.2861	<=20	15.5
Ethyl tert-Butyl Ether	T	Average RF			1.379	<=20	4.3
Ethylbenzene	T	Average RF		0.100	0.4636	<=20	3.9
Hexachlorobutadiene	T	Average RF			0.3218	<=20	5.3
Iodomethane	T	Average RF			0.4820	<=20	15.6
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.581	<=20	6.3
Methacrylonitrile	T	Average RF			0.1295	<=20	10.3
Methyl Acetate	T	Average RF		0.100	0.2234	<=20	6.0
Methyl Methacrylate	T	Average RF			0.1481	<=20	9.0
Methyl tert-Butyl Ether	T	Average RF		0.100	1.153	<=20	3.5
Methylcyclohexane	T	Average RF		0.100	0.3206	<=20	5.3
Naphthalene	T	Average RF			1.327	<=20	6.2
Propionitrile	T	Average RF			0.04013	<=20	8.9
Styrene	T	Average RF		0.300	0.8888	<=20	9.8
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2583	<=20	7.1
Tetrahydrofuran (THF)	T	Average RF			0.09716	<=20	4.0
Toluene	T	Average RF		0.400	1.269	<=20	4.0
Trichloroethene (TCE)	T	Average RF		0.200	0.2982	<=20	2.1
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7340	<=20	4.6
Vinyl Acetate	T	Average RF			0.07534	<=20	7.4
Vinyl Chloride	T	Average RF		0.100	0.4781	<=20	2.7
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5073	<=20	2.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.4363	<=20	8.8
m,p-Xylenes	T	Average RF		0.100	0.5448	<=20	5.7
n-Butyl Acetate	T	Average RF			0.3502	<=20	8.0
n-Butylbenzene	T	Average RF			1.881	<=20	7.7
n-Heptane	T	Average RF			0.3075	<=20	4.6

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.020	<=20	7.6
o-Xylene	T	Average RF		0.300	0.5559	<=20	4.6
sec-Butylbenzene	T	Average RF			2.467	<=20	7.2
tert-Amyl Methyl Ether	T	Average RF			1.164	<=20	4.4
tert-Butylbenzene	T	Average RF			1.773	<=20	4.3
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4546	<=20	2.9
trans-1,3-Dichloropropene	T	Average RF		0.100	0.3517	<=20	12.9
trans-1,4-Dichloro-2-butene	T	Average RF			0.1346	<=20	13.1
1,2-Dichloroethane-d4	S	Average RF			0.3297	<=20	1.6
4-Bromofluorobenzene	S	Average RF			0.4538	<=20	1.8
Dibromofluoromethane	S	Average RF			0.2895	<=20	0.8
Toluene-d8	S	Average RF			1.216	<=20	0.5

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/6/14 10:17

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\060614\M6337.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 395915

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.28	78655	Pass
75	95	30	60	53.89	209003	Pass
95	95	100	100	100.00	387819	Pass
96	95	5	9	6.16	23884	Pass
173	174	0	2	1.42	5086	Pass
174	95	50	120	92.24	357739	Pass
175	174	5	9	7.77	27787	Pass
176	174	95	101	97.30	348096	Pass
177	176	5	9	6.49	22600	Pass

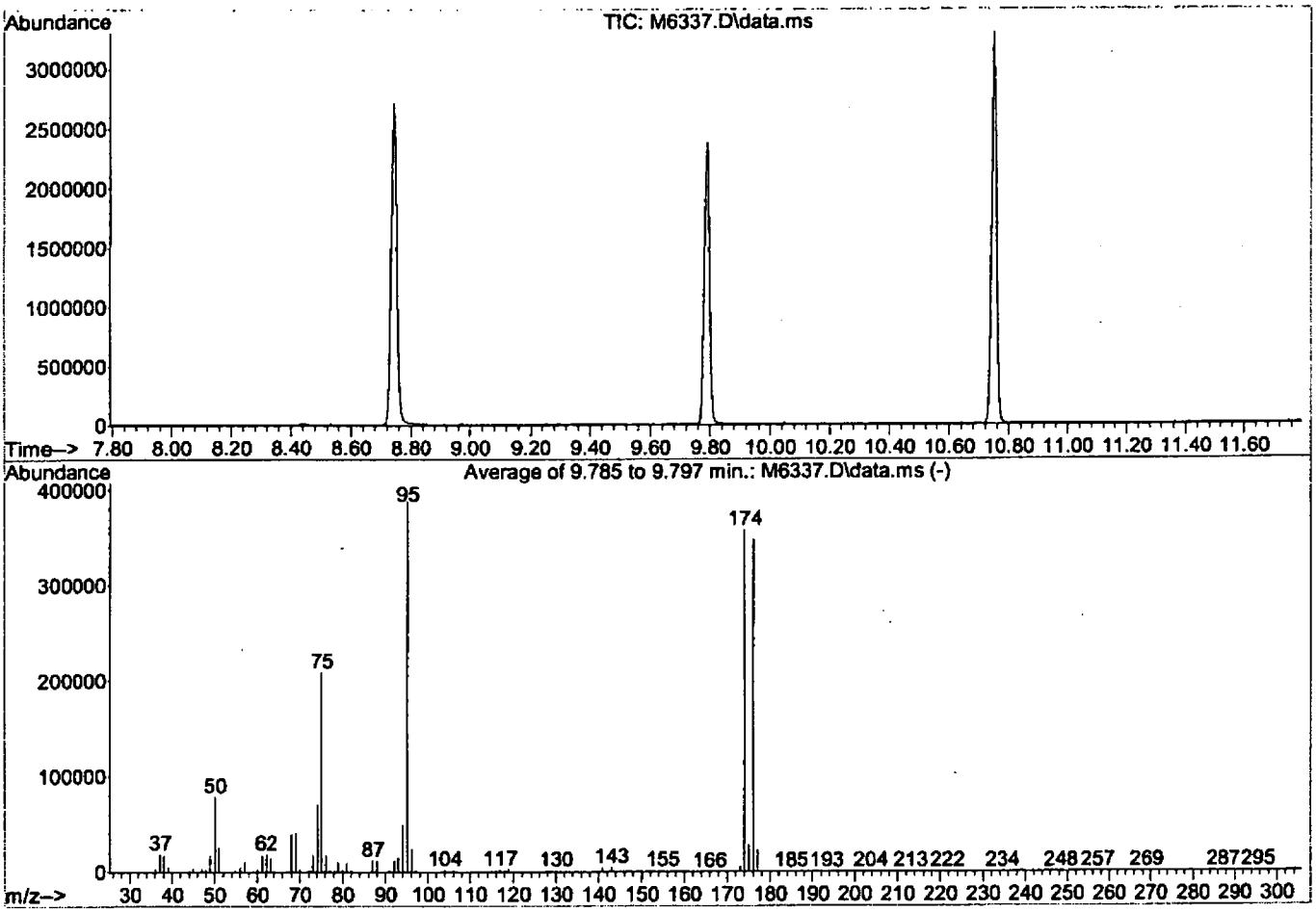
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406207-02	I:\ACQUDATA\MSVOA12\DATA\060614\M6338.D\	6/6/14 10:49	
Lab Control Sample	RQ1406207-03	I:\ACQUDATA\MSVOA12\DATA\060614\M6339.D\	6/6/14 11:22	
Method Blank	RQ1406207-04	I:\ACQUDATA\MSVOA12\DATA\060614\M6341.D\	6/6/14 12:26	
TB-052914	R1404021-005	I:\ACQUDATA\MSVOA12\DATA\060614\M6348.D\	6/6/14 16:12	
MRC-MW-27C-052914	R1404021-003	I:\ACQUDATA\MSVOA12\DATA\060614\M6350.D\	6/6/14 17:16	
MRC-MW-94B-052814	R1404021-006	I:\ACQUDATA\MSVOA12\DATA\060614\M6351.D\	6/6/14 17:48	
MRC-MW-87B-052814	R1404021-007	I:\ACQUDATA\MSVOA12\DATA\060614\M6352.D\	6/6/14 18:20	
MRC-MW-88B-052914	R1404021-008	I:\ACQUDATA\MSVOA12\DATA\060614\M6353.D\	6/6/14 18:53	
MRC-MW-95B-052914	R1404021-009	I:\ACQUDATA\MSVOA12\DATA\060614\M6354.D\	6/6/14 19:25	
MRC-MW-87A-052914	R1404021-010	I:\ACQUDATA\MSVOA12\DATA\060614\M6355.D\	6/6/14 19:57	
MRC-MW-27B-052914	R1404021-002	I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D\	6/6/14 20:30	
MRC-MW-27B-052914MS	RQ1406207-05	I:\ACQUDATA\MSVOA12\DATA\060614\M6357.D\	6/6/14 21:02	
MRC-MW-27B-052914DMS	RQ1406207-06	I:\ACQUDATA\MSVOA12\DATA\060614\M6358.D\	6/6/14 21:34	

Data Path : I:\ACQUDATA\msvoa12\Data\060614\
Data File : M6337.D
Acq On : 6 Jun 2014 10:17 am
Operator : K.Ruest
Sample : TUNE RQ 1406205-01, 6207-01
Misc :
ALS Vial : 3 Sample Multiplier: 1

KR 6/6/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Mon May 19 11:05:50 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.3	78655	PASS
75	95	30	60	53.9	209003	PASS
95	95	100	100	100.0	387819	PASS
96	95	5	9	6.2	23884	PASS
173	174	0.00	2	1.4	5086	PASS
174	95	50	120	92.2	357739	PASS
175	174	5	9	7.8	27787	PASS
176	174	95	101	97.3	348096	PASS
177	176	5	9	6.5	22600	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/ 6/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\060614\M6338.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 395915
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	56.3	0.3058	0.3444	12.7	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	51.0	0.7112	0.7259	2.1	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	40.8	0.5726	0.4676	-18.3	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	46.0	0.3971	0.3650	-8.1	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	42.7	0.8461	0.7228	-14.6	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	41.9	0.3628	0.3038	-16.3	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	51.6	0.3693	0.3810	3.2	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	51.4	0.6036	0.6203	2.8	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	45.0	0.1713	0.1542	-10.0	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	51.5	0.7372	0.7597	3.0	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	50.9	2.167	2.205	1.8	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	54.2	0.08773	0.09509	8.4	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	51.4	0.2312	0.2378	2.9	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	51.3	1.206	1.237	2.6	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	58.1	0.3737	0.4343	16.2	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	45.5	0.3148	0.2865	-9.0	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	51.3	1.252	1.284	2.6	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	46.6	0.4501	0.4192	-6.9	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	49.1	1.332	1.308	-1.8	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	51.6	0.6713	0.6926	3.2	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	52.4	0.1390	0.1456	4.8	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	50.2	0.1412	0.1416	0.3	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	47.5	1.896	1.802	-5.0	NA	± 20 %	Average RF
2-Hexanone	50.0	60.2	0.1416	0.1706	20.4 *	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	977	0.02773	0.02710	-2.3	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	49.6	2.236	2.216	-0.9	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	52.4	2.086	2.187	4.8	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	50.2	0.1899	0.1908	0.5	NA	± 20 %	Average RF
Acetone	50.0	70.4	0.09920	0.1396	40.7 *	NA	± 20 %	Average RF
Benzene	50.0	46.5	1.231	1.144	-7.1	NA	± 20 %	Average RF
Bromobenzene	50.0	47.6	0.7355	0.7004	-4.8	NA	± 20 %	Average RF
Bromochloromethane	50.0	42.7	0.2832	0.2420	-14.6	NA	± 20 %	Average RF
Bromodichloromethane	50.0	55.8	0.3677	0.4102	11.6	NA	± 20 %	Average RF
Bromoform	50.0	48.6	0.2840	0.2759	-2.9	NA	± 20 %	Average RF
Bromomethane	50.0	52.2	0.2881	0.3008	4.4	NA	± 20 %	Average RF
Carbon Disulfide	50.0	45.7	1.262	1.153	-8.6	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	59.1	0.1199	0.1417	18.2	NA	± 20 %	Average RF
Chlorobenzene	50.0	51.0	0.8701	0.8868	1.9	NA	± 20 %	Average RF
Chloroethane	50.0	47.2	0.2851	0.2692	-5.6	NA	± 20 %	Average RF
Chloroform	50.0	46.2	0.8292	0.7662	-7.6	NA	± 20 %	Average RF
Chloromethane	50.0	41.7	0.5146	0.4293	-16.6	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/ 6/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\060614\M6338.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 395915
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	56.6	0.2588	0.2930	13.2	NA	± 20 %	Average RF
Dibromomethane	50.0	50.2	0.1497	0.1503	0.4	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	45.7	0.5939	0.5427	-8.6	NA	± 20 %	Average RF
Methylene Chloride	50.0	38.6	0.4753	0.3669	-22.8 *	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	41.2	1.648	1.356	-17.7	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	45.9	1.379	1.265	-8.3	NA	± 20 %	Average RF
Ethylbenzene	50.0	52.1	0.4636	0.4826	4.1	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	51.9	0.3218	0.3340	3.8	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	49.4	2.581	2.548	-1.3	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	43.2	1.153	0.9966	-13.6	NA	± 20 %	Average RF
Naphthalene	50.0	49.9	1.327	1.324	-0.3	NA	± 20 %	Average RF
Styrene	50.0	55.7	0.8888	0.9896	11.3	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	55.5	0.2583	0.2868	11.1	NA	± 20 %	Average RF
Toluene	50.0	50.3	1.269	1.278	0.7	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	52.8	0.2982	0.3146	5.5	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	51.8	0.7340	0.7608	3.7	NA	± 20 %	Average RF
Vinyl Acetate	50.0	41.9	0.07534	0.06310	-16.3	NA	± 20 %	Average RF
Vinyl Chloride	50.0	52.0	0.4781	0.4975	4.1	NA	± 20 %	Average RF
Xylenes, Total	150	162	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	42.2	0.5073	0.4276	-15.7	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	52.0	0.4363	0.4534	3.9	NA	± 20 %	Average RF
m,p-Xylenes	100	109	0.5448	0.5963	9.5	NA	± 20 %	Average RF
n-Butylbenzene	50.0	50.0	1.881	1.879	-0.1	NA	± 20 %	Average RF
n-Propylbenzene	50.0	48.6	3.020	2.934	-2.8	NA	± 20 %	Average RF
o-Xylene	50.0	52.4	0.5559	0.5826	4.8	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	49.6	2.467	2.447	-0.8	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	45.3	1.164	1.054	-9.5	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	49.7	1.773	1.763	-0.5	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	41.6	0.4546	0.3783	-16.8	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	57.1	0.3517	0.4013	14.1	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.2	0.4538	0.4827	6.4	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	54.0	0.2895	0.3123	7.9	NA	± 20 %	Average RF
Toluene-d8	50.0	50.2	1.216	1.220	0.3	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/9/14 10:40

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\060914\M6362.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 396198

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	19.40	80872	Pass
75	95	30	60	52.39	218427	Pass
95	95	100	100	100.00	416917	Pass
96	95	5	9	6.57	27401	Pass
173	174	0	2	1.21	4742	Pass
174	95	50	120	93.98	391829	Pass
175	174	5	9	7.90	30944	Pass
176	174	95	101	97.45	381824	Pass
177	176	5	9	6.48	24752	Pass

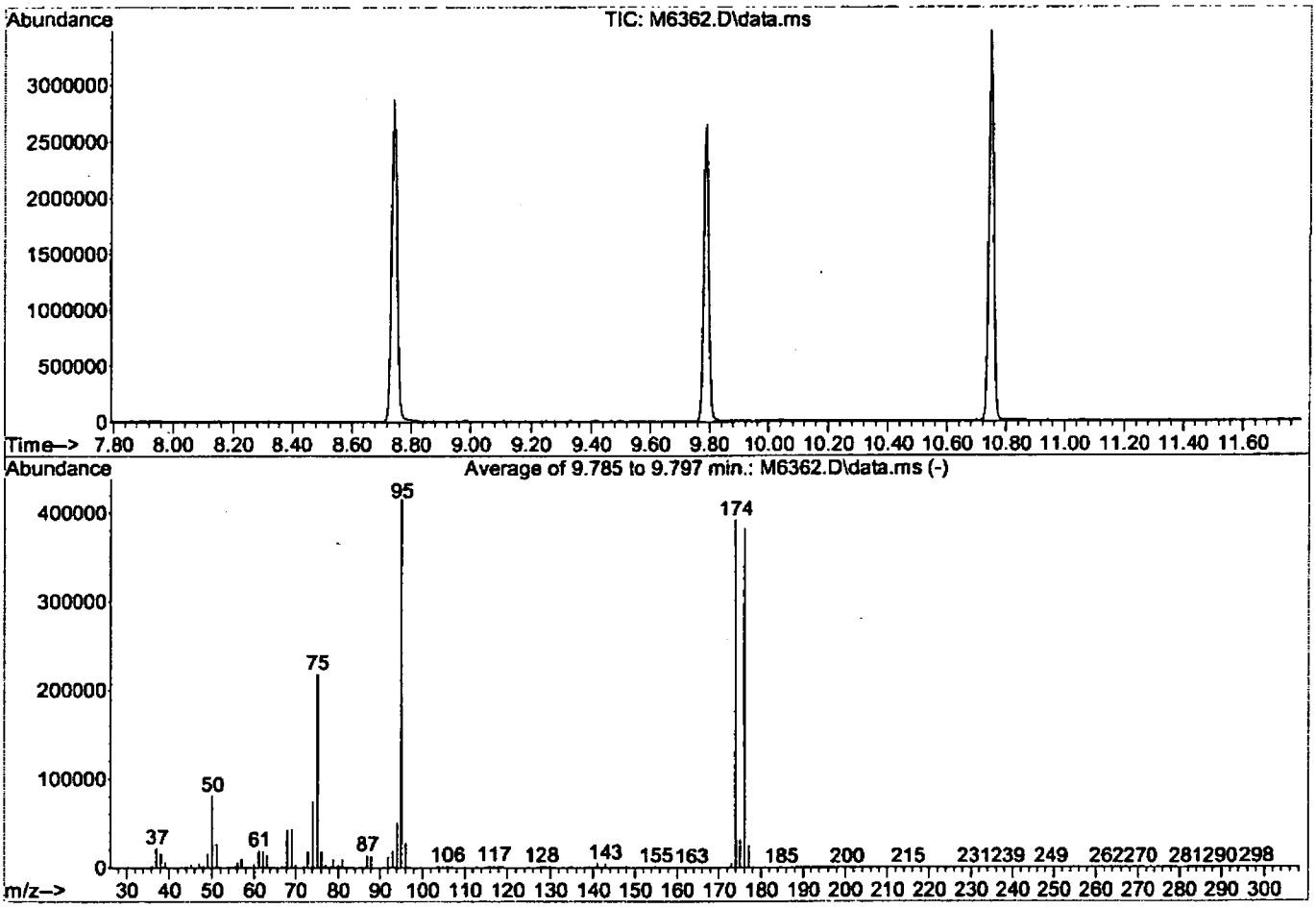
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406304-02	I:\ACQUDATA\MSVOA12\DATA\060914\M6363.D\	6/9/14 11:11	
Lab Control Sample	RQ1406304-03	I:\ACQUDATA\MSVOA12\DATA\060914\M6364.D\	6/9/14 11:42	
Method Blank	RQ1406304-04	I:\ACQUDATA\MSVOA12\DATA\060914\M6366.D\	6/9/14 12:46	
TB-053014	R1404021-017	I:\ACQUDATA\MSVOA12\DATA\060914\M6367.D\	6/9/14 13:17	
MRC-MW-13A-053014	R1404021-012	I:\ACQUDATA\MSVOA12\DATA\060914\M6368.D\	6/9/14 13:50	
DUP-01-053014	R1404021-013	I:\ACQUDATA\MSVOA12\DATA\060914\M6369.D\	6/9/14 14:22	
MRC-MW-12C-053014	R1404021-015	I:\ACQUDATA\MSVOA12\DATA\060914\M6370.D\	6/9/14 14:54	
MRC-MW-27A-052914	R1404021-001	I:\ACQUDATA\MSVOA12\DATA\060914\M6371.D\	6/9/14 15:25	
MRC-MW-12B-053014	R1404021-014	I:\ACQUDATA\MSVOA12\DATA\060914\M6372.D\	6/9/14 15:57	

Data Path : I:\ACQUDATA\msvoa12\Data\060914\
Data File : M6362.D
Acq On : 9 Jun 2014 10:40 am
Operator : K.Ruest
Sample : TUNE
Misc :
ALS Vial : 3 Sample Multiplier: 1

KR 6/9/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Mon May 19 11:05:50 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	19.4	80872	PASS
75	95	30	60	52.4	218427	PASS
95	95	100	100	100.0	416917	PASS
96	95	5	9	6.6	27401	PASS
173	174	0.00	2	1.2	4742	PASS
174	95	50	120	94.0	391829	PASS
175	174	5	9	7.9	30944	PASS
176	174	95	101	97.4	381824	PASS
177	176	5	9	6.5	24752	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/ 9/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\060914\M6363.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 396198
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	57.5	0.3058	0.3514	14.9	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	51.8	0.7112	0.7367	3.6	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	40.7	0.5726	0.4659	-18.6	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	48.8	0.3971	0.3872	-2.5	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	44.3	0.8461	0.7500	-11.4	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	43.4	0.3628	0.3146	-13.3	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	52.8	0.3693	0.3901	5.6	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	51.5	0.6036	0.6213	2.9	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	42.8	0.1713	0.1467	-14.4	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	52.3	0.7372	0.7704	4.5	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	51.7	2.167	2.241	3.4	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	54.3	0.08773	0.09525	8.6	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	51.2	0.2312	0.2369	2.5	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	51.9	1.206	1.252	3.9	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	56.9	0.3737	0.4252	13.8	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	45.9	0.3148	0.2890	-8.2	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	53.1	1.252	1.329	6.2	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	47.6	0.4501	0.4283	-4.8	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	50.5	1.332	1.344	0.9	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	53.6	0.6713	0.7199	7.2	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	45.4	0.1390	0.1261	-9.3	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	47.1	0.1412	0.1330	-5.8	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	49.0	1.896	1.857	-2.1	NA	± 20 %	Average RF
2-Hexanone	50.0	50.9	0.1416	0.1441	1.8	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	975	0.02773	0.02703	-2.5	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	49.6	2.236	2.217	-0.8	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	53.5	2.086	2.233	7.0	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	47.1	0.1899	0.1787	-5.9	NA	± 20 %	Average RF
Acetone	50.0	53.0	0.09920	0.1051	5.9	NA	± 20 %	Average RF
Benzene	50.0	48.2	1.231	1.187	-3.6	NA	± 20 %	Average RF
Bromobenzene	50.0	49.0	0.7355	0.7211	-2.0	NA	± 20 %	Average RF
Bromochloromethane	50.0	45.0	0.2832	0.2546	-10.1	NA	± 20 %	Average RF
Bromodichloromethane	50.0	58.0	0.3677	0.4268	16.1	NA	± 20 %	Average RF
Bromoform	50.0	55.3	0.2840	0.3139	10.6	NA	± 20 %	Average RF
Bromomethane	50.0	42.8	0.2881	0.2469	-14.3	NA	± 20 %	Average RF
Carbon Disulfide	50.0	45.9	1.262	1.158	-8.3	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	60.0	0.1199	0.1437	19.9	NA	± 20 %	Average RF
Chlorobenzene	50.0	51.6	0.8701	0.8978	3.2	NA	± 20 %	Average RF
Chloroethane	50.0	48.2	0.2851	0.2746	-3.7	NA	± 20 %	Average RF
Chloroform	50.0	47.9	0.8292	0.7935	-4.3	NA	± 20 %	Average RF
Chloromethane	50.0	41.7	0.5146	0.4291	-16.6	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/ 9/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\060914\M6363.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 396198
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	60.3	0.2588	0.3119	20.5 *	NA	± 20 %	Average RF
Dibromomethane	50.0	50.9	0.1497	0.1525	1.9	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	45.7	0.5939	0.5425	-8.6	NA	± 20 %	Average RF
Methylene Chloride	50.0	41.6	0.4753	0.3955	-16.8	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	41.0	1.648	1.351	-18.0	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	45.7	1.379	1.260	-8.6	NA	± 20 %	Average RF
Ethylbenzene	50.0	54.2	0.4636	0.5024	8.4	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	54.8	0.3218	0.3526	9.6	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	50.9	2.581	2.628	1.8	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	44.5	1.153	1.027	-11.0	NA	± 20 %	Average RF
Naphthalene	50.0	49.2	1.327	1.305	-1.7	NA	± 20 %	Average RF
Styrene	50.0	56.8	0.8888	1.010	13.6	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	57.9	0.2583	0.2991	15.8	NA	± 20 %	Average RF
Toluene	50.0	51.7	1.269	1.313	3.5	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	54.7	0.2982	0.3261	9.4	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	52.4	0.7340	0.7688	4.7	NA	± 20 %	Average RF
Vinyl Acetate	50.0	43.5	0.07534	0.06560	-12.9	NA	± 20 %	Average RF
Vinyl Chloride	50.0	53.3	0.4781	0.5093	6.5	NA	± 20 %	Average RF
Xylenes, Total	150	166	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	44.9	0.5073	0.4555	-10.2	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	53.9	0.4363	0.4705	7.8	NA	± 20 %	Average RF
m,p-Xylenes	100	112	0.5448	0.6113	12.2	NA	± 20 %	Average RF
n-Butylbenzene	50.0	51.5	1.881	1.937	3.0	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.7	3.020	3.002	-0.6	NA	± 20 %	Average RF
o-Xylene	50.0	54.0	0.5559	0.6003	8.0	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	50.7	2.467	2.503	1.5	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	45.8	1.164	1.066	-8.4	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	51.1	1.773	1.810	2.1	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	44.1	0.4546	0.4014	-11.7	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	59.3	0.3517	0.4172	18.6	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	52.9	0.4538	0.4801	5.8	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	52.2	0.2895	0.3021	4.4	NA	± 20 %	Average RF
Toluene-d8	50.0	49.7	1.216	1.210	-0.5	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/10/14 13:24

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061014\M6412.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 396450

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.09	75445	Pass
75	95	30	60	53.19	199787	Pass
95	95	100	100	100.00	375595	Pass
96	95	5	9	6.62	24883	Pass
173	174	0	2	0.99	3542	Pass
174	95	50	120	95.02	356885	Pass
175	174	5	9	7.82	27901	Pass
176	174	95	101	99.85	356352	Pass
177	176	5	9	6.77	24139	Pass

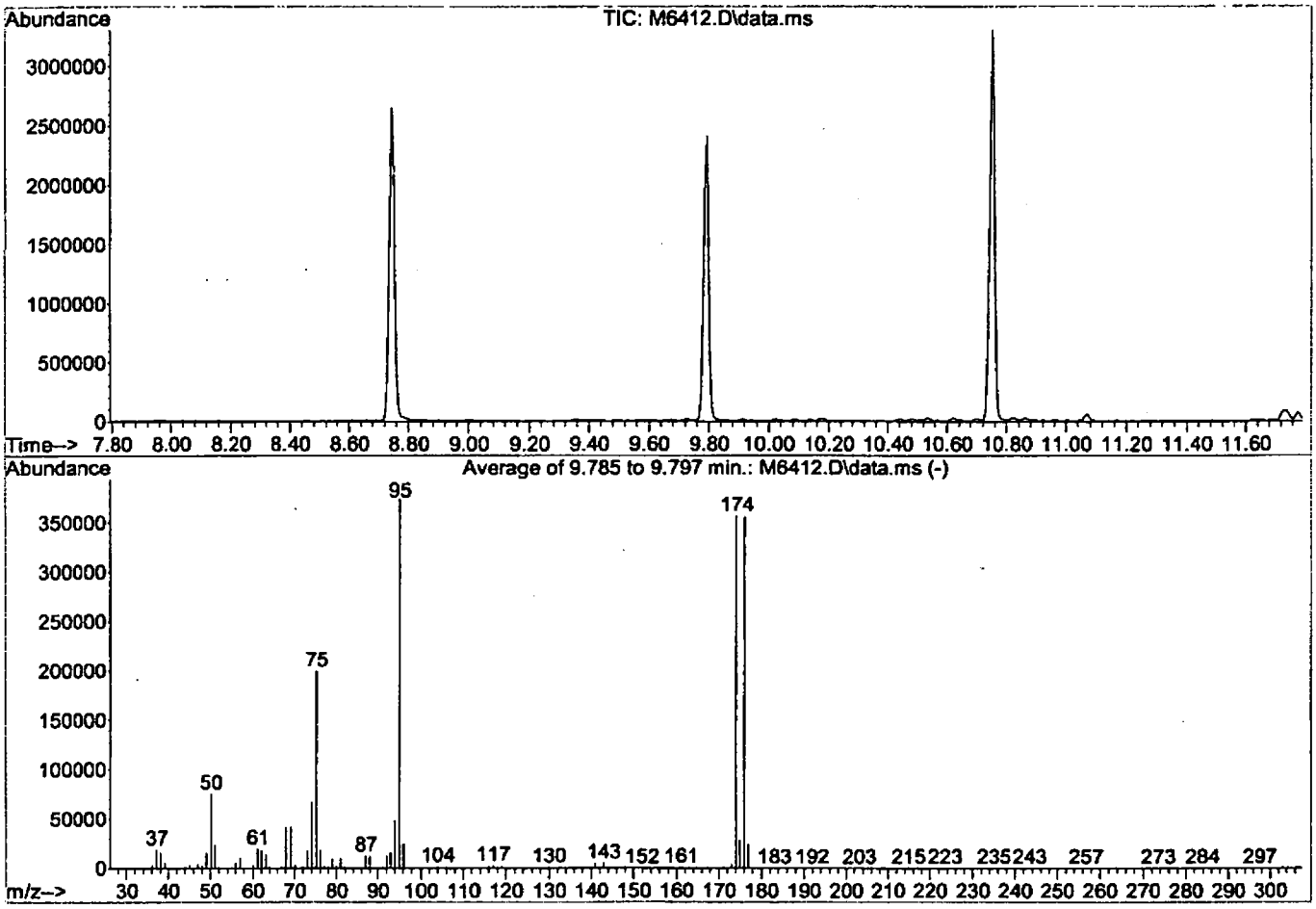
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406376-02	I:\ACQUDATA\msvoa12\Data\061014\M6413.D\	6/10/14 13:56	
Lab Control Sample	RQ1406376-03	I:\ACQUDATA\msvoa12\Data\061014\M6414.D\	6/10/14 14:46	
Method Blank	RQ1406376-04	I:\ACQUDATA\msvoa12\Data\061014\M6416.D\	6/10/14 15:49	
MRC-MW-12A-053014	R1404021-016	I:\ACQUDATA\msvoa12\Data\061014\M6417.D\	6/10/14 16:21	

Data Path : I:\ACQUDATA\msvoa12\Data\061014\
Data File : M6412.D
Acq On : 10 Jun 2014 1:24 pm
Operator : K.Ruest
Sample : TUNE LQ1406376-01
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: INTP60.P

KR 6/10/14

Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Mon May 19 11:05:50 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.1	75445	PASS
75	95	30	60	53.2	199787	PASS
95	95	100	100	100.0	375595	PASS
96	95	5	9	6.6	24883	PASS
173	174	0.00	2	1.0	3542	PASS
174	95	50	120	95.0	356885	PASS
175	174	5	9	7.8	27901	PASS
176	174	95	101	99.9	356352	PASS
177	176	5	9	6.8	24139	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/1121C06247

Service Request: R1404021
Date Analyzed: 6/10/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\061014\M6413.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 396450
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	59.3	0.3058	0.3629	18.7	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	54.1	0.7112	0.7701	8.3	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	38.0	0.5726	0.4353	-24.0 *	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	48.6	0.3971	0.3860	-2.8	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	44.4	0.8461	0.7516	-11.2	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	44.2	0.3628	0.3209	-11.6	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	54.4	0.3693	0.4017	8.8	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	51.1	0.6036	0.6164	2.1	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	42.4	0.1713	0.1454	-15.1	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	54.2	0.7372	0.7988	8.3	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	53.0	2.167	2.296	6.0	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	52.3	0.08773	0.09180	4.6	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	49.5	0.2312	0.2287	-1.1	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	52.3	1.206	1.262	4.7	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	59.5	0.3737	0.4451	19.1	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	45.6	0.3148	0.2870	-8.8	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	53.7	1.252	1.344	7.3	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	46.2	0.4501	0.4155	-7.7	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	51.2	1.332	1.363	2.3	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	55.2	0.6713	0.7408	10.4	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	43.2	0.1390	0.1200	-13.7	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	46.3	0.1412	0.1307	-7.4	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	49.7	1.896	1.887	-0.5	NA	± 20 %	Average RF
2-Hexanone	50.0	50.2	0.1416	0.1422	0.4	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	871	0.02773	0.02415	-12.9	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	50.9	2.236	2.276	1.8	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	55.4	2.086	2.311	10.8	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	48.5	0.1899	0.1842	-3.0	NA	± 20 %	Average RF
Acetone	50.0	59.9	0.09920	0.1188	19.7	NA	± 20 %	Average RF
Benzene	50.0	48.1	1.231	1.183	-3.9	NA	± 20 %	Average RF
Bromobenzene	50.0	49.8	0.7355	0.7326	-0.4	NA	± 20 %	Average RF
Bromochloromethane	50.0	45.4	0.2832	0.2570	-9.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	58.9	0.3677	0.4332	17.8	NA	± 20 %	Average RF
Bromoform	50.0	55.8	0.2840	0.3168	11.6	NA	± 20 %	Average RF
Bromomethane	50.0	43.5	0.2881	0.2508	-13.0	NA	± 20 %	Average RF
Carbon Disulfide	50.0	46.7	1.262	1.178	-6.6	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	63.4	0.1199	0.1521	26.9 *	NA	± 20 %	Average RF
Chlorobenzene	50.0	52.8	0.8701	0.9184	5.6	NA	± 20 %	Average RF
Chloroethane	50.0	49.9	0.2851	0.2844	-0.3	NA	± 20 %	Average RF
Chloroform	50.0	48.3	0.8292	0.8001	-3.5	NA	± 20 %	Average RF
Chloromethane	50.0	41.9	0.5146	0.4311	-16.2	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/10/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\061014\M6413.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 396450
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	60.0	0.2588	0.3106	20.0 *	NA	± 20 %	Average RF
Dibromomethane	50.0	51.3	0.1497	0.1536	2.6	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	47.4	0.5939	0.5631	-5.2	NA	± 20 %	Average RF
Methylene Chloride	50.0	40.9	0.4753	0.3887	-18.2	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	39.6	1.648	1.306	-20.7 *	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	44.1	1.379	1.216	-11.9	NA	± 20 %	Average RF
Ethylbenzene	50.0	53.8	0.4636	0.4985	7.5	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	55.5	0.3218	0.3569	10.9	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	51.4	2.581	2.654	2.8	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	43.8	1.153	1.010	-12.4	NA	± 20 %	Average RF
Naphthalene	50.0	47.7	1.327	1.266	-4.6	NA	± 20 %	Average RF
Styrene	50.0	56.4	0.8888	1.002	12.7	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	59.7	0.2583	0.3083	19.4	NA	± 20 %	Average RF
Toluene	50.0	52.8	1.269	1.341	5.7	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	57.2	0.2982	0.3413	14.5	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	54.6	0.7340	0.8018	9.2	NA	± 20 %	Average RF
Vinyl Acetate	50.0	36.7	0.07534	0.05536	-26.5 *	NA	± 20 %	Average RF
Vinyl Chloride	50.0	55.3	0.4781	0.5285	10.5	NA	± 20 %	Average RF
Xylenes, Total	150	167	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	44.0	0.5073	0.4461	-12.1	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	54.7	0.4363	0.4769	9.3	NA	± 20 %	Average RF
m,p-Xylenes	100	113	0.5448	0.6173	13.3	NA	± 20 %	Average RF
n-Butylbenzene	50.0	53.4	1.881	2.007	6.7	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.9	3.020	3.014	-0.2	NA	± 20 %	Average RF
o-Xylene	50.0	54.0	0.5559	0.6004	8.0	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	51.6	2.467	2.544	3.1	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	43.7	1.164	1.018	-12.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	52.2	1.773	1.849	4.3	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	44.2	0.4546	0.4018	-11.6	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	59.3	0.3517	0.4171	18.6	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.5	0.4538	0.4853	7.0	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.2	0.2895	0.3079	6.4	NA	± 20 %	Average RF
Toluene-d8	50.0	50.6	1.216	1.230	1.1	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/6/14 12:26

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406207-04
Instrument ID: R-MS-12
File ID: I:\ACQUDATA\MSVOA12\DATA\060614\M6341.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406207-03	I:\ACQUDATA\MSVOA12\DATA\060614\M6339.D\	6/6/14 11:22
TB-052914	R1404021-005	I:\ACQUDATA\MSVOA12\DATA\060614\M6348.D\	6/6/14 16:12
MRC-MW-27C-052914	R1404021-003	I:\ACQUDATA\MSVOA12\DATA\060614\M6350.D\	6/6/14 17:16
MRC-MW-94B-052814	R1404021-006	I:\ACQUDATA\MSVOA12\DATA\060614\M6351.D\	6/6/14 17:48
MRC-MW-87B-052814	R1404021-007	I:\ACQUDATA\MSVOA12\DATA\060614\M6352.D\	6/6/14 18:20
MRC-MW-88B-052914	R1404021-008	I:\ACQUDATA\MSVOA12\DATA\060614\M6353.D\	6/6/14 18:53
MRC-MW-95B-052914	R1404021-009	I:\ACQUDATA\MSVOA12\DATA\060614\M6354.D\	6/6/14 19:25
MRC-MW-87A-052914	R1404021-010	I:\ACQUDATA\MSVOA12\DATA\060614\M6355.D\	6/6/14 19:57
MRC-MW-27B-052914	R1404021-002	I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D\	6/6/14 20:30
MRC-MW-27B-052914MS	RQ1406207-05	I:\ACQUDATA\MSVOA12\DATA\060614\M6357.D\	6/6/14 21:02
MRC-MW-27B-052914DMS	RQ1406207-06	I:\ACQUDATA\MSVOA12\DATA\060614\M6358.D\	6/6/14 21:34

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/6/14 12:26
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406207-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6341.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.31	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/1121C06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/6/14 12:26
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406207-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6341.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.87	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.21	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/6/14 12:26
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406207-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	395915
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060614\M6341.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/6/14 12:26	
Dibromofluoromethane	104	89-119	6/6/14 12:26	
Toluene-d8	98	87-121	6/6/14 12:26	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 6/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 395915

Analyte Name	Lab Control Sample RQ1406207-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	22.8	20.0	114	79 - 119
1,1,1-Trichloroethane (TCA)	22.4	20.0	112	71 - 123
1,1,2,2-Tetrachloroethane	17.2	20.0	86	74 - 127
1,1,2-Trichlorotrifluoroethane	21.2	20.0	106	64 - 136
1,1-Dichloroethane (1,1-DCA)	18.2	20.0	91	76 - 128
1,1-Dichloroethene (1,1-DCE)	21.1	20.0	105	74 - 135
1,1-Dichloropropene	22.4	20.0	112	74 - 136
1,2,3-Trichlorobenzene	24.4	20.0	122	60 - 144
1,2,3-Trichloropropane	18.6	20.0	93	68 - 136
1,2,4-Trichlorobenzene	24.0	20.0	120	60 - 141
1,2,4-Trimethylbenzene	21.5	20.0	108	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	20.4	20.0	102	69 - 135
1,2-Dibromoethane	21.6	20.0	108	81 - 123
1,2-Dichlorobenzene	21.7	20.0	108	80 - 119
1,2-Dichloroethane	24.4	20.0	122	72 - 130
1,2-Dichloropropane	19.5	20.0	98	80 - 119
1,3-Dichlorobenzene	22.3	20.0	112	79 - 121
1,3-Dichloropropane	19.2	20.0	96	82 - 116
1,4-Dichlorobenzene	21.3	20.0	106	79 - 119
2,2-Dichloropropane	21.8	20.0	109	59 - 135
2-Butanone (MEK)	16.8	20.0	84	66 - 129
2-Chloroethyl Vinyl Ether	17.5	20.0	88	58 - 139
2-Chlorotoluene	20.5	20.0	103	71 - 125
2-Hexanone	18.6	20.0	93	61 - 131
tert-Butyl Alcohol	397	400	99	63 - 142
4-Chlorotoluene	21.3	20.0	106	73 - 127
4-Isopropyltoluene	22.5	20.0	113	74 - 130
4-Methyl-2-pentanone	17.9	20.0	89	68 - 129
Acetone	20.2	20.0	101	51 - 146
Benzene	19.9	20.0	100	76 - 118
Bromobenzene	20.5	20.0	103	79 - 121
Bromochloromethane	20.1	20.0	100	81 - 126
Bromodichloromethane	23.8	20.0	119	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/1121C06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 6/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 395915

Lab Control Sample
RQ1406207-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	20.2	20.0	101	65 - 138
Bromomethane	20.7	20.0	104	41 - 159
Carbon Disulfide	17.9	20.0	90	63 - 141
Carbon Tetrachloride	24.4	20.0	122	66 - 128
Chlorobenzene	21.6	20.0	108	80 - 121
Chloroethane	21.7	20.0	108	71 - 128
Chloroform	20.5	20.0	102	76 - 120
Chloromethane	19.7	20.0	99	64 - 140
Dibromochloromethane	23.3	20.0	116	79 - 125
Dibromomethane	20.9	20.0	105	79 - 120
Dichlorodifluoromethane (CFC 12)	22.1	20.0	110	60 - 150
Methylene Chloride	17.8	20.0	89	73 - 122
Diisopropyl Ether	15.4	20.0	77	76 - 131
Ethyl tert-Butyl Ether	16.9	20.0	85	77 - 126
Ethylbenzene	19.9	20.0	99	76 - 120
Hexachlorobutadiene	25.2	20.0	126	57 - 147
Isopropylbenzene (Cumene)	21.5	20.0	108	76 - 126
Methyl tert-Butyl Ether	19.7	20.0	99	73 - 131
Naphthalene	21.7	20.0	109	73 - 133
Styrene	22.7	20.0	114	81 - 122
Tetrachloroethene (PCE)	24.0	20.0	120	69 - 124
Toluene	21.5	20.0	108	77 - 120
Trichloroethene (TCE)	22.2	20.0	111	76 - 123
Trichlorofluoromethane (CFC 11)	22.2	20.0	111	69 - 130
Vinyl Acetate	15.4	20.0	77	43 - 165
Vinyl Chloride	23.4	20.0	117	69 - 136
Xylenes, Total	66.9	60.0	111	78 - 121
cis-1,2-Dichloroethene	18.0	20.0	90	80 - 121
cis-1,3-Dichloropropene	22.1	20.0	111	77 - 125
m,p-Xylenes	45.0	40.0	112	78 - 123
n-Butylbenzene	21.8	20.0	109	69 - 135
n-Propylbenzene	21.2	20.0	106	76 - 125
o-Xylene	21.9	20.0	109	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 6/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 395915

Lab Control Sample
RQ1406207-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	21.4	20.0	107	72 - 130
tert-Amyl Methyl Ether	16.9	20.0	84	76 - 123
tert-Butylbenzene	21.5	20.0	108	73 - 124
trans-1,2-Dichloroethene	19.2	20.0	96	78 - 124
trans-1,3-Dichloropropene	24.0	20.0	120	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/9/14 12:46
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1406304-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\060914\M6366.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406304-03	I:\ACQUDATA\MSVOA12\DATA\060914\M6364.D\	6/9/14 11:42
TB-053014	R1404021-017	I:\ACQUDATA\MSVOA12\DATA\060914\M6367.D\	6/9/14 13:17
MRC-MW-13A-053014	R1404021-012	I:\ACQUDATA\MSVOA12\DATA\060914\M6368.D\	6/9/14 13:50
DUP-01-053014	R1404021-013	I:\ACQUDATA\MSVOA12\DATA\060914\M6369.D\	6/9/14 14:22
MRC-MW-12C-053014	R1404021-015	I:\ACQUDATA\MSVOA12\DATA\060914\M6370.D\	6/9/14 14:54
MRC-MW-27A-052914	R1404021-001	I:\ACQUDATA\MSVOA12\DATA\060914\M6371.D\	6/9/14 15:25
MRC-MW-12B-053014	R1404021-014	I:\ACQUDATA\MSVOA12\DATA\060914\M6372.D\	6/9/14 15:57

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/9/14 12:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406304-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6366.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.35	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/9/14 12:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406304-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6366.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.83	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.24	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/9/14 12:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406304-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396198
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\060914\M6366.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/9/14 12:46	
Dibromofluoromethane	102	89-119	6/9/14 12:46	
Toluene-d8	98	87-121	6/9/14 12:46	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 9/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396198

Analyte Name	Lab Control Sample RQ1406304-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	23.1	20.0	115	79 - 119
1,1,1-Trichloroethane (TCA)	22.1	20.0	111	71 - 123
1,1,2,2-Tetrachloroethane	16.8	20.0	84	74 - 127
1,1,2-Trichlorotrifluoroethane	20.2	20.0	101	64 - 136
1,1-Dichloroethane (1,1-DCA)	18.4	20.0	92	76 - 128
1,1-Dichloroethene (1,1-DCE)	20.7	20.0	104	74 - 135
1,1-Dichloropropene	22.3	20.0	111	74 - 136
1,2,3-Trichlorobenzene	23.9	20.0	120	60 - 144
1,2,3-Trichloropropane	17.9	20.0	89	68 - 136
1,2,4-Trichlorobenzene	23.5	20.0	117	60 - 141
1,2,4-Trimethylbenzene	21.5	20.0	107	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	21.4	20.0	107	69 - 135
1,2-Dibromoethane	19.9	20.0	100	81 - 123
1,2-Dichlorobenzene	21.6	20.0	108	80 - 119
1,2-Dichloroethane	23.3	20.0	116	72 - 130
1,2-Dichloropropane	19.0	20.0	95	80 - 119
1,3-Dichlorobenzene	22.2	20.0	111	79 - 121
1,3-Dichloropropane	19.3	20.0	96	82 - 116
1,4-Dichlorobenzene	21.5	20.0	107	79 - 119
2,2-Dichloropropane	22.5	20.0	112	59 - 135
2-Butanone (MEK)	15.8	20.0	79	66 - 129
2-Chloroethyl Vinyl Ether	16.9	20.0	84	58 - 139
2-Chlorotoluene	20.6	20.0	103	71 - 125
2-Hexanone	17.0	20.0	85	61 - 131
tert-Butyl Alcohol	380	400	95	63 - 142
4-Chlorotoluene	21.4	20.0	107	73 - 127
4-Isopropyltoluene	23.1	20.0	116	74 - 130
4-Methyl-2-pentanone	17.8	20.0	89	68 - 129
Acetone	15.5	20.0	78	51 - 146
Benzene	19.9	20.0	99	76 - 118
Bromobenzene	20.7	20.0	104	79 - 121
Bromochloromethane	18.6	20.0	93	81 - 126
Bromodichloromethane	23.1	20.0	116	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 9/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396198

Analyte Name	Lab Control Sample RQ1406304-03 Result	Spike Amount	% Rec	% Rec Limits
Bromoform	22.3	20.0	111	65 - 138
Bromomethane	16.9	20.0	85	41 - 159
Carbon Disulfide	18.5	20.0	93	63 - 141
Carbon Tetrachloride	23.7	20.0	119	66 - 128
Chlorobenzene	21.7	20.0	109	80 - 121
Chloroethane	21.3	20.0	107	71 - 128
Chloroform	20.2	20.0	101	76 - 120
Chloromethane	19.0	20.0	95	64 - 140
Dibromochloromethane	22.8	20.0	114	79 - 125
Dibromomethane	20.5	20.0	102	79 - 120
Dichlorodifluoromethane (CFC 12)	21.4	20.0	107	60 - 150
Methylene Chloride	18.0	20.0	90	73 - 122
Diisopropyl Ether	15.4	20.0	77	76 - 131
Ethyl tert-Butyl Ether	16.8	20.0	84	77 - 126
Ethylbenzene	19.9	20.0	100	76 - 120
Hexachlorobutadiene	25.8	20.0	129	57 - 147
Isopropylbenzene (Cumene)	21.8	20.0	109	76 - 126
Methyl tert-Butyl Ether	18.7	20.0	94	73 - 131
Naphthalene	20.8	20.0	104	73 - 133
Styrene	22.3	20.0	112	81 - 122
Tetrachloroethene (PCE)	23.6	20.0	118	69 - 124
Toluene	21.3	20.0	106	77 - 120
Trichloroethene (TCE)	22.6	20.0	113	76 - 123
Trichlorofluoromethane (CFC 11)	22.3	20.0	112	69 - 130
Vinyl Acetate	15.7	20.0	79	43 - 165
Vinyl Chloride	22.7	20.0	114	69 - 136
Xylenes, Total	65.9	60.0	110	78 - 121
cis-1,2-Dichloroethene	19.0	20.0	95	80 - 121
cis-1,3-Dichloropropene	22.2	20.0	111	77 - 125
m,p-Xylenes	44.3	40.0	111	78 - 123
n-Butylbenzene	22.1	20.0	111	69 - 135
n-Propylbenzene	21.3	20.0	106	76 - 125
o-Xylene	21.6	20.0	108	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 9/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396198

Lab Control Sample
RQ1406304-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	21.7	20.0	109	72 - 130
tert-Amyl Methyl Ether	17.3	20.0	87	76 - 123
tert-Butylbenzene	21.6	20.0	108	73 - 124
trans-1,2-Dichloroethene	19.3	20.0	97	78 - 124
trans-1,3-Dichloropropene	24.0	20.0	120	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/10/14 15:49
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1406376-04	**File ID:**	I:\ACQUDATA\msvoa12\Data\061014\M6416.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406376-03	I:\ACQUDATA\msvoa12\Data\061014\M6414.D\	6/10/14 14:46
MRC-MW-12A-053014	R1404021-016	I:\ACQUDATA\msvoa12\Data\061014\M6417.D\	6/10/14 16:21

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/10/14 15:49
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406376-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396450
Data File Name:	I:\ACQUDATA\msvoa12\Data\061014\M6416.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.31	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	0.29	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/10/14 15:49
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406376-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396450
Data File Name:	I:\ACQUDATA\msvoa12\Data\061014\M6416.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.86	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.24	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/10/14 15:49
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406376-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396450
Data File Name:	I:\ACQUDATA\msvoa12\Data\061014\M6416.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/10/14 15:49	
Dibromofluoromethane	105	89-119	6/10/14 15:49	
Toluene-d8	97	87-121	6/10/14 15:49	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/10/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396450

Analyte Name	Lab Control Sample RQ1406376-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	22.9	20.0	114	79 - 119
1,1,1-Trichloroethane (TCA)	21.7	20.0	109	71 - 123
1,1,2,2-Tetrachloroethane	15.2	20.0	76	74 - 127
1,1,2-Trichlorotrifluoroethane	20.1	20.0	101	64 - 136
1,1-Dichloroethane (1,1-DCA)	17.6	20.0	88	76 - 128
1,1-Dichloroethene (1,1-DCE)	20.7	20.0	104	74 - 135
1,1-Dichloropropene	22.5	20.0	113	74 - 136
1,2,3-Trichlorobenzene	23.4	20.0	117	60 - 144
1,2,3-Trichloropropane	17.8	20.0	89	68 - 136
1,2,4-Trichlorobenzene	23.5	20.0	118	60 - 141
1,2,4-Trimethylbenzene	21.2	20.0	106	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	19.8	20.0	99	69 - 135
1,2-Dibromoethane	19.5	20.0	97	81 - 123
1,2-Dichlorobenzene	20.7	20.0	104	80 - 119
1,2-Dichloroethane	23.5	20.0	118	72 - 130
1,2-Dichloropropane	18.7	20.0	94	80 - 119
1,3-Dichlorobenzene	22.0	20.0	110	79 - 121
1,3-Dichloropropane	18.2	20.0	91	82 - 116
1,4-Dichlorobenzene	21.1	20.0	106	79 - 119
2,2-Dichloropropane	22.4	20.0	112	59 - 135
2-Butanone (MEK)	14.8	20.0	74	66 - 129
2-Chloroethyl Vinyl Ether	16.4	20.0	82	58 - 139
2-Chlorotoluene	20.0	20.0	100	71 - 125
2-Hexanone	16.7	20.0	84	61 - 131
tert-Butyl Alcohol	339	400	85	63 - 142
4-Chlorotoluene	21.1	20.0	105	73 - 127
4-Isopropyltoluene	22.4	20.0	112	74 - 130
4-Methyl-2-pentanone	16.8	20.0	84	68 - 129
Acetone	16.6	20.0	83	51 - 146
Benzene	19.6	20.0	98	76 - 118
Bromobenzene	20.1	20.0	101	79 - 121
Bromochloromethane	18.8	20.0	94	81 - 126
Bromodichloromethane	23.8	20.0	119	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/10/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396450

Lab Control Sample
RQ1406376-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	22.0	20.0	110	65 - 138
Bromomethane	17.5	20.0	87	41 - 159
Carbon Disulfide	18.4	20.0	92	63 - 141
Carbon Tetrachloride	25.5	20.0	128	66 - 128
Chlorobenzene	21.2	20.0	106	80 - 121
Chloroethane	21.0	20.0	105	71 - 128
Chloroform	20.2	20.0	101	76 - 120
Chloromethane	18.2	20.0	91	64 - 140
Dibromochloromethane	23.4	20.0	117	79 - 125
Dibromomethane	20.8	20.0	104	79 - 120
Dichlorodifluoromethane (CFC 12)	21.8	20.0	109	60 - 150
Methylene Chloride	17.2	20.0	86	73 - 122
Diisopropyl Ether	15.2	20.0	76	76 - 131
Ethyl tert-Butyl Ether	16.5	20.0	82	77 - 126
Ethylbenzene	19.8	20.0	99	76 - 120
Hexachlorobutadiene	27.5	20.0	137	57 - 147
Isopropylbenzene (Cumene)	21.1	20.0	106	76 - 126
Methyl tert-Butyl Ether	18.1	20.0	91	73 - 131
Naphthalene	19.9	20.0	100	73 - 133
Styrene	22.2	20.0	111	81 - 122
Tetrachloroethene (PCE)	24.3	20.0	121	69 - 124
Toluene	21.6	20.0	108	77 - 120
Trichloroethene (TCE)	23.3	20.0	116	76 - 123
Trichlorofluoromethane (CFC 11)	22.3	20.0	111	69 - 130
Vinyl Acetate	14.9	20.0	74	43 - 165
Vinyl Chloride	22.0	20.0	110	69 - 136
Xylenes, Total	66.3	60.0	110	78 - 121
cis-1,2-Dichloroethene	18.2	20.0	91	80 - 121
cis-1,3-Dichloropropene	22.0	20.0	110	77 - 125
m,p-Xylenes	45.0	40.0	112	78 - 123
n-Butylbenzene	22.1	20.0	111	69 - 135
n-Propylbenzene	20.9	20.0	104	76 - 125
o-Xylene	21.3	20.0	106	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/10/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396450

Analyte Name	Lab Control Sample RQ1406376-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	21.2	20.0	106	72 - 130
tert-Amyl Methyl Ether	16.8	20.0	84	76 - 123
tert-Butylbenzene	21.6	20.0	108	73 - 124
trans-1,2-Dichloroethene	19.0	20.0	95	78 - 124
trans-1,3-Dichloropropene	23.6	20.0	118	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14
Date Received: 5/30/14
Date Analyzed: 6/ 6/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-27B-052914
Lab Code: R1404021-002

Units: µg/L
Basis: NA

Analytical Method: 8260C

		MRC-MW-27B-052914MS Matrix Spike RQ1406207-05			MRC-MW-27B-052914DMS Duplicate Matrix Spike RQ1406207-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1,2-Tetrachloroethane	ND	570	500	114	571	500	114	77 - 126	<1	30
1,1,1-Trichloroethane (TCA)	ND	567	500	113	552	500	110	74 - 127	3	30
1,1,2,2-Tetrachloroethane	ND	395	500	79	411	500	82	72 - 122	4	30
1,1,2-Trichlorotrifluoroethane	ND	492	500	98	495	500	99	59 - 131	<1	30
1,1-Dichloroethane (1,1-DCA)	7.7	456	500	90	450	500	88	74 - 132	1	30
1,1-Dichloroethene (1,1-DCE)	14	521	500	101	531	500	103	72 - 125	2	30
1,1-Dichloropropene	ND	572	500	114	565	500	113	78 - 147	1	30
1,2,3-Trichlorobenzene	ND	488	500	98	536	500	107	54 - 143	9	30
1,2,3-Trichloropropane	ND	432	500	86	470	500	94	75 - 122	9	30
1,2,4-Trichlorobenzene	ND	507	500	101	532	500	106	56 - 140	5	30
1,2,4-Trimethylbenzene	ND	502	500	100	508	500	102	47 - 153	1	30
1,2-Dibromo-3-chloropropane (DBC	ND	512	500	102	538	500	108	67 - 126	5	30
1,2-Dibromoethane	ND	504	500	101	515	500	103	80 - 117	2	30
1,2-Dichlorobenzene	ND	509	500	102	519	500	104	77 - 120	2	30
1,2-Dichloroethane	ND	601	500	120	602	500	120	72 - 132	<1	30
1,2-Dichloropropane	ND	464	500	93	464	500	93	79 - 124	<1	30
1,3-Dichlorobenzene	ND	517	500	103	525	500	105	74 - 125	1	30
1,3-Dichloropropane	ND	463	500	93	469	500	94	82 - 114	1	30
1,4-Dichlorobenzene	ND	495	500	99	506	500	101	72 - 124	2	30
2,2-Dichloropropane	ND	458	500	92	458	500	92	42 - 137	<1	30
2-Butanone (MEK)	ND	400	500	80	414	500	83	46 - 141	4	30
2-Chloroethyl Vinyl Ether	ND	ND	500	0 *	ND	500	0 *	10 - 179	NC	30
2-Chlorotoluene	ND	481	500	96	487	500	97	74 - 124	1	30
2-Hexanone	ND	475	500	95	474	500	95	56 - 132	<1	30
tert-Butyl Alcohol	ND	9190	10000	92	9600	10000	96	56 - 145	4	30
4-Chlorotoluene	ND	500	500	100	503	500	100	75 - 125	<1	30
4-Isopropyltoluene	ND	519	500	104	528	500	106	64 - 144	2	30
4-Methyl-2-pentanone	ND	486	500	97	490	500	98	60 - 141	<1	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14
Date Received: 5/30/14
Date Analyzed: 6/ 6/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-27B-052914
Lab Code: R1404021-002

Units: µg/L
Basis: NA

Analytical Method: 8260C

		MRC-MW-27B-052914MS Matrix Spike RQ1406207-05			MRC-MW-27B-052914DMS Duplicate Matrix Spike RQ1406207-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Acetone	ND	402	500	80	433	500	87	29 - 151	7	30
Benzene	ND	487	500	97	491	500	98	76 - 129	<1	30
Bromobenzene	ND	489	500	98	498	500	100	80 - 115	2	30
Bromochloromethane	ND	458	500	92	465	500	93	82 - 125	2	30
Bromodichloromethane	ND	553	500	111	547	500	109	76 - 127	1	30
Bromoform	ND	397	500	79	416	500	83	58 - 133	5	30
Bromomethane	ND	375	500	75	445	500	89	10 - 162	17	30
Carbon Disulfide	ND	294	500	59	289	500	58	34 - 162	2	30
Carbon Tetrachloride	ND	619	500	124	585	500	117	71 - 135	6	30
Chlorobenzene	ND	526	500	105	524	500	105	76 - 125	<1	30
Chloroethane	ND	511	500	102	519	500	104	70 - 140	2	30
Chloroform	ND	491	500	98	502	500	100	75 - 130	2	30
Chloromethane	ND	451	500	90	468	500	94	55 - 160	4	30
Dibromochloromethane	ND	502	500	100	509	500	102	72 - 128	2	30
Dibromomethane	ND	517	500	103	521	500	104	77 - 119	<1	30
Dichlorodifluoromethane (CFC 12)	ND	555	500	111	555	500	111	49 - 154	<1	30
Methylene Chloride	ND	421	500	84	427	500	85	75 - 121	1	30
Diisopropyl Ether	ND	376	500	75	374	500	75	66 - 143	<1	30
Ethyl tert-Butyl Ether	ND	411	500	82	425	500	85	74 - 129	3	30
Ethylbenzene	ND	499	500	100	485	500	97	72 - 134	3	30
Hexachlorobutadiene	ND	489	500	98	537	500	107	34 - 162	9	30
Isopropylbenzene (Cumene)	ND	507	500	101	518	500	104	76 - 136	2	30
Methyl tert-Butyl Ether	5.0	466	500	92	474	500	94	74 - 130	2	30
Naphthalene	ND	459	500	92	498	500	100	57 - 153	8	30
Styrene	ND	560	500	112	556	500	111	34 - 156	<1	30
Tetrachloroethene (PCE)	ND	599	500	120	590	500	118	67 - 137	1	30
Toluene	ND	522	500	104	524	500	105	79 - 125	<1	30
Trichloroethene (TCE)	1300	1810	500	98	1760	500	87	62 - 142	3	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Collected: 5/29/14
Date Received: 5/30/14
Date Analyzed: 6/ 6/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-27B-052914
Lab Code: R1404021-002

Units: µg/L
Basis: NA

Analytical Method: 8260C

Analyte Name	Sample Result	MRC-MW-27B-052914MS Matrix Spike RQ1406207-05 Result	Spike Amount	% Rec	MRC-MW-27B-052914DMS Duplicate Matrix Spike RQ1406207-06 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Trichlorofluoromethane (CFC 11)	ND	559	500	112	560	500	112	72 - 142	<1	30
Vinyl Acetate	ND	389	500	78	417	500	83	17 - 156	7	30
Vinyl Chloride	12	561	500	110	562	500	110	60 - 157	<1	30
Xylenes, Total	ND	1650	1500	110	1660	1500	110	68 - 137	<1	30
cis-1,2-Dichloroethene	350	782	500	87	768	500	84	72 - 133	2	30
cis-1,3-Dichloropropene	ND	509	500	102	515	500	103	52 - 134	1	30
m,p-Xylenes	ND	1120	1000	112	1120	1000	112	68 - 138	<1	30
n-Butylbenzene	ND	494	500	99	498	500	100	61 - 152	<1	30
n-Propylbenzene	ND	487	500	97	502	500	100	71 - 140	3	30
o-Xylene	ND	536	500	107	535	500	107	68 - 134	<1	30
sec-Butylbenzene	ND	485	500	97	495	500	99	64 - 147	2	30
tert-Amyl Methyl Ether	ND	411	500	82	431	500	86	75 - 124	5	30
tert-Butylbenzene	ND	500	500	100	511	500	102	63 - 143	2	30
trans-1,2-Dichloroethene	5.4	457	500	90	460	500	91	77 - 125	<1	30
trans-1,3-Dichloropropene	ND	573	500	115	567	500	113	64 - 123	1	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/6/14 10:49

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\060614\M6338.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406207-02
Analysis Lot: 395915
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	652,248	10.75	1,184,092	5.45	1,122,722	8.74
	Upper Limit ==>	1,304,496	11.25	2,368,184	5.95	2,245,444	9.24
	Lower Limit ==>	326,124	10.25	592,046	4.95	561,361	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1406207-03	638,669	10.75	1,231,060	5.45	1,151,804	8.74
Method Blank	RQ1406207-04	618,294	10.75	1,250,514	5.45	1,157,406	8.74
TB-052914	R1404021-005	584,538	10.75	1,181,548	5.45	1,094,354	8.74
MRC-MW-27C-052914	R1404021-003	576,665	10.75	1,163,278	5.45	1,073,076	8.74
MRC-MW-94B-052814	R1404021-006	585,366	10.75	1,157,792	5.45	1,073,247	8.74
MRC-MW-87B-052814	R1404021-007	583,260	10.75	1,153,974	5.45	1,065,434	8.74
MRC-MW-88B-052914	R1404021-008	577,574	10.75	1,129,062	5.45	1,055,184	8.74
MRC-MW-95B-052914	R1404021-009	567,860	10.75	1,133,810	5.45	1,047,977	8.74
MRC-MW-87A-052914	R1404021-010	580,847	10.75	1,139,884	5.45	1,042,849	8.74
MRC-MW-27B-052914	R1404021-002	570,644	10.75	1,109,205	5.45	1,049,587	8.74
MRC-MW-27B-052914MS	RQ1406207-05	624,476	10.75	1,123,721	5.45	1,063,478	8.74
MRC-MW-27B-052914DMS	RQ1406207-06	636,627	10.75	1,170,339	5.45	1,117,024	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/6/14 10:49

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\060614\M6338.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406207-02
Analysis Lot: 395915
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	870,527	4.25
	Upper Limit ==>	1,741,054	4.75
	Lower Limit ==>	435,264	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1406207-03	879,668	4.25
Method Blank	RQ1406207-04	898,783	4.25
TB-052914	R1404021-005	857,054	4.25
MRC-MW-27C-052914	R1404021-003	841,970	4.25
MRC-MW-94B-052814	R1404021-006	830,588	4.25
MRC-MW-87B-052814	R1404021-007	835,989	4.25
MRC-MW-88B-052914	R1404021-008	826,446	4.25
MRC-MW-95B-052914	R1404021-009	821,093	4.25
MRC-MW-87A-052914	R1404021-010	827,299	4.25
MRC-MW-27B-052914	R1404021-002	808,551	4.25
MRC-MW-27B-052914MS	RQ1406207-05	819,055	4.25
MRC-MW-27B-052914DMS	RQ1406207-06	850,133	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/9/14 11:11

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\060914\M6363.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406304-02
Analysis Lot: 396198
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	707,383	10.75	1,281,408	5.45	1,222,107	8.74
	Upper Limit ==>	1,414,766	11.25	2,562,816	5.95	2,444,214	9.24
	Lower Limit ==>	353,692	10.25	640,704	4.95	611,054	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1406304-03	683,517	10.75	1,326,144	5.45	1,250,301	8.74
Method Blank	RQ1406304-04	663,503	10.75	1,312,454	5.45	1,231,722	8.74
TB-053014	R1404021-017	594,694	10.75	1,288,137	5.45	1,200,509	8.74
MRC-MW-13A-053014	R1404021-012	622,953	10.75	1,277,599	5.45	1,206,158	8.74
DUP-01-053014	R1404021-013	624,593	10.75	1,275,538	5.45	1,200,663	8.74
MRC-MW-12C-053014	R1404021-015	629,481	10.75	1,254,624	5.45	1,164,275	8.74
MRC-MW-27A-052914	R1404021-001	620,944	10.75	1,218,623	5.45	1,161,435	8.74
MRC-MW-12B-053014	R1404021-014	613,025	10.75	1,227,916	5.45	1,160,780	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/9/14 11:11

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\060914\M6363.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406304-02
Analysis Lot: 396198
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	926,319	4.25
	Upper Limit ==>	1,852,638	4.75
	Lower Limit ==>	463,160	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1406304-03	940,685	4.25
Method Blank	RQ1406304-04	926,340	4.25
TB-053014	R1404021-017	912,358	4.25
MRC-MW-13A-053014	R1404021-012	906,732	4.25
DUP-01-053014	R1404021-013	923,074	4.25
MRC-MW-12C-053014	R1404021-015	911,887	4.25
MRC-MW-27A-052914	R1404021-001	890,774	4.25
MRC-MW-12B-053014	R1404021-014	889,685	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/10/14 13:56

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061014\M6413.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406376-02
Analysis Lot: 396450
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	645,602	10.75	1,150,197	5.45	1,114,473	8.74
	Upper Limit ==>	1,291,204	11.25	2,300,394	5.95	2,228,946	9.24
	Lower Limit ==>	322,801	10.25	575,099	4.95	557,237	8.24
	ICAL Result ==>	670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1406376-03	637,839	10.75	1,192,032	5.45	1,138,400	8.74
Method Blank	RQ1406376-04	612,701	10.75	1,205,448	5.45	1,136,357	8.74
MRC-MW-12A-053014	R1404021-016	572,853	10.75	1,176,143	5.45	1,097,948	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/10/14 13:56

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061014\M6413.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406376-02
Analysis Lot: 396450
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	842,914	4.25
	Upper Limit ==>	1,685,828	4.75
	Lower Limit ==>	421,457	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1406376-03	868,318	4.25
Method Blank	RQ1406376-04	871,314	4.25
MRC-MW-12A-053014	R1404021-016	870,030	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Environmental

1,4-DIOXANE
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp 112IC06247

Service Request: R1404021
Date Analyzed: 5/2/14 09:52

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\050214\Af625.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 393191

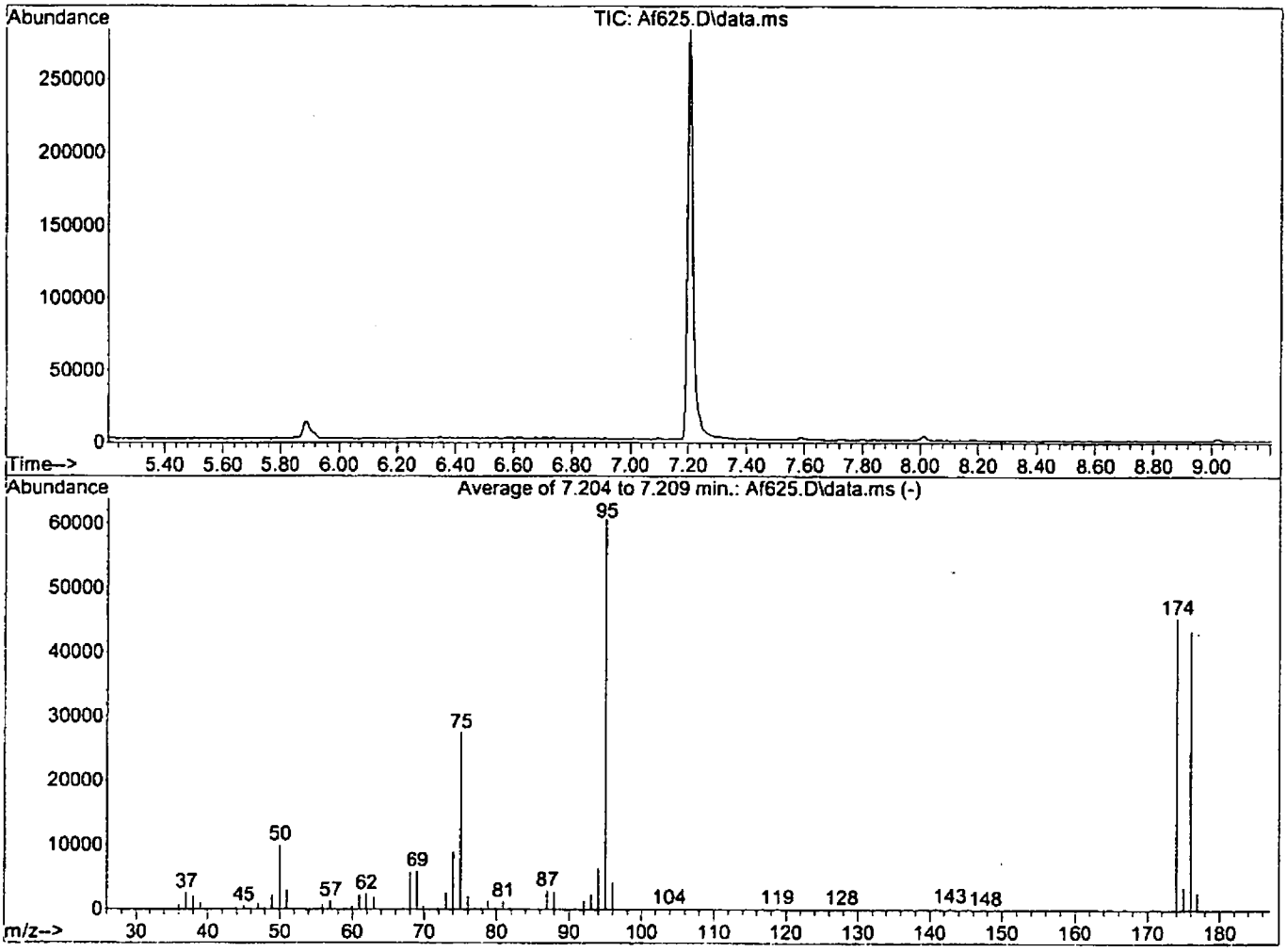
Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	74.76	45403	Pass
175	174	5	9	7.72	3505	Pass
176	174	95	101	95.51	43363	Pass
177	176	5	9	6.47	2805	Pass
50	95	15	40	16.50	10021	Pass
75	95	30	60	45.23	27469	Pass
95	95	100	100	100.00	60728	Pass
96	95	5	9	6.97	4230	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial Calibration	RQ1405292-02	I:\ACQUDATA\5975E\data\050214\Af629.D\	5/2/14 11:21	
Initial Calibration	RQ1405292-03	I:\ACQUDATA\5975E\data\050214\Af630.D\	5/2/14 11:39	
Initial Calibration	RQ1405292-04	I:\ACQUDATA\5975E\data\050214\Af631.D\	5/2/14 11:58	
Initial Calibration	RQ1405292-05	I:\ACQUDATA\5975E\data\050214\Af632.D\	5/2/14 12:17	
Initial Calibration	RQ1405292-06	I:\ACQUDATA\5975E\data\050214\Af633.D\	5/2/14 12:36	
Initial Calibration	RQ1405292-07	I:\ACQUDATA\5975E\data\050214\Af634.D\	5/2/14 12:55	
Initial Calibration	RQ1405292-08	I:\ACQUDATA\5975E\data\050214\Af635.D\	5/2/14 13:14	
Initial Calibration	RQ1405292-09	I:\ACQUDATA\5975E\data\050214\Af636.D\	5/2/14 13:42	

Data Path : I:\ACQUDATA\5975E\data\050214\
Data File : Af625.D
Acq On : 2 May 2014 9:52 am
Operator : m.pedro
Sample : tune
Misc : bfb
ALS Vial : 5 Sample Multiplier: 1

Integration File: events.e

Method : I:\ACQUDATA\5975E\METHODS\bfbtune.M
Title :
Last Update : Wed Mar 28 08:41:26 2012



AutoFind: Scans 744, 745, 746; Background Corrected with Scan 734
AUTOFIND via AUTOINTEGRATE

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	16.5	10021	PASS
75	95	30	60	45.2	27469	PASS
95	95	100	100	100.0	60728	PASS
96	95	5	9	7.0	4230	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	74.8	45403	PASS
175	174	5	9	7.7	3505	PASS
176	174	95	101	95.5	43363	PASS
177	176	5	9	6.5	2805	PASS

Response Factor Report 7975 E

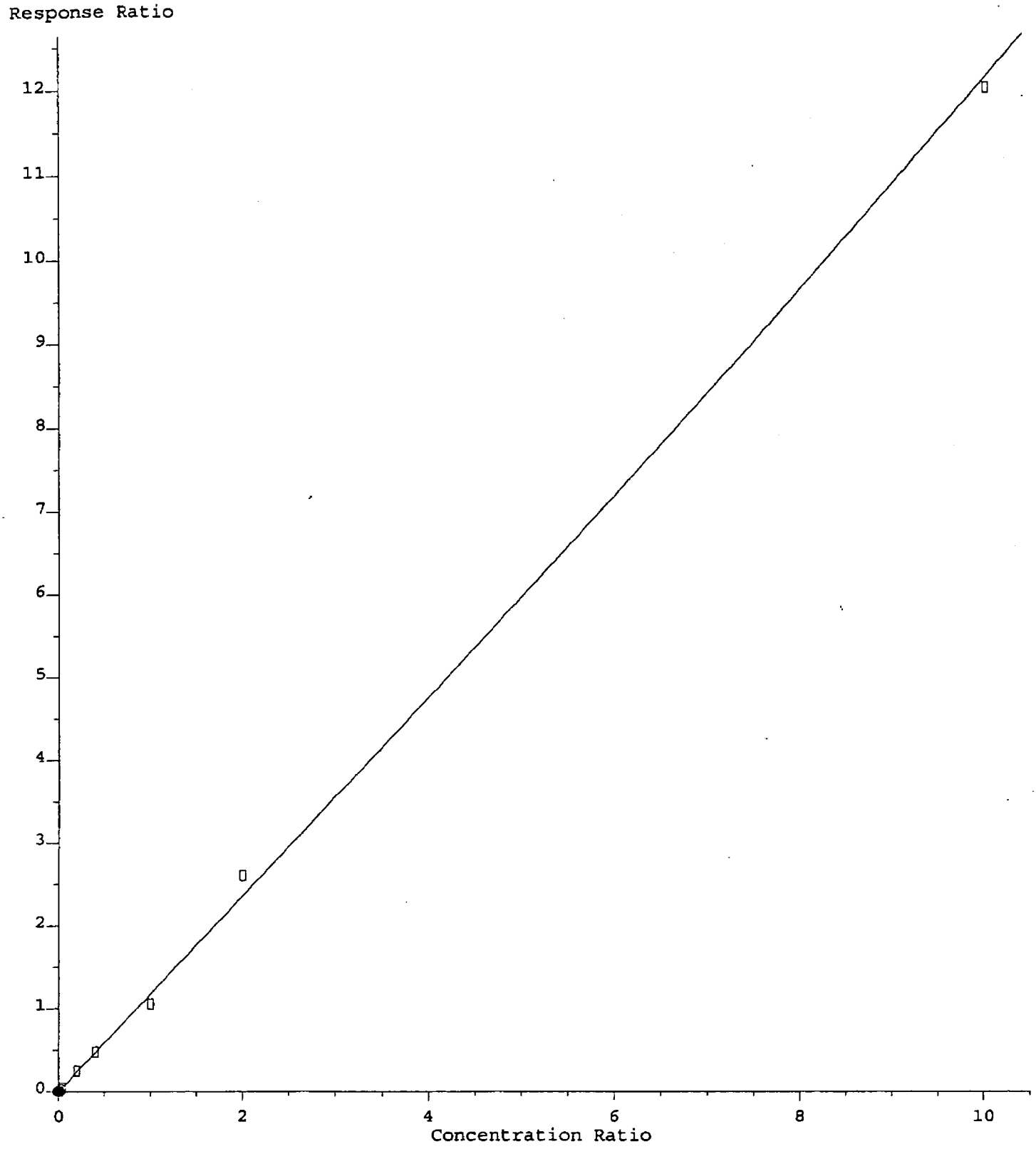
Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX050214.M
Title : 8270 BNA ANALYSIS
Last Update : Mon May 05 07:43:33 2014
Response Via : Initial Calibration

Calibration Files
2 =Af629.D 10 =Af630.D 20 =Af631.D 100 =Af632.D 200 =Af633.D 500 =Af634.D 1000=Af635.D 5000=Af636.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1) IR	d8-THF	----------ISTD----------									
2) T	1,4-Dioxane	1.161	1.195	1.093	1.239	1.188	1.055	1.305	1.204	1.180	6.67
3) S	SURR,1,4-DIOXA...	1.161	1.031	0.922	1.071	1.019	0.906	1.103	1.007	1.027	8.37

(#) = Out of Range

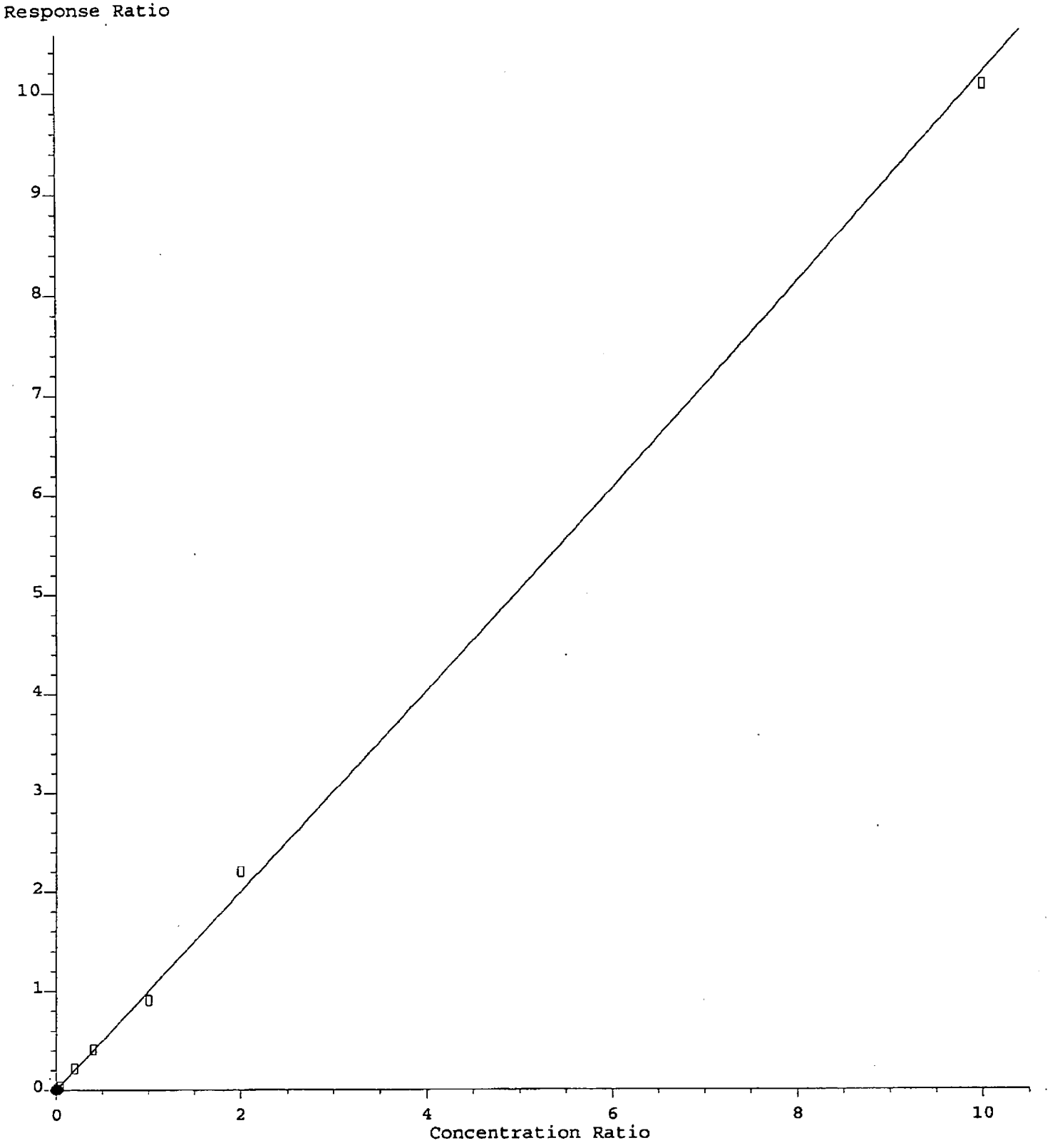
1,4-Dioxane



R = 4.13e-003 A*A + 1.18e+000 A - 6.78e-005
Coef of Det (r^2) = 0.995 Curve Fit: Quadratic w(1/a^2)
Method Name: I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Calibration Table Last Updated: Mon May 05 07:43:33 2014

00547

SURR,1,4-DIOXANE-d8



R = 2.20e-003 A*A + 9.98e-001 A + 6.26e-004
Coef of Det (r^2) = 0.995 Curve Fit: Quadratic w(1/a^2)
Method Name: I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Calibration Table Last Updated: Mon May 05 07:43:33 2014

00548

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/5/14 10:20

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af859.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 395894

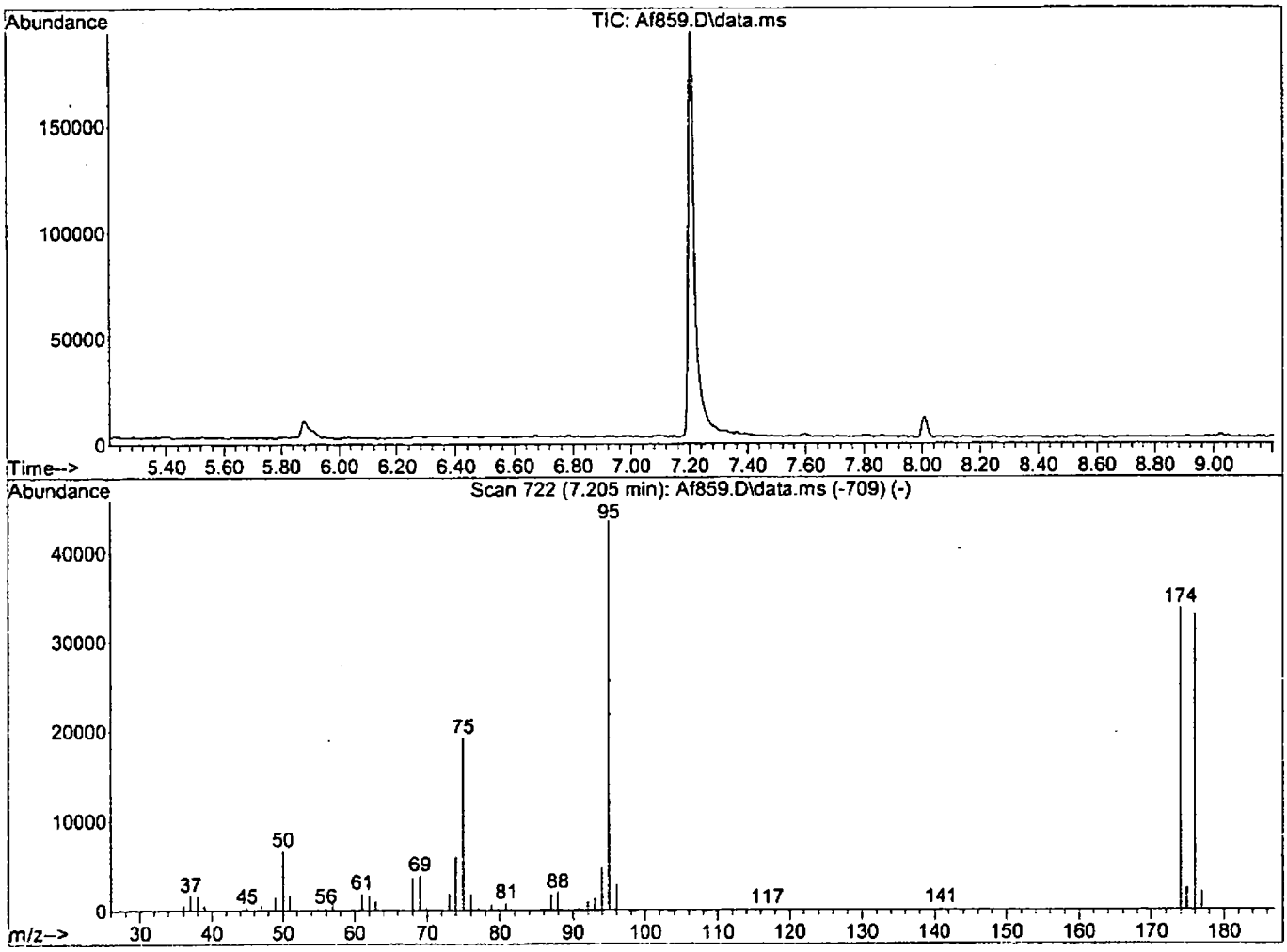
Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	77.30	33704	Pass
175	174	5	9	7.55	2545	Pass
176	174	95	101	97.65	32912	Pass
177	176	5	9	6.34	2087	Pass
50	95	15	40	15.31	6677	Pass
75	95	30	60	44.20	19272	Pass
95	95	100	100	100.00	43600	Pass
96	95	5	9	6.48	2825	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406195-02	I:\ACQUDATA\5975E\data\060514\Af860.D\	~~6/5/14 10:43~~	
Method Blank	RQ1406107-01	I:\ACQUDATA\5975E\data\060514\Af861.D\	6/5/14 11:01	
Lab Control Sample	RQ1406107-02	I:\ACQUDATA\5975E\data\060514\Af863.D\	6/5/14 11:37	
Duplicate Lab Control Sample	RQ1406107-03	I:\ACQUDATA\5975E\data\060514\Af864.D\	6/5/14 11:55	
Lab Control Sample	RQ1406107-04	I:\ACQUDATA\5975E\data\060514\Af865.D\	6/5/14 12:14	
Continuing Calibration Verification	RQ1406195-03	I:\ACQUDATA\5975E\data\060514\Af870.D\	6/5/14 13:44	
MRC-MW-91A-052914	R1404021-011	I:\ACQUDATA\5975E\data\060514\Af873.D\	6/5/14 14:39	
MRC-MW-13A-053014	R1404021-012	I:\ACQUDATA\5975E\data\060514\Af874.D\	6/5/14 14:57	
DUP-01-053014	R1404021-013	I:\ACQUDATA\5975E\data\060514\Af875.D\	6/5/14 15:16	
MRC-MW-12B-053014	R1404021-014	I:\ACQUDATA\5975E\data\060514\Af876.D\	6/5/14 15:34	
MRC-MW-12C-053014	R1404021-015	I:\ACQUDATA\5975E\data\060514\Af877.D\	6/5/14 15:53	
Continuing Calibration Verification	RQ1406195-04	I:\ACQUDATA\5975E\data\060514\Af881.D\	~~6/5/14 17:04~~	
Continuing Calibration Verification	RQ1406195-05	I:\ACQUDATA\5975E\data\060514\Af892.D\	6/5/14 20:25	
Continuing Cal. VerificationCCVA	RQ1406195-06	I:\ACQUDATA\5975E\data\060514\Af901.D\	6/5/14 23:11	

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af859.D
Acq On : 5 Jun 2014 10:20 am
Operator : m.pedro
Sample : tune
Misc : bfb
ALS Vial : 3 Sample Multiplier: 1

Integration File: events.e

Method : I:\ACQUDATA\5975E\METHODS\bfbtune.M
Title :
Last Update : Wed Mar 28 08:41:26 2012



Spectrum Information: Scan 722

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.3	6677	PASS
75	95	30	60	44.2	19272	PASS
95	95	100	100	100.0	43600	PASS
96	95	5	9	6.5	2825	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	77.3	33704	PASS
175	174	5	9	7.6	2545	PASS
176	174	95	101	97.7	32912	PASS
177	176	5	9	6.3	2087	PASS

M/e

00607

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af860.D
Acq On : 5 Jun 2014 10:43 am
Operator : m.pedro
Sample : ccv .
Misc : .002ppm
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 05 10:56:55 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	79	-0.03
2 T	1,4-Dioxane	2.000	1.894	5.3	75	0.02
3 S	SURR,1,4-DIOXANE-d8	2.000	1.862	6.9	74	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00581

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af870.D
Acq On : 5 Jun 2014 1:44 pm
Operator : m.pedro
Sample : ccv
Misc : .2ppm
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 05 14:15:28 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	80	-0.02
2 T	1,4-Dioxane	200.000	216.588	-8.3	86	-0.01
3 S	SURR,1,4-DIOXANE-d8	200.000	219.621	-9.8	87	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00587

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af881.D
Acq On : 5 Jun 2014 5:04 pm
Operator : m.pedro
Sample : ccv
Misc : ccv 1.0
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 06 08:21:07 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	92	-0.02
2	T	1,4-Dioxane	1000.000	1085.869	-8.6	91	-0.03
3	S	SURR,1,4-DIOXANE-d8	1000.000	1078.572	-7.9	90	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

6/6/14

00591

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/6/14 10:18

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060614\Af904.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 395922

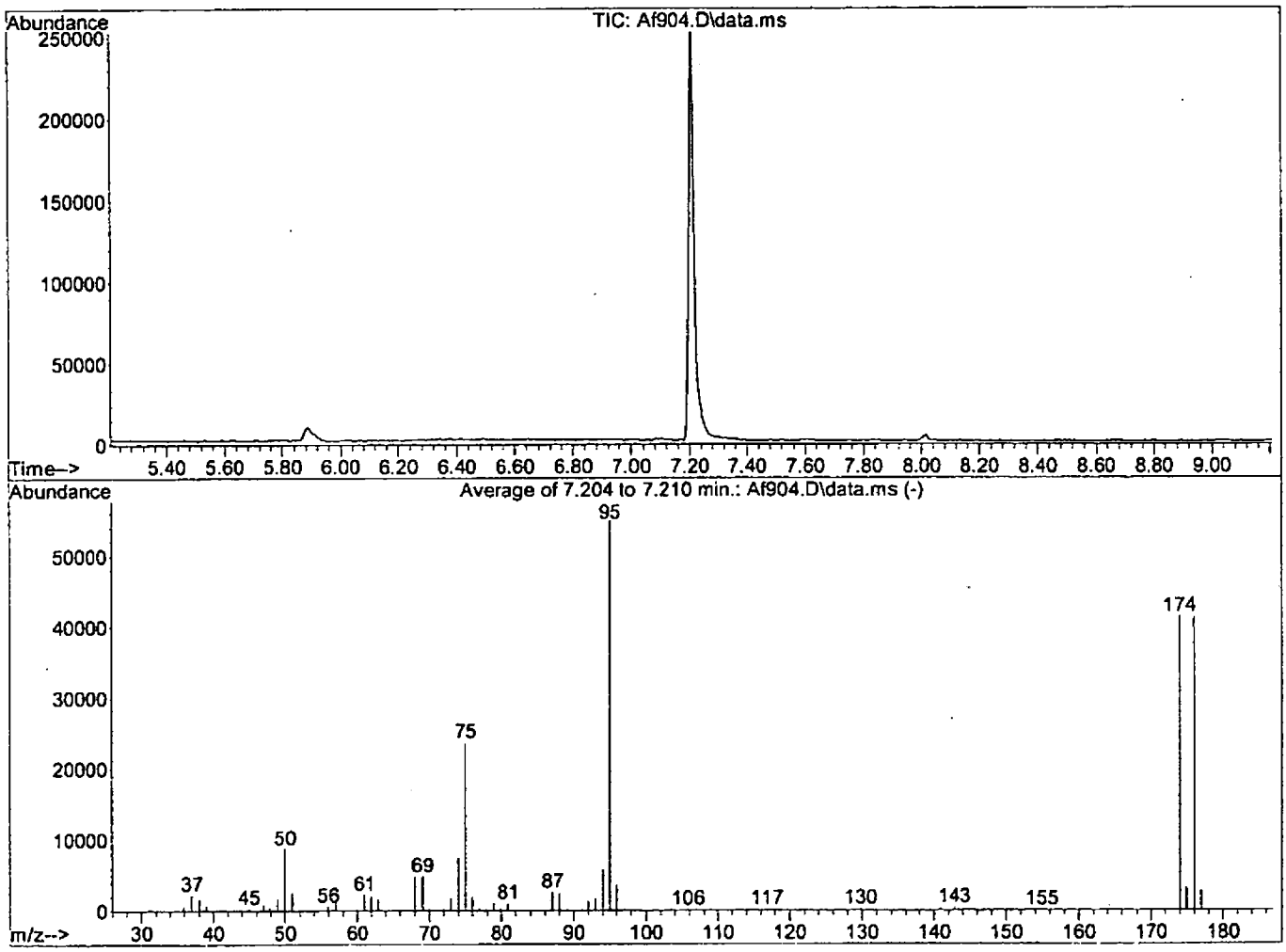
Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	75.22	41349	Pass
175	174	5	9	7.56	3128	Pass
176	174	95	101	99.72	41232	Pass
177	176	5	9	6.55	2701	Pass
50	95	15	40	15.87	8722	Pass
75	95	30	60	43.12	23701	Pass
95	95	100	100	100.00	54968	Pass
96	95	5	9	6.54	3593	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406208-02	I:\ACQUDATA\5975E\data\060614\Af905.D\	6/6/14 10:40	
MRC-MW-12A-053014	R1404021-016	I:\ACQUDATA\5975E\data\060614\Af907.D\	6/6/14 11:19	
Continuing Cal. VerificationCCVA	RQ1406208-03	I:\ACQUDATA\5975E\data\060614\Af908.D\	6/6/14 11:42	

Data Path : I:\ACQUDATA\5975E\data\060614\
Data File : Af904.D
Acq On : 6 Jun 2014 10:18 am
Operator : m.pedro
Sample : tune
Misc : bfb
ALS Vial : 2 Sample Multiplier: 1

Integration File: events.e

Method : I:\ACQUDATA\5975E\METHODS\bfbtune.M
Title :
Last Update : Wed Mar 28 08:41:26 2012



AutoFind: Scans 722, 723, 724; Background Corrected with Scan 712
AUTOFIND via AUTOINTEGRATE

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	15.9	8722	PASS
75	95	30	60	43.1	23701	PASS
95	95	100	100	100.0	54968	PASS
96	95	5	9	6.5	3593	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	100	75.2	41349	PASS
175	174	5	9	7.6	3128	PASS
176	174	95	101	99.7	41232	PASS
177	176	5	9	6.6	2701	PASS

Data Path : I:\ACQUDATA\5975E\data\060614\
Data File : Af905.D
Acq On : 6 Jun 2014 10:40 am
Operator : m.pedro
Sample : ccv
Misc : .002ppm
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 06 10:58:58 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	90	-0.04
2	T	1,4-Dioxane	2.000	2.126	-6.3	96	0.00
3	S	SURR,1,4-DIOXANE-d8	2.000	2.031	-1.6	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5975E\data\060614\
Data File : Af908.D
Acq On : 6 Jun 2014 11:42 am
Operator : m.pedro
Sample : ccv
Misc : .2ppm
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 06 11:55:26 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	92	0.00
2	T	1,4-Dioxane	200.000	200.286	-0.1	92	0.00
3	S	SURR,1,4-DIOXANE-d8	200.000	202.322	-1.2	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/5/14 11:01
Sample Matrix:	Water	**Date Extracted:**	6/5/14

Method Blank Summary

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1406107-01	**File ID:**	I:\ACQUDATA\5975E\data\060514\Af861.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406107-02	I:\ACQUDATA\5975E\data\060514\Af863.D\	6/5/14 11:37
Duplicate Lab Control Sample	RQ1406107-03	I:\ACQUDATA\5975E\data\060514\Af864.D\	6/5/14 11:55
Lab Control Sample	RQ1406107-04	I:\ACQUDATA\5975E\data\060514\Af865.D\	6/5/14 12:14
MRC-MW-91A-052914	R1404021-011	I:\ACQUDATA\5975E\data\060514\Af873.D\	6/5/14 14:39
MRC-MW-13A-053014	R1404021-012	I:\ACQUDATA\5975E\data\060514\Af874.D\	6/5/14 14:57
DUP-01-053014	R1404021-013	I:\ACQUDATA\5975E\data\060514\Af875.D\	6/5/14 15:16
MRC-MW-12B-053014	R1404021-014	I:\ACQUDATA\5975E\data\060514\Af876.D\	6/5/14 15:34
MRC-MW-12C-053014	R1404021-015	I:\ACQUDATA\5975E\data\060514\Af877.D\	6/5/14 15:53
MRC-MW-12A-053014	R1404021-016	I:\ACQUDATA\5975E\data\060614\Af907.D\	6/6/14 11:19

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 11:01
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406107-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af861.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	70-130	6/5/14 11:01	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 5/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210042

	Lab Control Sample RQ1406107-02			Duplicate Lab Control Sample RQ1406107-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,4-Dioxane	9.78	10.1	97	10.3	10.1	102	70 - 130	5	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 5/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210042

Lab Control Sample
RQ1406107-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	0.0374	0.0405	92	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/5/14 10:43

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af860.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406195-02
Analysis Lot: 395894
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	44,923	2.81
	Upper Limit ==>	58,400	3.31
	Lower Limit ==>	31,446	2.31
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Method Blank	RQ1406107-01	48,846	2.82
Lab Control Sample	RQ1406107-02	50,429	2.83
Duplicate Lab Control Sample	RQ1406107-03	49,705	2.79
Lab Control Sample	RQ1406107-04	49,138	2.79

Results flagged with an asterisk (*) indicate values outside control criteria

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247

Service Request: R1404021
Date Analyzed: 6/5/14 13:44

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af870.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406195-03
Analysis Lot: 395894
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	50,336	2.82
	Upper Limit ==>	65,437	3.32
	Lower Limit ==>	35,235	2.32
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-91A-052914	R1404021-011	55,066	2.79
MRC-MW-13A-053014	R1404021-012	56,547	2.84
DUP-01-053014	R1404021-013	52,679	2.81
MRC-MW-12B-053014	R1404021-014	51,630	2.81
MRC-MW-12C-053014	R1404021-015	54,820	2.81

Results flagged with an asterisk (*) indicate values outside control criteria

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Analyzed:**	6/6/14 10:40

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID:	I:\ACQUDATA\5975E\data\060614\Af905.D\	**Lab Code:**	RQ1406208-02
Instrument ID:	R-MS-56	**Analysis Lot:**	395922
Analytical Method:	522	**Signal ID:**	

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	51,308	2.79
	Upper Limit ==>	66,700	3.29
	Lower Limit ==>	35,916	2.29
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-12A-053014	R1404021-016	51,117	2.82
Continuing Cal. Verification	RQ1406208-03	57,892	2.84

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Environmental

RSK 175
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analysis: RSK.175
Date: 8/27/13
Instr. V2

Analyst: Dan Harris, Ben Wojciechowicz
Data Path: ~~X~~ \ACQDATA\ V2 \DATA\ 082713

Run Method: rsk082713.M

LIMS Run#:

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
*	Blank										
	He Blank										
	ICAL Blank								1	Y	
	1 ppb		25 uL of 20 ppb						1001	Y	
	1 ppb		~~100 uL of 100 ppb~~ "						1002	N	Acetylene ↑
	2 ppb		50 uL of 20 ppb						1003	Y	
	10 ppb		100 uL of 50 ppb						1004	N	Propane ↓
	10 ppb		"						1005	N	Propane ↓
	20 ppb		8 uL 10 mix / 42.5 uL						1006	Y	
	50 ppb		20 uL " "						1007	Y	
	75 ppb		30 uL " "						1008	Y	
	100 ppb		40 uL " "						1009	Y	
	2 ppb		50 uL of 50 ppb						1010	Y	
	ICV								1011	Y	
									1014	Y	

dlh 8/27/13

All samples = NA mL + NA uL Surrogate; NA mL purged

* dlh 9/8/13

Primary Mix : 49492
Primary Propane : 27095 (BW)
Primary :
Primary :

Secondary Mix : 49493
Secondary Propane : 27095 (TW) 10 uL/42.5 uL = ICV
Secondary :
Secondary :

Surrogate : NA

0118

00498

d/h 9/5/13

ALS Environmental-Rochester

Analyst: B Wojtasiewicz
Date: 8/27/2013

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	Avg. R.T.	1PPB R F STD 1	2PPB R F STD 2	10.0PPB R F STD 3	20PPB R F STD 4	50PPB R F STD 5	75PPB R F STD 6	100PPB R F STD 7	Avg R F	% RSD
Methane	0.29	0.8369	0.7754	0.7632	0.7422	0.7178	0.7195	0.7307	**0.7551**	5.6%
Ethylene	0.77	0.5121	0.5030	0.4969	0.5145	0.4921	0.5080	0.5206	**0.5067**	2.0%
Ethane	1.15	0.7478	0.7047	0.7275	0.7211	0.6941	0.7031	0.7167	**0.7164**	2.5%
Propene	4.81		0.1874	0.1532	0.1732	0.2013	0.2286	0.2484	**0.1987**	17.8%
Propane	5.80	0.7040	0.7346	0.7895	0.7607	0.7480	0.7493	0.7625	**0.7498**	3.5%
Acetylene	0.64	0.0922	0.0935	0.0769	0.0923	0.0921	0.1004	0.1072	**0.0935**	9.9%

***LR =Linear Regression**

BW 09/03/13

ALS Environmental-Rochester

Analyst: B Wwojtasiewicz
Date: 08/27/13
Time: 12:27

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)

ICAL Date: 8/27/2013

ICV EVALUATION

Compound	R.T. WINDOW MIN. FROM	R.T. WINDOW MIN. TO	Time	Area Units	Conc. Result	True Value	Percent Recovery	% LIMITS
Methane	0.19	0.39	0.29	19.54	25.87	26.2	98.7%	70-130
Ethylene	0.78	0.98	0.88	12.56	24.78	24.3	102.1%	70-130
Ethane	1.05	1.25	1.15	18.81	26.25	26.1	100.8%	70-130
Propene	4.71	4.91	4.81	5.45	27.43	24.0	114.1%	70-130
Propane	5.70	5.90	5.80	19.55	26.07	25.5	102.3%	70-130
Acetylene	0.54	0.74	0.64	4.65	49.72	50.1	99.2%	70-130

*LR = Linear Regression
X = Out of Control Limits

Analysis: RSK 175 Analyst: J. Cushman

Date: 6/3/14 Data Path: J:\ACQDATA\ V2 \DATA\ 060314 Run Method: RSK082713

Instr. V2 LIMS Run#: 395253

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
-	He Blank	-	-				-	-	1	-	
-	CCV	-	-				1	-	1001	Y	
-	MBlank	-	-				1	-	1002	(Y)	J-level methane
-	LCS	-	-				1	-	1003	Y	
-	DLCS	-	-				2	-	1004	Y	
-	R1404021-001	1	-	Tetra Tech	979	II	1	<2	1005	(Y)	over range, repeat @ DL
-	-002	1	-				1	<2	1006	Y	
-	-004	1	-				1	<2	1007	(Y)	over range, repeat @ DL
-	-014	1	-				1	<2	1008	Y	
-	-016	1	-				1	<2	1009	Y	
-	-001	25	(5mL/50mL) 200 uL inject				2	<2	1010	Y	DL
-	-004	5	100 uL inject				1	<2	1011	Y	DL
-	CCV	-	-				1	-	1012	Y	

JC 6/3/14

All samples = NA mL + NA uL Surrogate; NA mL purged

Primary : 62941 20 uL/42.5mL CCV Secondary : 62942 10 uL/42.5mL LCS DLCS Surrogate : NA

Primary : Secondary :

Primary : Secondary :

Primary : Secondary :

JC 6/3/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/3/14
Time: 10:35

Method: RSK-175 Dissolved Gases

CCV EVALUATION
ICAL Date: 08/27/13
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	37.786	0.7551	0.7220	4.4%	52.3
Ethylene	0.77	0.97	0.87	25.396	0.5067	0.5225	3.1%	48.6
Ethane	1.04	1.24	1.14	36.887	0.7164	0.7090	1.0%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.66	5.86	5.76	35.856	0.7498	0.7039	6.1%	50.9
Acetylene	0.54	0.74	0.64	9.332	0.0935	0.0933	0.3%	100.1
						Avg %D:	3.0%	(#62941)

JC 6/3/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/3/14
Time: 12:35

Method: RSK-175 Dissolved Gases

CCV EVALUATION
ICAL Date: 08/27/13
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	36.114	0.7551	0.6900	8.6%	52.3
Ethylene	0.77	0.97	0.87	25.001	0.5067	0.5144	1.5%	48.6
Ethane	1.04	1.24	1.14	35.245	0.7164	0.6774	5.4%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.68	5.88	5.78	34.434	0.7498	0.6760	9.8%	50.9
Acetylene	0.54	0.74	0.64	10.805	0.0935	0.1080	15.5%	100.1
						Avg %D:	8.2%	(#62941)

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/3/14 10:46
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1405968-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1002.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	0.40	J	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Service Request: R1404021
Date Analyzed: 6/ 3/14

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 395253

Analyte Name	Lab Control Sample RQ1405968-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1405968-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	27.4	26.1	105	27.0	26.1	103	75 - 118	1	30
Ethene	27.0	24.3	111	26.9	24.3	111	73 - 129	<1	30
Methane	26.2	26.2	100	25.8	26.2	98	65 - 126	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

LOCKHEED-MRC
WATER DATA
R1404021

FRACTION	CHEMICAL	DUP-01-053014	UNITS	MRC-MW-13A-053014	RPD	D
OV	CIS-1,2-DICHLOROETHENE	0.62 J	UG/L	0.61 J	1.63	0.01
OV	VINYL CHLORIDE	0.32 J	UG/L	0.41 J	24.66	0.09

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

LOCKHEED-MRC
WATER DATA
R1404021

FRACTION	CHEMICAL	DUP-01-053014	UNITS	MRC-MW-13A-053014	RPD	D
OS	1,4-DIOXANE	0.546	UG/L	0.554	1.45	0.01

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

VOC CALCULATION

	SAMPLE MRC-MW-27B-052914	
TARGET ANALYTE	**trichloroethene**	
ANALYTE RESPONSE	874977	
INTERNAL STANDARD	1,4-difluorobenzene	
I.S. RESPONSE	1109205	
I.S. CONCENTRATION	50	µg/l
ANALYTE CAL. RF	0.2982	
DILUTION FACTOR (DF)	10	
INITIAL SAMPLE VOLUME - V1	5	ml
FINAL SAMPLE VOLUME - V2	5	ml

$$\frac{\text{(ANALYTE RESPONSE) x (I.S. CONCENTRATION) X DF x V2}}{\text{(I.S. RESPONSE) x (CAL. R.F.) x V1}} = \textbf{1322.66}\ \textbf{µg/l}$$

Quantitation Report (Not Reviewed)

Sample : R1404021-002|10
Data File: I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D
Misc : TETRA 11423 T4
Acq On : 6 Jun 2014 8:30 pm
Operator : K.Ruest
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 06 20:45:05 2014
QLast Update : Mon May 19 11:05:50 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units		Dev(Min)
Internal Standards							
1) Pentafluorobenzene	4.249	168	808551	50.00	ppb		0.00
43) 1,4-Difluorobenzene	5.450	114	1109205	50.00	ppb		0.00
71) d5-Chlorobenzene	8.742	117	1049587	50.00	ppb		0.00
86) 1,4-Dichlorobenzene-d4	10.748	152	570644	50.00	ppb		0.00
System Monitoring Compounds							
45) surr4,Dibrflmethane	4.152	113	348243	54.23	ppb		0.00
Spiked Amount 50.000	Range 89 - 119		Recovery = 108.46%				
48) surr1,1,2-dichloroetha...	4.664	65	439666	60.10	ppb		0.00
Spiked Amount 50.000	Range 78 - 122		Recovery = 120.20%				
65) SURR3,Toluene-d8	7.322	98	1322446	49.01	ppb		0.00
Spiked Amount 50.000	Range 87 - 121		Recovery = 98.02%				
70) SURR2,BFB	9.791	95	508906	50.55	ppb		0.00
Spiked Amount 50.000	Range 85 - 122		Recovery = 101.10%				
Target Compounds							Qvalue
4) Vinyl Chloride	1.323	62	9488	1.23	ppb		87
~~12) Acrolein~~	~~1.981~~	~~56~~	~~246~~	~~0.39~~	~~ppb~~	~~#~~	~~17~~
13) 1,1-Diclethene	2.036	96	8474	1.44	ppb		94
~~15) Acetone~~	~~2.042~~	~~43~~	~~506~~	~~0.32~~	~~ppb~~	~~#~~	~~52~~
~~16) 2-Propanol~~	~~2.109~~	~~45~~	~~279~~	~~1.07~~	~~ppb~~	~~#~~	~~55~~
~~19) Acetonitrile~~	~~2.237~~	~~40~~	~~809~~	~~3.08~~	~~ppb~~	~~#~~	~~50~~
25) Methyl-t-Butyl Ether	2.585	73	9355	0.50	ppb		87
26) trans-1,2-Dichloroethene	2.585	96	3937	0.54	ppb	#	72
28) 1,1-Diclethane	2.945	63	10511	0.77	ppb		87
34) cis-1,2-Dichloroethene	3.548	96	284838	34.72	ppb		98
54) Trichloroethene	5.828	130	874977	132.28	ppb		94
~~90) Cyclohexanone~~	~~9.791~~	~~55~~	~~1424~~	~~3.11~~	~~ppb~~	~~#~~	~~57~~

(#) = qualifier out of range (m) = manual integration (+) = signals summed

JLR 6/13/14

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/112IC06247
Sample Matrix: Water

Sample Name: MRC-MW-27B-052914
Lab Code: R1404021-002

Service Request: R1404021
Date Collected: 5/29/14 1030
Date Received: 5/30/14
Date Analyzed: 6/6/14 20:30

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\MSVOA12\DATA\060614\M6356.D\

Analysis Lot: 395915
Instrument Name: R-MS-12
Dilution Factor: 10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	10	U	10	2.2	
56-23-5	Carbon Tetrachloride	10	U	10	4.5	
108-90-7	Chlorobenzene	10	U	10	2.9	
75-00-3	Chloroethane	10	U	10	2.4	
67-66-3	Chloroform	10	U	10	2.5	
74-87-3	Chloromethane	10	U	10	2.1	
124-48-1	Dibromochloromethane	10	U	10	3.1	
74-95-3	Dibromomethane	10	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	10	U	10	4.7	
75-09-2	Methylene Chloride	10	U	10	3.2	
108-20-3	Diisopropyl Ether	10	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	10	U	10	2.0	
100-41-4	Ethylbenzene	10	U	10	2.0	
87-68-3	Hexachlorobutadiene	20	U	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	10	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	5.0	J	10	2.9	
91-20-3	Naphthalene	10	U	10	2.0	
100-42-5	Styrene	10	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	10	U	10	3.0	
108-88-3	Toluene	10	U	10	2.0	
79-01-6	Trichloroethene (TCE)	1300		10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	10	U	10	2.0	
108-05-4	Vinyl Acetate	20	U	20	11	
75-01-4	Vinyl Chloride	12		10	3.2	
1330-20-7	Xylenes, Total	30	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	350		10	3.0	
10061-01-5	cis-1,3-Dichloropropene	10	U	10	2.4	
179601-23-1	m,p-Xylenes	20	U	20	3.4	
104-51-8	n-Butylbenzene	10	U	10	2.1	
103-65-1	n-Propylbenzene	10	U	10	2.0	
95-47-6	o-Xylene	10	U	10	2.0	
135-98-8	sec-Butylbenzene	10	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	10	U	10	2.0	
98-06-6	tert-Butylbenzene	10	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	5.4	J	10	3.4	

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\060614\M6338.D
Misc :
Acq On : 6 Jun 2014 10:49 am
Operator : K.Ruest
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 06 11:18:49 2014
QLast Update : Mon May 19 11:05:50 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3297	0.3824	-16.0	95	0.00
49	P	Benzene	1.2310	1.1441	7.1	77	0.00
50	P	1,2-Dichloroethane	0.3737	0.4343	-16.2	98	0.00
51		Iso-Butyl Alcohol	0.0085	0.0076	10.6	71	0.00
52		n-Heptane	0.3075	0.2814	8.5	79	0.00
53		1-Butanol	0.0046	0.0047	-2.2	73	0.00
54	P	Trichloroethene	0.2982	0.3146	-5.5	89	0.00
55	P	Methylcyclohexane	0.3206	0.3452	-7.7	95	0.00
56	P	1,2-Diclpropane	0.3148	0.2865	9.0	75	0.00
57		Dibromomethane	0.1497	0.1503	-0.4	82	0.00
58		1,4-Dioxane	0.0021	0.0022	-4.8	90	0.00
59		Methyl Methacrylate	0.1481	0.1445	2.4	76	0.00
60	P	Bromodichloromethane	0.3677	0.4102	-11.6	89	0.00
61		2-Nitropropane	0.0395	0.0444	-12.4	87	0.00
62		2-Chloroethylvinyl Ether	0.1412	0.1416	-0.3	77	0.00
63	P	cis-1,3-Dichloropropene	0.4363	0.4534	-3.9	80	0.00
64	P	4-Methyl-2-pentanone	0.1899	0.1908	-0.5	77	0.00
65	s	SURR3,Toluene-d8	1.2163	1.2200	-0.3	81	0.00
66	P	Toluene	1.2692	1.2779	-0.7	82	0.00
67	P	trans-1,3-Dichloropropene	0.3517	0.4013	-14.1	85	0.00
68		Ethyl Methacrylate	0.2861	0.2993	-4.6	76	0.00
69	P	1,1,2-Trichloroethane	0.2220	0.2173	2.1	79	0.00
70	s	SURR2,BFB	0.4538	0.4827	-6.4	86	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	84	0.00
72	P	Tetrachloroethene	0.2583	0.2868	-11.0	100	0.00
73	P	2-Hexanone	0.1416	0.1706	-20.5#	94	0.00
74		1,3-Dichloropropane	0.4501	0.4192	6.9	80	0.00
75	P	Dibromochloromethane	0.2588	0.2930	-13.2	89	0.00
76		N-Butyl Acetate	0.3502	0.3458	1.3	78	0.00
77	P	1,2-Dibromoethane	0.2312	0.2378	-2.9	84	0.00
78	P	Chlorobenzene	0.8701	0.8868	-1.9	89	0.00
79		3-CBTF	0.4304	0.5492	-27.6#	109	0.00
80		4-CBTF	0.3856	0.5031	-30.5#	107	0.00
81		1,1,1,2-Tetrachloroethane	0.3058	0.3444	-12.6	93	0.00
82	P	Ethylbenzene	0.4636	0.4826	-4.1	88	0.00
83	P	(m+p)Xylene	0.5448	0.5963	-9.5	90	0.00
84	P	o-Xylene	0.5559	0.5826	-4.8	88	0.00
85	P	Styrene	0.8888	0.9896	-11.3	88	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	97	0.00
87	P	Bromoform	0.2840	0.2759	2.9	86	0.00
88		2-CBTF	0.8330	0.9219	-10.7	108	0.00
89	P	Isopropylbenzene	2.5815	2.5481	1.3	95	0.00
90		Cyclohexanone	0.0401	0.0503	-25.4#	124	0.00
91		trans-1,4-Dichloro-2-Butene	0.1346	0.1062	21.1#	68	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5726	0.4676	18.3	80	0.00
93		Bromobenzene	0.7355	0.7004	4.8	97	0.00

OVG CALCULATION	**SAMPLE MRC-MW-27A-052914**		
TARGET ANALYTE	**methane**		
ANALYTE RESPONSE	736255		
ANALYTE AVERAGE CF RESPONSE	7551		
DILUTION FACTOR (DF)	25		
$\frac{\text{(ANALYTE RESPONSE) X Dilution Factor}}{\text{(AVERAGE ANALYTE RESPONSE)}}$	=	2437.6076	ug/l

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/29/14 0915
Sample Matrix:	Water	**Date Received:**	5/30/14
		Date Analyzed:	6/3/14 12:34
Sample Name:	MRC-MW-27A-052914	**Units:**	µg/L
Lab Code:	R1404021-001	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395253
Data File Name:	1010.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**5.5**	DJ	25	4.9	
74-85-1	Ethene	25	U	25	2.7	
74-82-8	Methane	**2400**	D	25	5.1	

Title : RSK.175
Run File : I:\ACQUDATA\V2\DATA\060314\1010.run
Method File : I:\ACQUDATA\V2\METHODS\RSK082713.mth
Sample ID : R1404021-001, 25

Injection Date: 6/3/2014 12:34 PM Calculation Date: 6/3/2014 12:43 PM

Operator : J CUSHMAN
Workstation: DATA
Instrument : V2
Channel : A = A

Detector Type: ADCB (1 Volt)
Bus Address : 16
Sample Rate : 10.00 Hz
Run Time : 9.002 min

** Star Chromatography Workstation Version 5.2 ** 00161-4e08-cd1-22a9 **

Run Mode : Analysis
Peak Measurement: Peak Area
Calculation Type: External Standard

Peak No.	Peak Name	Result (ug/L)	Ret. Time (min)	Time Offset (min)	Area (counts)	Sep. Code	Width 1/2 (sec)	Status Codes
1	METHANE	97.502	0.283	0.004	736255	BB	1.4	
2	ACETYLENE		0.629					M
3	ETHYLENE	0.097	0.871	-0.000	493	BB	3.9	
4	ETHANE	0.219	1.140	0.011	1566	BB	6.1	
5	PROPENE		4.813					M
6	PROPANE		5.749					M
	Totals:	97.818		0.015	738314			

Status Codes:
M - Missing peak

Total Unidentified Counts : 0 counts

Detected Peaks: 3 Rejected Peaks: 0 Identified Peaks: 6

Multiplier: 1 Divisor: 1 Unidentified Peak Factor: 0

Baseline Offset: -23 microVolts

Noise (used): 40 microVolts - fixed value
Noise (monitored before this run): 29 microVolts

Manual injection

****

d/h 9/5/13

ALS Environmental-Rochester

Analyst: B Wojtasiewicz
Date: 8/27/2013

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	Avg. R.T.	1PPB R F STD 1	2PPB R F STD 2	10.0PPB R F STD 3	20PPB R F STD 4	50PPB R F STD 5	75PPB R F STD 6	100PPB R F STD 7	Avg R F	% RSD
Methane	0.29	0.8369	0.7754	0.7632	0.7422	0.7178	0.7195	0.7307	0.7551	5.8%
Ethylene	0.77	0.5121	0.5030	0.4969	0.5145	0.4921	0.5080	0.5208	0.5067	2.0%
Ethane	1.15	0.7478	0.7047	0.7275	0.7211	0.6941	0.7031	0.7167	0.7164	2.5%
Propene	4.81		0.1874	0.1532	0.1732	0.2013	0.2286	0.2484	0.1987	17.8%
Propane	5.80	0.7040	0.7346	0.7895	0.7607	0.7480	0.7493	0.7625	0.7498	3.5%
Acetylene	0.64	0.0922	0.0935	0.0769	0.0923	0.0921	0.1004	0.1072	0.0935	9.9%

***LR =Linear Regression**

$\times 10^{4}$

SVOC CALCULATION LIQUIDS	SAMPLE MRC-MW-12A-053014		
TARGET ANALYTE	1,4-dioxane		
ANALYTE RESPONSE	227895		
INTERNAL STANDARD	d8-THF		
I.S. RESPONSE	51117		
I.S. CONCENTRATION	500	ng/ml	
ANALYTE CAL. RELATIVE RESPONSE FACTOR (RRF)	1.18		
VOLUME OF FINAL EXTRACT - V2	2	ml	
VOLUME OF INITIAL EXTRACT - V1	100	ml	
DILUTION FACTOR (DF)	10		
CONVERSION FACTOR - CF	1		

$$\frac{\text{(ANALYTE RESPONSE) X (I.S. CONCENTRATION) X DF X V2}}{\text{(I.S. RESPONSE) X (CAL. RRF) X (V1) X CF}} = 377.8222 \text{ ng/ml or ug/l}$$

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404021
Project:	Middle River- Lockheed Martin Corp/112IC06247	**Date Collected:**	5/30/14 1250
Sample Matrix:	Water	**Date Received:**	5/31/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/6/14 11:19
Sample Name:	MRC-MW-12A-053014	**Units:**	µg/L
Lab Code:	R1404021-016	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395922
Prep Method:	Method	**Extraction Lot:**	210042
Data File Name:	I:\ACQUDATA\5975E\data\060614\Af907.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	374		2.00	0.200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	114	70-130	6/6/14 11:19	

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\5975E\data\060614\
Data File : Af907.D
Acq On : 6 Jun 2014 11:19 am
Operator : m.pedro
Sample : r1404021-016|10
Misc : 06/05/14
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 06 11:40:15 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d8-THF	2.822	46	51117	500.00	PPB	-0.02
System Monitoring Compounds						
3) SURR,1,4-DIOXANE-d8	3.866	96	1192m	11.37	PPB	0.00
Spiked Amount 100.000	Range 70 - 130		Recovery = 11.37%#			
Target Compounds						Qvalue
2) 1,4-Dioxane	3.895	88	227895	1871.39	PPB	91

(#) = qualifier out of range (m) = manual integration (+) = signals summed

00538

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **T. APANAVAGE** **DATE: JULY 24, 2014**

FROM: **EDWARD SEDLMYER** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC / 1,4-DIOXANE / DISSOLVED GASES / PERCHLORATE**
LOCKHEED – MIDDLE RIVER CENTER (MRC)
SDG R1404155

SAMPLES: 15 / Aqueous / VOC

MRC-MW-107 B/C-060214	MRC-MW-110A-060314	MRC-MW-110B-060314
MRC-MW-115A-060214	MRC-MW-116A-060214	MRC-MW-11A-060214
MRC-MW-21A-060314	MRC-MW-21B-060314	MRC-MW-22A-060314
MRC-MW-70A-060214	MRC-MW-70B-060214	MRC-MW-77A-060214
MRC-MW-79B-060214	MRC-MW-93A-060314	TB-060214

11 / Aqueous / 1,4-Dioxane

MRC-MW-07A-060314	MRC-MW-110A-060314	MRC-MW-110B-060314
MRC-MW-115A-060214	MRC-MW-116A-060214	MRC-MW-11A-060214
MRC-MW-21A-060314	MRC-MW-21B-060314	MRC-MW-22A-060314
MRC-MW-70A-060214	MRC-MW-70B-060214	

1 / Aqueous / Dissolved Gases

MRC-MW-21B-060314

6 / Aqueous / Perchlorate

MRC-MW-110A-060314	MRC-MW-110B-060314	MRC-MW-115A-060214
MRC-MW-116A-060214	MRC-MW-21B-060314	MRC-MW-52A-060314

Overview

The sample set for Lockheed – MRC, SDG R1404155 consists of sixteen (16) aqueous environmental samples and one (1) trip blank. The samples were analyzed for volatile organic compounds (VOC), 1,4-dioxane, and perchlorate as outlined above.

The samples were collected by Tetra Tech on June 2 and 3, 2014 and analyzed by Test America. All analyses were conducted in accordance with SW-846 Methods 8260C, 6850, and EPA method 522 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method blank results, surrogate spike recoveries, blank spike/blank spike duplicate results, internal standard recoveries, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

- None.

Minor

- The following contaminants were detected in the VOC method and trip blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
1,2,4-Trichlorobenzene[1]	0.34 ug/L	1.7 ug/L
Acetone[2]	1.4 ug/L	14 ug/L

1 - Maximum concentration found in preparation blank (RQ1405637-04) affecting all samples.

2 - Maximum concentration found in TB-060214 affecting all samples.

An action level of 10X the maximum contaminant level for acetone; 5X for 1,2,4-trichlorobenzene have been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Detections less than the action level were qualified (U) due to blank contamination.

- The VOC continuing calibration percent differences (%Ds) were greater than the quality control limit of 20% for 1,1,2,2-tetrachloroethane, 1,2-dichloroethane, bromomethane, carbon tetrachloride, methylene chloride, and vinyl acetate for instrument R-MS-12 on 06/11/14 @23:13. The positive and nondetected results for the aforementioned compounds in all samples were qualified as estimated (J) and (UJ), respectively.

- The VOC surrogate toluene-d8 had percent recoveries less than the quality control limit for samples MRC-MW-107 B/C-060214 and MRC-MW-21B-060314. The samples were re-analyzed with similar results. The positive and nondetected results for samples MRC-MW-107 B/C-060214 and MRC-MW-21B-060314 have been qualified as estimated (J) and (UJ), respectively.

- The VOC LCS/LCSD associated with batch 396676 had percent recoveries outside the quality control limit. The affected sample results were qualified as listed below.

Analyte	%LCS	%LCSD	Qualifier for sample result
1,2-Dichloroethane	Ok	131	J
Bromodichloromethane	126	126	None
Carbon Tetrachloride	130	131	None
trans-1,3-Dichloropropene	Ok	128	None

- The VOC MS/MSD performed on sample MRC-MW-21B-060314 had several percent recoveries outside the quality control limit. The sample results were qualified as listed below.

Analyte	%MS	%MSD	Qualifier for sample result
1,1,1-Trichloroethane	128	130	None
1,1,2,2-Tetrachloroethane	125	126	None
1,1,2-Trichlorotrifluoroethane	132	134	None
1,1-Dichloroethene	149	149	J
1,2-Dibromoethane	125	124	None
1,2-Dichlorobenzene	Ok	124	None
1,2-Dichloropropane	125	125	None
1,3-Dichloropropane	122	122	None

1,4-Dichlorobenzene	Ok	127	None
2-Chloroethy vinyl ether	0	0	UR
Bromobenzene	120	121	None
Bromochloromethane	126	128	None
Chlorobenzene	126	129	None
Dibromomethane	127	127	None
Methylene chloride	124	125	None
Toluene	Ok	126	None
trans-1,2-Dichloroethene	126	129	None

- The following contaminant was detected in the dissolved gases method blank at the following concentration:

Analyte	Maximum Concentration	Action Level
Methane	0.45 ug/L	2.25 ug/L

An action level of 5X the maximum contaminant level for methane has been used to evaluate sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. No action was taken on this basis because the sample detection was greater than the action limit.

- Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

Notes

The VOC continuing calibration %Ds were greater than the quality control limit of 20% for acetone and vinyl acetate for instrument R-MS-7 on 06/14/14 @12:47. No action was taken on this basis because the associated samples were laboratory QC samples or re-analysis of smaples not used for validation.

Sample MRC-MW-116A-060214 was analyzed at a ten fold dilution for VOC fraction due to sample foaming during purge. This accounts for the elevated detection limits of the nondetected values.

Samples MRC-MW-21B-060314 and MRC-MW-79B-060214 were analyzed at dilutions due to VOC concentrations greater than the linear calibration range of the instrument. This accounts for the elevated detection limits of the nondetected values.

Nondetected results were reported to the MDL.

Executive Summary

Laboratory Performance: Blank contamination was noted in the VOC and dissolved gases fractions. Continuing calibration %D noncompliances resulted in the qualification of VOC data. LCS/LCSD percent recovery noncompliances resulted in the qualification of data for one VOC compound.

Other Factors Affecting Data Quality: Positive results less than the reporting limit (RL) were qualified as estimated, due to uncertainty near the detection limit. MS/MSD percent recovery noncompliances resulted in the qualification of VOC data.

The data for these analyses were reviewed with reference to USEPA National Functional Guidelines for Organic Data Validation (June 2008). The text of this report has been formulated to address only those problem areas affecting data quality.

FOR

Tetra Tech
Edward Sedlmyer
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-107 B/C-060214			MRC-MW-110A-060314			MRC-MW-110B-060314			MRC-MW-115A-060214		
SDG: R1404155	LAB_ID	R1404155-002			R1404155-007			R1404155-008			R1404155-011		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	UJ	R	0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	UJ	R	0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	UJ	CR	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	UJ	R	0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE	0.2	UJ	R	0.61	J	P	0.2	U		0.2	U	
1,1-DICHLOROETHENE	0.57	UJ	R	0.76	J	P	0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.29	UJ	R	0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	UJ	R	0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	UJ	R	0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	UJ	R	0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	UJ	R	0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	UJ	R	0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.24	UJ	R	0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	UJ	R	0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.36	UJ	CR	0.36	UJ	C	0.36	UJ	C	0.36	UJ	C
1,2-DICHLOROPROPANE	0.2	UJ	R	0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	UJ	R	0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	UJ	R	0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	UJ	R	0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	UJ	R	0.27	U		0.27	U		0.27	U	
2-BUTANONE	0.81	UJ	R	0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	UJ	R	0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE	0.2	UJ	R	0.2	U		0.2	U		0.2	U	
2-HEXANONE	1.7	UJ	R	1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE	0.24	UJ	R	0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	UJ	R	0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	UJ	R	0.67	U		0.67	U		0.67	U	
ACETONE	1.3	UJ	R	1.3	U		1.3	U		1.3	U	
BENZENE	0.2	UJ	R	1.5			18			0.2	U	
BROMOBENZENE	0.28	UJ	R	0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.32	UJ	R	0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.32	UJ	R	0.32	U		0.32	U		0.32	U	
BROMOFORM	0.42	UJ	R	0.42	U		0.42	U		0.42	U	
BROMOMETHANE	0.29	UJ	CR	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE	0.22	UJ	R	0.22	U		0.23	J	P	0.22	U	
CARBON TETRACHLORIDE	0.45	UJ	CR	0.45	UJ	C	0.45	UJ	C	0.45	UJ	C

PROJ_NO: 06247	NSAMPLE	MRC-MW-116A-060214			MRC-MW-11A-060214			MRC-MW-21A-060314			MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-010			R1404155-001			R1404155-015			R1404155-016		
FRACTION: OV	SAMP_DATE	6/2/2014			6/2/2014			6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		2.2	U		0.22	U		1.1	UJ	R
1,1,1-TRICHLOROETHANE	0.36	U		3.6	U		0.36	U		1.8	UJ	R
1,1,2,2-TETRACHLOROETHANE	0.25	UJ	C	2.5	UJ	C	0.25	UJ	C	1.3	UJ	CR
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		3.1	U		0.31	U		1.6	UJ	R
1,1-DICHLOROETHANE	0.2	U		2	U		1.2			12	J	R
1,1-DICHLOROETHENE	0.57	U		5.7	U		1.5			140	J	DR
1,1-DICHLOROPROPENE	0.29	U		2.9	U		0.29	U		1.5	UJ	R
1,2,3-TRICHLOROBENZENE	0.82	U		8.2	U		0.82	U		4.1	UJ	R
1,2,3-TRICHLOROPROPANE	0.7	U		7	U		0.7	U		3.5	UJ	R
1,2,4-TRICHLOROBENZENE	0.23	U		2.4	U		0.23	U		1.2	UJ	R
1,2,4-TRIMETHYLBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		7.4	U		0.74	U		3.7	UJ	R
1,2-DIBROMOETHANE	0.24	U		2.4	U		0.24	U		1.2	UJ	R
1,2-DICHLOROBENZENE	0.21	U		2.1	U		0.21	U		1.1	UJ	R
1,2-DICHLOROETHANE	0.36	UJ	C	3.6	UJ	C	0.36	UJ	C	5	J	CEPR
1,2-DICHLOROPROPANE	0.2	U		2	U		0.2	U		1	UJ	R
1,3-DICHLOROBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
1,3-DICHLOROPROPANE	0.27	U		2.7	U		0.27	U		1.4	UJ	R
1,4-DICHLOROBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
2,2-DICHLOROPROPANE	0.27	U		2.7	U		0.27	U		1.4	UJ	R
2-BUTANONE	0.81	U		8.2	U		0.81	U		4.1	UJ	R
2-CHLOROETHYL VINYL ETHER	0.44	U		4.4	U		0.44	U		2.2	UR	D
2-CHLOROTOLUENE	0.2	U		2	U		0.2	U		1	UJ	R
2-HEXANONE	1.7	U		17	U		1.7	U		8.3	UJ	R
4-CHLOROTOLUENE	0.24	U		2.4	U		0.24	U		1.2	UJ	R
4-ISOPROPYLTOLUENE	0.2	U		2	U		0.2	U		1	UJ	R
4-METHYL-2-PENTANONE	0.67	U		6.7	U		0.67	U		3.4	UJ	R
ACETONE	2.5	U	A	13	U		1.6	U	A	6.2	UJ	R
BENZENE	0.2	U		2	U		0.2	U		26	J	R
BROMOBENZENE	0.28	U		2.9	U		0.28	U		1.5	UJ	R
BROMOCHLOROMETHANE	0.32	U		3.2	U		0.32	U		1.6	UJ	R
BROMODICHLOROMETHANE	0.32	U		3.2	U		0.32	U		1.6	UJ	R
BROMOFORM	0.42	U		4.2	U		0.42	U		2.1	UJ	R
BROMOMETHANE	0.29	UJ	C	2.9	UJ	C	0.29	UJ	C	1.5	UJ	CR
CARBON DISULFIDE	0.22	U		2.2	U		0.22	U		1.1	UJ	R
CARBON TETRACHLORIDE	0.45	UJ	C	4.5	UJ	C	0.45	UJ	C	2.3	UJ	CR

PROJ_NO: 06247	NSAMPLE	MRC-MW-22A-060314			MRC-MW-70A-060214			MRC-MW-70B-060214			MRC-MW-77A-060214		
SDG: R1404155	LAB_ID	R1404155-017			R1404155-003			R1404155-004			R1404155-012		
FRACTION: OV	SAMP_DATE	6/3/2014			6/2/2014			6/2/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	UJ	C	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		0.2	U		0.87	J	P	3.5			12		
1,1-DICHLOROETHENE		0.57	U		0.57	U		37			1.9		
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	UJ	C	0.36	UJ	C	0.48	J	CEP	0.36	UJ	C
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE		1.3	U		1.3	U		2.3	U	A	1.3	U	
BENZENE		0.2	U		0.2	U		0.61	J	P	11		
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	UJ	C	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	UJ	C	0.45	UJ	C	0.45	UJ	C	0.45	UJ	C

PROJ_NO: 06247	NSAMPLE	MRC-MW-79B-060214			MRC-MW-93A-060314			TB-060214		
SDG: R1404155	LAB_ID	R1404155-013			R1404155-014			R1404155-009		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.44	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.72	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE		0.62	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		2			0.2	U		0.2	U	
1,1-DICHLOROETHENE		3.1			0.57	U		0.57	U	
1,1-DICHLOROPROPENE		0.58	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		1.7	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		1.4	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.46	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.4	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		1.5	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.48	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.42	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.72	UJ	C	0.36	UJ	C	0.36	UJ	C
1,2-DICHLOROPROPANE		0.4	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.4	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.54	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.4	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.54	U		0.27	U		0.27	U	
2-BUTANONE		1.7	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.88	U		0.44	U		0.44	U	
2-CHLOROTOLUENE		0.4	U		0.2	U		0.2	U	
2-HEXANONE		3.4	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.48	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.4	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		1.4	U		0.67	U		0.67	U	
ACETONE		2.5	U		1.3	U		1.4	J	P
BENZENE		1.4	J	P	0.2	U		0.2	U	
BROMOBENZENE		0.56	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.64	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.64	U		0.32	U		0.32	U	
BROMOFORM		0.84	U		0.42	U		0.42	U	
BROMOMETHANE		0.58	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE		0.44	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.9	UJ	C	0.45	UJ	C	0.45	UJ	C

PROJ_NO: 06247	NSAMPLE	MRC-MW-107 B/C-060214			MRC-MW-110A-060314			MRC-MW-110B-060314			MRC-MW-115A-060214		
SDG: R1404155	LAB_ID	R1404155-002			R1404155-007			R1404155-008			R1404155-011		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	UJ	R	0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	UJ	R	0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	UJ	R	0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	UJ	R	0.25	U		0.54	J	P	0.25	U	
CHLOROMETHANE		0.21	UJ	R	0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	UJ	R	6.3			3.2			0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	UJ	R	0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	UJ	R	0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	UJ	R	0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	UJ	R	0.2	U		0.83	J	P	0.2	U	
HEXACHLOROBUTADIENE		0.62	UJ	R	0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	UJ	R	0.33	U		0.63	J	P	0.33	U	
METHYL TERT-BUTYL ETHER		0.29	UJ	R	0.29	U		1.1			0.29	U	
METHYLENE CHLORIDE		0.32	UJ	CR	0.32	UJ	C	0.32	UJ	C	0.32	UJ	C
NAPHTHALENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	UJ	R	0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	UJ	R	0.2	U		0.81	J	P	0.2	U	
SEC-BUTYLBENZENE		0.27	UJ	R	0.27	U		0.27	U		0.27	U	
STYRENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	UJ	R	11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	UJ	R	0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	UJ	R	0.53	U		1.4	J	P	0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	UJ	R	0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.22	UJ	R	31			30			0.22	U	
TRICHLOROFLUOROMETHANE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	UJ	CR	1.1	UJ	C	1.1	UJ	C	1.1	UJ	C
VINYL CHLORIDE		0.32	UJ	R	0.41	J	P	0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-116A-060214			MRC-MW-11A-060214			MRC-MW-21A-060314			MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-010			R1404155-001			R1404155-015			R1404155-016		
FRACTION: OV	SAMP_DATE	6/2/2014			6/2/2014			6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		2.9	U		0.29	U		1.5	UJ	R
CHLORODIBROMOMETHANE		0.31	U		3.1	U		0.31	U		1.6	UJ	R
CHLOROETHANE		0.24	U		2.4	U		0.24	U		1.2	UJ	R
CHLOROFORM		0.25	U		2.5	U		0.25	U		2.3	J	PR
CHLOROMETHANE		0.21	U		2.1	U		0.21	J	P	1.1	UJ	R
CIS-1,2-DICHLOROETHENE		0.3	U		3	U		0.3	U		5.6	J	R
CIS-1,3-DICHLOROPROPENE		0.24	U		2.4	U		0.24	U		1.2	UJ	R
DIBROMOMETHANE		0.32	U		3.2	U		0.32	U		1.6	UJ	R
DICHLORODIFLUOROMETHANE		0.46	U		4.7	U		0.46	U		2.4	UJ	R
DIISOPROPYL ETHER		0.2	U		2	U		0.2	U		1	UJ	R
ETHYL TERT-BUTYL ETHER		0.2	U		2	U		0.2	U		1	UJ	R
ETHYLBENZENE		0.2	U		2	U		0.2	U		1	UJ	R
HEXACHLOROBUTADIENE		0.62	U		6.2	U		0.62	U		3.1	UJ	R
ISOPROPYLBENZENE		0.2	U		2	U		0.2	U		12	J	R
M+P-XYLENES		0.33	U		3.4	U		0.33	U		1.7	UJ	R
METHYL TERT-BUTYL ETHER		0.29	U		2.9	U		0.29	U		1.5	UJ	R
METHYLENE CHLORIDE		0.32	UJ	C	3.2	UJ	C	0.32	UJ	C	1.6	UJ	CR
NAPHTHALENE		0.2	U		2	U		0.2	U		1	UJ	R
N-BUTYLBENZENE		0.21	U		2.1	U		0.21	U		1.1	UJ	R
N-PROPYLBENZENE		0.2	U		2	U		0.2	U		1	UJ	R
O-XYLENE		0.2	U		2	U		0.2	U		1	UJ	R
SEC-BUTYLBENZENE		0.27	U		2.7	U		0.27	U		1.4	UJ	R
STYRENE		0.2	U		2	U		0.2	U		1	UJ	R
TERT-AMYL METHYL ETHER		0.2	U		2	U		0.2	U		1	UJ	R
TERT-BUTYLBENZENE		0.2	U		2	U		0.2	U		1	UJ	R
TERTIARY-BUTYL ALCOHOL		11	U		110	U		11	U		54	UJ	R
TETRACHLOROETHENE		0.3	U		3	U		0.64	J	P	7.6	J	R
TOLUENE		0.2	U		2	U		0.2	U		1	UJ	R
TOTAL XYLENES		0.53	U		5.4	U		0.53	U		2.7	UJ	R
TRANS-1,2-DICHLOROETHENE		0.33	U		3.4	U		0.33	U		1.7	UJ	R
TRANS-1,3-DICHLOROPROPENE		0.2	U		2	U		0.2	U		1	UJ	R
TRICHLOROETHENE		0.22	U		2.2	U		2			780	J	R
TRICHLOROFLUOROMETHANE		0.2	U		2	U		0.2	U		1	UJ	R
VINYL ACETATE		1.1	UJ	C	11	UJ	C	1.1	UJ	C	5.1	UJ	CR
VINYL CHLORIDE		0.32	U		3.2	U		0.39	J	P	1.6	UJ	R

PROJ_NO: 06247	NSAMPLE	MRC-MW-22A-060314			MRC-MW-70A-060214			MRC-MW-70B-060214			MRC-MW-77A-060214		
SDG: R1404155	LAB_ID	R1404155-017			R1404155-003			R1404155-004			R1404155-012		
FRACTION: OV	SAMP_DATE	6/3/2014			6/2/2014			6/2/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		1.3			9.6			2.4		
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.56	J	P
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.53	J	P
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		120		
METHYLENE CHLORIDE		0.32	UJ	C	0.32	UJ	C	0.32	UJ	C	0.81	J	CP
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.73	J	P
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.26	J	P
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		2.4		
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.52	J	P
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.35	J	P
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		18	J	P
TETRACHLOROETHENE		0.3	U		0.3	U		0.53	J	P	0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.62	J	P	1.2			180			6.4		
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	UJ	C	1.1	UJ	C	1.1	UJ	C	1.1	UJ	C
VINYL CHLORIDE		0.32	U		0.32	U		0.46	J	P	1.4		

PROJ_NO: 06247	NSAMPLE	MRC-MW-79B-060214			MRC-MW-93A-060314			TB-060214		
SDG: R1404155	LAB_ID	R1404155-013			R1404155-014			R1404155-009		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.58	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.62	U		0.31	U		0.31	U	
CHLOROETHANE		0.48	U		0.24	U		0.24	U	
CHLOROFORM		0.72	J	P	0.25	U		0.25	U	
CHLOROMETHANE		0.42	U		0.37	J	P	0.21	U	
CIS-1,2-DICHLOROETHENE		71			1.4			0.3	U	
CIS-1,3-DICHLOROPROPENE		0.48	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.64	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.92	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.4	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.4	U		0.2	U		0.2	U	
ETHYLBENZENE		0.4	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		1.3	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.4	U		0.2	U		0.2	U	
M+P-XYLENES		0.66	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		36			0.29	U		0.29	U	
METHYLENE CHLORIDE		0.64	UJ	C	0.32	UJ	C	0.32	UJ	C
NAPHTHALENE		0.4	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.42	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.4	U		0.2	U		0.2	U	
O-XYLENE		0.4	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.54	U		0.27	U		0.27	U	
STYRENE		0.4	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.4	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.4	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		27	J	P	11	U		11	U	
TETRACHLOROETHENE		0.6	U		0.3	U		0.3	U	
TOLUENE		0.4	U		0.2	U		0.2	U	
TOTAL XYLENES		1.1	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		3.9			0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.4	U		0.2	U		0.2	U	
TRICHLOROETHENE		300			2.5			0.22	U	
TRICHLOROFLUOROMETHANE		0.4	U		0.2	U		0.2	U	
VINYL ACETATE		2.1	UJ	C	1.1	UJ	C	1.1	UJ	C
VINYL CHLORIDE		16			0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-016		
FRACTION: OVG	SAMP_DATE	6/3/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ETHANE		0.22	J	P
ETHENE		0.6	J	P
METHANE		21		

PROJ_NO: 06247	NSAMPLE	MRC-MW-07A-060314			MRC-MW-110A-060314			MRC-MW-110B-060314			MRC-MW-115A-060214		
SDG: R1404155	LAB_ID	R1404155-005			R1404155-007			R1404155-008			R1404155-011		
FRACTION: OS	SAMP_DATE	6/3/2014			6/3/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		4.69			3.23			3.29			0.0224	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-116A-060214			MRC-MW-11A-060214			MRC-MW-21A-060314			MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-010			R1404155-001			R1404155-015			R1404155-016		
FRACTION: OS	SAMP_DATE	6/2/2014			6/2/2014			6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		0.02	U		0.0956	J	P	1.16			62.4		

PROJ_NO: 06247	NSAMPLE	MRC-MW-22A-060314			MRC-MW-70A-060214			MRC-MW-70B-060214		
SDG: R1404155	LAB_ID	R1404155-017			R1404155-003			R1404155-004		
FRACTION: OS	SAMP_DATE	6/3/2014			6/2/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		0.608			2.05			26.9		

PROJ_NO: 06247	NSAMPLE	MRC-MW-107 B/C-060214			MRC-MW-110A-060314			MRC-MW-110B-060314			MRC-MW-115A-060214		
SDG: R1404155	LAB_ID	R1404155-002			R1404155-007			R1404155-008			R1404155-011		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	UJ	R	0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	UJ	R	0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	UJ	CR	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	UJ	R	0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		0.2	UJ	R	0.61	J	P	0.2	U		0.2	U	
1,1-DICHLOROETHENE		0.57	UJ	R	0.76	J	P	0.57	U		0.57	U	
1,1-DICHLOROPROPENE		0.29	UJ	R	0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	UJ	R	0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	UJ	R	0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	UJ	R	0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	UJ	R	0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	UJ	R	0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	UJ	R	0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	UJ	CR	0.36	UJ	C	0.36	UJ	C	0.36	UJ	C
1,2-DICHLOROPROPANE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	UJ	R	0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	UJ	R	0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	UJ	R	0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.44	UJ	R	0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	UJ	R	1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.24	UJ	R	0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		0.67	UJ	R	0.67	U		0.67	U		0.67	U	
ACETONE		1.3	UJ	R	1.3	U		1.3	U		1.3	U	
BENZENE		0.2	UJ	R	1.5			18			0.2	U	
BROMOBENZENE		0.28	UJ	R	0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	UJ	R	0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	UJ	R	0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	UJ	R	0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	UJ	CR	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE		0.22	UJ	R	0.22	U		0.23	J	P	0.22	U	
CARBON TETRACHLORIDE		0.45	UJ	CR	0.45	UJ	C	0.45	UJ	C	0.45	UJ	C

PROJ_NO: 06247	NSAMPLE	MRC-MW-116A-060214			MRC-MW-11A-060214			MRC-MW-21A-060314			MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-010			R1404155-001			R1404155-015			R1404155-016		
FRACTION: OV	SAMP_DATE	6/2/2014			6/2/2014			6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		2.2	U		0.22	U		1.1	UJ	R
1,1,1-TRICHLOROETHANE	0.36	U		3.6	U		0.36	U		1.8	UJ	R
1,1,2,2-TETRACHLOROETHANE	0.25	UJ	C	2.5	UJ	C	0.25	UJ	C	1.3	UJ	CR
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		3.1	U		0.31	U		1.6	UJ	R
1,1-DICHLOROETHANE	0.2	U		2	U		1.2			12	J	R
1,1-DICHLOROETHENE	0.57	U		5.7	U		1.5			140	J	DR
1,1-DICHLOROPROPENE	0.29	U		2.9	U		0.29	U		1.5	UJ	R
1,2,3-TRICHLOROBENZENE	0.82	U		8.2	U		0.82	U		4.1	UJ	R
1,2,3-TRICHLOROPROPANE	0.7	U		7	U		0.7	U		3.5	UJ	R
1,2,4-TRICHLOROBENZENE	0.23	U		2.4	U		0.23	U		1.2	UJ	R
1,2,4-TRIMETHYLBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		7.4	U		0.74	U		3.7	UJ	R
1,2-DIBROMOETHANE	0.24	U		2.4	U		0.24	U		1.2	UJ	R
1,2-DICHLOROBENZENE	0.21	U		2.1	U		0.21	U		1.1	UJ	R
1,2-DICHLOROETHANE	0.36	UJ	C	3.6	UJ	C	0.36	UJ	C	5	J	CEPR
1,2-DICHLOROPROPANE	0.2	U		2	U		0.2	U		1	UJ	R
1,3-DICHLOROBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
1,3-DICHLOROPROPANE	0.27	U		2.7	U		0.27	U		1.4	UJ	R
1,4-DICHLOROBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
2,2-DICHLOROPROPANE	0.27	U		2.7	U		0.27	U		1.4	UJ	R
2-BUTANONE	0.81	U		8.2	U		0.81	U		4.1	UJ	R
2-CHLOROETHYL VINYL ETHER	0.44	U		4.4	U		0.44	U		2.2	UR	D
2-CHLOROTOLUENE	0.2	U		2	U		0.2	U		1	UJ	R
2-HEXANONE	1.7	U		17	U		1.7	U		8.3	UJ	R
4-CHLOROTOLUENE	0.24	U		2.4	U		0.24	U		1.2	UJ	R
4-ISOPROPYLTOLUENE	0.2	U		2	U		0.2	U		1	UJ	R
4-METHYL-2-PENTANONE	0.67	U		6.7	U		0.67	U		3.4	UJ	R
ACETONE	2.5	U	A	13	U		1.6	U	A	6.2	UJ	R
BENZENE	0.2	U		2	U		0.2	U		26	J	R
BROMOBENZENE	0.28	U		2.9	U		0.28	U		1.5	UJ	R
BROMOCHLOROMETHANE	0.32	U		3.2	U		0.32	U		1.6	UJ	R
BROMODICHLOROMETHANE	0.32	U		3.2	U		0.32	U		1.6	UJ	R
BROMOFORM	0.42	U		4.2	U		0.42	U		2.1	UJ	R
BROMOMETHANE	0.29	UJ	C	2.9	UJ	C	0.29	UJ	C	1.5	UJ	CR
CARBON DISULFIDE	0.22	U		2.2	U		0.22	U		1.1	UJ	R
CARBON TETRACHLORIDE	0.45	UJ	C	4.5	UJ	C	0.45	UJ	C	2.3	UJ	CR

PROJ_NO: 06247	NSAMPLE	MRC-MW-22A-060314			MRC-MW-70A-060214			MRC-MW-70B-060214			MRC-MW-77A-060214		
SDG: R1404155	LAB_ID	R1404155-017			R1404155-003			R1404155-004			R1404155-012		
FRACTION: OV	SAMP_DATE	6/3/2014			6/2/2014			6/2/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	UJ	C	0.25	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE		0.2	U		0.87	J	P	3.5			12		
1,1-DICHLOROETHENE		0.57	U		0.57	U		37			1.9		
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE		0.36	UJ	C	0.36	UJ	C	0.48	J	CEP	0.36	UJ	C
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER		0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE		1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE		1.3	U		1.3	U		2.3	U	A	1.3	U	
BENZENE		0.2	U		0.2	U		0.61	J	P	11		
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE		0.29	UJ	C	0.29	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE		0.45	UJ	C	0.45	UJ	C	0.45	UJ	C	0.45	UJ	C

PROJ_NO: 06247	NSAMPLE	MRC-MW-79B-060214			MRC-MW-93A-060314			TB-060214		
SDG: R1404155	LAB_ID	R1404155-013			R1404155-014			R1404155-009		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.44	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.72	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.5	UJ	C	0.25	UJ	C	0.25	UJ	C
1,1,2-TRICHLOROTRIFLUOROETHANE	0.62	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE	2			0.2	U		0.2	U	
1,1-DICHLOROETHENE	3.1			0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.58	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	1.7	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	1.4	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.46	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.4	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.5	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.48	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.42	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.72	UJ	C	0.36	UJ	C	0.36	UJ	C
1,2-DICHLOROPROPANE	0.4	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.4	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.54	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.4	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.54	U		0.27	U		0.27	U	
2-BUTANONE	1.7	U		0.81	U		0.81	U	
2-CHLOROETHYL VINYL ETHER	0.88	U		0.44	U		0.44	U	
2-CHLOROTOLUENE	0.4	U		0.2	U		0.2	U	
2-HEXANONE	3.4	U		1.7	U		1.7	U	
4-CHLOROTOLUENE	0.48	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.4	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE	1.4	U		0.67	U		0.67	U	
ACETONE	2.5	U		1.3	U		1.4	J	P
BENZENE	1.4	J	P	0.2	U		0.2	U	
BROMOBENZENE	0.56	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.64	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.64	U		0.32	U		0.32	U	
BROMOFORM	0.84	U		0.42	U		0.42	U	
BROMOMETHANE	0.58	UJ	C	0.29	UJ	C	0.29	UJ	C
CARBON DISULFIDE	0.44	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE	0.9	UJ	C	0.45	UJ	C	0.45	UJ	C

PROJ_NO: 06247	NSAMPLE	MRC-MW-107 B/C-060214			MRC-MW-110A-060314			MRC-MW-110B-060314			MRC-MW-115A-060214		
SDG: R1404155	LAB_ID	R1404155-002			R1404155-007			R1404155-008			R1404155-011		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	UJ	R	0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	UJ	R	0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	UJ	R	0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	UJ	R	0.25	U		0.54	J	P	0.25	U	
CHLOROMETHANE		0.21	UJ	R	0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	UJ	R	6.3			3.2			0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	UJ	R	0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	UJ	R	0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	UJ	R	0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	UJ	R	0.2	U		0.83	J	P	0.2	U	
HEXACHLOROBUTADIENE		0.62	UJ	R	0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	UJ	R	0.33	U		0.63	J	P	0.33	U	
METHYL TERT-BUTYL ETHER		0.29	UJ	R	0.29	U		1.1			0.29	U	
METHYLENE CHLORIDE		0.32	UJ	CR	0.32	UJ	C	0.32	UJ	C	0.32	UJ	C
NAPHTHALENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	UJ	R	0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	UJ	R	0.2	U		0.81	J	P	0.2	U	
SEC-BUTYLBENZENE		0.27	UJ	R	0.27	U		0.27	U		0.27	U	
STYRENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	UJ	R	11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	UJ	R	0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	UJ	R	0.53	U		1.4	J	P	0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	UJ	R	0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.22	UJ	R	31			30			0.22	U	
TRICHLOROFLUOROMETHANE		0.2	UJ	R	0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	UJ	CR	1.1	UJ	C	1.1	UJ	C	1.1	UJ	C
VINYL CHLORIDE		0.32	UJ	R	0.41	J	P	0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-116A-060214			MRC-MW-11A-060214			MRC-MW-21A-060314			MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-010			R1404155-001			R1404155-015			R1404155-016		
FRACTION: OV	SAMP_DATE	6/2/2014			6/2/2014			6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE	0.29	U		2.9	U		0.29	U		1.5	UJ	R
CHLORODIBROMOMETHANE	0.31	U		3.1	U		0.31	U		1.6	UJ	R
CHLOROETHANE	0.24	U		2.4	U		0.24	U		1.2	UJ	R
CHLOROFORM	0.25	U		2.5	U		0.25	U		2.3	J	PR
CHLOROMETHANE	0.21	U		2.1	U		0.21	J	P	1.1	UJ	R
CIS-1,2-DICHLOROETHENE	0.3	U		3	U		0.3	U		5.6	J	R
CIS-1,3-DICHLOROPROPENE	0.24	U		2.4	U		0.24	U		1.2	UJ	R
DIBROMOMETHANE	0.32	U		3.2	U		0.32	U		1.6	UJ	R
DICHLORODIFLUOROMETHANE	0.46	U		4.7	U		0.46	U		2.4	UJ	R
DIISOPROPYL ETHER	0.2	U		2	U		0.2	U		1	UJ	R
ETHYL TERT-BUTYL ETHER	0.2	U		2	U		0.2	U		1	UJ	R
ETHYLBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
HEXACHLOROBUTADIENE	0.62	U		6.2	U		0.62	U		3.1	UJ	R
ISOPROPYLBENZENE	0.2	U		2	U		0.2	U		12	J	R
M+P-XYLENES	0.33	U		3.4	U		0.33	U		1.7	UJ	R
METHYL TERT-BUTYL ETHER	0.29	U		2.9	U		0.29	U		1.5	UJ	R
METHYLENE CHLORIDE	0.32	UJ	C	3.2	UJ	C	0.32	UJ	C	1.6	UJ	CR
NAPHTHALENE	0.2	U		2	U		0.2	U		1	UJ	R
N-BUTYLBENZENE	0.21	U		2.1	U		0.21	U		1.1	UJ	R
N-PROPYLBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
O-XYLENE	0.2	U		2	U		0.2	U		1	UJ	R
SEC-BUTYLBENZENE	0.27	U		2.7	U		0.27	U		1.4	UJ	R
STYRENE	0.2	U		2	U		0.2	U		1	UJ	R
TERT-AMYL METHYL ETHER	0.2	U		2	U		0.2	U		1	UJ	R
TERT-BUTYLBENZENE	0.2	U		2	U		0.2	U		1	UJ	R
TERTIARY-BUTYL ALCOHOL	11	U		110	U		11	U		54	UJ	R
TETRACHLOROETHENE	0.3	U		3	U		0.64	J	P	7.6	J	R
TOLUENE	0.2	U		2	U		0.2	U		1	UJ	R
TOTAL XYLENES	0.53	U		5.4	U		0.53	U		2.7	UJ	R
TRANS-1,2-DICHLOROETHENE	0.33	U		3.4	U		0.33	U		1.7	UJ	R
TRANS-1,3-DICHLOROPROPENE	0.2	U		2	U		0.2	U		1	UJ	R
TRICHLOROETHENE	0.22	U		2.2	U		2			780	J	R
TRICHLOROFLUOROMETHANE	0.2	U		2	U		0.2	U		1	UJ	R
VINYL ACETATE	1.1	UJ	C	11	UJ	C	1.1	UJ	C	5.1	UJ	CR
VINYL CHLORIDE	0.32	U		3.2	U		0.39	J	P	1.6	UJ	R

PROJ_NO: 06247	NSAMPLE	MRC-MW-22A-060314			MRC-MW-70A-060214			MRC-MW-70B-060214			MRC-MW-77A-060214		
SDG: R1404155	LAB_ID	R1404155-017			R1404155-003			R1404155-004			R1404155-012		
FRACTION: OV	SAMP_DATE	6/3/2014			6/2/2014			6/2/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		1.3			9.6			2.4		
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.56	J	P
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.53	J	P
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		120		
METHYLENE CHLORIDE		0.32	UJ	C	0.32	UJ	C	0.32	UJ	C	0.81	J	CP
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.73	J	P
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.26	J	P
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		2.4		
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.52	J	P
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.35	J	P
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		18	J	P
TETRACHLOROETHENE		0.3	U		0.3	U		0.53	J	P	0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.62	J	P	1.2			180			6.4		
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	UJ	C	1.1	UJ	C	1.1	UJ	C	1.1	UJ	C
VINYL CHLORIDE		0.32	U		0.32	U		0.46	J	P	1.4		

PROJ_NO: 06247	NSAMPLE	MRC-MW-79B-060214			MRC-MW-93A-060314			TB-060214		
SDG: R1404155	LAB_ID	R1404155-013			R1404155-014			R1404155-009		
FRACTION: OV	SAMP_DATE	6/2/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE	0.58	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE	0.62	U		0.31	U		0.31	U	
CHLOROETHANE	0.48	U		0.24	U		0.24	U	
CHLOROFORM	0.72	J	P	0.25	U		0.25	U	
CHLOROMETHANE	0.42	U		0.37	J	P	0.21	U	
CIS-1,2-DICHLOROETHENE	71			1.4			0.3	U	
CIS-1,3-DICHLOROPROPENE	0.48	U		0.24	U		0.24	U	
DIBROMOMETHANE	0.64	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE	0.92	U		0.46	U		0.46	U	
DIISOPROPYL ETHER	0.4	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER	0.4	U		0.2	U		0.2	U	
ETHYLBENZENE	0.4	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE	1.3	U		0.62	U		0.62	U	
ISOPROPYLBENZENE	0.4	U		0.2	U		0.2	U	
M+P-XYLENES	0.66	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER	36			0.29	U		0.29	U	
METHYLENE CHLORIDE	0.64	UJ	C	0.32	UJ	C	0.32	UJ	C
NAPHTHALENE	0.4	U		0.2	U		0.2	U	
N-BUTYLBENZENE	0.42	U		0.21	U		0.21	U	
N-PROPYLBENZENE	0.4	U		0.2	U		0.2	U	
O-XYLENE	0.4	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE	0.54	U		0.27	U		0.27	U	
STYRENE	0.4	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER	0.4	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE	0.4	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL	27	J	P	11	U		11	U	
TETRACHLOROETHENE	0.6	U		0.3	U		0.3	U	
TOLUENE	0.4	U		0.2	U		0.2	U	
TOTAL XYLENES	1.1	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE	3.9			0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.4	U		0.2	U		0.2	U	
TRICHLOROETHENE	300			2.5			0.22	U	
TRICHLOROFLUOROMETHANE	0.4	U		0.2	U		0.2	U	
VINYL ACETATE	2.1	UJ	C	1.1	UJ	C	1.1	UJ	C
VINYL CHLORIDE	16			0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-110A-060314			MRC-MW-110B-060314			MRC-MW-115A-060214			MRC-MW-116A-060214		
SDG: R1404155	LAB_ID	R1404155-007			R1404155-008			R1404155-011			R1404155-010		
FRACTION: MISCO	SAMP_DATE	6/3/2014			6/3/2014			6/2/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		1.8			0.026	U		0.026	U		0.026	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-21B-060314			MRC-MW-52A-060314		
SDG: R1404155	LAB_ID	R1404155-016			R1404155-006		
FRACTION: MISCO	SAMP_DATE	6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		0.026	U		0.026	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-21B-060314		
SDG: R1404155	LAB_ID	R1404155-016		
FRACTION: OVG	SAMP_DATE	6/3/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ETHANE		0.22	J	P
ETHENE		0.6	J	P
METHANE		21		

Appendix B

Results as Reported by the Laboratory

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1025
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 02:59
Sample Name:	MRC-MW-107 B/C-060214	**Units:**	µg/L
Lab Code:	R1404155-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6455.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1025
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 02:59
Sample Name:	MRC-MW-107 B/C-060214	**Units:**	µg/L
Lab Code:	R1404155-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6455.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1025
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 02:59
Sample Name:	MRC-MW-107 B/C-060214	**Units:**	µg/L
Lab Code:	R1404155-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6455.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100		85-122	6/12/14 02:59	
Dibromofluoromethane	109		89-119	6/12/14 02:59	
Toluene-d8	85	*	87-121	6/12/14 02:59	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1025
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 09:58
Sample Name:	MRC-MW-107 B/C-060214	**Units:**	µg/L
Lab Code:	R1404155-002	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6468.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1025
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 09:58
Sample Name:	MRC-MW-107 B/C-060214	**Units:**	µg/L
Lab Code:	R1404155-002	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6468.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.25**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1025
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 09:58
Sample Name:	MRC-MW-107 B/C-060214	**Units:**	µg/L
Lab Code:	R1404155-002	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6468.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100		85-122	6/12/14 09:58	
Dibromofluoromethane	110		89-119	6/12/14 09:58	
Toluene-d8	82	*	87-121	6/12/14 09:58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1245
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 04:03
Sample Name:	MRC-MW-110A-060314	**Units:**	µg/L
Lab Code:	R1404155-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6457.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.61**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**0.76**	J	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**1.5**		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Collected: 6/ 3/14 1245
Date Received: 6/ 4/14
Date Analyzed: 6/12/14 04:03

Sample Name: MRC-MW-110A-060314
Lab Code: R1404155-007

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\msvoa12\Data\061114\M6457.D\

Analysis Lot: 396676
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**31**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.41**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**6.3**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1245
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 04:03
Sample Name:	MRC-MW-110A-060314	**Units:**	µg/L
Lab Code:	R1404155-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6457.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	6/12/14 04:03	
Dibromofluoromethane	110	89-119	6/12/14 04:03	
Toluene-d8	95	87-121	6/12/14 04:03	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1350
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 04:35
Sample Name:	MRC-MW-110B-060314	**Units:**	µg/L
Lab Code:	R1404155-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6458.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**18**		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1350
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 04:35
Sample Name:	MRC-MW-110B-060314	**Units:**	µg/L
Lab Code:	R1404155-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6458.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**0.23**	J	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**0.54**	J	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	**0.83**	J	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**1.1**		1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**30**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	**1.4**	J	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**3.2**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	**0.63**	J	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	**0.81**	J	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1350
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 04:35
Sample Name:	MRC-MW-110B-060314	**Units:**	µg/L
Lab Code:	R1404155-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6458.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/12/14 04:35	
Dibromofluoromethane	109	89-119	6/12/14 04:35	
Toluene-d8	92	87-121	6/12/14 04:35	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1209
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 05:41
Sample Name:	MRC-MW-115A-060214	**Units:**	µg/L
Lab Code:	R1404155-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6460.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1209
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 05:41
Sample Name:	MRC-MW-115A-060214	**Units:**	µg/L
Lab Code:	R1404155-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6460.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1209
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 05:41
Sample Name:	MRC-MW-115A-060214	**Units:**	µg/L
Lab Code:	R1404155-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6460.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/12/14 05:41	
Dibromofluoromethane	111	89-119	6/12/14 05:41	
Toluene-d8	93	87-121	6/12/14 05:41	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0938
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 05:08
Sample Name:	MRC-MW-116A-060214	**Units:**	µg/L
Lab Code:	R1404155-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6459.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**2.5**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0938
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 05:08
Sample Name:	MRC-MW-116A-060214	**Units:**	µg/L
Lab Code:	R1404155-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6459.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0938
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 05:08
Sample Name:	MRC-MW-116A-060214	**Units:**	µg/L
Lab Code:	R1404155-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6459.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/12/14 05:08	
Dibromofluoromethane	111	89-119	6/12/14 05:08	
Toluene-d8	97	87-121	6/12/14 05:08	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0900
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 02:26
Sample Name:	MRC-MW-11A-060214	**Units:**	µg/L
Lab Code:	R1404155-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6454.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	10	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	10	U	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	10	U	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	10	U	10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	10	U	10	5.7	
563-58-6	1,1-Dichloropropene	10	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	10	U	10	8.2	
96-18-4	1,2,3-Trichloropropane	10	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	10	U	10	2.4	
95-63-6	1,2,4-Trimethylbenzene	10	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	20	U	20	7.4	
106-93-4	1,2-Dibromoethane	10	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	10	U	10	2.1	
107-06-2	1,2-Dichloroethane	10	U	10	3.6	
78-87-5	1,2-Dichloropropane	10	U	10	2.0	
541-73-1	1,3-Dichlorobenzene	10	U	10	2.0	
142-28-9	1,3-Dichloropropane	10	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	10	U	10	2.0	
594-20-7	2,2-Dichloropropane	10	U	10	2.7	
78-93-3	2-Butanone (MEK)	50	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	10	U	10	4.4	
95-49-8	2-Chlorotoluene	10	U	10	2.0	
591-78-6	2-Hexanone	50	U	50	17	
75-65-0	tert-Butyl Alcohol	400	U	400	110	
106-43-4	4-Chlorotoluene	10	U	10	2.4	
99-87-6	4-Isopropyltoluene	10	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	50	U	50	6.7	
67-64-1	Acetone	50	U	50	13	
71-43-2	Benzene	10	U	10	2.0	
108-86-1	Bromobenzene	10	U	10	2.9	
74-97-5	Bromochloromethane	10	U	10	3.2	
75-27-4	Bromodichloromethane	10	U	10	3.2	
75-25-2	Bromoform	10	U	10	4.2	
74-83-9	Bromomethane	10	U	10	2.9	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0900
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 02:26
Sample Name:	MRC-MW-11A-060214	**Units:**	µg/L
Lab Code:	R1404155-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6454.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	10	U	10	2.2	
56-23-5	Carbon Tetrachloride	10	U	10	4.5	
108-90-7	Chlorobenzene	10	U	10	2.9	
75-00-3	Chloroethane	10	U	10	2.4	
67-66-3	Chloroform	10	U	10	2.5	
74-87-3	Chloromethane	10	U	10	2.1	
124-48-1	Dibromochloromethane	10	U	10	3.1	
74-95-3	Dibromomethane	10	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	10	U	10	4.7	
75-09-2	Methylene Chloride	10	U	10	3.2	
108-20-3	Diisopropyl Ether	10	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	10	U	10	2.0	
100-41-4	Ethylbenzene	10	U	10	2.0	
87-68-3	Hexachlorobutadiene	20	U	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	10	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	10	U	10	2.9	
91-20-3	Naphthalene	10	U	10	2.0	
100-42-5	Styrene	10	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	10	U	10	3.0	
108-88-3	Toluene	10	U	10	2.0	
79-01-6	Trichloroethene (TCE)	10	U	10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	10	U	10	2.0	
108-05-4	Vinyl Acetate	20	U	20	11	
75-01-4	Vinyl Chloride	10	U	10	3.2	
1330-20-7	Xylenes, Total	30	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	10	U	10	3.0	
10061-01-5	cis-1,3-Dichloropropene	10	U	10	2.4	
179601-23-1	m,p-Xylenes	20	U	20	3.4	
104-51-8	n-Butylbenzene	10	U	10	2.1	
103-65-1	n-Propylbenzene	10	U	10	2.0	
95-47-6	o-Xylene	10	U	10	2.0	
135-98-8	sec-Butylbenzene	10	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	10	U	10	2.0	
98-06-6	tert-Butylbenzene	10	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	10	U	10	3.4	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0900
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 02:26
Sample Name:	MRC-MW-11A-060214	**Units:**	µg/L
Lab Code:	R1404155-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6454.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	10	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/12/14 02:26	
Dibromofluoromethane	107	89-119	6/12/14 02:26	
Toluene-d8	99	87-121	6/12/14 02:26	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0918
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 07:17
Sample Name:	MRC-MW-21A-060314	**Units:**	µg/L
Lab Code:	R1404155-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6463.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**1.2**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**1.5**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**1.6**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0918
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 07:17
Sample Name:	MRC-MW-21A-060314	**Units:**	µg/L
Lab Code:	R1404155-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6463.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	**0.21**	J	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**0.64**	J	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**2.0**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.39**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0918
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 07:17
Sample Name:	MRC-MW-21A-060314	**Units:**	µg/L
Lab Code:	R1404155-015	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6463.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/12/14 07:17	
Dibromofluoromethane	110	89-119	6/12/14 07:17	
Toluene-d8	87	87-121	6/12/14 07:17	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 09:26
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6467.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0	1.1	
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1.8	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	1.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	5.0	U	5.0	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**12**		5.0	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**140**		5.0	2.9	
563-58-6	1,1-Dichloropropene	5.0	U	5.0	1.5	
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0	4.1	
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0	3.5	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	1.2	
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0	1.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	3.7	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	1.2	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	1.1	
107-06-2	1,2-Dichloroethane	**5.0**		5.0	1.8	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	1.0	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	1.0	
142-28-9	1,3-Dichloropropane	5.0	U	5.0	1.4	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	1.0	
594-20-7	2,2-Dichloropropane	5.0	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	25	U	25	4.1	
110-75-8	2-Chloroethyl Vinyl Ether	5.0	U	5.0	2.2	
95-49-8	2-Chlorotoluene	5.0	U	5.0	1.0	
591-78-6	2-Hexanone	25	U	25	8.3	
75-65-0	tert-Butyl Alcohol	200	U	200	54	
106-43-4	4-Chlorotoluene	5.0	U	5.0	1.2	
99-87-6	4-Isopropyltoluene	5.0	U	5.0	1.0	
108-10-1	4-Methyl-2-pentanone	25	U	25	3.4	
67-64-1	Acetone	25	U	25	6.2	
71-43-2	Benzene	**26**		5.0	1.0	
108-86-1	Bromobenzene	5.0	U	5.0	1.5	
74-97-5	Bromochloromethane	5.0	U	5.0	1.6	
75-27-4	Bromodichloromethane	5.0	U	5.0	1.6	
75-25-2	Bromoform	5.0	U	5.0	2.1	
74-83-9	Bromomethane	5.0	U	5.0	1.5	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 09:26
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6467.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	5.0	U	5.0	1.1	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	2.3	
108-90-7	Chlorobenzene	5.0	U	5.0	1.5	
75-00-3	Chloroethane	5.0	U	5.0	1.2	
67-66-3	Chloroform	**2.3**	J	5.0	1.3	
74-87-3	Chloromethane	5.0	U	5.0	1.1	
124-48-1	Dibromochloromethane	5.0	U	5.0	1.6	
74-95-3	Dibromomethane	5.0	U	5.0	1.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	2.4	
75-09-2	Methylene Chloride	5.0	U	5.0	1.6	
108-20-3	Diisopropyl Ether	5.0	U	5.0	1.0	
637-92-3	Ethyl tert-Butyl Ether	5.0	U	5.0	1.0	
100-41-4	Ethylbenzene	5.0	U	5.0	1.0	
87-68-3	Hexachlorobutadiene	10	U	10	3.1	
98-82-8	Isopropylbenzene (Cumene)	**12**		5.0	1.0	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	1.5	
91-20-3	Naphthalene	5.0	U	5.0	1.0	
100-42-5	Styrene	5.0	U	5.0	1.0	
127-18-4	Tetrachloroethene (PCE)	**7.6**		5.0	1.5	
108-88-3	Toluene	5.0	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	**780**		5.0	1.1	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1.0	
108-05-4	Vinyl Acetate	10	U	10	5.1	
75-01-4	Vinyl Chloride	5.0	U	5.0	1.6	
1330-20-7	Xylenes, Total	15	U	15	2.7	
156-59-2	cis-1,2-Dichloroethene	**5.6**		5.0	1.5	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	1.2	
179601-23-1	m,p-Xylenes	10	U	10	1.7	
104-51-8	n-Butylbenzene	5.0	U	5.0	1.1	
103-65-1	n-Propylbenzene	5.0	U	5.0	1.0	
95-47-6	o-Xylene	5.0	U	5.0	1.0	
135-98-8	sec-Butylbenzene	5.0	U	5.0	1.4	
994-05-8	tert-Amyl Methyl Ether	5.0	U	5.0	1.0	
98-06-6	tert-Butylbenzene	5.0	U	5.0	1.0	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	1.7	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 09:26
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6467.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	1.0	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102		85-122	6/12/14 09:26	
Dibromofluoromethane	113		89-119	6/12/14 09:26	
Toluene-d8	86	*	87-121	6/12/14 09:26	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/14/14 21:44
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397150
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061414\K9383.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0	1.1	
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1.8	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	1.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	5.0	U	5.0	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**14**		5.0	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**150**		5.0	2.9	
563-58-6	1,1-Dichloropropene	5.0	U	5.0	1.5	
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0	4.1	
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0	3.5	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	1.2	
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0	1.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	3.7	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	1.2	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	1.1	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	1.8	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	1.0	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	1.0	
142-28-9	1,3-Dichloropropane	5.0	U	5.0	1.4	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	1.0	
594-20-7	2,2-Dichloropropane	5.0	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	25	U	25	4.1	
110-75-8	2-Chloroethyl Vinyl Ether	5.0	U	5.0	2.2	
95-49-8	2-Chlorotoluene	5.0	U	5.0	1.0	
591-78-6	2-Hexanone	25	U	25	8.3	
75-65-0	tert-Butyl Alcohol	200	U	200	54	
106-43-4	4-Chlorotoluene	5.0	U	5.0	1.2	
99-87-6	4-Isopropyltoluene	5.0	U	5.0	1.0	
108-10-1	4-Methyl-2-pentanone	25	U	25	3.4	
67-64-1	Acetone	25	U	25	6.2	
71-43-2	Benzene	**26**		5.0	1.0	
108-86-1	Bromobenzene	5.0	U	5.0	1.5	
74-97-5	Bromochloromethane	5.0	U	5.0	1.6	
75-27-4	Bromodichloromethane	5.0	U	5.0	1.6	
75-25-2	Bromoform	5.0	U	5.0	2.1	
74-83-9	Bromomethane	5.0	U	5.0	1.5	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/14/14 21:44
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397150
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061414\K9383.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	5.0	U	5.0	1.1	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	2.3	
108-90-7	Chlorobenzene	5.0	U	5.0	1.5	
75-00-3	Chloroethane	5.0	U	5.0	1.2	
67-66-3	Chloroform	5.0	U	5.0	1.3	
74-87-3	Chloromethane	5.0	U	5.0	1.1	
124-48-1	Dibromochloromethane	5.0	U	5.0	1.6	
74-95-3	Dibromomethane	5.0	U	5.0	1.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	2.4	
75-09-2	Methylene Chloride	5.0	U	5.0	1.6	
108-20-3	Diisopropyl Ether	5.0	U	5.0	1.0	
637-92-3	Ethyl tert-Butyl Ether	5.0	U	5.0	1.0	
100-41-4	Ethylbenzene	5.0	U	5.0	1.0	
87-68-3	Hexachlorobutadiene	10	U	10	3.1	
98-82-8	Isopropylbenzene (Cumene)	**12**		5.0	1.0	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	1.5	
91-20-3	Naphthalene	5.0	U	5.0	1.0	
100-42-5	Styrene	5.0	U	5.0	1.0	
127-18-4	Tetrachloroethene (PCE)	**7.0**		5.0	1.5	
108-88-3	Toluene	5.0	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	**600**		5.0	1.1	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1.0	
108-05-4	Vinyl Acetate	10	U	10	5.1	
75-01-4	Vinyl Chloride	5.0	U	5.0	1.6	
1330-20-7	Xylenes, Total	15	U	15	2.7	
156-59-2	cis-1,2-Dichloroethene	**6.2**		5.0	1.5	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	1.2	
179601-23-1	m,p-Xylenes	10	U	10	1.7	
104-51-8	n-Butylbenzene	5.0	U	5.0	1.1	
103-65-1	n-Propylbenzene	5.0	U	5.0	1.0	
95-47-6	o-Xylene	5.0	U	5.0	1.0	
135-98-8	sec-Butylbenzene	5.0	U	5.0	1.4	
994-05-8	tert-Amyl Methyl Ether	5.0	U	5.0	1.0	
98-06-6	tert-Butylbenzene	5.0	U	5.0	1.0	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	1.7	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/14/14 21:44
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397150
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061414\K9383.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	1.0	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97		85-122	6/14/14 21:44	
Dibromofluoromethane	104		89-119	6/14/14 21:44	
Toluene-d8	85	*	87-121	6/14/14 21:44	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1301
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 07:50
Sample Name:	MRC-MW-22A-060314	**Units:**	µg/L
Lab Code:	R1404155-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6464.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1301
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 07:50
Sample Name:	MRC-MW-22A-060314	**Units:**	µg/L
Lab Code:	R1404155-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6464.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.62**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1301
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 07:50
Sample Name:	MRC-MW-22A-060314	**Units:**	µg/L
Lab Code:	R1404155-017	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6464.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/12/14 07:50	
Dibromofluoromethane	109	89-119	6/12/14 07:50	
Toluene-d8	97	87-121	6/12/14 07:50	

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Collected: 6/ 2/14 1345
Date Received: 6/ 4/14
Date Analyzed: 6/12/14 03:31

Sample Name: MRC-MW-70A-060214
Lab Code: R1404155-003

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\msvoa12\Data\061114\M6456.D\

Analysis Lot: 396676
Instrument Name: R-MS-12
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.87**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1345
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 03:31
Sample Name:	MRC-MW-70A-060214	**Units:**	µg/L
Lab Code:	R1404155-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6456.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.2		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.3		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1345
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 03:31
Sample Name:	MRC-MW-70A-060214	**Units:**	µg/L
Lab Code:	R1404155-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6456.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/12/14 03:31	
Dibromofluoromethane	110	89-119	6/12/14 03:31	
Toluene-d8	93	87-121	6/12/14 03:31	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1440
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 10:31
Sample Name:	MRC-MW-70B-060214	**Units:**	µg/L
Lab Code:	R1404155-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6469.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**3.5**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**37**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	**0.48**	J	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**2.3**	J	5.0	1.3	
71-43-2	Benzene	**0.61**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1440
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 10:31
Sample Name:	MRC-MW-70B-060214	**Units:**	µg/L
Lab Code:	R1404155-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6469.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**0.53**	J	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**180**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.46**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**9.6**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1440
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 10:31
Sample Name:	MRC-MW-70B-060214	**Units:**	µg/L
Lab Code:	R1404155-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6469.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/12/14 10:31	
Dibromofluoromethane	110	89-119	6/12/14 10:31	
Toluene-d8	92	87-121	6/12/14 10:31	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1425
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 06:13
Sample Name:	MRC-MW-77A-060214	**Units:**	µg/L
Lab Code:	R1404155-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6461.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**12**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**1.9**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	**18**	J	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**11**		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1425
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 06:13
Sample Name:	MRC-MW-77A-060214	**Units:**	µg/L
Lab Code:	R1404155-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6461.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	**0.81**	J	1.0	0.32	
108-20-3	Diisopropyl Ether	**0.56**	J	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	**0.53**	J	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	**120**		1.0	0.29	
91-20-3	Naphthalene	**0.73**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**6.4**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**1.4**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**2.4**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	**0.26**	J	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	**2.4**		1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	**0.52**	J	1.0	0.20	
98-06-6	tert-Butylbenzene	**0.35**	J	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1425
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 06:13
Sample Name:	MRC-MW-77A-060214	**Units:**	µg/L
Lab Code:	R1404155-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6461.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/12/14 06:13	
Dibromofluoromethane	111	89-119	6/12/14 06:13	
Toluene-d8	98	87-121	6/12/14 06:13	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1543
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 08:54
Sample Name:	MRC-MW-79B-060214	**Units:**	µg/L
Lab Code:	R1404155-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6466.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.0	U	2.0	0.44	
71-55-6	1,1,1-Trichloroethane (TCA)	2.0	U	2.0	0.72	
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	2.0	0.50	
76-13-1	1,1,2-Trichlorotrifluoroethane	2.0	U	2.0	0.62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**2.0**		2.0	0.40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**3.1**		2.0	1.2	
563-58-6	1,1-Dichloropropene	2.0	U	2.0	0.58	
87-61-6	1,2,3-Trichlorobenzene	2.0	U	2.0	1.7	
96-18-4	1,2,3-Trichloropropane	2.0	U	2.0	1.4	
120-82-1	1,2,4-Trichlorobenzene	2.0	U	2.0	0.46	
95-63-6	1,2,4-Trimethylbenzene	2.0	U	2.0	0.40	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	4.0	U	4.0	1.5	
106-93-4	1,2-Dibromoethane	2.0	U	2.0	0.48	
95-50-1	1,2-Dichlorobenzene	2.0	U	2.0	0.42	
107-06-2	1,2-Dichloroethane	2.0	U	2.0	0.72	
78-87-5	1,2-Dichloropropane	2.0	U	2.0	0.40	
541-73-1	1,3-Dichlorobenzene	2.0	U	2.0	0.40	
142-28-9	1,3-Dichloropropane	2.0	U	2.0	0.54	
106-46-7	1,4-Dichlorobenzene	2.0	U	2.0	0.40	
594-20-7	2,2-Dichloropropane	2.0	U	2.0	0.54	
78-93-3	2-Butanone (MEK)	10	U	10	1.7	
110-75-8	2-Chloroethyl Vinyl Ether	2.0	U	2.0	0.88	
95-49-8	2-Chlorotoluene	2.0	U	2.0	0.40	
591-78-6	2-Hexanone	10	U	10	3.4	
75-65-0	tert-Butyl Alcohol	**27**	J	80	22	
106-43-4	4-Chlorotoluene	2.0	U	2.0	0.48	
99-87-6	4-Isopropyltoluene	2.0	U	2.0	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	1.4	
67-64-1	Acetone	10	U	10	2.5	
71-43-2	Benzene	**1.4**	J	2.0	0.40	
108-86-1	Bromobenzene	2.0	U	2.0	0.56	
74-97-5	Bromochloromethane	2.0	U	2.0	0.64	
75-27-4	Bromodichloromethane	2.0	U	2.0	0.64	
75-25-2	Bromoform	2.0	U	2.0	0.84	
74-83-9	Bromomethane	2.0	U	2.0	0.58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1543
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 08:54
Sample Name:	MRC-MW-79B-060214	**Units:**	µg/L
Lab Code:	R1404155-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6466.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	2.0	U	2.0	0.44	
56-23-5	Carbon Tetrachloride	2.0	U	2.0	0.90	
108-90-7	Chlorobenzene	2.0	U	2.0	0.58	
75-00-3	Chloroethane	2.0	U	2.0	0.48	
67-66-3	Chloroform	**0.72**	J	2.0	0.50	
74-87-3	Chloromethane	2.0	U	2.0	0.42	
124-48-1	Dibromochloromethane	2.0	U	2.0	0.62	
74-95-3	Dibromomethane	2.0	U	2.0	0.64	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.0	U	2.0	0.92	
75-09-2	Methylene Chloride	2.0	U	2.0	0.64	
108-20-3	Diisopropyl Ether	2.0	U	2.0	0.40	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	2.0	0.40	
100-41-4	Ethylbenzene	2.0	U	2.0	0.40	
87-68-3	Hexachlorobutadiene	4.0	U	4.0	1.3	
98-82-8	Isopropylbenzene (Cumene)	2.0	U	2.0	0.40	
1634-04-4	Methyl tert-Butyl Ether	**36**		2.0	0.58	
91-20-3	Naphthalene	2.0	U	2.0	0.40	
100-42-5	Styrene	2.0	U	2.0	0.40	
127-18-4	Tetrachloroethene (PCE)	2.0	U	2.0	0.60	
108-88-3	Toluene	2.0	U	2.0	0.40	
79-01-6	Trichloroethene (TCE)	**300**		2.0	0.44	
75-69-4	Trichlorofluoromethane (CFC 11)	2.0	U	2.0	0.40	
108-05-4	Vinyl Acetate	4.0	U	4.0	2.1	
75-01-4	Vinyl Chloride	**16**		2.0	0.64	
1330-20-7	Xylenes, Total	6.0	U	6.0	1.1	
156-59-2	cis-1,2-Dichloroethene	**71**		2.0	0.60	
10061-01-5	cis-1,3-Dichloropropene	2.0	U	2.0	0.48	
179601-23-1	m,p-Xylenes	4.0	U	4.0	0.66	
104-51-8	n-Butylbenzene	2.0	U	2.0	0.42	
103-65-1	n-Propylbenzene	2.0	U	2.0	0.40	
95-47-6	o-Xylene	2.0	U	2.0	0.40	
135-98-8	sec-Butylbenzene	2.0	U	2.0	0.54	
994-05-8	tert-Amyl Methyl Ether	2.0	U	2.0	0.40	
98-06-6	tert-Butylbenzene	2.0	U	2.0	0.40	
156-60-5	trans-1,2-Dichloroethene	**3.9**		2.0	0.66	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1543
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 08:54
Sample Name:	MRC-MW-79B-060214	**Units:**	µg/L
Lab Code:	R1404155-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6466.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	2.0	0.40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/12/14 08:54	
Dibromofluoromethane	110	89-119	6/12/14 08:54	
Toluene-d8	88	87-121	6/12/14 08:54	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0810
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 06:45
Sample Name:	MRC-MW-93A-060314	**Units:**	µg/L
Lab Code:	R1404155-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6462.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0810
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 06:45
Sample Name:	MRC-MW-93A-060314	**Units:**	µg/L
Lab Code:	R1404155-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6462.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	**0.37**	J	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**2.5**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.4**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0810
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 06:45
Sample Name:	MRC-MW-93A-060314	**Units:**	µg/L
Lab Code:	R1404155-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6462.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/12/14 06:45	
Dibromofluoromethane	111	89-119	6/12/14 06:45	
Toluene-d8	100	87-121	6/12/14 06:45	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 01:54
Sample Name:	TB-060214	**Units:**	µg/L
Lab Code:	R1404155-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6453.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	1.4	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 01:54
Sample Name:	TB-060214	**Units:**	µg/L
Lab Code:	R1404155-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6453.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/12/14 01:54
Sample Name:	TB-060214	**Units:**	µg/L
Lab Code:	R1404155-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6453.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/12/14 01:54	
Dibromofluoromethane	108	89-119	6/12/14 01:54	
Toluene-d8	98	87-121	6/12/14 01:54	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Analyzed:	6/6/14 11:50
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395858
Data File Name:	1007.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**0.22**	J	1.0	0.20	
74-85-1	Ethene	**0.60**	J	1.0	0.11	
74-82-8	Methane	**21**		1.0	0.21	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0900
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 20:44
Sample Name:	MRC-MW-07A-060314	**Units:**	µg/L
Lab Code:	R1404155-005	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af893.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	4.69		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	92	70-130	6/5/14 20:44	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1245
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 21:02
Sample Name:	MRC-MW-110A-060314	**Units:**	µg/L
Lab Code:	R1404155-007	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af894.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**3.23**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	87	70-130	6/5/14 21:02	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1350
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 21:21
Sample Name:	MRC-MW-110B-060314	**Units:**	µg/L
Lab Code:	R1404155-008	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af895.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**3.29**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	96	70-130	6/5/14 21:21	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1209
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 21:57
Sample Name:	MRC-MW-115A-060214	**Units:**	µg/L
Lab Code:	R1404155-011	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af897.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.0224**	J	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	94	70-130	6/5/14 21:57	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0938
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 21:39
Sample Name:	MRC-MW-116A-060214	**Units:**	µg/L
Lab Code:	R1404155-010	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af896.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	62	*	70-130	6/5/14 21:39	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0938
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 14:22
Sample Name:	MRC-MW-116A-060214	**Units:**	µg/L
Lab Code:	R1404155-010	**Basis:**	As Received
Run Type:	Reanalysis		

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	396359
Prep Method:	Method	**Extraction Lot:**	210288
Data File Name:	I:\ACQUDATA\5975E\data\060914\Af918.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	95	70-130	6/9/14 14:22	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0900
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 19:30
Sample Name:	MRC-MW-11A-060214	**Units:**	µg/L
Lab Code:	R1404155-001	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af889.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.0956**	J	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	78	70-130	6/5/14 19:30	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 0918
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 22:16
Sample Name:	MRC-MW-21A-060314	**Units:**	µg/L
Lab Code:	R1404155-015	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af898.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	1.16		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	98	70-130	6/5/14 22:16	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 22:34
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af899.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**62.4**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	102	70-130	6/5/14 22:34	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1301
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 22:53
Sample Name:	MRC-MW-22A-060314	**Units:**	µg/L
Lab Code:	R1404155-017	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af900.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.608**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	101	70-130	6/5/14 22:53	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1345
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 19:49
Sample Name:	MRC-MW-70A-060214	**Units:**	µg/L
Lab Code:	R1404155-003	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af890.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**2.05**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	91	70-130	6/5/14 19:49	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1440
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 20:07
Sample Name:	MRC-MW-70B-060214	**Units:**	µg/L
Lab Code:	R1404155-004	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af891.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**26.9**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	89	70-130	6/5/14 20:07	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1245
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 17:17
Sample Name:	MRC-MW-110A-060314	**Units:**	µg/L
Lab Code:	R1404155-007	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031227.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**1.8**		0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1350
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 17:44
Sample Name:	MRC-MW-110B-060314	**Units:**	µg/L
Lab Code:	R1404155-008	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031229.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 1209
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 18:11
Sample Name:	MRC-MW-115A-060214	**Units:**	µg/L
Lab Code:	R1404155-011	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031231.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 2/14 0938
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 17:58
Sample Name:	MRC-MW-116A-060214	**Units:**	µg/L
Lab Code:	R1404155-010	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031230.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 18:25
Sample Name:	MRC-MW-21B-060314	**Units:**	µg/L
Lab Code:	R1404155-016	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031232.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1020
Sample Matrix:	Water	**Date Received:**	6/ 4/14
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 17:04
Sample Name:	MRC-MW-52A-060314	**Units:**	µg/L
Lab Code:	R1404155-006	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031226.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

Appendix C

Support Documentation

HOLDTIME

SDG R1404155

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/09/2014	06/09/2014	6	0	6
HG	UG/L	MRC-MW-77A-060214	R1404155-012	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4
HG	UG/L	MRC-MW-79B-060214	R1404155-013	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4
HG	UG/L	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4
HG	UG/L	MRC-MW-52A-060314	R1404155-006	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4
HG	UG/L	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4
HG	UG/L	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-07A-060314	R1404155-005	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
HG	UG/L	MRC-MW-107 B/C-06021	R1404155-002	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4
HG	UG/L	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/06/2014	06/06/2014	4	0	4

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
HG	UG/L	MRC-MW-93A-060314	R1404155-014	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
M	UG/L	MRC-MW-77A-060214	R1404155-012	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10
M	UG/L	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-52A-060314	R1404155-006	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-52A-060314	R1404155-006	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
M	UG/L	MRC-MW-77A-060214	R1404155-012	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
M	UG/L	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10
M	UG/L	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10
M	UG/L	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10
M	UG/L	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
M	UG/L	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
M	UG/L	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-79B-060214	R1404155-013	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10
M	UG/L	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
M	UG/L	MRC-MW-107 B/C-06021	R1404155-002	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
M	UG/L	MRC-MW-107 B/C-06021	R1404155-002	NM	06/02/2014	06/09/2014	06/12/2014	7	3	10
M	UG/L	MRC-MW-07A-060314	R1404155-005	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-07A-060314	R1404155-005	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
M	UG/L	MRC-MW-93A-060314	R1404155-014	NM	06/03/2014	06/09/2014	06/12/2014	6	3	9
M	UG/L	MRC-MW-93A-060314	R1404155-014	NM	06/03/2014	06/09/2014	06/16/2014	6	7	13
M	UG/L	MRC-MW-79B-060214	R1404155-013	NM	06/02/2014	06/09/2014	06/16/2014	7	7	14
	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3
	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/04/2014	06/04/2014	1	0	1
	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/17/2014	06/17/2014	14	0	14
ALK	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/09/2014	06/09/2014	6	0	6

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
NH3	MG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/16/2014	06/16/2014	13	0	13
PCL	UG/L	MRC-MW-52A-060314	R1404155-006	NM	06/03/2014	06/09/2014	06/09/2014	6	0	6
PCL	UG/L	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/09/2014	06/09/2014	6	0	6
PCL	UG/L	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/09/2014	06/09/2014	6	0	6
PCL	UG/L	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/09/2014	06/09/2014	7	0	7
PCL	UG/L	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/09/2014	06/09/2014	7	0	7
PCL	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/09/2014	06/09/2014	6	0	6
	PERCENT	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	PERCENT	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	PERCENT	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	PERCENT	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	PERCENT	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	PERCENT	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	PERCENT	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	PERCENT	MRC-MW-70B-060214	R1404155-004	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	PERCENT	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	PERCENT	MRC-MW-07A-060314	R1404155-005	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	PERCENT	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
	UG/L	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	UG/L	MRC-MW-70B-060214	R1404155-004	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	UG/L	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	UG/L	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	UG/L	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	UG/L	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	UG/L	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/05/2014	06/05/2014	3	0	3
	UG/L	MRC-MW-07A-060314	R1404155-005	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	UG/L	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
	UG/L	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/05/2014	06/05/2014	2	0	2
OV	PERCE NT	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCE NT	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	PERCE NT	MRC-MW-107 B/C-06021	R1404155-002	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCE NT	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCE NT	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCE NT	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	PERCE NT	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	PERCENT	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/14/2014	06/14/2014	11	0	11
OV	PERCENT	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	PERCENT	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCENT	MRC-MW-70B-060214	R1404155-004	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCENT	MRC-MW-77A-060214	R1404155-012	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCENT	MRC-MW-79B-060214	R1404155-013	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCENT	MRC-MW-93A-060314	R1404155-014	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	PERCENT	TB-060214	R1404155-009	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	PERCENT	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	UG/L	MRC-MW-79B-060214	R1404155-013	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	UG/L	MRC-MW-107 B/C-06021	R1404155-002	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-110A-060314	R1404155-007	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	UG/L	MRC-MW-110B-060314	R1404155-008	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	UG/L	MRC-MW-115A-060214	R1404155-011	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-116A-060214	R1404155-010	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	TB-060214	R1404155-009	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-21A-060314	R1404155-015	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9

SORT	UNITS	NSAMPLE	LAB_ID	QC_TYPE	SAMP_DATE	EXTR_DATE	ANAL_DATE	SMP_EXTR	EXTR_ANL	SMP_ANL
OV	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/14/2014	06/14/2014	11	0	11
OV	UG/L	MRC-MW-22A-060314	R1404155-017	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	UG/L	MRC-MW-70A-060214	R1404155-003	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-70B-060214	R1404155-004	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-77A-060214	R1404155-012	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
OV	UG/L	MRC-MW-93A-060314	R1404155-014	NM	06/03/2014	06/12/2014	06/12/2014	9	0	9
OV	UG/L	MRC-MW-11A-060214	R1404155-001	NM	06/02/2014	06/12/2014	06/12/2014	10	0	10
	UG/L	MRC-MW-21B-060314	R1404155-016	NM	06/03/2014	06/06/2014	06/06/2014	3	0	3

Client:	Tetra Tech	**Service Request No.:**	R1404155
Project:	Middle River	**Date Received:**	6/4/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Seventeen water samples were received for analysis at ALS-Environmental on 6/4/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 2.9-3.5°C within the 0-6°C temperature guidelines.

Wet Chemistry

The Continuing Calibration Blanks (CCB1 and CCB2) for Orthophosphate contained low level hits and have been flagged with a "J". No data was affected.

The Method Blank for Alkalinity, Orthophosphate and TDS contained low level hits and have been flagged with a "J". All affected data has been "B" flagged appropriately.

No analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. All QC was within limits.

The Serial dilution for Beryllium on sample MRC-MW-11A-060214 (R1404155-001) was outside of the control limits for Cobalt and has been flagged with an "E". All affected samples have been "E" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
6/11/14- 1,1,2,2-Tetrachloroethane, 1,2-Dichloroethane, Bromomethane, Carbon Tetrachloride, Methylene Chloride and Vinyl Acetate (>40%)
6/14/14- Acetone and Vinyl Acetate
All detected concentrations for these compounds in samples associated with their relevant CCV should be considered as estimated.

The Method Blank contained a low level hit of 1,2,4-Trichlorobenzene on 6/12/14and has been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on sample MRC-MW-21B-060314 (R1404155-016). All exceedences have been flagged with a "*".

The Laboratory Control Sample and Duplicate Laboratory Control Sample from 6/12/14 was outside of the control limits high for Bromodichloromethane and Carbon Tetrachloride and the Duplicate Laboratory Control Sample was outside of the control limits for 1,2-Dichloroethane and trans-1,3-Dichloropropene. These have been flagged with a "*". The high bias allows for appropriate sensitivity. There were no hits for these compounds and no data was affected.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Approved by _____ **Date** 6/30/14

Samples MRC-MW-107B/C-060214 (R1404155-002) and MRC-MW-21B-060314 (R1404155-016) had surrogate Toluene-d8 outside of the control limits low and has been flagged with a "*". The samples were repeated for confirmation of matrix interference and both sets of data have been reported.

Sample MRC-MW-11A-060214 (R1404155-001) was analyzed at a dilution of 1/10 due to the foamy nature of the sample.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The 6/6/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

Sample MRC-MW-116A-060214 (R1404155-010 had surrogate 1,4-Dioxane-d8 outside of the control limits low and has been flagged with a "*". The sample was re-extracted and re-analyzed for confirmation of results and both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

No analytical or quality control problems were encountered during analysis.

Approved by _____ Date 6/30/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #:		Batch Complete:	Yes	Date Revised:	
Submission:	R1404155	Diskette Requested:	No	Date Due:	6/18/14
Client:	Tetra Tech GEO	Date:	6/10/14	Protocol:	SW846
Client Rep:	DPATTON	Custody Seal:	Present/Absent:	Shipping No.:	
Project:	Middle River- Lockheed Martin Co	Chain of Custody:	Present/Absent:	SDG #:	

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1404155-001	MRC-MW-11A-060214	Water	7470A, 522, 6010C, 6020A, 8260C	6/2/14	6/4/14			
R1404155-002	MRC-MW-107 B/C-060214	Water	7470A, 8260C, 6010C, 6020A	6/2/14	6/4/14			
R1404155-003	MRC-MW-70A-060214	Water	6020A, 8260C, 522, 7470A, 6010C	6/2/14	6/4/14			
R1404155-004	MRC-MW-70B-060214	Water	522, 8260C	6/2/14	6/4/14			
R1404155-005	MRC-MW-07A-060314	Water	7470A, 6010C, 6020A, 522	6/3/14	6/4/14			
R1404155-006	MRC-MW-52A-060314	Water	6020A, 6850, 6010C, 7470A	6/3/14	6/4/14			
R1404155-007	MRC-MW-110A-060314	Water	7470A, 522, 6010C, 6020A, 8260C, 6850	6/3/14	6/4/14			
R1404155-008	MRC-MW-110B-060314	Water	7470A, 522, 6010C, 6020A, 8260C, 6850	6/3/14	6/4/14			
R1404155-009	TB-060214	Water	8260C	6/2/14	6/4/14			
R1404155-010	MRC-MW-116A-060214	Water	7470A, 6850, 6010C, 6020A, 8260C, 522	6/2/14	6/4/14			
R1404155-010.R01	MRC-MW-116A-060214	Water	522	6/2/14	6/4/14			
R1404155-011	MRC-MW-115A-060214	Water	7470A, 6850, 6010C, 6020A, 8260C, 522	6/2/14	6/4/14			
R1404155-012	MRC-MW-77A-060214	Water	7470A, 6010C, 6020A, 8260C	6/2/14	6/4/14			
R1404155-013	MRC-MW-79B-060214	Water	7470A, 6010C, 6020A, 8260C	6/2/14	6/4/14			
R1404155-014	MRC-MW-93A-060314	Water	7470A, 6010C, 6020A, 8260C	6/3/14	6/4/14			
R1404155-015	MRC-MW-21A-060314	Water	7470A, 6010C, 6020A, 8260C, 522	6/3/14	6/4/14			
R1404155-016	MRC-MW-21B-060314	Water	7470A, 300.0, RSK 175, 365.1, 6850, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, 9060A, 522, SM 2320 B-1997(2011), SM 2540 C-1997(2011), SM 5310B/C-2000(2011)	6/3/14	6/4/14			
R1404155-017	MRC-MW-22A-060314	Water	7470A, 6010C, 6020A, 8260C, 522	6/3/14	6/4/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15150

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: MRC Annual GW 2014
Project Number: 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874
Phone #: 301-528-3000
Email: Tony-apanavage@tetratech.com
Sampler's Signature:
Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 — 2 — 7 \

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP VOCs	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) (6020A)	METALS, DISSOLVED (List in comments below)	1-4 dioxane (522)	Perchlorate (6850)	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-11A-060214		6/2/14	0900	Aq	6	3	—	—	—	—	1	—	2	—	
MRC-MW-107B/C-060214			1025		4	3	—	—	—	—	1	—	—	—	
MRC-MW-70A-060214			1345		6	3	—	—	—	—	1	—	2	—	
MRC-MW-70B-060214			1440		5	3	—	—	—	—	—	—	2	—	
MRC-MW-07A-060314		6/3/14	0900		3	—	—	—	—	—	1	—	2	—	
MRC-MW-52A-060314			1020		2	—	—	—	—	—	1	—	—	1	
MRC-MW-110A-060314			1245		7	3	—	—	—	—	1	—	2	1	
MRC-MW-110B-060314			1350		7	3	—	—	—	—	1	—	2	1	

JAM

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Total Metals, Beryllium, Cobalt, Nickel (6020A)

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature	Signature	Signature	
Printed Name: Josh Mullis	Printed Name: Greg Lafer	Printed Name	Printed Name	Printed Name	
Firm: Tetra Tech	Firm: ALS	Firm	Firm	Firm	
Date/Time: 6/3/14 1500	Date/Time: 6/4/14 0915	Date/Time	Date/Time	Date/Time	

R1404155 7
Tetra Tech NUS, Inc
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15151

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 2 OF 2

Project Name: MRC - GW 2014
Project Number: 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: Tetra Tech Inc
20251 Century Blvd STE 200
Germantown, MD 20874
Phone #: 301 528-3021
Email:
Sampler's Signature: Walt Pryor
Sampler's Printed Name: Walt Pryor

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl | HNO3 | HCl | SO4 | – | – | – | – | NaH SO4

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP 8260	GC/MS SVOAs ◦ 8270 ◦ 625	GC VOAs ◦ 8021 ◦ 601/602	PESTICIDES ◦ 8081 ◦ 608	PCBs ◦ 8082 ◦ 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below) Perchlorate	RSK	NH3	AlK	TDS, Cl, SO4, OPO4	NO3, NO2	Silica	1,4 Dioxane	REMARKS/ ALTERNATE DESCRIPTION
TB-060214		6-2-14	—	GW	3	X														
MRC-MW-116A-060214		↓	0938	↓	7	X					X	X							X	
MRC-MW-115A-060214		↓	1209	↓	7	X					X	X							X	
MRC-MW-77A-060214		↓	1425	↓	4	X					X									
MRC-MW-79B-060214		↓	1543	↓	4	X					X									
MRC-MW-93A-060314		6-3-14	0810	↓	4	X					X									
MRC-MW-21A-060314		↓	0918	↓	6	X					X								X	
MRC-MW-21B-060314		↓	1042	↓	13	X					X		X	X	X	X	X	X	X	
MRC-MW-22A-060314		↓	1301	↓	6	X					X								X	

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day

REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED Maryland

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pryor	Signature: Gregg Lafon	Signature	Signature	Signature	Signature
Printed Name: Walt Pryor	Printed Name: Gregg Lafon	Printed Name	Printed Name	Printed Name	Printed Name
Firm: TT INC	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 6-3-14 / 1800	Date/Time: 6/4/14 0915	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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80008

Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R1404155

Cooler received on 6/4/14 by: [signature]

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N
2	Custody papers properly completed (ink, signed)?	Y N
3	Did all bottles arrive in good condition (unbroken)?	Y N
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N

5a	Perchlorate samples have required headspace?	Y N NA
5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y N NA
6	Where did the bottles originate?	ALS/ROC CLIENT
7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 6/4/14 Time: 1030 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.5°	2.9°					
Correction Factor (°C)	—	—					
Corrected Temp (°C)	3.5°	2.9°					
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [signature] on 6/4/14 at 1038
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: KB 6/4/14

Cooler Breakdown: Date: _____ Time: _____ by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH				[illegible]	[illegible]			
≤2	HNO_3	✓		Client label	[illegible]	[illegible]			
≤2	H_2SO_4	✓		WC126101D	4/15	[illegible]			
<4	$NaHSO_4$	✓		Client label	[illegible]	[illegible]			
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 021014-1BMC, 112612-2VV, 082613-2AAW

Other Comments:

headspace: Trip Blanks (2 vials)

* No bottle provided for DOC (location-16), aliquoted from an unpreserved plastic bottle.

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 3/12/14 09:41

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\031214\J3873.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	18.96	83285	Pass
75	95	30	60	49.54	217600	Pass
95	95	100	100	100.00	439232	Pass
96	95	5	9	6.84	30035	Pass
173	174	0	2	1.18	3907	Pass
174	95	50	120	75.24	330475	Pass
175	174	5	9	7.57	25003	Pass
176	174	95	101	100.37	331712	Pass
177	176	5	9	6.54	21696	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3875.D\	3/12/14 10:45	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3876.D\	3/12/14 11:17	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3877.D\	3/12/14 11:49	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3878.D\	3/12/14 12:21	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3879.D\	3/12/14 12:53	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3880.D\	3/12/14 13:26	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3881.D\	3/12/14 13:58	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\031214\J3882.D\	3/12/14 14:30	

Initial Calibration - Summary Report

kf 3/13/14

Calibration ID: RC1400023 W031214 8260 Waters **Instrument ID:** R-MS-12
Column Name: 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3058	<=20	7.3
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7112	<=20	2.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5726	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2220	<=20	5.6
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.3971	<=20	1.9
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8461	<=20	3.1
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3628	<=20	3.7
1,1-Dichloropropene	T	Average RF			0.3693	<=20	4.9
1,2,3-Trichlorobenzene	T	Average RF			0.6036	<=20	8.2
1,2,3-Trichloropropane	T	Average RF			0.1713	<=20	7.2
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7372	<=20	6.4
1,2,4-Trimethylbenzene	T	Average RF			2.167	<=20	7.0
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.08773	<=20	12.9
1,2-Dibromoethane	T	Average RF		0.100	0.2312	<=20	5.1
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5388	<=20	4.7
1,2-Dichlorobenzene	T	Average RF		0.400	1.206	<=20	3.3
1,2-Dichloroethane	T	Average RF		0.100	0.3737	<=20	3.9
1,2-Dichloropropane	T	Average RF		0.100	0.3148	<=20	4.5
1,3,5-Trichlorobenzene	T	Average RF			0.8315	<=20	4.0
1,3,5-Trimethylbenzene	T	Average RF			2.106	<=20	6.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.252	<=20	4.2
1,3-Dichloropropane	T	Average RF			0.4501	<=20	2.3
1,4-Dichlorobenzene	T	Average RF		0.500	1.332	<=20	8.0
1,4-Dioxane	T	Average RF			0.002062	<=20	6.8
1-Butanol	T	Average RF			0.004645	<=20	18.2
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.3856	<=20	7.0
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6154	<=20	3.4
2,2-Dichloropropane	T	Average RF			0.6713	<=20	3.9
2,3,6-Trichlorotoluene	T	Average RF			0.3641	<=20	7.5
2,4,5-Trichlorotoluene	T	Average RF			0.3978	<=20	7.2
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			0.9535	<=20	5.8
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5359	<=20	4.0
2,5-Dichlorobenzotrifluoride	T	Average RF			0.6128	<=20	3.4
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1390	<=20	1.9
2-Chloro-1,3-butadiene	T	Average RF			0.7288	<=20	7.9
2-Chlorobenzotrifluoride	T	Average RF			0.8330	<=20	4.8
2-Chloroethyl Vinyl Ether	T	Average RF			0.1412	<=20	5.8
2-Chlorotoluene	T	Average RF			1.896	<=20	5.7
2-Hexanone	T	Average RF		0.05	0.1416	<=20	9.6
2-Methyl-1-propanol	T	Average RF			0.008458	<=20	8.6
2-Methyl-2-propanol	T	Average RF			0.02773	<=20	8.6
2-Nitropropane	T	Average RF			0.03954	<=20	10.8
2-Propanol	T	Average RF			0.01610	<=20	13.7
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.010	<=20	7.1
3,4-Dichlorobenzotrifluoride	T	Average RF			0.6160	<=20	4.0
3-Chloro-1-propene	T	Average RF			0.2488	<=20	4.3
3-Chlorobenzotrifluoride	T	Average RF			0.4304	<=20	7.2
3-Chlorotoluene	T	Average RF			1.973	<=20	5.3
4-Chlorotoluene	T	Average RF			2.236	<=20	8.4
4-Isopropyltoluene	T	Average RF			2.086	<=20	6.7
4-Methyl-2-pentanone	T	Average RF		0.05	0.1899	<=20	6.0

00202

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09920	<=20	6.0
Acetonitrile	T	Average RF			0.01622	<=20	13.2
Acrolein	T	Quadratic	1/X2		0.01717	>=0.99	0.9978
Acrylonitrile	T	Average RF			0.1111	<=20	5.0
Benzene	T	Average RF		0.500	1.231	<=20	2.6
Bromobenzene	T	Average RF			0.7355	<=20	3.3
Bromochloromethane	T	Average RF			0.2832	<=20	8.2
Bromodichloromethane	T	Average RF		0.200	0.3677	<=20	5.4
Bromoform	T	Average RF		0.100	0.2840	<=20	15.6
Bromomethane	T	Average RF		0.100	0.2881	<=20	6.8
Carbon Disulfide	T	Average RF		0.100	1.262	<=20	4.8
Carbon Tetrachloride	T	Average RF		0.05	0.1199	<=20	6.9
Chlorobenzene	T	Average RF		0.500	0.8701	<=20	2.8
Chloroethane	T	Average RF		0.100	0.2851	<=20	8.6
Chloroform	T	Average RF		0.200	0.8292	<=20	4.7
Chloromethane	T	Average RF		0.100	0.5146	<=20	2.8
Cyclohexane	T	Average RF		0.100	0.2705	<=20	5.1
Cyclohexanone	T	Average RF			0.04011	<=20	5.9
Dibromochloromethane	T	Average RF		0.100	0.2588	<=20	11.9
Dibromomethane	T	Average RF			0.1497	<=20	3.1
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5939	<=20	7.1
Dichlorofluoromethane (CFC 21)	T	Average RF			0.7211	<=20	4.4
Dichloromethane	T	Average RF		0.100	0.4753	<=20	5.4
Diethyl Ether	T	Average RF			0.3614	<=20	6.8
Diisopropyl Ether	T	Average RF			1.648	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.2861	<=20	15.5
Ethyl tert-Butyl Ether	T	Average RF			1.379	<=20	4.3
Ethylbenzene	T	Average RF		0.100	0.4636	<=20	3.9
Hexachlorobutadiene	T	Average RF			0.3218	<=20	5.3
Iodomethane	T	Average RF			0.4820	<=20	15.6
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.581	<=20	6.3
Methacrylonitrile	T	Average RF			0.1295	<=20	10.3
Methyl Acetate	T	Average RF		0.100	0.2234	<=20	6.0
Methyl Methacrylate	T	Average RF			0.1481	<=20	9.0
Methyl tert-Butyl Ether	T	Average RF		0.100	1.153	<=20	3.5
Methylcyclohexane	T	Average RF		0.100	0.3206	<=20	5.3
Naphthalene	T	Average RF			1.327	<=20	6.2
Propionitrile	T	Average RF			0.04013	<=20	8.9
Styrene	T	Average RF		0.300	0.8888	<=20	9.8
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2583	<=20	7.1
Tetrahydrofuran (THF)	T	Average RF			0.09716	<=20	4.0
Toluene	T	Average RF		0.400	1.269	<=20	4.0
Trichloroethene (TCE)	T	Average RF		0.200	0.2982	<=20	2.1
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7340	<=20	4.6
Vinyl Acetate	T	Average RF			0.07534	<=20	7.4
Vinyl Chloride	T	Average RF		0.100	0.4781	<=20	2.7
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5073	<=20	2.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.4363	<=20	8.8
m,p-Xylenes	T	Average RF		0.100	0.5448	<=20	5.7
n-Butyl Acetate	T	Average RF			0.3502	<=20	8.0
n-Butylbenzene	T	Average RF			1.881	<=20	7.7
n-Heptane	T	Average RF			0.3075	<=20	4.6

Initial Calibration - Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.020	<=20	7.6
o-Xylene	T	Average RF		0.300	0.5559	<=20	4.6
sec-Butylbenzene	T	Average RF			2.467	<=20	7.2
tert-Amyl Methyl Ether	T	Average RF			1.164	<=20	4.4
tert-Butylbenzene	T	Average RF			1.773	<=20	4.3
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4546	<=20	2.9
trans-1,3-Dichloropropene	T	Average RF		0.100	0.3517	<=20	12.9
trans-1,4-Dichloro-2-butene	T	Average RF			0.1346	<=20	13.1
1,2-Dichloroethane-d4	S	Average RF			0.3297	<=20	1.6
4-Bromofluorobenzene	S	Average RF			0.4538	<=20	1.8
Dibromofluoromethane	S	Average RF			0.2895	<=20	0.8
Toluene-d8	S	Average RF			1.216	<=20	0.5

Initial Calibration Verification Summary Report

KR 3/13/14

Calibration ID: RC1400023
WOB1214 8260 waters

Instrument ID: R-MS-12
Column Name: 1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
1,1,1,2-Tetrachloroethane	RC1400023-09	T	Average RF	50	52.81	ppm	5.6	<=30
1,1,1-Trichloroethane (TCA)	RC1400023-09	T	Average RF	50	49.84	ppm	-0.3	<=30
1,1,2,2-Tetrachloroethane	RC1400023-09	T	Average RF	50	48.43	ppm	-3.1	<=30
1,1,2-Trichloroethane	RC1400023-09	T	Average RF	50	48.84	ppm	-2.3	<=30
1,1,2-Trichlorotrifluoroethane	RC1400023-09	T	Average RF	50	50.03	ppm	0.1	<=30
1,1-Dichloroethane (1,1-DCA)	RC1400023-09	T	Average RF	50	48.94	ppm	-2.1	<=30
1,1-Dichloroethene (1,1-DCE)	RC1400023-09	T	Average RF	50	57.52	ppm	15.0	<=30
1,1-Dichloropropene	RC1400023-09	T	Average RF	50	56.55	ppm	13.1	<=30
1,2,3-Trichlorobenzene	RC1400023-09	T	Average RF	50	50.70	ppm	1.4	<=30
1,2,3-Trichloropropane	RC1400023-09	T	Average RF	50	48.79	ppm	-2.4	<=30
1,2,4-Trichlorobenzene	RC1400023-09	T	Average RF	50	51.43	ppm	2.9	<=30
1,2,4-Trimethylbenzene	RC1400023-09	T	Average RF	50	52.17	ppm	4.3	<=30
1,2-Dibromo-3-chloropropane (DBCP)	RC1400023-09	T	Average RF	50	55.67	ppm	11.3	<=30
1,2-Dibromoethane	RC1400023-09	T	Average RF	50	52.14	ppm	4.3	<=30
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	RC1400023-09	T	Average RF	50	51.68	ppm	3.4	<=30
1,2-Dichlorobenzene	RC1400023-09	T	Average RF	50	50.95	ppm	1.9	<=30
1,2-Dichloroethane	RC1400023-09	T	Average RF	50	46.09	ppm	-7.8	<=30
1,2-Dichloropropane	RC1400023-09	T	Average RF	50	48.94	ppm	-2.1	<=30
1,3,5-Trichlorobenzene	RC1400023-09	T	Average RF	50	49.97	ppm	-0.1	<=30
1,3,5-Trimethylbenzene	RC1400023-09	T	Average RF	50	52.32	ppm	4.6	<=30
1,3-Dichlorobenzene	RC1400023-09	T	Average RF	50	51.41	ppm	2.8	<=30
1,3-Dichloropropane	RC1400023-09	T	Average RF	50	48.78	ppm	-2.4	<=30
1,4-Dichlorobenzene	RC1400023-09	T	Average RF	50	49.93	ppm	-0.1	<=30
1,4-Dioxane	RC1400023-09	T	Average RF	1000	938.8	ppm	-6.1	<=30
1-Butanol	RC1400023-09	T	Average RF	2500	2756	ppm	10.2	<=30
1-Chloro-4-(trifluoromethyl)benzene	RC1400023-09	T	Average RF	50	51.02	ppm	2.0	<=30
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	RC1400023-09	T	Average RF	50	51.23	ppm	2.5	<=30
2,2-Dichloropropane	RC1400023-09	T	Average RF	50	53.03	ppm	6.1	<=30
2,3,6-Trichlorotoluene	RC1400023-09	T	Average RF	50	52.46	ppm	4.9	<=30
2,4,5-Trichlorotoluene	RC1400023-09	T	Average RF	50	53.89	ppm	7.8	<=30
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	RC1400023-09	T	Average RF	150	151.4	ppm	0.9	<=30
2,4-Dichlorobenzotrifluoride	RC1400023-09	T	Average RF	50	50.93	ppm	1.9	<=30
2,5-Dichlorobenzotrifluoride	RC1400023-09	T	Average RF	50	50.16	ppm	0.3	<=30
2-Butanone (MEK)	RC1400023-09	T	Average RF	50	45.55	ppm	-8.9	<=30
2-Chloro-1,3-butadiene	RC1400023-09	T	Average RF	50	49.33	ppm	-1.3	<=30
2-Chlorobenzotrifluoride	RC1400023-09	T	Average RF	50	50.08	ppm	0.2	<=30
2-Chloroethyl Vinyl Ether	RC1400023-09	T	Average RF	50	52.52	ppm	5.0	<=30
2-Chlorotoluene	RC1400023-09	T	Average RF	50	50.46	ppm	0.9	<=30
2-Hexanone	RC1400023-09	T	Average RF	50	49.41	ppm	-1.2	<=30
2-Methyl-1-propanol	RC1400023-09	T	Average RF	1000	1010	ppm	1.0	<=30
2-Methyl-2-propanol	RC1400023-09	T	Average RF	1000	978.2	ppm	-2.2	<=30
2-Nitropropane	RC1400023-09	T	Average RF	100	102.0	ppm	2.0	<=30
2-Propanol	RC1400023-09	T	Average RF	1000	1025	ppm	2.5	<=30
3,4- and 2,3-Dichlorotoluene Coelution	RC1400023-09	T	Average RF	100	103.6	ppm	3.6	<=30
3,4-Dichlorobenzotrifluoride	RC1400023-09	T	Average RF	50	49.78	ppm	-0.4	<=30
3-Chloro-1-propene	RC1400023-09	T	Average RF	50	50.79	ppm	1.6	<=30
3-Chlorobenzotrifluoride	RC1400023-09	T	Average RF	50	49.64	ppm	-0.7	<=30
3-Chlorotoluene	RC1400023-09	T	Average RF	50	48.80	ppm	-2.4	<=30
4-Chlorotoluene	RC1400023-09	T	Average RF	50	51.03	ppm	2.1	<=30
4-Isopropyltoluene	RC1400023-09	T	Average RF	50	53.38	ppm	6.8	<=30
4-Methyl-2-pentanone	RC1400023-09	T	Average RF	50	50.35	ppm	0.7	<=30

00329

Initial Calibration Verification Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Acetone	RC1400023-09	T	Average RF	50	39.48	ppm	-21.0	<=30
Acetonitrile	RC1400023-09	T	Average RF	250	225.5	ppm	-9.8	<=30
Acrolein	RC1400023-09	T	Quadratic	100	208.5	ppm	108.5	<=30
Acrylonitrile	RC1400023-09	T	Average RF	250	246.3	ppm	-1.5	<=30
Benzene	RC1400023-09	T	Average RF	50	49.93	ppm	-0.1	<=30
Bromobenzene	RC1400023-09	T	Average RF	50	49.66	ppm	-0.7	<=30
Bromochloromethane	RC1400023-09	T	Average RF	50	47.83	ppm	-4.3	<=30
Bromodichloromethane	RC1400023-09	T	Average RF	50	51.35	ppm	2.7	<=30
Bromoform	RC1400023-09	T	Average RF	50	54.02	ppm	8.0	<=30
Bromomethane	RC1400023-09	T	Average RF	50	47.24	ppm	-5.5	<=30
Carbon Disulfide	RC1400023-09	T	Average RF	50	47.03	ppm	-5.9	<=30
Carbon Tetrachloride	RC1400023-09	T	Average RF	50	50.06	ppm	0.1	<=30
Chlorobenzene	RC1400023-09	T	Average RF	50	50.84	ppm	1.7	<=30
Chloroethane	RC1400023-09	T	Average RF	50	45.68	ppm	-8.6	<=30
Chloroform	RC1400023-09	T	Average RF	50	48.21	ppm	-3.6	<=30
Chloromethane	RC1400023-09	T	Average RF	50	44.02	ppm	-12.0	<=30
Cyclohexane	RC1400023-09	T	Average RF	50	43.66	ppm	-12.7	<=30
Cyclohexanone	RC1400023-09	T	Average RF	1000	614.2	ppm	-38.6	<=30
Dibromochloromethane	RC1400023-09	T	Average RF	50	53.83	ppm	7.7	<=30
Dibromomethane	RC1400023-09	T	Average RF	50	49.61	ppm	-0.8	<=30
Dichlorodifluoromethane (CFC 12)	RC1400023-09	T	Average RF	50	38.90	ppm	-22.2	<=30
Dichlorofluoromethane (CFC 21)	RC1400023-09	T	Average RF	50	48.36	ppm	-3.3	<=30
Dichloromethane	RC1400023-09	T	Average RF	50	48.52	ppm	-3.0	<=30
Diethyl Ether	RC1400023-09	T	Average RF	50	49.25	ppm	-1.5	<=30
Diisopropyl Ether	RC1400023-09	T	Average RF	50	45.55	ppm	-8.9	<=30
Ethyl Methacrylate	RC1400023-09	T	Average RF	50	54.92	ppm	9.8	<=30
Ethyl tert-Butyl Ether	RC1400023-09	T	Average RF	50	47.03	ppm	-5.9	<=30
Ethylbenzene	RC1400023-09	T	Average RF	50	51.98	ppm	4.0	<=30
Hexachlorobutadiene	RC1400023-09	T	Average RF	50	52.06	ppm	4.1	<=30
Iodomethane	RC1400023-09	T	Average RF	50	55.23	ppm	10.5	<=30
Isopropylbenzene (Cumene)	RC1400023-09	T	Average RF	50	52.49	ppm	5.0	<=30
Methacrylonitrile	RC1400023-09	T	Average RF	50	49.67	ppm	-0.7	<=30
Methyl Acetate	RC1400023-09	T	Average RF	50	48.18	ppm	-3.6	<=30
Methyl Methacrylate	RC1400023-09	T	Average RF	50	50.68	ppm	1.4	<=30
Methyl tert-Butyl Ether	RC1400023-09	T	Average RF	50	49.16	ppm	-1.7	<=30
Methylcyclohexane	RC1400023-09	T	Average RF	50	44.63	ppm	-10.7	<=30
Naphthalene	RC1400023-09	T	Average RF	50	56.07	ppm	12.1	<=30
Propionitrile	RC1400023-09	T	Average RF	250	258.3	ppm	3.3	<=30
Styrene	RC1400023-09	T	Average RF	50	55.20	ppm	10.4	<=30
Tetrachloroethene (PCE)	RC1400023-09	T	Average RF	50	50.19	ppm	0.4	<=30
Tetrahydrofuran (THF)	RC1400023-09	T	Average RF	50	46.06	ppm	-7.9	<=30
Toluene	RC1400023-09	T	Average RF	50	50.32	ppm	0.6	<=30
Trichloroethene (TCE)	RC1400023-09	T	Average RF	50	51.42	ppm	2.8	<=30
Trichlorofluoromethane (CFC 11)	RC1400023-09	T	Average RF	50	45.53	ppm	-8.9	<=30
Vinyl Acetate	RC1400023-09	T	Average RF	50	47.09	ppm	-5.8	<=30
Vinyl Chloride	RC1400023-09	T	Average RF	50	46.08	ppm	-7.8	<=30
cis-1,2-Dichloroethene	RC1400023-09	T	Average RF	50	50.33	ppm	0.7	<=30
cis-1,3-Dichloropropene	RC1400023-09	T	Average RF	50	50.69	ppm	1.4	<=30
m,p-Xylenes	RC1400023-09	T	Average RF	100	107.8	ppm	7.8	<=30
n-Butyl Acetate	RC1400023-09	T	Average RF	50	52.20	ppm	4.4	<=30
n-Butylbenzene	RC1400023-09	T	Average RF	50	53.27	ppm	6.5	<=30

00330

Initial Calibration Verification Summary Report

Calibration ID:	RC1400023	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
n-Heptane	RC1400023-09	T	Average RF	50	47.14	ppm	-5.7	<=30
n-Propylbenzene	RC1400023-09	T	Average RF	50	51.09	ppm	2.2	<=30
o-Xylene	RC1400023-09	T	Average RF	50	52.18	ppm	4.4	<=30
sec-Butylbenzene	RC1400023-09	T	Average RF	50	51.80	ppm	3.6	<=30
tert-Amyl Methyl Ether	RC1400023-09	T	Average RF	50	49.25	ppm	-1.5	<=30
tert-Butylbenzene	RC1400023-09	T	Average RF	50	50.94	ppm	1.9	<=30
trans-1,2-Dichloroethene	RC1400023-09	T	Average RF	50	51.22	ppm	2.4	<=30
trans-1,3-Dichloropropene	RC1400023-09	T	Average RF	50	53.39	ppm	6.8	<=30
trans-1,4-Dichloro-2-butene	RC1400023-09	T	Average RF	50	50.06	ppm	0.1	<=30
1,2-Dichloroethane-d4	RC1400023-09	S	Average RF	50	47.74	ppm	-4.5	<=30
4-Bromofluorobenzene	RC1400023-09	S	Average RF	50	50.03	ppm	0.1	<=30
Dibromofluoromethane	RC1400023-09	S	Average RF	50	50.20	ppm	0.4	<=30
Toluene-d8	RC1400023-09	S	Average RF	50	49.47	ppm	-1.1	<=30

Exceptions

QAP	Method
CRA-OXY	8260C

Compound	Type	Criteria	Result
Acrolein	Percent Difference	<= 30	108.48
Cyclohexanone	Percent Difference	<= 30	-38.58

00331

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/11/14 22:41

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061114\M6447.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 396676

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	21.06	75365	Pass
75	95	30	60	55.81	199771	Pass
95	95	100	100	100.00	357931	Pass
96	95	5	9	6.65	23789	Pass
173	174	0	2	1.64	5460	Pass
174	95	50	120	93.28	333867	Pass
175	174	5	9	7.41	24741	Pass
176	174	95	101	97.28	324779	Pass
177	176	5	9	6.78	22008	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406453-02	I:\ACQUDATA\msvoa12\Data\061114\M6448.D\	6/11/14 23:13	
Lab Control Sample	RQ1406453-03	I:\ACQUDATA\msvoa12\Data\061114\M6449.D\	6/11/14 23:45	
Duplicate Lab Control Sample	RQ1406453-04	I:\ACQUDATA\msvoa12\Data\061114\M6450.D\	6/12/14 00:18	
Method Blank	RQ1406453-05	I:\ACQUDATA\msvoa12\Data\061114\M6452.D\	6/12/14 01:22	
TB-060214	R1404155-009	I:\ACQUDATA\msvoa12\Data\061114\M6453.D\	6/12/14 01:54	
MRC-MW-11A-060214	R1404155-001	I:\ACQUDATA\msvoa12\Data\061114\M6454.D\	6/12/14 02:26	
MRC-MW-107 B/C-060214	R1404155-002	I:\ACQUDATA\msvoa12\Data\061114\M6455.D\	6/12/14 02:59	
MRC-MW-70A-060214	R1404155-003	I:\ACQUDATA\msvoa12\Data\061114\M6456.D\	6/12/14 03:31	
MRC-MW-110A-060314	R1404155-007	I:\ACQUDATA\msvoa12\Data\061114\M6457.D\	6/12/14 04:03	
MRC-MW-110B-060314	R1404155-008	I:\ACQUDATA\msvoa12\Data\061114\M6458.D\	6/12/14 04:35	
MRC-MW-116A-060214	R1404155-010	I:\ACQUDATA\msvoa12\Data\061114\M6459.D\	6/12/14 05:08	
MRC-MW-115A-060214	R1404155-011	I:\ACQUDATA\msvoa12\Data\061114\M6460.D\	6/12/14 05:41	
MRC-MW-77A-060214	R1404155-012	I:\ACQUDATA\msvoa12\Data\061114\M6461.D\	6/12/14 06:13	
MRC-MW-93A-060314	R1404155-014	I:\ACQUDATA\msvoa12\Data\061114\M6462.D\	6/12/14 06:45	
MRC-MW-21A-060314	R1404155-015	I:\ACQUDATA\msvoa12\Data\061114\M6463.D\	6/12/14 07:17	
MRC-MW-22A-060314	R1404155-017	I:\ACQUDATA\msvoa12\Data\061114\M6464.D\	6/12/14 07:50	
MRC-MW-79B-060214	R1404155-013	I:\ACQUDATA\msvoa12\Data\061114\M6466.D\	6/12/14 08:54	
MRC-MW-21B-060314	R1404155-016	I:\ACQUDATA\msvoa12\Data\061114\M6467.D\	6/12/14 09:26	
MRC-MW-107 B/C-060214RE	R1404155-002	I:\ACQUDATA\msvoa12\Data\061114\M6468.D\	6/12/14 09:58	
MRC-MW-70B-060214	R1404155-004	I:\ACQUDATA\msvoa12\Data\061114\M6469.D\	6/12/14 10:31	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/11/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\061114\M6448.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 396676
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	57.5	0.3058	0.3515	15.0	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	53.0	0.7112	0.7536	6.0	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	37.5	0.5726	0.4289	-25.1 *	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	44.8	0.3971	0.3559	-10.4	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	43.9	0.8461	0.7421	-12.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	41.8	0.3628	0.3034	-16.4	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	52.8	0.3693	0.3901	5.6	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	49.8	0.6036	0.6007	-0.5	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	44.1	0.1713	0.1513	-11.7	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.5	0.7372	0.7441	0.9	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	50.9	2.167	2.204	1.7	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	50.4	0.08773	0.08837	0.7	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	50.2	0.2312	0.2320	0.4	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	51.0	1.206	1.229	1.9	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	61.0	0.3737	0.4560	22.0 *	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	44.8	0.3148	0.2823	-10.3	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	50.1	1.252	1.255	0.3	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	46.4	0.4501	0.4179	-7.2	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	49.6	1.332	1.321	-0.9	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	47.4	0.6713	0.6364	-5.2	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	45.8	0.1390	0.1273	-8.4	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	52.1	0.1412	0.1471	4.2	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	48.7	1.896	1.845	-2.7	NA	± 20 %	Average RF
2-Hexanone	50.0	49.0	0.1416	0.1387	-2.1	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	947	0.02773	0.02627	-5.3	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	49.7	2.236	2.222	-0.6	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	52.3	2.086	2.183	4.7	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	52.5	0.1899	0.1992	4.9	NA	± 20 %	Average RF
Acetone	50.0	45.0	0.09920	0.08933	-9.9	NA	± 20 %	Average RF
Benzene	50.0	47.0	1.231	1.158	-5.9	NA	± 20 %	Average RF
Bromobenzene	50.0	48.1	0.7355	0.7073	-3.8	NA	± 20 %	Average RF
Bromochloromethane	50.0	44.8	0.2832	0.2540	-10.3	NA	± 20 %	Average RF
Bromodichloromethane	50.0	59.6	0.3677	0.4385	19.2	NA	± 20 %	Average RF
Bromoform	50.0	54.5	0.2840	0.3092	8.9	NA	± 20 %	Average RF
Bromomethane	50.0	37.2	0.2881	0.2144	-25.6 *	NA	± 20 %	Average RF
Carbon Disulfide	50.0	52.0	1.262	1.311	3.9	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	60.5	0.1199	0.1449	20.9 *	NA	± 20 %	Average RF
Chlorobenzene	50.0	51.2	0.8701	0.8903	2.3	NA	± 20 %	Average RF
Chloroethane	50.0	47.2	0.2851	0.2690	-5.7	NA	± 20 %	Average RF
Chloroform	50.0	48.4	0.8292	0.8027	-3.2	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/11/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\061114\M6448.D\

Calibration Date: 3/12/14
Calibration ID: RC1400023
Analysis Lot: 396676
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	43.3	0.5146	0.4456	-13.4	NA	± 20 %	Average RF
Dibromochloromethane	50.0	59.3	0.2588	0.3067	18.5	NA	± 20 %	Average RF
Dibromomethane	50.0	51.8	0.1497	0.1551	3.6	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	46.1	0.5939	0.5470	-7.9	NA	± 20 %	Average RF
Methylene Chloride	50.0	39.8	0.4753	0.3782	-20.4 *	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	40.2	1.648	1.324	-19.7	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	44.5	1.379	1.226	-11.1	NA	± 20 %	Average RF
Ethylbenzene	50.0	51.1	0.4636	0.4734	2.1	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	50.0	0.3218	0.3214	-0.1	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	49.5	2.581	2.554	-1.1	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	43.9	1.153	1.013	-12.1	NA	± 20 %	Average RF
Naphthalene	50.0	46.3	1.327	1.228	-7.4	NA	± 20 %	Average RF
Styrene	50.0	54.5	0.8888	0.9687	9.0	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	55.9	0.2583	0.2885	11.7	NA	± 20 %	Average RF
Toluene	50.0	51.1	1.269	1.298	2.3	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	55.2	0.2982	0.3294	10.5	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	52.4	0.7340	0.7690	4.8	NA	± 20 %	Average RF
Vinyl Acetate	50.0	28.2	0.07534	0.04242	-43.7 *	NA	± 20 %	Average RF
Vinyl Chloride	50.0	53.4	0.4781	0.5107	6.8	NA	± 20 %	Average RF
Xylenes, Total	150	160	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	42.9	0.5073	0.4353	-14.2	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	53.2	0.4363	0.4644	6.5	NA	± 20 %	Average RF
m,p-Xylenes	100	108	0.5448	0.5864	7.6	NA	± 20 %	Average RF
n-Butylbenzene	50.0	51.2	1.881	1.925	2.3	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.1	3.020	2.967	-1.7	NA	± 20 %	Average RF
o-Xylene	50.0	52.0	0.5559	0.5784	4.0	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	49.8	2.467	2.457	-0.4	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	43.6	1.164	1.016	-12.7	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	50.2	1.773	1.778	0.3	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	43.1	0.4546	0.3916	-13.9	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	58.7	0.3517	0.4129	17.4	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.8	0.4538	0.4880	7.5	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	54.9	0.2895	0.3177	9.8	NA	± 20 %	Average RF
Toluene-d8	50.0	50.5	1.216	1.229	1.0	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/12/14 01:22
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1406453-05	**File ID:**	I:\ACQUDATA\msvoa12\Data\061114\M6452.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406453-03	I:\ACQUDATA\msvoa12\Data\061114\M6449.D\	6/11/14 23:45
Duplicate Lab Control Sample	RQ1406453-04	I:\ACQUDATA\msvoa12\Data\061114\M6450.D\	6/12/14 00:18
TB-060214	R1404155-009	I:\ACQUDATA\msvoa12\Data\061114\M6453.D\	6/12/14 01:54
MRC-MW-11A-060214	R1404155-001	I:\ACQUDATA\msvoa12\Data\061114\M6454.D\	6/12/14 02:26
MRC-MW-107 B/C-060214	R1404155-002	I:\ACQUDATA\msvoa12\Data\061114\M6455.D\	6/12/14 02:59
MRC-MW-70A-060214	R1404155-003	I:\ACQUDATA\msvoa12\Data\061114\M6456.D\	6/12/14 03:31
MRC-MW-110A-060314	R1404155-007	I:\ACQUDATA\msvoa12\Data\061114\M6457.D\	6/12/14 04:03
MRC-MW-110B-060314	R1404155-008	I:\ACQUDATA\msvoa12\Data\061114\M6458.D\	6/12/14 04:35
MRC-MW-116A-060214	R1404155-010	I:\ACQUDATA\msvoa12\Data\061114\M6459.D\	6/12/14 05:08
MRC-MW-115A-060214	R1404155-011	I:\ACQUDATA\msvoa12\Data\061114\M6460.D\	6/12/14 05:41
MRC-MW-77A-060214	R1404155-012	I:\ACQUDATA\msvoa12\Data\061114\M6461.D\	6/12/14 06:13
MRC-MW-93A-060314	R1404155-014	I:\ACQUDATA\msvoa12\Data\061114\M6462.D\	6/12/14 06:45
MRC-MW-21A-060314	R1404155-015	I:\ACQUDATA\msvoa12\Data\061114\M6463.D\	6/12/14 07:17
MRC-MW-22A-060314	R1404155-017	I:\ACQUDATA\msvoa12\Data\061114\M6464.D\	6/12/14 07:50
MRC-MW-79B-060214	R1404155-013	I:\ACQUDATA\msvoa12\Data\061114\M6466.D\	6/12/14 08:54
MRC-MW-21B-060314	R1404155-016	I:\ACQUDATA\msvoa12\Data\061114\M6467.D\	6/12/14 09:26
MRC-MW-107 B/C-060214RE	R1404155-002	I:\ACQUDATA\msvoa12\Data\061114\M6468.D\	6/12/14 09:58
MRC-MW-70B-060214	R1404155-004	I:\ACQUDATA\msvoa12\Data\061114\M6469.D\	6/12/14 10:31

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/12/14 01:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406453-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6452.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.34**	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/12/14 01:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406453-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6452.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/12/14 01:22
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406453-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	396676
Data File Name:	I:\ACQUDATA\msvoa12\Data\061114\M6452.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/12/14 01:22	
Dibromofluoromethane	110	89-119	6/12/14 01:22	
Toluene-d8	99	87-121	6/12/14 01:22	

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/11/14 - 6/12/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396676

Analyte Name	Lab Control Sample RQ1406453-03 Result	Spike Amount	% Rec		Duplicate Lab Control Sample RQ1406453-04 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	22.8	20.0	114		23.7	20.0	118		79 - 119	4	30
1,1,1-Trichloroethane (TCA)	22.7	20.0	113		23.2	20.0	116		71 - 123	2	30
1,1,2,2-Tetrachloroethane	16.1	20.0	80		16.4	20.0	82		74 - 127	2	30
1,1,2-Trichlorotrifluoroethane	19.0	20.0	95		20.4	20.0	102		64 - 136	7	30
1,1-Dichloroethane (1,1-DCA)	18.5	20.0	92		19.0	20.0	95		76 - 128	3	30
1,1-Dichloroethene (1,1-DCE)	20.5	20.0	102		21.2	20.0	106		74 - 135	4	30
1,1-Dichloropropene	22.7	20.0	113		23.8	20.0	119		74 - 136	5	30
1,2,3-Trichlorobenzene	23.2	20.0	116		23.7	20.0	119		60 - 144	2	30
1,2,3-Trichloropropane	18.9	20.0	95		20.0	20.0	100		68 - 136	5	30
1,2,4-Trichlorobenzene	22.6	20.0	113		22.2	20.0	111		60 - 141	2	30
1,2,4-Trimethylbenzene	21.2	20.0	106		21.3	20.0	106		76 - 126	<1	30
1,2-Dibromo-3-chloropropane (DBCP)	22.4	20.0	112		22.9	20.0	115		69 - 135	3	30
1,2-Dibromoethane	21.1	20.0	105		22.3	20.0	111		81 - 123	5	30
1,2-Dichlorobenzene	21.4	20.0	107		21.7	20.0	108		80 - 119	1	30
1,2-Dichloroethane	24.7	20.0	123		26.3	20.0	131	*	72 - 130	6	30
1,2-Dichloropropane	19.4	20.0	97		19.7	20.0	98		80 - 119	1	30
1,3-Dichlorobenzene	21.7	20.0	108		21.8	20.0	109		79 - 121	<1	30
1,3-Dichloropropane	20.2	20.0	101		20.7	20.0	103		82 - 116	2	30
1,4-Dichlorobenzene	20.7	20.0	103		21.2	20.0	106		79 - 119	2	30
2,2-Dichloropropane	19.5	20.0	98		19.6	20.0	98		59 - 135	<1	30
2-Butanone (MEK)	17.3	20.0	87		19.6	20.0	98		66 - 129	12	30
2-Chloroethyl Vinyl Ether	19.2	20.0	96		19.2	20.0	96		58 - 139	<1	30
2-Chlorotoluene	20.3	20.0	102		20.8	20.0	104		71 - 125	2	30
2-Hexanone	19.6	20.0	98		21.4	20.0	107		61 - 131	9	30
tert-Butyl Alcohol	388	400	97		451	400	113		63 - 142	15	30
4-Chlorotoluene	21.0	20.0	105		21.8	20.0	109		73 - 127	4	30
4-Isopropyltoluene	21.9	20.0	110		22.5	20.0	112		74 - 130	2	30
4-Methyl-2-pentanone	21.0	20.0	105		22.3	20.0	112		68 - 129	6	30
Acetone	20.0	20.0	100		23.1	20.0	116		51 - 146	15	30
Benzene	19.3	20.0	97		20.2	20.0	101		76 - 118	5	30
Bromobenzene	19.8	20.0	99		20.5	20.0	102		79 - 121	3	30
Bromochloromethane	18.2	20.0	91		20.1	20.0	101		81 - 126	10	30
Bromodichloromethane	25.3	20.0	126	*	25.2	20.0	126	*	79 - 122	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/11/14 - 6/12/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396676

Analyte Name	Lab Control Sample RQ1406453-03 Result	Spike Amount	% Rec		Duplicate Lab Control Sample RQ1406453-04 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
Bromoform	21.3	20.0	106		22.4	20.0	112		65 - 138	5	30
Bromomethane	16.9	20.0	84		17.1	20.0	85		41 - 159	1	30
Carbon Disulfide	19.1	20.0	95		19.4	20.0	97		63 - 141	2	30
Carbon Tetrachloride	25.9	20.0	130	*	26.2	20.0	131	*	66 - 128	1	30
Chlorobenzene	21.9	20.0	109		22.2	20.0	111		80 - 121	1	30
Chloroethane	21.5	20.0	108		21.9	20.0	110		71 - 128	2	30
Chloroform	21.2	20.0	106		21.5	20.0	107		76 - 120	1	30
Chloromethane	19.9	20.0	100		20.4	20.0	102		64 - 140	2	30
Dibromochloromethane	23.7	20.0	118		24.9	20.0	125		79 - 125	5	30
Dibromomethane	21.3	20.0	107		21.9	20.0	110		79 - 120	3	30
Dichlorodifluoromethane (CFC 12)	22.5	20.0	113		23.0	20.0	115		60 - 150	2	30
Methylene Chloride	18.0	20.0	90		18.0	20.0	90		73 - 122	<1	30
Diisopropyl Ether	16.1	20.0	81		16.5	20.0	82		76 - 131	2	30
Ethyl tert-Butyl Ether	17.8	20.0	89		18.1	20.0	90		77 - 126	2	30
Ethylbenzene	20.0	20.0	100		21.3	20.0	107		76 - 120	7	30
Hexachlorobutadiene	23.3	20.0	117		23.1	20.0	116		57 - 147	<1	30
Isopropylbenzene (Cumene)	20.8	20.0	104		21.2	20.0	106		76 - 126	2	30
Methyl tert-Butyl Ether	19.4	20.0	97		20.8	20.0	104		73 - 131	7	30
Naphthalene	21.6	20.0	108		22.2	20.0	111		73 - 133	3	30
Styrene	22.0	20.0	110		23.4	20.0	117		81 - 122	6	30
Tetrachloroethene (PCE)	23.6	20.0	118		24.3	20.0	121		69 - 124	3	30
Toluene	21.3	20.0	106		21.9	20.0	110		77 - 120	3	30
Trichloroethene (TCE)	23.9	20.0	119		24.5	20.0	123		76 - 123	3	30
Trichlorofluoromethane (CFC 11)	22.2	20.0	111		23.0	20.0	115		69 - 130	3	30
Vinyl Acetate	11.2	20.0	56		10.7	20.0	54		43 - 165	4	30
Vinyl Chloride	23.5	20.0	117		23.9	20.0	120		69 - 136	2	30
Xylenes, Total	65.8	60.0	110		69.5	60.0	116		78 - 121	5	30
cis-1,2-Dichloroethene	17.9	20.0	90		18.5	20.0	92		80 - 121	3	30
cis-1,3-Dichloropropene	21.7	20.0	108		22.3	20.0	112		77 - 125	3	30
m,p-Xylenes	44.9	40.0	112		46.6	40.0	116		78 - 123	4	30
n-Butylbenzene	21.2	20.0	106		21.2	20.0	106		69 - 135	<1	30
n-Propylbenzene	20.5	20.0	102		21.0	20.0	105		76 - 125	3	30
o-Xylene	20.9	20.0	104		22.9	20.0	114		77 - 131	9	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/11/14 - 6/12/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 396676

Analyte Name	Lab Control Sample RQ1406453-03 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1406453-04 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
sec-Butylbenzene	20.9	20.0	105	21.0	20.0	105		72 - 130	<1	30
tert-Amyl Methyl Ether	17.3	20.0	87	18.4	20.0	92		76 - 123	6	30
tert-Butylbenzene	21.5	20.0	107	21.6	20.0	108		73 - 124	<1	30
trans-1,2-Dichloroethene	18.4	20.0	92	18.9	20.0	94		78 - 124	3	30
trans-1,3-Dichloropropene	23.6	20.0	118	25.6	20.0	128	*	72 - 123	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 5/31/14 10:20

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA7\DATA\053114\K9133.D\
Instrument ID: R-MS-07

Analytical Method: 8260C
Analysis Lot: 215797

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	23.88	58633	Pass
75	95	30	60	46.91	115185	Pass
95	95	100	100	100.00	245556	Pass
96	95	5	9	6.52	16017	Pass
173	174	0	2	0.38	679	Pass
174	95	50	120	71.89	176533	Pass
175	174	5	9	7.05	12438	Pass
176	174	95	101	97.44	172011	Pass
177	176	5	9	6.84	11770	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9135.D\	5/31/14 11:45	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9136.D\	5/31/14 12:23	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9137.D\	5/31/14 13:02	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9138.D\	5/31/14 13:40	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9139.D\	5/31/14 14:18	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9140.D\	5/31/14 14:56	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9141.D\	5/31/14 15:35	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\MSVOA7\DATA\053114\K9142.D\	5/31/14 16:13	

BW 060314

Initial Calibration - Summary Report

Calibration ID:	RC1400044	**Instrument ID:**	R-MS-07
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.2879	<=20	4.6
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.6300	<=20	10.5
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.8326	<=20	7.8
1,1,2-Trichloroethane	T	Average RF		0.100	0.2691	<=20	4.4
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.4425	<=20	11.0
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	1.104	<=20	11.4
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3925	<=20	15.5
1,1-Dichloropropene	T	Average RF			0.4089	<=20	12.1
1,2,3-Trichlorobenzene	T	Average RF			0.4819	<=20	8.2
1,2,3-Trichloropropane	T	Average RF			0.2161	<=20	9.3
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.6087	<=20	9.6
1,2,4-Trimethylbenzene	T	Average RF			2.273	<=20	13.5
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.1185	<=20	7.5
1,2-Dibromoethane	T	Average RF		0.100	0.2959	<=20	3.3
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.8009	<=20	14.0
1,2-Dichlorobenzene	T	Average RF		0.400	1.220	<=20	6.2
1,2-Dichloroethane	T	Average RF		0.100	0.3945	<=20	7.1
1,2-Dichloropropane	T	Average RF		0.100	0.4339	<=20	10.8
1,3,5-Trichlorobenzene	T	Average RF			0.7152	<=20	3.0
1,3,5-Trimethylbenzene	T	Average RF			2.180	<=20	13.8
1,3-Dichlorobenzene	T	Average RF		0.600	1.314	<=20	9.2
1,3-Dichloropropane	T	Average RF			0.5955	<=20	5.6
1,4-Dichlorobenzene	T	Average RF		0.500	1.297	<=20	7.9
1,4-Dioxane	T	Average RF			0.002375	<=20	4.8
1-Butanol	T	Average RF			0.008352	<=20	16.5
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.3649	<=20	5.5
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.7597	<=20	10.4
2,2-Dichloropropane	T	Average RF			0.6858	<=20	16.5
2,3,6-Trichlorotoluene	T	Average RF			0.2246	<=20	9.5
2,4,5-Trichlorotoluene	T	Average RF			0.2513	<=20	5.7
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			0.8797	<=20	2.8
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5381	<=20	3.1
2,5-Dichlorobenzotrifluoride	T	Average RF			0.5986	<=20	5.4
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.4552	<=20	7.9
2-Chloro-1,3-butadiene	T	Average RF			0.9898	<=20	15.1
2-Chlorobenzotrifluoride	T	Average RF			0.3926	<=20	6.5
2-Chloroethyl Vinyl Ether	T	Average RF			0.2073	<=20	5.1
2-Chlorotoluene	T	Average RF			2.221	<=20	11.8
2-Hexanone	T	Average RF		0.05	0.4046	<=20	7.7
2-Methyl-1-propanol	T	Average RF			0.02365	<=20	9.7
2-Methyl-2-propanol	T	Average RF			0.04556	<=20	10.6
2-Nitropropane	T	Average RF			0.08087	<=20	8.3
2-Propanol	T	Average RF			0.03452	<=20	12.9
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			0.9118	<=20	4.1
3,4-Dichlorobenzotrifluoride	T	Average RF			0.6230	<=20	5.4
3-Chloro-1-propene	T	Average RF			1.439	<=20	11.7
3-Chlorobenzotrifluoride	T	Average RF			0.4047	<=20	4.6
3-Chlorotoluene	T	Average RF			2.369	<=20	8.0
4-Chlorotoluene	T	Average RF			2.261	<=20	11.2
4-Isopropyltoluene	T	Average RF			2.086	<=20	16.0
4-Methyl-2-pentanone	T	Average RF		0.05	0.5112	<=20	5.9

00338

Initial Calibration - Summary Report

Calibration ID:	RC1400044	**Instrument ID:**	R-MS-07
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Quadratic	1/X	0.05	0.3535	>=0.99	0.9999
Acetonitrile	T	Average RF			0.07521	<=20	19.9
Acrolein	T	Average RF			0.1049	<=20	4.0
Acrylonitrile	T	Average RF			0.2310	<=20	4.4
Benzene	T	Average RF		0.500	1.336	<=20	13.8
Bromobenzene	T	Average RF			0.7567	<=20	9.0
Bromochloromethane	T	Average RF			0.2701	<=20	5.2
Bromodichloromethane	T	Average RF		0.200	0.4027	<=20	4.3
Bromoform	T	Average RF		0.100	0.1739	<=20	14.8
Bromomethane	T	Average RF		0.100	0.3968	<=20	7.3
Carbon Disulfide	T	Average RF		0.100	1.768	<=20	14.4
Carbon Tetrachloride	T	Average RF		0.05	0.2855	<=20	14.7
Chlorobenzene	T	Average RF		0.500	0.8237	<=20	8.4
Chloroethane	T	Average RF		0.100	0.5419	<=20	11.3
Chloroform	T	Average RF		0.200	0.9015	<=20	11.9
Chloromethane	T	Average RF		0.100	0.9500	<=20	15.4
Cyclohexane	T	Average RF		0.100	0.7721	<=20	7.5
Cyclohexanone	T	Average RF			0.05128	<=20	10.8
Dibromochloromethane	T	Average RF		0.100	0.3164	<=20	7.3
Dibromomethane	T	Average RF			0.1781	<=20	4.6
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.4920	<=20	4.1
Dichlorofluoromethane (CFC 21)	T	Average RF			1.276	<=20	11.5
Dichloromethane	T	Average RF		0.100	0.5992	<=20	10.8
Diethyl Ether	T	Average RF			0.5553	<=20	8.6
Diisopropyl Ether	T	Average RF			3.146	<=20	13.4
Ethyl Methacrylate	T	Average RF			0.5168	<=20	3.5
Ethyl tert-Butyl Ether	T	Average RF			2.137	<=20	8.3
Ethylbenzene	T	Average RF		0.100	1.471	<=20	13.7
Hexachlorobutadiene	T	Quadratic	1/X2		0.2045	>=0.99	0.9967
Iodomethane	T	Average RF			0.6761	<=20	6.5
Isopropylbenzene (Cumene)	T	Average RF		0.100	1.251	<=20	12.6
Methacrylonitrile	T	Average RF			0.2284	<=20	8.8
Methyl Acetate	T	Average RF		0.100	0.5364	<=20	3.6
Methyl Methacrylate	T	Average RF			0.07778	<=20	7.9
Methyl tert-Butyl Ether	T	Average RF		0.100	1.399	<=20	4.9
Methylcyclohexane	T	Average RF		0.100	0.5509	<=20	9.6
Naphthalene	T	Average RF			1.408	<=20	7.6
Nitrobenzene	T	Average RF				<=20	
Propionitrile	T	Average RF			0.07683	<=20	7.4
Styrene	T	Average RF		0.300	0.9093	<=20	6.6
Tetrachloroethene (PCE)	T	Average RF		0.200	0.3058	<=20	12.3
Tetrahydrofuran (THF)	T	Average RF			0.2051	<=20	12.2
Toluene	T	Average RF		0.400	1.356	<=20	12.3
Trichloroethene (TCE)	T	Average RF		0.200	0.3118	<=20	11.0
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.5894	<=20	9.7
Vinyl Acetate	T	Average RF			0.07831	<=20	18.2
Vinyl Chloride	T	Average RF		0.100	0.8255	<=20	12.2
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5979	<=20	11.2
cis-1,3-Dichloropropene	T	Average RF		0.200	0.5514	<=20	2.9
m,p-Xylenes	T	Average RF		0.100	0.5401	<=20	14.3
n-Butyl Acetate	T	Average RF			0.8943	<=20	3.9
n-Butylbenzene	T	Average RF			2.041	<=20	17.4

Initial Calibration - Summary Report

Calibration ID:	RC1400044	**Instrument ID:**	R-MS-07
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Heptane	T	Average RF			0.5120	<=20	23.9
n-Propylbenzene	T	Average RF			3.708	<=20	16.6
o-Xylene	T	Average RF		0.300	0.5254	<=20	9.3
sec-Butylbenzene	T	Average RF			2.705	<=20	16.9
tert-Amyl Methyl Ether	T	Average RF			0.9469	<=20	6.9
tert-Butylbenzene	T	Average RF			1.850	<=20	18.3
trans-1,2-Dichloroethene	T	Average RF		0.100	0.5083	<=20	10.2
trans-1,3-Dichloropropene	T	Average RF		0.100	0.5058	<=20	2.2
trans-1,4-Dichloro-2-butene	T	Average RF			0.2415	<=20	5.7
1,2-Dichloroethane-d4	S	Average RF			0.3652	<=20	2.8
4-Bromofluorobenzene	S	Average RF			0.4929	<=20	1.1
Dibromofluoromethane	S	Average RF			0.3307	<=20	1.0
Toluene-d8	S	Average RF			1.279	<=20	1.0

Exceptions

QAP	Method
CRA-OXY	8260C

Compound	Type	Criteria	Result
n-Heptane	RSD	<= 20	23.9

Initial Calibration Verification Summary Report

RW 06/03/14

Calibration ID:	RC1400044	**Instrument ID:**	R-MS-07
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
1,1,1,2-Tetrachloroethane	RC1400044-09	T	Average RF	50	47.78	ppm	-4.4	<=30
1,1,1-Trichloroethane (TCA)	RC1400044-09	T	Average RF	50	47.67	ppm	-4.7	<=30
1,1,2,2-Tetrachloroethane	RC1400044-09	T	Average RF	50	47.26	ppm	-5.5	<=30
1,1,2-Trichloroethane	RC1400044-09	T	Average RF	50	46.41	ppm	-7.2	<=30
1,1,2-Trichlorotrifluoroethane	RC1400044-09	T	Average RF	50	49.43	ppm	-1.1	<=30
1,1-Dichloroethane (1,1-DCA)	RC1400044-09	T	Average RF	50	46.38	ppm	-7.2	<=30
1,1-Dichloroethene (1,1-DCE)	RC1400044-09	T	Average RF	50	52.45	ppm	4.9	<=30
1,1-Dichloropropene	RC1400044-09	T	Average RF	50	50.08	ppm	0.2	<=30
1,2,3-Trichlorobenzene	RC1400044-09	T	Average RF	50	48.47	ppm	-3.1	<=30
1,2,3-Trichloropropane	RC1400044-09	T	Average RF	50	44.19	ppm	-11.6	<=30
1,2,4-Trichlorobenzene	RC1400044-09	T	Average RF	50	50.56	ppm	1.1	<=30
1,2,4-Trimethylbenzene	RC1400044-09	T	Average RF	50	46.59	ppm	-6.8	<=30
1,2-Dibromo-3-chloropropane (DBCP)	RC1400044-09	T	Average RF	50	47.24	ppm	-5.5	<=30
1,2-Dibromoethane	RC1400044-09	T	Average RF	50	47.55	ppm	-4.9	<=30
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	RC1400044-09	T	Average RF	50	51.65	ppm	3.3	<=30
1,2-Dichlorobenzene	RC1400044-09	T	Average RF	50	47.48	ppm	-5.0	<=30
1,2-Dichloroethane	RC1400044-09	T	Average RF	50	47.72	ppm	-4.6	<=30
1,2-Dichloropropane	RC1400044-09	T	Average RF	50	47.12	ppm	-5.8	<=30
1,3,5-Trichlorobenzene	RC1400044-09	T	Average RF	50	48.93	ppm	-2.1	<=30
1,3,5-Trimethylbenzene	RC1400044-09	T	Average RF	50	46.68	ppm	-6.6	<=30
1,3-Dichlorobenzene	RC1400044-09	T	Average RF	50	47.48	ppm	-5.0	<=30
1,3-Dichloropropane	RC1400044-09	T	Average RF	50	47.46	ppm	-5.1	<=30
1,4-Dichlorobenzene	RC1400044-09	T	Average RF	50	48.55	ppm	-2.9	<=30
1,4-Dioxane	RC1400044-09	T	Average RF	1000	926.8	ppm	-7.3	<=30
1-Butanol	RC1400044-09	T	Average RF	2500	2498	ppm	-0.1	<=30
1-Chloro-4-(trifluoromethyl)benzene	RC1400044-09	T	Average RF	50	46.75	ppm	-6.5	<=30
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	RC1400044-09	T	Average RF	50	45.70	ppm	-8.6	<=30
2,2-Dichloropropane	RC1400044-09	T	Average RF	50	48.70	ppm	-2.6	<=30
2,3,6-Trichlorotoluene	RC1400044-09	T	Average RF	50	53.63	ppm	7.3	<=30
2,4,5-Trichlorotoluene	RC1400044-09	T	Average RF	50	53.36	ppm	6.7	<=30
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	RC1400044-09	T	Average RF	150	144.2	ppm	-3.8	<=30
2,4-Dichlorobenzotrifluoride	RC1400044-09	T	Average RF	50	48.14	ppm	-3.7	<=30
2,5-Dichlorobenzotrifluoride	RC1400044-09	T	Average RF	50	47.46	ppm	-5.1	<=30
2-Butanone (MEK)	RC1400044-09	T	Average RF	50	38.57	ppm	-22.9	<=30
2-Chloro-1,3-butadiene	RC1400044-09	T	Average RF	50	53.55	ppm	7.1	<=30
2-Chlorobenzotrifluoride	RC1400044-09	T	Average RF	50	45.40	ppm	-9.2	<=30
2-Chloroethyl Vinyl Ether	RC1400044-09	T	Average RF	50	48.78	ppm	-2.4	<=30
2-Chlorotoluene	RC1400044-09	T	Average RF	50	45.84	ppm	-8.3	<=30
2-Hexanone	RC1400044-09	T	Average RF	50	42.33	ppm	-15.3	<=30
2-Methyl-1-propanol	RC1400044-09	T	Average RF	1000	888.9	ppm	-11.1	<=30
2-Methyl-2-propanol	RC1400044-09	T	Average RF	1000	958.9	ppm	-4.1	<=30
2-Nitropropane	RC1400044-09	T	Average RF	100	105.2	ppm	5.2	<=30
2-Propanol	RC1400044-09	T	Average RF	1000	1024	ppm	2.4	<=30
3,4- and 2,3-Dichlorotoluene Coelution	RC1400044-09	T	Average RF	100	96.68	ppm	-3.3	<=30
3,4-Dichlorobenzotrifluoride	RC1400044-09	T	Average RF	50	47.28	ppm	-5.4	<=30
3-Chloro-1-propene	RC1400044-09	T	Average RF	50	43.28	ppm	-13.4	<=30
3-Chlorobenzotrifluoride	RC1400044-09	T	Average RF	50	47.72	ppm	-4.6	<=30
3-Chlorotoluene	RC1400044-09	T	Average RF	50	45.12	ppm	-9.8	<=30
4-Chlorotoluene	RC1400044-09	T	Average RF	50	47.00	ppm	-6.0	<=30
4-Isopropyltoluene	RC1400044-09	T	Average RF	50	48.13	ppm	-3.7	<=30
4-Methyl-2-pentanone	RC1400044-09	T	Average RF	50	48.35	ppm	-3.3	<=30

00521

Initial Calibration Verification Summary Report

Calibration ID:	RC1400044	**Instrument ID:**	R-MS-07
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Acetone	RC1400044-09	T	Quadratic	50	35.20	ppm	-29.6	<=30
Acetonitrile	RC1400044-09	T	Average RF	250	275.6	ppm	10.2	<=30
Acrolein	RC1400044-09	T	Average RF	100	92.49	ppm	-7.5	<=30
Acrylonitrile	RC1400044-09	T	Average RF	250	233.5	ppm	-6.6	<=30
Benzene	RC1400044-09	T	Average RF	50	46.14	ppm	-7.7	<=30
Bromobenzene	RC1400044-09	T	Average RF	50	46.40	ppm	-7.2	<=30
Bromochloromethane	RC1400044-09	T	Average RF	50	47.78	ppm	-4.4	<=30
Bromodichloromethane	RC1400044-09	T	Average RF	50	49.59	ppm	-0.8	<=30
Bromoform	RC1400044-09	T	Average RF	50	51.03	ppm	2.1	<=30
Bromomethane	RC1400044-09	T	Average RF	50	48.23	ppm	-3.5	<=30
Carbon Disulfide	RC1400044-09	T	Average RF	50	54.60	ppm	9.2	<=30
Carbon Tetrachloride	RC1400044-09	T	Average RF	50	49.25	ppm	-1.5	<=30
Chlorobenzene	RC1400044-09	T	Average RF	50	47.82	ppm	-4.4	<=30
Chloroethane	RC1400044-09	T	Average RF	50	43.42	ppm	-13.2	<=30
Chloroform	RC1400044-09	T	Average RF	50	45.48	ppm	-9.0	<=30
Chloromethane	RC1400044-09	T	Average RF	50	49.08	ppm	-1.8	<=30
Cyclohexane	RC1400044-09	T	Average RF	50	43.90	ppm	-12.2	<=30
Cyclohexanone	RC1400044-09	T	Average RF	1000	770.7	ppm	-22.9	<=30
Dibromochloromethane	RC1400044-09	T	Average RF	50	48.83	ppm	-2.3	<=30
Dibromomethane	RC1400044-09	T	Average RF	50	49.35	ppm	-1.3	<=30
Dichlorodifluoromethane (CFC 12)	RC1400044-09	T	Average RF	50	58.85	ppm	17.7	<=30
Dichlorofluoromethane (CFC 21)	RC1400044-09	T	Average RF	50	39.77	ppm	-20.5	<=30
Dichloromethane	RC1400044-09	T	Average RF	50	46.83	ppm	-6.3	<=30
Diethyl Ether	RC1400044-09	T	Average RF	50	48.45	ppm	-3.1	<=30
Diisopropyl Ether	RC1400044-09	T	Average RF	50	41.95	ppm	-16.1	<=30
Ethyl Methacrylate	RC1400044-09	T	Average RF	50	47.92	ppm	-4.2	<=30
Ethyl tert-Butyl Ether	RC1400044-09	T	Average RF	50	42.41	ppm	-15.2	<=30
Ethylbenzene	RC1400044-09	T	Average RF	50	43.60	ppm	-12.8	<=30
Hexachlorobutadiene	RC1400044-09	T	Quadratic	50	62.16	ppm	24.3	<=30
Iodomethane	RC1400044-09	T	Average RF	50	57.39	ppm	14.8	<=30
Isopropylbenzene (Cumene)	RC1400044-09	T	Average RF	50	47.75	ppm	-4.5	<=30
Methacrylonitrile	RC1400044-09	T	Average RF	50	46.03	ppm	-7.9	<=30
Methyl Acetate	RC1400044-09	T	Average RF	50	48.81	ppm	-2.4	<=30
Methyl Methacrylate	RC1400044-09	T	Average RF	50	46.26	ppm	-7.5	<=30
Methyl tert-Butyl Ether	RC1400044-09	T	Average RF	50	48.22	ppm	-3.6	<=30
Methylcyclohexane	RC1400044-09	T	Average RF	50	44.01	ppm	-12.0	<=30
Naphthalene	RC1400044-09	T	Average RF	50	49.91	ppm	-0.2	<=30
Nitrobenzene	RC1400044-09	T	Average RF	100		ppm		<=30
Propionitrile	RC1400044-09	T	Average RF	250	234.4	ppm	-6.2	<=30
Styrene	RC1400044-09	T	Average RF	50	48.40	ppm	-3.2	<=30
Tetrachloroethene (PCE)	RC1400044-09	T	Average RF	50	48.87	ppm	-2.3	<=30
Tetrahydrofuran (THF)	RC1400044-09	T	Average RF	50	46.99	ppm	-6.0	<=30
Toluene	RC1400044-09	T	Average RF	50	46.79	ppm	-6.4	<=30
Trichloroethene (TCE)	RC1400044-09	T	Average RF	50	45.16	ppm	-9.7	<=30
Trichlorofluoromethane (CFC 11)	RC1400044-09	T	Average RF	50	47.33	ppm	-5.3	<=30
Vinyl Acetate	RC1400044-09	T	Average RF	50	59.81	ppm	19.6	<=30
Vinyl Chloride	RC1400044-09	T	Average RF	50	47.91	ppm	-4.2	<=30
cis-1,2-Dichloroethene	RC1400044-09	T	Average RF	50	44.54	ppm	-10.9	<=30
cis-1,3-Dichloropropene	RC1400044-09	T	Average RF	50	50.45	ppm	0.9	<=30
m,p-Xylenes	RC1400044-09	T	Average RF	100	94.57	ppm	-5.4	<=30
n-Butyl Acetate	RC1400044-09	T	Average RF	50	46.88	ppm	-6.2	<=30

00522

Initial Calibration Verification Summary Report

Calibration ID:	RC1400044	**Instrument ID:**	R-MS-07
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
n-Butylbenzene	RC1400044-09	T	Average RF	50	48.22	ppm	-3.6	<=30
n-Heptane	RC1400044-09	T	Average RF	50	54.02	ppm	8.0	<=30
n-Propylbenzene	RC1400044-09	T	Average RF	50	45.73	ppm	-8.5	<=30
o-Xylene	RC1400044-09	T	Average RF	50	47.91	ppm	-4.2	<=30
sec-Butylbenzene	RC1400044-09	T	Average RF	50	47.01	ppm	-6.0	<=30
tert-Amyl Methyl Ether	RC1400044-09	T	Average RF	50	44.52	ppm	-11.0	<=30
tert-Butylbenzene	RC1400044-09	T	Average RF	50	45.46	ppm	-9.1	<=30
trans-1,2-Dichloroethene	RC1400044-09	T	Average RF	50	47.58	ppm	-4.8	<=30
trans-1,3-Dichloropropene	RC1400044-09	T	Average RF	50	50.76	ppm	1.5	<=30
trans-1,4-Dichloro-2-butene	RC1400044-09	T	Average RF	50	43.99	ppm	-12.0	<=30
1,2-Dichloroethane-d4	RC1400044-09	S	Average RF	50	48.79	ppm	-2.4	<=30
4-Bromofluorobenzene	RC1400044-09	S	Average RF	50	49.96	ppm	-0.1	<=30
Dibromofluoromethane	RC1400044-09	S	Average RF	50	49.78	ppm	-0.4	<=30
Toluene-d8	RC1400044-09	S	Average RF	50	51.17	ppm	2.3	<=30

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/14/14 11:28

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA7\DATA\061414\K9367.D\
Instrument ID: R-MS-07

Analytical Method: 8260C
Analysis Lot: 397150

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	23.27	52706	Pass
75	95	30	60	44.84	101594	Pass
95	95	100	100	100.00	226545	Pass
96	95	5	9	6.87	15563	Pass
173	174	0	2	0.27	458	Pass
174	95	50	120	74.54	168875	Pass
175	174	5	9	7.17	12107	Pass
176	174	95	101	99.15	167445	Pass
177	176	5	9	6.66	11153	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406581-02	I:\ACQUDATA\MSVOA7\DATA\061414\K9369.D\	6/14/14 12:47	
Lab Control Sample	RQ1406581-03	I:\ACQUDATA\MSVOA7\DATA\061414\K9370.D\	6/14/14 13:25	
Method Blank	RQ1406581-04	I:\ACQUDATA\MSVOA7\DATA\061414\K9372.D\	6/14/14 14:42	
MRC-MW-21B-060314DL	R1404155-016	I:\ACQUDATA\MSVOA7\DATA\061414\K9383.D\	6/14/14 21:44	
MRC-MW-21B-060314MS	RQ1406581-05	I:\ACQUDATA\MSVOA7\DATA\061414\K9384.D\	6/14/14 22:22	
MRC-MW-21B-060314DMS	RQ1406581-06	I:\ACQUDATA\MSVOA7\DATA\061414\K9385.D\	6/14/14 23:00	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/14/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061414\K9369.D\

Calibration Date: 5/31/14
Calibration ID: RC1400044
Analysis Lot: 397150
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	48.6	0.2879	0.2795	-2.9	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	44.3	0.6300	0.5582	-11.4	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	53.0	0.8326	0.8824	6.0	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	44.5	0.4425	0.3939	-11.0	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	47.5	1.104	1.049	-5.0	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	46.3	0.3925	0.3633	-7.4	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	45.9	0.4089	0.3750	-8.3	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	50.3	0.4819	0.4848	0.6	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	49.1	0.2161	0.2121	-1.9	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	49.7	0.6087	0.6053	-0.5	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	45.0	2.273	2.047	-9.9	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	52.7	0.1185	0.1248	5.3	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	52.2	0.2959	0.3087	4.4	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	48.8	1.220	1.191	-2.4	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	48.4	0.3945	0.3820	-3.2	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	48.8	0.4339	0.4232	-2.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	47.0	1.314	1.235	-6.0	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	50.4	0.5955	0.6000	0.7	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	48.7	1.297	1.262	-2.7	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	47.3	0.6858	0.6484	-5.5	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	42.1	0.4552	0.3830	-15.9	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	53.7	0.2073	0.2228	7.5	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	45.7	2.221	2.030	-8.6	NA	± 20 %	Average RF
2-Hexanone	50.0	47.1	0.4046	0.3810	-5.8	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1030	0.04556	0.04701	3.2	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	45.7	2.261	2.065	-8.7	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	42.8	2.086	1.784	-14.5	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	53.1	0.5112	0.5428	6.2	NA	± 20 %	Average RF
Acetone	50.0	36.9	NA	NA	NA	-26.1 *	± 20 %	Quadratic
Benzene	50.0	47.0	1.336	1.257	-6.0	NA	± 20 %	Average RF
Bromobenzene	50.0	47.9	0.7567	0.7249	-4.2	NA	± 20 %	Average RF
Bromochloromethane	50.0	50.6	0.2701	0.2735	1.2	NA	± 20 %	Average RF
Bromodichloromethane	50.0	50.1	0.4027	0.4032	0.1	NA	± 20 %	Average RF
Bromoform	50.0	56.8	0.1739	0.1975	13.5	NA	± 20 %	Average RF
Bromomethane	50.0	50.5	0.3968	0.4009	1.0	NA	± 20 %	Average RF
Carbon Disulfide	50.0	48.8	1.768	1.726	-2.4	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	45.2	0.2855	0.2581	-9.6	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.2	0.8237	0.7942	-3.6	NA	± 20 %	Average RF
Chloroethane	50.0	47.8	0.5419	0.5177	-4.5	NA	± 20 %	Average RF
Chloroform	50.0	45.7	0.9015	0.8244	-8.6	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/14/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA7\DATA\061414\K9369.D\

Calibration Date: 5/31/14
Calibration ID: RC1400044
Analysis Lot: 397150
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	48.1	0.9500	0.9131	-3.9	NA	± 20 %	Average RF
Dibromochloromethane	50.0	51.9	0.3164	0.3286	3.9	NA	± 20 %	Average RF
Dibromomethane	50.0	52.6	0.1781	0.1875	5.3	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	50.8	0.4920	0.5002	1.6	NA	± 20 %	Average RF
Methylene Chloride	50.0	47.1	0.5992	0.5638	-5.9	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	46.3	3.146	2.910	-7.5	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	47.2	2.137	2.015	-5.7	NA	± 20 %	Average RF
Ethylbenzene	50.0	45.8	1.471	1.348	-8.3	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	51.8	NA	NA	NA	3.6	± 20 %	Quadratic
Isopropylbenzene (Cumene)	50.0	44.3	1.251	1.107	-11.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	50.3	1.399	1.406	0.5	NA	± 20 %	Average RF
Naphthalene	50.0	54.5	1.408	1.535	9.0	NA	± 20 %	Average RF
Styrene	50.0	49.5	0.9093	0.9006	-1.0	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	44.9	0.3058	0.2747	-10.2	NA	± 20 %	Average RF
Toluene	50.0	46.3	1.356	1.256	-7.4	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	44.8	0.3118	0.2791	-10.5	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	45.9	0.5894	0.5408	-8.2	NA	± 20 %	Average RF
Vinyl Acetate	50.0	66.9	0.07831	0.1048	33.9 *	NA	± 20 %	Average RF
Vinyl Chloride	50.0	47.8	0.8255	0.7884	-4.5	NA	± 20 %	Average RF
Xylenes, Total	150	139	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	47.2	0.5979	0.5644	-5.6	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	52.3	0.5514	0.5770	4.6	NA	± 20 %	Average RF
m,p-Xylenes	100	91.1	0.5401	0.4917	-8.9	NA	± 20 %	Average RF
n-Butylbenzene	50.0	42.7	2.041	1.745	-14.5	NA	± 20 %	Average RF
n-Propylbenzene	50.0	43.0	3.708	3.185	-14.1	NA	± 20 %	Average RF
o-Xylene	50.0	47.6	0.5254	0.5005	-4.7	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	41.7	2.705	2.257	-16.6	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	50.1	0.9469	0.9484	0.2	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	40.8	1.850	1.510	-18.4	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	47.9	0.5083	0.4868	-4.2	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	51.3	0.5058	0.5193	2.7	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	50.1	0.4929	0.4942	0.3	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	49.7	0.3307	0.3284	-0.7	NA	± 20 %	Average RF
Toluene-d8	50.0	50.7	1.279	1.298	1.5	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/14/14 14:42
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-07
Lab Code:	RQ1406581-04	**File ID:**	I:\ACQUDATA\MSVOA7\DATA\061414\K9372.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406581-03	I:\ACQUDATA\MSVOA7\DATA\061414\K9370.D\	6/14/14 13:25
MRC-MW-21B-060314DL	R1404155-016	I:\ACQUDATA\MSVOA7\DATA\061414\K9383.D\	6/14/14 21:44
MRC-MW-21B-060314MS	RQ1406581-05	I:\ACQUDATA\MSVOA7\DATA\061414\K9384.D\	6/14/14 22:22
MRC-MW-21B-060314DMS	RQ1406581-06	I:\ACQUDATA\MSVOA7\DATA\061414\K9385.D\	6/14/14 23:00

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/14/14 14:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406581-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397150
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061414\K9372.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/14/14 14:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406581-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397150
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061414\K9372.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/14/14 14:42
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406581-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397150
Data File Name:	I:\ACQUDATA\MSVOA7\DATA\061414\K9372.D\	**Instrument Name:**	R-MS-07
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	99	85-122	6/14/14 14:42	
Dibromofluoromethane	99	89-119	6/14/14 14:42	
Toluene-d8	99	87-121	6/14/14 14:42	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Collected: 6/3/14
Date Received: 6/4/14
Date Analyzed: 6/14/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-21B-060314
Lab Code: R1404155-016

Units: µg/L
Basis: NA

Analytical Method: 8260C

		MRC-MW-21B-060314MS Matrix Spike RQ1406581-05				MRC-MW-21B-060314DMS Duplicate Matrix Spike RQ1406581-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
1,1,1,2-Tetrachloroethane	ND	262	213	123		266	213	125		77 - 126	2	30
1,1,1-Trichloroethane (TCA)	ND	272	213	128	*	275	213	130	*	74 - 127	1	30
1,1,2,2-Tetrachloroethane	ND	265	213	125	*	268	213	126	*	72 - 122	1	30
1,1,2-Trichlorotrifluoroethane	ND	281	213	132	*	284	213	134	*	59 - 131	<1	30
1,1-Dichloroethane (1,1-DCA)	14	275	213	123		277	213	124		74 - 132	<1	30
1,1-Dichloroethene (1,1-DCE)	150	466	213	149	*	465	213	149	*	72 - 125	<1	30
1,1-Dichloropropene	ND	282	213	133		283	213	133		78 - 147	<1	30
1,2,3-Trichlorobenzene	ND	236	213	111		262	213	123		54 - 143	10	30
1,2,3-Trichloropropane	ND	241	213	113		248	213	117		75 - 122	3	30
1,2,4-Trichlorobenzene	ND	241	213	113		267	213	126		56 - 140	10	30
1,2,4-Trimethylbenzene	ND	228	213	107		242	213	114		47 - 153	6	30
1,2-Dibromo-3-chloropropane (DBC	ND	250	213	118		264	213	124		67 - 126	5	30
1,2-Dibromoethane	ND	265	213	125	*	263	213	124	*	80 - 117	<1	30
1,2-Dichlorobenzene	ND	253	213	119		263	213	124	*	77 - 120	4	30
1,2-Dichloroethane	ND	261	213	123		261	213	123		72 - 132	<1	30
1,2-Dichloropropane	ND	266	213	125	*	265	213	125	*	79 - 124	<1	30
1,3-Dichlorobenzene	ND	253	213	119		263	213	124		74 - 125	4	30
1,3-Dichloropropane	ND	259	213	122	*	260	213	122	*	82 - 114	<1	30
1,4-Dichlorobenzene	ND	259	213	122		270	213	127	*	72 - 124	4	30
2,2-Dichloropropane	ND	228	213	107		226	213	107		42 - 137	<1	30
2-Butanone (MEK)	ND	193	250	77		190	250	76		46 - 141	2	30
2-Chloroethyl Vinyl Ether	ND	ND	250	0	*	ND	250	0	*	10 - 179	NC	30
2-Chlorotoluene	ND	251	213	118		255	213	120		74 - 124	1	30
2-Hexanone	ND	214	250	86		211	250	85		56 - 132	1	30
tert-Butyl Alcohol	ND	5040	4250	119		5430	4250	128		56 - 145	7	30
4-Chlorotoluene	ND	252	213	119		255	213	120		75 - 125	<1	30
4-Isopropyltoluene	ND	233	213	110		256	213	120		64 - 144	9	30
4-Methyl-2-pentanone	ND	256	250	102		252	250	101		60 - 141	1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Collected: 6/3/14
Date Received: 6/4/14
Date Analyzed: 6/14/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-21B-060314
Lab Code: R1404155-016

Units: µg/L
Basis: NA

Analytical Method: 8260C

		MRC-MW-21B-060314MS Matrix Spike RQ1406581-05				MRC-MW-21B-060314DMS Duplicate Matrix Spike RQ1406581-06					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**		**Result**	**Spike Amount**	**% Rec**		**% Rec Limits**	**RPD**	**RPD Limit**
Acetone	ND	157	250	63		161	250	64		29 - 151	2	30
Benzene	26	285	213	122		288	213	124		76 - 129	1	30
Bromobenzene	ND	254	213	120	*	257	213	121	*	80 - 115	1	30
Bromochloromethane	ND	269	213	126	*	272	213	128	*	82 - 125	1	30
Bromodichloromethane	ND	226	213	106		224	213	105		76 - 127	1	30
Bromoform	ND	159	213	75		160	213	75		58 - 133	<1	30
Bromomethane	ND	247	213	116		252	213	119		10 - 162	2	30
Carbon Disulfide	ND	134	250	54		131	250	53		34 - 162	2	30
Carbon Tetrachloride	ND	235	213	110		233	213	110		71 - 135	<1	30
Chlorobenzene	ND	268	213	126	*	274	213	129	*	76 - 125	2	30
Chloroethane	ND	267	213	126		271	213	127		70 - 140	1	30
Chloroform	ND	256	213	120		256	213	121		75 - 130	<1	30
Chloromethane	ND	278	213	131		277	213	130		55 - 160	<1	30
Dibromochloromethane	ND	185	213	87		184	213	87		72 - 128	<1	30
Dibromomethane	ND	270	213	127	*	270	213	127	*	77 - 119	<1	30
Dichlorodifluoromethane (CFC 12)	ND	317	213	149		318	213	150		49 - 154	<1	30
Methylene Chloride	ND	264	213	124	*	266	213	125	*	75 - 121	<1	30
Diisopropyl Ether	ND	226	250	90		227	250	91		66 - 143	<1	30
Ethyl tert-Butyl Ether	ND	226	250	90		227	250	91		74 - 129	<1	30
Ethylbenzene	ND	241	213	114		249	213	117		72 - 134	3	30
Hexachlorobutadiene	ND	216	213	102		269	213	127		34 - 162	22	30
Isopropylbenzene (Cumene)	12	276	213	124		285	213	128		76 - 136	3	30
Methyl tert-Butyl Ether	ND	263	213	124		265	213	125		74 - 130	<1	30
Naphthalene	ND	261	213	123		273	213	128		57 - 153	5	30
Styrene	ND	228	213	107		237	213	111		34 - 156	4	30
Tetrachloroethene (PCE)	7.0	280	213	128		290	213	133		67 - 137	4	30
Toluene	ND	260	213	122		267	213	126	*	79 - 125	3	30
Trichloroethene (TCE)	600	841	213	116		844	213	117		62 - 142	<1	30

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Collected: 6/3/14
Date Received: 6/4/14
Date Analyzed: 6/14/14

Matrix Spike Summary
Volatile Organic Compounds by GC/MS

Sample Name: MRC-MW-21B-060314
Lab Code: R1404155-016

Units: µg/L
Basis: NA

Analytical Method: 8260C

Analyte Name	Sample Result	MRC-MW-21B-060314MS Matrix Spike RQ1406581-05 Result	Spike Amount	% Rec		MRC-MW-21B-060314DMS Duplicate Matrix Spike RQ1406581-06 Result	Spike Amount	% Rec		% Rec Limits	RPD	RPD Limit
Trichlorofluoromethane (CFC 11)	ND	275	213	130		274	213	129		72 - 142	<1	30
Vinyl Acetate	ND	314	250	126		307	250	123		17 - 156	2	30
Vinyl Chloride	ND	264	213	124		269	213	126		60 - 157	2	30
Xylenes, Total	ND	760	638	119		779	638	122		68 - 137	3	30
cis-1,2-Dichloroethene	6.2	258	213	118		263	213	121		72 - 133	2	30
cis-1,3-Dichloropropene	ND	203	213	96		215	213	101		52 - 134	6	30
m,p-Xylenes	ND	503	425	118		515	425	121		68 - 138	2	30
n-Butylbenzene	ND	219	213	103		247	213	116		61 - 152	12	30
n-Propylbenzene	ND	242	213	114		251	213	118		71 - 140	4	30
o-Xylene	ND	257	213	121		264	213	124		68 - 134	3	30
sec-Butylbenzene	ND	228	213	107		252	213	119		64 - 147	10	30
tert-Amyl Methyl Ether	ND	233	250	93		236	250	94		75 - 124	1	30
tert-Butylbenzene	ND	240	213	113		253	213	119		63 - 143	5	30
trans-1,2-Dichloroethene	ND	267	213	126	*	274	213	129	*	77 - 125	3	30
trans-1,3-Dichloropropene	ND	199	213	94		212	213	100		64 - 123	6	30

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Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/14/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397150

Analyte Name	Lab Control Sample RQ1406581-03 Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	19.0	20.0	95	79 - 119
1,1,1-Trichloroethane (TCA)	17.9	20.0	90	71 - 123
1,1,2,2-Tetrachloroethane	21.5	20.0	107	74 - 127
1,1,2-Trichlorotrifluoroethane	18.4	20.0	92	64 - 136
1,1-Dichloroethane (1,1-DCA)	18.6	20.0	93	76 - 128
1,1-Dichloroethene (1,1-DCE)	20.8	20.0	104	74 - 135
1,1-Dichloropropene	18.5	20.0	93	74 - 136
1,2,3-Trichlorobenzene	19.9	20.0	99	60 - 144
1,2,3-Trichloropropane	20.1	20.0	101	68 - 136
1,2,4-Trichlorobenzene	20.0	20.0	100	60 - 141
1,2,4-Trimethylbenzene	17.8	20.0	89	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	21.3	20.0	106	69 - 135
1,2-Dibromoethane	20.3	20.0	101	81 - 123
1,2-Dichlorobenzene	19.0	20.0	95	80 - 119
1,2-Dichloroethane	19.8	20.0	99	72 - 130
1,2-Dichloropropane	19.4	20.0	97	80 - 119
1,3-Dichlorobenzene	18.7	20.0	93	79 - 121
1,3-Dichloropropane	19.9	20.0	100	82 - 116
1,4-Dichlorobenzene	19.6	20.0	98	79 - 119
2,2-Dichloropropane	17.8	20.0	89	59 - 135
2-Butanone (MEK)	17.0	20.0	85	66 - 129
2-Chloroethyl Vinyl Ether	18.3	20.0	91	58 - 139
2-Chlorotoluene	18.1	20.0	91	71 - 125
2-Hexanone	19.0	20.0	95	61 - 131
tert-Butyl Alcohol	490	400	123	63 - 142
4-Chlorotoluene	18.4	20.0	92	73 - 127
4-Isopropyltoluene	17.5	20.0	87	74 - 130
4-Methyl-2-pentanone	21.3	20.0	106	68 - 129
Acetone	14.2	20.0	71	51 - 146
Benzene	18.2	20.0	91	76 - 118
Bromobenzene	18.7	20.0	93	79 - 121
Bromochloromethane	20.0	20.0	100	81 - 126
Bromodichloromethane	19.9	20.0	99	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/14/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397150

Lab Control Sample
RQ1406581-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	21.9	20.0	109	65 - 138
Bromomethane	18.1	20.0	91	41 - 159
Carbon Disulfide	16.6	20.0	83	63 - 141
Carbon Tetrachloride	17.8	20.0	89	66 - 128
Chlorobenzene	18.7	20.0	94	80 - 121
Chloroethane	18.1	20.0	90	71 - 128
Chloroform	17.9	20.0	90	76 - 120
Chloromethane	18.6	20.0	93	64 - 140
Dibromochloromethane	19.9	20.0	99	79 - 125
Dibromomethane	21.1	20.0	105	79 - 120
Dichlorodifluoromethane (CFC 12)	20.7	20.0	104	60 - 150
Methylene Chloride	19.5	20.0	98	73 - 122
Diisopropyl Ether	16.4	20.0	82	76 - 131
Ethyl tert-Butyl Ether	16.7	20.0	83	77 - 126
Ethylbenzene	16.9	20.0	84	76 - 120
Hexachlorobutadiene	21.1	20.0	105	57 - 147
Isopropylbenzene (Cumene)	17.8	20.0	89	76 - 126
Methyl tert-Butyl Ether	21.4	20.0	107	73 - 131
Naphthalene	21.8	20.0	109	73 - 133
Styrene	19.1	20.0	96	81 - 122
Tetrachloroethene (PCE)	17.9	20.0	89	69 - 124
Toluene	18.4	20.0	92	77 - 120
Trichloroethene (TCE)	17.3	20.0	87	76 - 123
Trichlorofluoromethane (CFC 11)	17.8	20.0	89	69 - 130
Vinyl Acetate	26.1	20.0	130	43 - 165
Vinyl Chloride	17.9	20.0	89	69 - 136
Xylenes, Total	53.7	60.0	90	78 - 121
cis-1,2-Dichloroethene	18.5	20.0	92	80 - 121
cis-1,3-Dichloropropene	20.4	20.0	102	77 - 125
m,p-Xylenes	35.6	40.0	89	78 - 123
n-Butylbenzene	17.0	20.0	85	69 - 135
n-Propylbenzene	17.2	20.0	86	76 - 125
o-Xylene	18.1	20.0	90	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/14/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397150

Analyte Name	Lab Control Sample RQ1406581-03 Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	16.9	20.0	85	72 - 130
tert-Amyl Methyl Ether	17.9	20.0	89	76 - 123
tert-Butylbenzene	16.5	20.0	83	73 - 124
trans-1,2-Dichloroethene	18.8	20.0	94	78 - 124
trans-1,3-Dichloropropene	20.4	20.0	102	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/11/14 23:13

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061114\M6448.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406453-02
Analysis Lot: 396676
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
Results ==>		610,918	10.75	1,112,310	5.45	1,059,938	8.74
Upper Limit ==>		1,221,836	11.25	2,224,620	5.95	2,119,876	9.24
Lower Limit ==>		305,459	10.25	556,155	4.95	529,969	8.24
ICAL Result ==>		670,106	10.75	1,455,324	5.45	1,331,361	8.74
Associated Analyses							
Lab Control Sample	RQ1406453-03	606,342	10.75	1,153,523	5.45	1,072,725	8.74
Duplicate Lab Control Sample	RQ1406453-04	621,252	10.75	1,159,755	5.45	1,072,143	8.74
Method Blank	RQ1406453-05	576,652	10.75	1,169,467	5.45	1,084,701	8.74
TB-060214	R1404155-009	553,998	10.75	1,161,193	5.45	1,071,845	8.74
MRC-MW-11A-060214	R1404155-001	567,350	10.75	1,151,249	5.45	1,067,841	8.74
MRC-MW-107 B/C-060214	R1404155-002	549,916	10.75	1,125,875	5.45	1,040,611	8.74
MRC-MW-70A-060214	R1404155-003	559,418	10.75	1,119,966	5.45	1,058,504	8.74
MRC-MW-110A-060314	R1404155-007	551,771	10.75	1,123,458	5.45	1,055,725	8.74
MRC-MW-110B-060314	R1404155-008	567,206	10.75	1,107,468	5.45	1,047,951	8.74
MRC-MW-116A-060214	R1404155-010	564,831	10.75	1,100,280	5.45	1,040,800	8.74
MRC-MW-115A-060214	R1404155-011	563,353	10.75	1,082,676	5.46	1,026,170	8.75
MRC-MW-77A-060214	R1404155-012	559,138	10.75	1,072,793	5.45	1,012,948	8.74
MRC-MW-93A-060314	R1404155-014	554,275	10.75	1,095,965	5.45	1,038,728	8.74
MRC-MW-21A-060314	R1404155-015	561,447	10.75	1,093,679	5.45	1,018,425	8.74
MRC-MW-22A-060314	R1404155-017	554,006	10.75	1,074,674	5.45	1,027,692	8.75
MRC-MW-79B-060214	R1404155-013	530,619	10.75	1,055,208	5.45	982,992	8.74
MRC-MW-21B-060314	R1404155-016	530,376	10.75	1,023,909	5.45	959,236	8.74
MRC-MW-107 B/C-060214	R1404155-002	517,831	10.75	1,041,476	5.46	991,343	8.74
MRC-MW-70B-060214	R1404155-004	527,498	10.75	1,044,696	5.46	969,324	8.74

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/11/14 23:13

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061114\M6448.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406453-02
Analysis Lot: 396676
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	805,001	4.25
	Upper Limit ==>	1,610,002	4.75
	Lower Limit ==>	402,501	3.75
	ICAL Result ==>	937,657	4.25
Associated Analyses			
Lab Control Sample	RQ1406453-03	830,601	4.25
Duplicate Lab Control Sample	RQ1406453-04	838,487	4.25
Method Blank	RQ1406453-05	841,440	4.25
TB-060214	R1404155-009	825,510	4.25
MRC-MW-11A-060214	R1404155-001	840,705	4.25
MRC-MW-107 B/C-060214	R1404155-002	817,174	4.26
MRC-MW-70A-060214	R1404155-003	807,302	4.25
MRC-MW-110A-060314	R1404155-007	808,395	4.25
MRC-MW-110B-060314	R1404155-008	804,799	4.25
MRC-MW-116A-060214	R1404155-010	795,596	4.26
MRC-MW-115A-060214	R1404155-011	790,796	4.25
MRC-MW-77A-060214	R1404155-012	780,319	4.25
MRC-MW-93A-060314	R1404155-014	796,844	4.25
MRC-MW-21A-060314	R1404155-015	791,996	4.25
MRC-MW-22A-060314	R1404155-017	791,039	4.26
MRC-MW-79B-060214	R1404155-013	777,089	4.25
MRC-MW-21B-060314	R1404155-016	764,501	4.25
MRC-MW-107 B/C-060214	R1404155-002	757,099	4.25
MRC-MW-70B-060214	R1404155-004	759,115	4.25

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/14/14 12:47

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA7\DATA\061414\K9369.D\
Instrument ID: R-MS-07
Analytical Method: 8260C

Lab Code: RQ1406581-02
Analysis Lot: 397150
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	713,107	22.76	1,814,044	12.42	1,609,069	17.98
	Upper Limit ==>	1,426,214	23.26	3,628,088	12.92	3,218,138	18.48
	Lower Limit ==>	356,554	22.26	907,022	11.92	804,535	17.48
	ICAL Result ==>	736,523	22.73	1,887,808	12.39	1,661,552	17.95
Associated Analyses							
Lab Control Sample	RQ1406581-03	702,319	22.76	1,824,198	12.42	1,618,096	17.97
Method Blank	RQ1406581-04	693,867	22.76	1,846,495	12.42	1,634,135	17.97
MRC-MW-21B-060314	R1404155-016	662,317	22.75	1,741,747	12.41	1,521,157	17.97
MRC-MW-21B-060314MS	RQ1406581-05	699,092	22.75	1,744,493	12.41	1,554,689	17.97
MRC-MW-21B-060314DMS	RQ1406581-06	697,611	22.75	1,772,645	12.41	1,554,389	17.97

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/14/14 12:47

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA7\DATA\061414\K9369.D\
Instrument ID: R-MS-07
Analytical Method: 8260C

Lab Code: RQ1406581-02
Analysis Lot: 397150
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	1,066,594	11.07
	Upper Limit ==>	2,133,188	11.57
	Lower Limit ==>	533,297	10.57
	ICAL Result ==>	1,099,332	11.04
Associated Analyses			
Lab Control Sample	RQ1406581-03	1,051,928	11.07
Method Blank	RQ1406581-04	1,061,667	11.07
MRC-MW-21B-060314	R1404155-016	1,051,000	11.06
MRC-MW-21B-060314MS	RQ1406581-05	1,021,192	11.06
MRC-MW-21B-060314DMS	RQ1406581-06	1,037,551	11.06

Results flagged with an asterisk (*) indicate values outside control criteria.

SDG R1404155

SAMPLE ID MRC-MW-21B-060314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST / IS AMOUNT (NG)	Final Volume (ML)	AVE RRF	CONCENTRATION ug/L
1023909	5	950030 / 50	5	0.2982	777.87
			Sample Volume (ML)		
			5		

Trichloroethene = 780 ug/L

Quantitation Report (Not Reviewed)

Sample : R1404155-016|5.0
Data File: I:\ACQUDATA\MSVOA12\DATA\061114\M6467.D
Misc : TETRA 11423 T4
Acq On : 12 Jun 2014 9:26 am MRC-MW-21B-060314
Operator : K.Ruest
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W031214.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 12 09:41:47 2014
QLast Update : Mon May 19 11:05:50 2014
Response via : Initial Calibration

rpt 5.0 (+ su confirms)

Compound	R.T.	QIon	Response	Conc Units	Dev(Min)
Internal Standards					
1) Pentafluorobenzene	4.249	168	764501	50.00 ppb	0.00
43) 1,4-Difluorobenzene	5.450	114	1023909	50.00 ppb	0.00
71) d5-Chlorobenzene	8.742	117	959236	50.00 ppb	0.00
86) 1,4-Dichlorobenzene-d4	10.748	152	530376	50.00 ppb	0.00
System Monitoring Compounds					
45) surr4,Dibrflmethane	4.152	113	334639	56.46 ppb	0.00
Spiked Amount 50.000	Range 89 - 119		Recovery =	112.92%	
48) surr1,1,2-dichloroetha...	4.664	65	454140	67.25 ppb	0.00
Spiked Amount 50.000	Range 78 - 122		Recovery =	134.50%# NT	
65) SURR3,Toluene-d8	7.322	98	1072038	43.04 ppb	0.00
Spiked Amount 50.000	Range 87 - 121		Recovery =	86.08%#	
70) SURR2,BFB	9.791	95	473527	50.96 ppb	0.00
Spiked Amount 50.000	Range 85 - 122		Recovery =	101.92%	
Target Compounds					Qvalue
13) 1,1-Diclethene	2.036	96	154601	27.87 ppb	# 87
~~15) Acetone~~	~~2.054~~	~~43~~	~~1208~~	~~0.80 ppb~~	~~# 52~~
16) 2-Propanol	2.109	45	151	0.61 ppb	# 1
19) Acetonitrile	2.268	40	611	2.46 ppb	# 1
20) Allyl Chloride	2.207	76	961	0.25 ppb	# 1
~~21) Methyl Acetate~~	~~2.371~~	~~43~~	~~5920~~	~~1.73 ppb~~	~~# 60~~
28) 1,1-Diclethane	2.945	63	32275	2.49 ppb	89
34) cis-1,2-Dichloroethene	3.554	96	8664	1.12 ppb	95
40) Chloroform	3.944	83	5651	0.45 ppb	79
49) Benzene	4.786	78	131456	5.21 ppb	97
50) 1,2-Dichloroethane	4.786	62	7656	1.00 ppb	# 73
54) Trichloroethene	5.828	130	950030	155.59 ppb	95
~~58) 1,4-Dioxane~~	~~6.316~~	~~88~~	~~603~~	~~14.28 ppb~~	~~# 27~~
~~61) 2-Nitropropane~~	~~6.822~~	~~41~~	~~1042~~	~~1.29 ppb~~	~~95~~
72) Tetrachloroethene	7.962	164	7501	1.51 ppb	# 82
89) Isopropylbenzene	9.675	105	63243	2.31 ppb	95
~~90) Cyclohexanone~~	~~9.785~~	~~55~~	~~1615~~	~~3.80 ppb~~	~~# 14~~

KR 6/16/14

(#) = qualifier out of range (m) = manual integration (+) = signals summed

ALS Environmental

RSK 175
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/6/14 10:17
Sample Matrix:	Water		

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name:	Method Blank	**Instrument ID:**	R-GC-02
Lab Code:	RQ1406184-01	**File ID:**	1002.run
Analytical Method:	RSK 175		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406184-02	1003.run	6/6/14 10:27
Duplicate Lab Control Sample	RQ1406184-03	1004.run	6/6/14 10:43
MRC-MW-21B-060314	R1404155-016	1007.run	6/6/14 11:50

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/6/14 10:17
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406184-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	395858
Data File Name:	1002.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	0.45	J	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 6/14

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 395858

Analyte Name	Lab Control Sample RQ1406184-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1406184-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Ethane	28.0	26.1	107	26.4	26.1	101	75 - 118	6	30
Ethene	27.7	24.3	114	26.5	24.3	109	73 - 129	4	30
Methane	27.1	26.2	103	25.5	26.2	97	65 - 126	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

dlh 9/5/13

ALS Environmental-Rochester

Analyst: B Wojtaslewicz
Date: 8/27/2013

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	Avg. R.T.	1PPB R F STD 1	2PPB R F STD 2	10.0PPB R F STD 3	20PPB R F STD 4	50PPB R F STD 5	75PPB R F STD 6	100PPB R F STD 7	Avg R F	% RSD
Methane	0.29	0.8369	0.7754	0.7632	0.7422	0.7178	0.7195	0.7307	**0.7551**	5.6%
Ethylene	0.77	0.5121	0.5030	0.4969	0.5145	0.4921	0.5080	0.5206	**0.5067**	2.0%
Ethane	1.15	0.7478	0.7047	0.7275	0.7211	0.6941	0.7031	0.7167	**0.7164**	2.5%
Propene	4.81		0.1874	0.1532	0.1732	0.2013	0.2286	0.2484	**0.1987**	17.8%
Propane	5.80	0.7040	0.7346	0.7895	0.7607	0.7480	0.7493	0.7625	**0.7498**	3.5%
Acetylene	0.64	0.0922	0.0935	0.0769	0.0923	0.0921	0.1004	0.1072	**0.0935**	9.9%

*LR =Linear Regression

BW 09/03/13

ALS Environmental-Rochester

Analyst: B Wwojtaslewicz
Date: 08/27/13
Time: 12:27

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)

ICAL Date: 8/27/2013

ICV EVALUATION

Compound	R.T. WINDOW MIN. FROM	R.T. WINDOW MIN. TO	Time	Area Units	Conc. Result	True Value	Percent Recovery	% LIMITS
Methane	0.19	0.39	0.29	19.54	25.87	26.2	98.7%	70-130
Ethylene	0.78	0.98	0.88	12.56	24.78	24.3	102.1%	70-130
Ethane	1.05	1.25	1.15	18.81	26.25	26.1	100.8%	70-130
Propene	4.71	4.91	4.81	5.45	27.43	24.0	114.1%	70-130
Propane	5.70	5.90	5.80	19.55	26.07	25.5	102.3%	70-130
Acetylene	0.54	0.74	0.64	4.65	49.72	50.1	99.2%	70-130

*LR = Linear Regression
X = Out of Control Limits

JC 6/6/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/6/14
Time: 10:03

Method: RSK-175 Dissolved Gases

CCV EVALUATION
ICAL Date: 08/27/13
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	35.226	0.7551	0.6730	10.9%	52.3
Ethylene	0.77	0.97	0.87	24.092	0.5067	0.4957	2.2%	48.6
Ethane	1.04	1.24	1.14	34.697	0.7164	0.6669	6.9%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.67	5.87	5.77	34.330	0.7498	0.6740	10.1%	50.9
Acetylene	0.54	0.74	0.64	9.372	0.0935	0.0937	0.1%	100.1
						Avg %D:	6.0%	(#62941)

JC 6/6/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/6/14
Time: 12:23

Method: RSK-175 Dissolved Gases

CCV EVALUATION
ICAL Date: 08/27/13
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	36.953	0.7551	0.7061	6.5%	52.3
Ethylene	0.77	0.97	0.87	25.918	0.5067	0.5333	5.2%	48.6
Ethane	1.04	1.24	1.14	36.522	0.7164	0.7020	2.0%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.66	5.86	5.76	36.052	0.7498	0.7078	5.6%	50.9
Acetylene	0.53	0.73	0.63	11.172	0.0935	0.1116	19.4%	100.1
						Avg %D:	7.7%	(#62941)

ALS Environmental

1,4-DIOXANE
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 5/2/14 09:52

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\050214\Af625.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 393191

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	74.76	45403	Pass
175	174	5	9	7.72	3505	Pass
176	174	95	101	95.51	43363	Pass
177	176	5	9	6.47	2805	Pass
50	95	15	40	16.50	10021	Pass
75	95	30	60	45.23	27469	Pass
95	95	100	100	100.00	60728	Pass
96	95	5	9	6.97	4230	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial Calibration	RQ1405292-02	I:\ACQUDATA\5975E\data\050214\Af629.D\	5/2/14 11:21	
Initial Calibration	RQ1405292-03	I:\ACQUDATA\5975E\data\050214\Af630.D\	5/2/14 11:39	
Initial Calibration	RQ1405292-04	I:\ACQUDATA\5975E\data\050214\Af631.D\	5/2/14 11:58	
Initial Calibration	RQ1405292-05	I:\ACQUDATA\5975E\data\050214\Af632.D\	5/2/14 12:17	
Initial Calibration	RQ1405292-06	I:\ACQUDATA\5975E\data\050214\Af633.D\	5/2/14 12:36	
Initial Calibration	RQ1405292-07	I:\ACQUDATA\5975E\data\050214\Af634.D\	5/2/14 12:55	
Initial Calibration	RQ1405292-08	I:\ACQUDATA\5975E\data\050214\Af635.D\	5/2/14 13:14	
Initial Calibration	RQ1405292-09	I:\ACQUDATA\5975E\data\050214\Af636.D\	5/2/14 13:42	

Response Factor Report 7975 E

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX050214.M
Title : 8270 BNA ANALYSIS
Last Update : Mon May 05 07:43:33 2014
Response Via : Initial Calibration

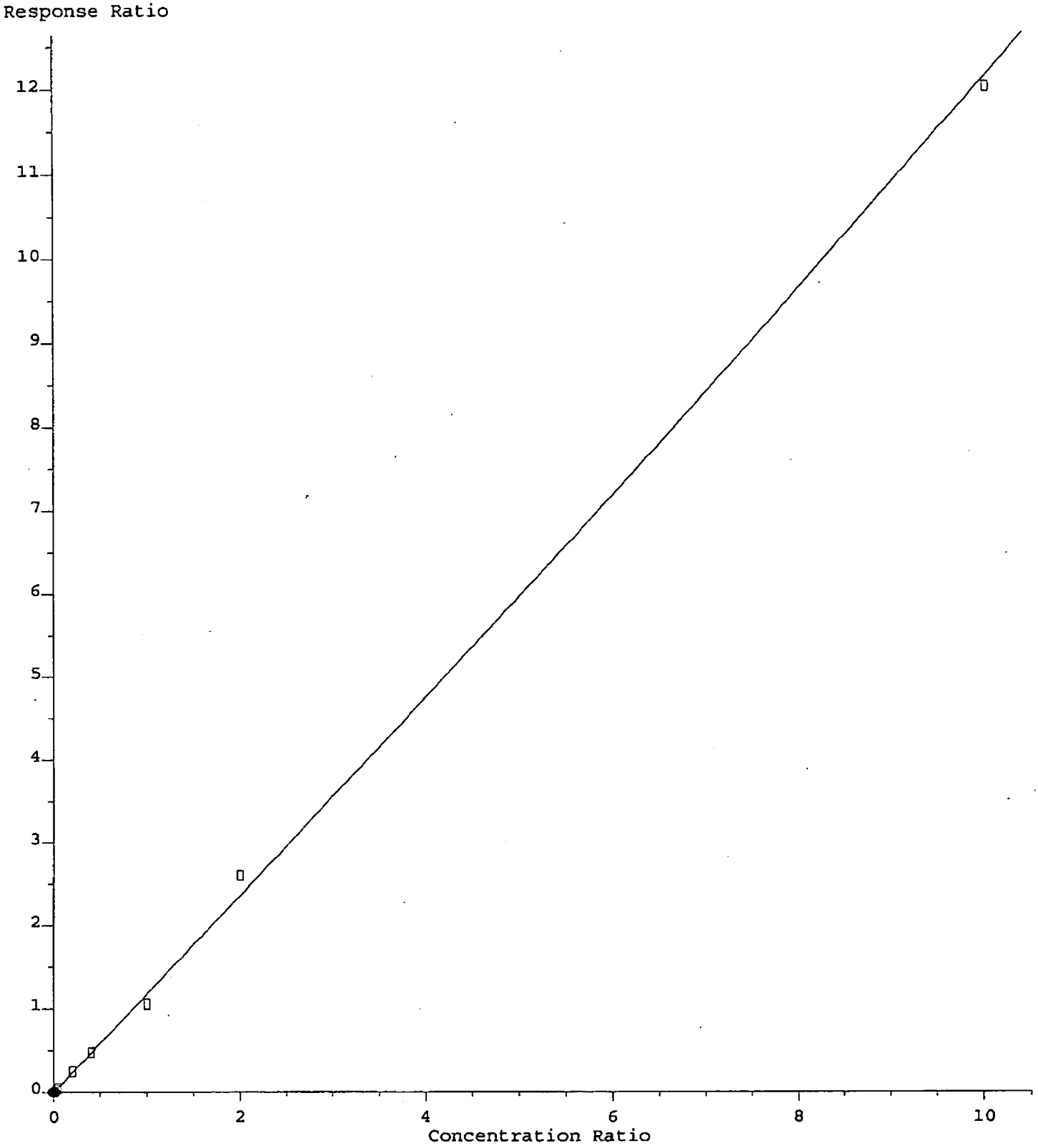
Calibration Files
2 =Af629.D 10 =Af630.D 20 =Af631.D 100 =Af632.D 200 =Af633.D 500 =Af634.D 1000=Af635.D 5000=Af636.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1) IR	d8-THF	----------ISTD----------									
2) T	1,4-Dioxane	1.161	1.195	1.093	1.239	1.188	1.055	1.305	1.204	1.180	6.67
3) S	SURR,1,4-DIOXA...	1.161	1.031	0.922	1.071	1.019	0.906	1.103	1.007	1.027	8.37

(#) = Out of Range

00748

1,4-Dioxane



R = 4.13e-003 A*A + 1.18e+000 A - 6.78e-005
Coef of Det (r^2) = 0.995 Curve Fit: Quadratic w(1/a^2)
Method Name: I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Calibration Table Last Updated: Mon May 05 07:43:33 2014

00751

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\050214\
Data File : Af637.D
Acq On : 2 May 2014 2:01 pm
Operator : m.pedro
Sample : icv
Misc : initial cal
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 07:44:00 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	98	-0.02
2	T	1,4-Dioxane	200.000	171.335	14.3	83	0.00
3	S	SURR,1,4-DIOXANE-d8	200.000	188.714	5.6	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00779

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/5/14 10:20

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af859.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 395894

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	77.30	33704	Pass
175	174	5	9	7.55	2545	Pass
176	174	95	101	97.65	32912	Pass
177	176	5	9	6.34	2087	Pass
50	95	15	40	15.31	6677	Pass
75	95	30	60	44.20	19272	Pass
95	95	100	100	100.00	43600	Pass
96	95	5	9	6.48	2825	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406195-02	I:\ACQUDATA\5975E\data\060514\Af860.D\	6/5/14 10:43	
Method Blank	RQ1406108-01	I:\ACQUDATA\5975E\data\060514\Af862.D\	6/5/14 11:19	
Lab Control Sample	RQ1406108-02	I:\ACQUDATA\5975E\data\060514\Af866.D\	6/5/14 12:32	
Duplicate Lab Control Sample	RQ1406108-03	I:\ACQUDATA\5975E\data\060514\Af867.D\	6/5/14 12:51	
Lab Control Sample	RQ1406108-04	I:\ACQUDATA\5975E\data\060514\Af868.D\	6/5/14 13:09	
Continuing Calibration Verification	RQ1406195-03	I:\ACQUDATA\5975E\data\060514\Af870.D\	6/5/14 13:44	
Continuing Calibration Verification	RQ1406195-04	I:\ACQUDATA\5975E\data\060514\Af881.D\	6/5/14 17:04	
MRC-MW-11A-060214	R1404155-001	I:\ACQUDATA\5975E\data\060514\Af889.D\	6/5/14 19:30	
MRC-MW-70A-060214	R1404155-003	I:\ACQUDATA\5975E\data\060514\Af890.D\	6/5/14 19:49	
MRC-MW-70B-060214	R1404155-004	I:\ACQUDATA\5975E\data\060514\Af891.D\	6/5/14 20:07	
Continuing Calibration Verification	RQ1406195-05	I:\ACQUDATA\5975E\data\060514\Af892.D\	6/5/14 20:25	
MRC-MW-07A-060314	R1404155-005	I:\ACQUDATA\5975E\data\060514\Af893.D\	6/5/14 20:44	
MRC-MW-110A-060314	R1404155-007	I:\ACQUDATA\5975E\data\060514\Af894.D\	6/5/14 21:02	
MRC-MW-110B-060314	R1404155-008	I:\ACQUDATA\5975E\data\060514\Af895.D\	6/5/14 21:21	
MRC-MW-116A-060214	R1404155-010	I:\ACQUDATA\5975E\data\060514\Af896.D\	6/5/14 21:39	
MRC-MW-115A-060214	R1404155-011	I:\ACQUDATA\5975E\data\060514\Af897.D\	6/5/14 21:57	
MRC-MW-21A-060314	R1404155-015	I:\ACQUDATA\5975E\data\060514\Af898.D\	6/5/14 22:16	
MRC-MW-21B-060314	R1404155-016	I:\ACQUDATA\5975E\data\060514\Af899.D\	6/5/14 22:34	
MRC-MW-22A-060314	R1404155-017	I:\ACQUDATA\5975E\data\060514\Af900.D\	6/5/14 22:53	
Continuing Cal. VerificationCCVA	RQ1406195-06	I:\ACQUDATA\5975E\data\060514\Af901.D\	6/5/14 23:11	

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af860.D
Acq On : 5 Jun 2014 10:43 am
Operator : m.pedro
Sample : ccv .
Misc : .002ppm
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 05 10:56:55 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	79	-0.03
2	T	1,4-Dioxane	2.000	1.894	5.3	75	0.02
3	S	SURR,1,4-DIOXANE-d8	2.000	1.862	6.9	74	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00785

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af870.D
Acq On : 5 Jun 2014 1:44 pm
Operator : m.pedro
Sample : ccv
Misc : .2ppm
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 05 14:15:28 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	80	-0.02
2	T	1,4-Dioxane	200.000	216.588	-8.3	86	-0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	219.621	-9.8	87	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00791

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af881.D
Acq On : 5 Jun 2014 5:04 pm
Operator : m.pedro
Sample : ccv
Misc : ccv 1.0
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 06 08:21:07 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	92	-0.02
2	T	1,4-Dioxane	1000.000	1085.869	-8.6	91	-0.03
3	S	SURR,1,4-DIOXANE-d8	1000.000	1078.572	-7.9	90	-0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00795

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af892.D
Acq On : 5 Jun 2014 8:25 pm
Operator : m.pedro
Sample : ccv
Misc : .2ppm
ALS Vial : 36 Sample Multiplier: 1

Quant Time: Jun 06 08:26:01 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	84	-0.02
2	T	1,4-Dioxane	200.000	222.853	-11.4	93	-0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	223.221	-11.6	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00799

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af901.D
Acq On : 5 Jun 2014 11:11 pm
Operator : m.pedro
Sample : ccv
Misc : 1.0ppm
ALS Vial : 45 Sample Multiplier: 1

Quant Time: Jun 06 08:28:54 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	91	0.00
2	T	1,4-Dioxane	1000.000	1156.918	-15.7	96	-0.02
3	S	SURR,1,4-DIOXANE-d8	1000.000	1150.537	-15.1	96	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00803

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/9/14 12:22

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060914\Af912.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 396359

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	79.79	38243	Pass
175	174	5	9	7.72	2954	Pass
176	174	95	101	96.48	36896	Pass
177	176	.5	9	6.14	2267	Pass
50	95	15	40	15.91	7627	Pass
75	95	30	60	44.16	21168	Pass
95	95	100	100	100.00	47931	Pass
96	95	5	9	6.82	3267	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406355-02	I:\ACQUDATA\5975E\data\060914\Af913.D\	6/9/14 12:51	
Method Blank	RQ1406252-01	I:\ACQUDATA\5975E\data\060914\Af914.D\	6/9/14 13:09	
Lab Control Sample	RQ1406252-02	I:\ACQUDATA\5975E\data\060914\Af915.D\	6/9/14 13:28	
Duplicate Lab Control Sample	RQ1406252-03	I:\ACQUDATA\5975E\data\060914\Af916.D\	6/9/14 13:46	
Lab Control Sample	RQ1406252-04	I:\ACQUDATA\5975E\data\060914\Af917.D\	6/9/14 14:04	
MRC-MW-116A-060214RE	R1404155-010	I:\ACQUDATA\5975E\data\060914\Af918.D\	6/9/14 14:22	
Continuing Cal. VerificationCCVA	RQ1406355-03	I:\ACQUDATA\5975E\data\060914\Af924.D\	6/9/14 16:12	

Data Path : I:\ACQUDATA\5975E\data\060914\
Data File : Af913.D
Acq On : 9 Jun 2014 12:51 pm
Operator : m.pedro
Sample : ccv
Misc : ccv .002ppm
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 10 07:32:41 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	96	0.00
2	T	1,4-Dioxane	2.000	1.671	16.4	80	0.04
3	S	SURR,1,4-DIOXANE-d8	2.000	1.908	4.6	91	0.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5975E\data\060914\
Data File : Af924.D
Acq On : 9 Jun 2014 4:12 pm
Operator : m.pedro
Sample : ccv
Misc : 06/09/14 522/8270
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 10 07:36:09 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	83	-0.02
2	T	1,4-Dioxane	200.000	215.898	-7.9	89	-0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	215.512	-7.8	88	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/5/14 11:19
Sample Matrix:	Water	**Date Extracted:**	6/5/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1406108-01	**File ID:**	I:\ACQUDATA\5975E\data\060514\Af862.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406108-02	I:\ACQUDATA\5975E\data\060514\Af866.D\	6/5/14 12:32
Duplicate Lab Control Sample	RQ1406108-03	I:\ACQUDATA\5975E\data\060514\Af867.D\	6/5/14 12:51
Lab Control Sample	RQ1406108-04	I:\ACQUDATA\5975E\data\060514\Af868.D\	6/5/14 13:09
MRC-MW-11A-060214	R1404155-001	I:\ACQUDATA\5975E\data\060514\Af889.D\	6/5/14 19:30
MRC-MW-70A-060214	R1404155-003	I:\ACQUDATA\5975E\data\060514\Af890.D\	6/5/14 19:49
MRC-MW-70B-060214	R1404155-004	I:\ACQUDATA\5975E\data\060514\Af891.D\	6/5/14 20:07
MRC-MW-07A-060314	R1404155-005	I:\ACQUDATA\5975E\data\060514\Af893.D\	6/5/14 20:44
MRC-MW-110A-060314	R1404155-007	I:\ACQUDATA\5975E\data\060514\Af894.D\	6/5/14 21:02
MRC-MW-110B-060314	R1404155-008	I:\ACQUDATA\5975E\data\060514\Af895.D\	6/5/14 21:21
MRC-MW-116A-060214	R1404155-010	I:\ACQUDATA\5975E\data\060514\Af896.D\	6/5/14 21:39
MRC-MW-115A-060214	R1404155-011	I:\ACQUDATA\5975E\data\060514\Af897.D\	6/5/14 21:57
MRC-MW-21A-060314	R1404155-015	I:\ACQUDATA\5975E\data\060514\Af898.D\	6/5/14 22:16
MRC-MW-21B-060314	R1404155-016	I:\ACQUDATA\5975E\data\060514\Af899.D\	6/5/14 22:34
MRC-MW-22A-060314	R1404155-017	I:\ACQUDATA\5975E\data\060514\Af900.D\	6/5/14 22:53

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/5/14
		Date Analyzed:	6/5/14 11:19
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406108-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	395894
Prep Method:	Method	**Extraction Lot:**	210043
Data File Name:	I:\ACQUDATA\5975E\data\060514\Af862.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	103	70-130	6/5/14 11:19	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 5/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210043

	Lab Control Sample RQ1406108-02			Duplicate Lab Control Sample RQ1406108-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
1,4-Dioxane	9.47	10.1	94	10.3	10.1	102	70 - 130	8	30

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 5/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210043

Analyte Name	Lab Control Sample RQ1406108-04 Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	0.0364	0.0405	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/9/14 13:09
Sample Matrix:	Water	**Date Extracted:**	6/9/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1406252-01	**File ID:**	I:\ACQUDATA\5975E\data\060914\Af914.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406252-02	I:\ACQUDATA\5975E\data\060914\Af915.D\	6/9/14 13:28
Duplicate Lab Control Sample	RQ1406252-03	I:\ACQUDATA\5975E\data\060914\Af916.D\	6/9/14 13:46
Lab Control Sample	RQ1406252-04	I:\ACQUDATA\5975E\data\060914\Af917.D\	6/9/14 14:04
MRC-MW-116A-060214RE	R1404155-010	I:\ACQUDATA\5975E\data\060914\Af918.D\	6/9/14 14:22

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 13:09
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406252-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	396359
Prep Method:	Method	**Extraction Lot:**	210288
Data File Name:	I:\ACQUDATA\5975E\data\060914\Af914.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	98	70-130	6/9/14 13:09	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 9/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210288

Analyte Name	Lab Control Sample RQ1406252-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1406252-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,4-Dioxane	9.74	10.1	96	9.82	10.1	97	70 - 130	<1	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 9/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210288

Lab Control Sample
RQ1406252-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,4-Dioxane	0.0414	0.0405	102	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/5/14 10:43

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af860.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406195-02
Analysis Lot: 395894
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	44,923	2.81
	Upper Limit ==>	58,400	3.31
	Lower Limit ==>	31,446	2.31
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Method Blank	RQ1406108-01	48,076	2.83
Lab Control Sample	RQ1406108-02	57,428	2.84
Duplicate Lab Control Sample	RQ1406108-03	54,797	2.84
Lab Control Sample	RQ1406108-04	53,803	2.81

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/5/14 17:04

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af881.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406195-04
Analysis Lot: 395894
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	52,307	2.81
	Upper Limit ==>	67,999	3.31
	Lower Limit ==>	36,615	2.31
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-11A-060214	R1404155-001	56,376	2.81
MRC-MW-70A-060214	R1404155-003	58,907	2.80
MRC-MW-70B-060214	R1404155-004	55,343	2.80

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/5/14 20:25

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060514\Af892.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406195-05
Analysis Lot: 395894
Signal ID:

		Tetrahydrofuran-d8	
		Area	RT
	Results ==>	52,842	2.82
	Upper Limit ==>	68,695	3.32
	Lower Limit ==>	36,989	2.32
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-07A-060314	R1404155-005	56,302	2.80
MRC-MW-110A-060314	R1404155-007	55,445	2.82
MRC-MW-110B-060314	R1404155-008	53,602	2.81
MRC-MW-116A-060214	R1404155-010	58,197	2.82
MRC-MW-115A-060214	R1404155-011	55,008	2.81
MRC-MW-21A-060314	R1404155-015	55,015	2.82
MRC-MW-21B-060314	R1404155-016	55,892	2.81
MRC-MW-22A-060314	R1404155-017	54,564	2.82
Continuing Cal. Verification	RQ1406195-06	51,991	2.83

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/9/14 12:51

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\060914\Af913.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406355-02
Analysis Lot: 396359
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	54,367	2.83
	Upper Limit ==>	70,677	3.33
	Lower Limit ==>	38,057	2.33
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Method Blank	RQ1406252-01	55,532	2.82
Lab Control Sample	RQ1406252-02	55,603	2.82
Duplicate Lab Control Sample	RQ1406252-03	54,812	2.81
Lab Control Sample	RQ1406252-04	58,952	2.84
MRC-MW-116A-060214	R1404155-010	59,909	2.81
Continuing Cal. Verification	RQ1406355-03	52,228	2.82

Results flagged with an asterisk (*) indicate values outside control criteria.

Preparation Information Benchsheet

Prep Run#: 210291
Team: Semivoa GC/MPEDRO

Prep WorkFlow: Org CLO4
Prep Method: Method

Status: Draft
Prep Date/Time: 6/9/14 07:45 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406254-01	MB		10mL	6850/ClO4						10.0000 uL/68807	
2	RQ1406254-02	LCS		10mL	6850/ClO4						2.0000 uL/71223; 10.0000 uL/68807	
3	RQ1406254-03	DLCS		10mL	6850/ClO4						10.0000 uL/68807; 2.0000 uL/71223	
4	RQ1406254-04	LODV		10mL	6850/ClO4						10.0000 uL/68807; 1.0000 uL/71223	
5	RQ1406254-05	ICS		10mL	6850/ClO4						2.0000 uL/71223; 10.0000 uL/68807	
6	R1404072-001	1405291009C JP-3-509	.01	10mL	6850/ClO4						10.0000 uL/68807	
7	RQ1406254-06	R1404072-001 MS	.01	10mL	6850/ClO4						10.0000 uL/68807; 4.0000 uL/71223	
8	RQ1406254-07	R1404072-001 DMS	.01	10mL	6850/ClO4						4.0000 uL/71223; 10.0000 uL/68807	
9	R1404155-006	MRC-MW-52A-060314	.07	10mL	6850/ClO4						10.0000 uL/68807	
10	R1404155-007	MRC-MW-110A-060314	.07	10mL	6850/ClO4						10.0000 uL/68807	
11	R1404155-008	MRC-MW-110B-060314	.07	10mL	6850/ClO4						10.0000 uL/68807	
12	R1404155-010	MRC-MW-116A-060214	.07	10mL	6850/ClO4						10.0000 uL/68807	
13	R1404155-011	MRC-MW-115A-060214	.07	10mL	6850/ClO4						10.0000 uL/68807	
14	R1404155-016	MRC-MW-21B-060314	.11	10mL	6850/ClO4						10.0000 uL/68807	
15	R1404273-004	1406040814 200-SB-20	.01	10mL	6850/ClO4						10.0000 uL/68807	

Spiking Solutions

Name: O18 isotopic labeled perchlorate Inventory ID 68807 Logbook Ref: Expires On: 01/31/2016 Lot #: 122313

Name: Perchlorate 1000 ppb CLO4 Inventory ID 71223 Logbook Ref: Expires On: 11/30/2014

Preparation Steps

Step:
Started:
Finished:
By:
Comments

Comments:

Preparation Information Benchsheet

Prep Run#: 210043
Team: Semivoa GCMS/LPRUNOSKE

Prep WorkFlow: OrgExt SPE Aq28
Prep Method: Method

Status: Prepped
Prep Date/Time: 6/5/14 08:06 AM

#	Lab Code	Client ID	B#	Amt. Ext.	Method /Test	pH	AE	BN	Final Vol	Sample Desc. (Initial/Final)	SpikeAmt./Inv. ID	Comments
1	RQ1406108-01	MB		100mL	522/1,4-Dioxane FP	7			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
2	RQ1406108-02	LCS		100mL	522/1,4-Dioxane FP	7			2.00mL		200.0000 uL/69716; 10.0000 uL/69806; 200.0000 uL/69135	
3	RQ1406108-03	DLCS		100mL	522/1,4-Dioxane FP	7			2.00mL		10.0000 uL/69806; 200.0000 uL/69135; 200.0000 uL/69716	
4	RQ1406108-04	LCS		100mL	522/1,4-Dioxane FP	7			2.00mL		10.0000 uL/69806; 1.0000 mL/68909; 200.0000 uL/69135	
5	R1404155-001	MRC-MW-11A-060214	.08	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
6	R1404155-003	MRC-MW-70A-060214	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
7	R1404155-004	MRC-MW-70B-060214	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
8	R1404155-005	MRC-MW-07A-060314	.08	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
9	R1404155-007	MRC-MW-110A-060314	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
10	R1404155-008	MRC-MW-110B-060314	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
11	R1404155-010	MRC-MW-116A-060214	.09	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
12	R1404155-011	MRC-MW-115A-060214	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
13	R1404155-015	MRC-MW-21A-060314	.08	100mL	522/1,4-Dioxane FP	<4			2.00mL		200.0000 uL/69135; 10.0000 uL/69806	
14	R1404155-016	MRC-MW-21B-060314	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		10.0000 uL/69806; 200.0000 uL/69135	
15	R1404155-017	MRC-MW-22A-060314	.06	100mL	522/1,4-Dioxane FP	<4			2.00mL		10.0000 uL/69806; 200.0000 uL/69135	

Spiking Solutions

Name:	EPA 522 MDL Spike 4ppb	Inventory ID	68909	Logbook Ref:	Expires On:	08/05/2014
Name:	1,4-Dioxane-d8 1ppm Surr. Std.	Inventory ID	69135	Logbook Ref:	Expires On:	10/07/2014
Name:	EPA 522 LCS Spike 5ppm	Inventory ID	69716	Logbook Ref:	Expires On:	08/05/2014
Name:	SVOA Tetrahydrofuran-D8 100ppm	Inventory ID	69806	Logbook Ref:	Expires On:	07/30/2014

5805

SAMPLE ID MRC-MW-21B-060314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	CONCENTRATION PPB
55892	1	418718	0.5	2000	1.1800	63.49
			Amt. inj	**Sample Volume (ML)**		
			1	100		

1,4-Dioxane = 62.4 ug/L

Quantitation Report (QT Reviewed)

Data Path : I:\ACQUDATA\5975E\data\060514\
Data File : Af899.D
Acq On : 5 Jun 2014 10:34 pm
Operator : m.pedro
Sample : r1404155-016 MRC-MW-21B-060314
Misc : 06/05/14 522
ALS Vial : 43 Sample Multiplier: 1

Quant Time: Jun 06 08:28:22 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) d8-THF	2.815	46	55892	500.00	PPB	-0.02
System Monitoring Compounds						
3) SURR,1,4-DIOXANE-d8	3.852	96	11466m	102.46	PPB	-0.01
Spiked Amount 100.000	Range 70 - 130		Recovery = 102.46%			
Target Compounds						Qvalue
2) 1,4-Dioxane	3.880	88	418718	3117.68	PPB	99

(#) = qualifier out of range (m) = manual integration (+) = signals summed

MP 6/14

ALS Environmental

PERCHLORATE
QC SUMMARY

ALS Environmental - Rochester, NY
1565 Jefferson Rd, Bldg. 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

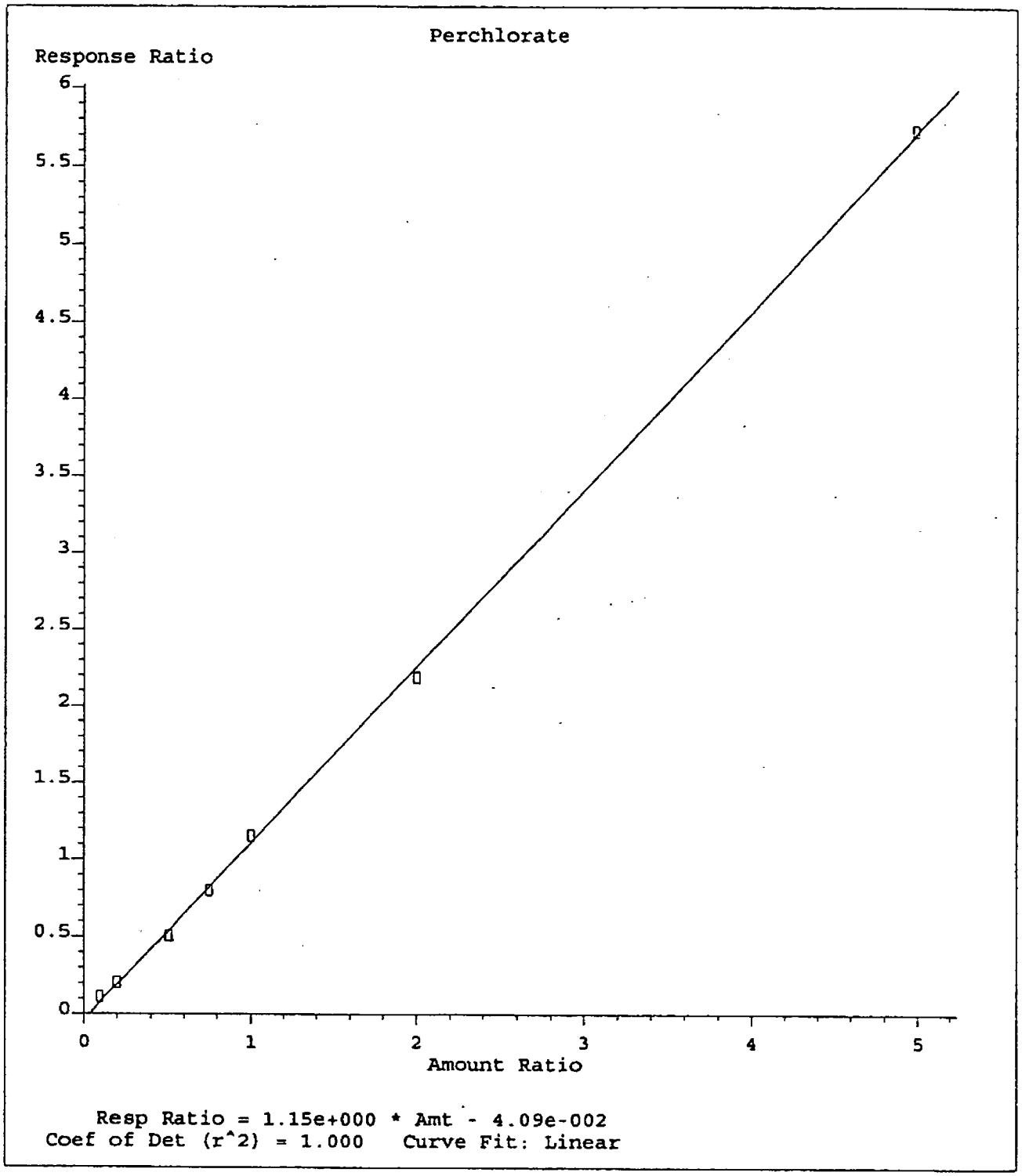
Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	018LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00902

(#) = Out of Range ### Number of calibration levels exceeded format ###



Method Name: I:\ACQUDATA\HPLC02\METHODS\PERC0129.M
Calibration Table Last Updated: Wed Jan 29 13:50:10 2014

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

1/29

00937

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031217.D Vial: 6
Acq On : 9 Jun 2014 3:03 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	90	0.35
2	Perchlorate	1.085	1.069	1.5	83	0.35
3	#2 perc ion	0.366	0.333	9.0	80	0.35



Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031228.D Vial: 6
Acq On : 9 Jun 2014 5:31 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	82	0.38
2	Perchlorate	1.085	1.127	-3.9	80	0.38
3	#2 perc ion	0.366	0.347	5.2	76	0.35

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031235.D Vial: 6
Acq On : 9 Jun 2014 7:05 pm Operator: M.PEDRO
Sample : CCV1.0PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	86	0.38
2	Perchlorate	1.085	1.087	-0.2	80	0.38
3	#2 perc ion	0.366	0.344	6.0	78	0.39

00949

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/ 9/14
Sample Matrix:	Water	**Time Analyzed:**	15:30:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\060914\B0031219.D\		
		Extraction Lot:	210291

	RQ1406254-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/ 9/14
Sample Matrix:	Water	**Time Analyzed:**	18:51:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\060914\B0031234.D\		
		Extraction Lot:	210291

RQ1406254-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/9/14 15:17
Sample Matrix:	Water	**Date Extracted:**	6/9/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1406254-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\060914\B0031218.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1406254-04	I:\ACQUDATA\HPLC02\DATA\060914\B0031219.D\	6/9/14 15:30
Lab Control Sample	RQ1406254-02	I:\ACQUDATA\HPLC02\DATA\060914\B0031220.D\	6/9/14 15:43
Duplicate Lab Control Sample	RQ1406254-03	I:\ACQUDATA\HPLC02\DATA\060914\B0031221.D\	6/9/14 15:57
Interference Check StandardICS	RQ1406254-05	I:\ACQUDATA\HPLC02\DATA\060914\B0031222.D\	6/9/14 16:10
MRC-MW-52A-060314	R1404155-006	I:\ACQUDATA\HPLC02\DATA\060914\B0031226.D\	6/9/14 17:04
MRC-MW-110A-060314	R1404155-007	I:\ACQUDATA\HPLC02\DATA\060914\B0031227.D\	6/9/14 17:17
MRC-MW-110B-060314	R1404155-008	I:\ACQUDATA\HPLC02\DATA\060914\B0031229.D\	6/9/14 17:44
MRC-MW-116A-060214	R1404155-010	I:\ACQUDATA\HPLC02\DATA\060914\B0031230.D\	6/9/14 17:58
MRC-MW-115A-060214	R1404155-011	I:\ACQUDATA\HPLC02\DATA\060914\B0031231.D\	6/9/14 18:11
MRC-MW-21B-060314	R1404155-016	I:\ACQUDATA\HPLC02\DATA\060914\B0031232.D\	6/9/14 18:25
Limit of Detection VerificationLODV	RQ1406254-04	I:\ACQUDATA\HPLC02\DATA\060914\B0031234.D\	6/9/14 18:51

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/9/14
		Date Analyzed:	6/9/14 15:17
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406254-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	396406
Prep Method:	Method	**Extraction Lot:**	210291
Data File Name:	I:\ACQUDATA\HPLC02\DATA\060914\B0031218.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 9/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 210291

Analyte Name	Lab Control Sample RQ1406254-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1406254-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Perchlorate	0.160	0.200	80	0.160	0.200	80	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155
Date Analyzed: 6/9/14 15:03

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\060914\B0031217.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1406366-01
Analysis Lot: 396406
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1406366-01	181,211	8.19
Method Blank	RQ1406254-01	192,020	8.22
Limit of Detection Verification	RQ1406254-04	190,773	8.22
Lab Control Sample	RQ1406254-02	191,613	8.22
Duplicate Lab Control Sample	RQ1406254-03	188,283	8.22
Interference Check Standard	RQ1406254-05	163,440	7.94
MRC-MW-52A-060314	R1404155-006	151,578	7.95
MRC-MW-110A-060314	R1404155-007	143,548	8.01
Continuing Cal. Verification	RQ1406366-02	165,396	8.22
MRC-MW-110B-060314	R1404155-008	152,549	8.05
MRC-MW-116A-060214	R1404155-010	174,666	8.01
MRC-MW-115A-060214	R1404155-011	164,886	8.05
MRC-MW-21B-060314	R1404155-016	170,624	8.12
Limit of Detection Verification	RQ1406254-04	184,502	8.26
Continuing Cal. Verification	RQ1406366-03	172,114	8.22

Results flagged with an asterisk (*) indicate values outside control criteria.

SAMPLE ID MRC-MW110A-060314

SAMPLE CALC IS AREA	DILUTION	COMPOUND OF INTEREST	IS AMOUNT (NG)	Final Extract Volume (UL)	AVE RRF	CONCENTRATION PPB
143548	1	281542	1	10	1.0850	1.81
			Amt. inj	**Sample Volume (ML)**		
			1	10		

Perchlorate = 1.8 ug/L

Quantitation Report (QT Reviewed)

Data File : I:\ACQUDATA\HPLC02\DATA\060914\B0031227.D Vial: 20
Acq On : 9 Jun 2014 5:17 pm Operator: M.PEDRO
Sample : R1404155-007 MRC-MW-110A-060314 Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P
Quant Time: Jun 10 13:26 2014 Quant Results File: PERC0129.RES

Quant Method : I:\ACQUDATA\H...\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Initial Calibration
DataAcq Meth : PERCDODZ.M

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) O18LP	8.01	89	143548	1.00	ug/L	0.17
Target Compounds						Qvalue
2) Perchlorate	7.98	83	281542	1.81	ug/L	100
3) #2 perc ion	8.01	85	86300	1.64	ug/L	100

Ratio
3.26

MJ 6/6/14

00877

(#) = qualifier out of range (m) = manual integration
B0031227.D PERC0129.M Tue Jun 10 13:30:22 2014 Page 1

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. APANAVAGE** **DATE:** **AUGUST 19, 2014**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – METALS/MISCELLANEOUS**
LOCKHEED MARTIN CORPORATION (LMC)
GROUNDWATER 2014
SDG R1404155

SAMPLES: 15/Aqueous/Metals

MRC-MW-07A-060314	MRC-MW-107 B/C-060214	MRC-MW-110A-060314
MRC-MW-110B-060314	MRC-MW-115A-060214	MRC-MW-116A-060214
MRC-MW-11A-060214	MRC-MW-21A-060314	MRC-MW-21B-060314
MRC-MW-22A-060314	MRC-MW-52A-060314	MRC-MW-70A-060214
MRC-MW-77A-060214	MRC-MW-79B-060214	MRC-MW-93A-060314

1/Aqueous/Miscellaneous

MRC-MW-21B-060314

Overview

The sample set for LMC-Groundwater 2014, SDG R1404155 consisted of fifteen (15) aqueous environmental samples. All fifteen (15) aqueous samples were analyzed metals. One (1) aqueous sample was analyzed for miscellaneous parameters (alkalinity (as $CaCO_3$), ammonia as N, Dissolved Organic Carbon (DOC), nitrate, nitrite, orthophosphate as P, silica, Total Dissolved Solids (TDS), and sulfate). No field duplicate sample pair was included in this SDG.

The samples were collected by Tetra Tech, Inc. on June 2 and 3, 2014 and analyzed by ALS Environmental. All analyses were conducted in accordance with SW-846 Methods 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, and 365.1, and Standard Methods 2320B, 2540C, and 5310 B/C analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, ICP/MS tuning, initial/continuing calibrations, laboratory method/calibration blanks, Interference Check Sample (ICS), laboratory control sample results, matrix spike/matrix spike duplicate results, internal standard areas and recoveries, ICP serial dilution results, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The following analytes below were detected in the laboratory method and preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Chromium [1]	1.497	7.485

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Antimony [2]	0.324	1.62
Cadmium [2]	0.011	0.055
Cobalt [2]	0.138	0.69
Silver [2]	0.017	0.085
Molybdenum [2]	0.071	0.355
Barium [3]	11.427	57.135
Iron [3]	18.744	93.72
Manganese [3]	5.034	25.17
Vanadium [3]	0.889	4.445
Cobalt [4]	0.018	0.09
Copper [5]	0.481	2.405

[1] - Maximum concentration detected in the laboratory preparation blank from preparation batch # 210311 (indicated in the electronic deliverable) affecting all 6020A samples extracted on 06/09/14.
[2] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 06/16/14.
[3] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/12/14.
[4] - Maximum concentration detected in the continuing calibration blank from 6020A analysis affecting samples analyzed on 06/17/14.
[5] - Maximum concentration detected in the continuing calibration blank from 6020A analysis affecting samples analyzed on 06/18/14.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected results reported for these compounds in the affected samples below the established action level were qualified as non-detected, (U).

- The following parameters were detected in the laboratory method and/or preparation blanks at the following maximum concentrations:

Parameter	Maximum Concentration (mg/L)	Action Level (mg/L)
Alkalinity (as $CaCO_3$) [1]	1.1	5.5
Orthophosphate (as P) [2]	0.007	0.035
TDS [3]	6	30

[1] - Maximum concentration detected in the laboratory preparation blank, R1404155-MB1, from preparation batch # 396204 (indicated in the electronic deliverable) affecting sample MRC-MW-21B-060314.
[2] - Maximum concentration detected in the laboratory preparation blank, R1404155-MB1, from preparation batch #396128 (indicated in the electronic deliverable) and in the continuing calibration blanks affecting sample MRC-MW-21B-060314.

[3] - Maximum concentration detected in the laboratory preparation blank, R1404155-MB1, from preparation batch #395937 (indicated in the electronic deliverable) affecting sample MRC-MW-21B-060314.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected result reported for orthophosphate (as P) below the established action level was qualified as non-detected, (U).

- The serial dilution associated with preparation batch #210311 (indicated in the electronic deliverable) had a Percent Difference (%D) greater than 10% for cobalt. All samples were affected. The detected results reported for cobalt in the affected samples were qualified as estimated, (J).

- The following internal standard Percent Recoveries (%R) were above the 125% quality control limit:

Sample	Internal Standard(s)	Affected Analytes
MRC-MW-93A-060314	Ho, Tb	Sb (no action, blank contaminant)
MRC-MW-93A-060314	Ho, Tb	Tl
MRC-MW-22A-060314	Li	Be
MRC-MW-52A-060314	Li	None
MRC-MW-107 B/C-060214	Ho	Tl
MRC-MW-70A-060214	Ho, Tb	Tl
MRC-MW-116A-060214	Ho	Tl
MRC-MW-77A-060214	Ho	None

The detected and non-detected results reported for the affected analytes were qualified as estimated, (J) and (UJ), respectively.

- Detected results reported below the Reporting Limit (RL) limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

Some Contract Required Detection Limit (CRDL) samples had %Rs for copper above the quality control limit. Copper was not analyzed in the samples associated with the noncompliant %Rs, therefore; no action was necessary.

Non-detected results were reported to the MDL.

Executive Summary

Laboratory Performance: Contaminants were detected in the laboratory preparation and method blanks. Some internal standards had high %Rs. A serial dilution %D for beryllium was noncompliant.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review" (January 2010) and SW-846 Methods 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, and 365.1, and Standard Methods 2320B, 2540C, and 5310 B/C analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-07A-060314			MRC-MW-107 B/C-060214			MRC-MW-110A-060314			MRC-MW-110B-060314		
SDG: R1404155	LAB_ID	R1404155-005			R1404155-002			R1404155-007			R1404155-008		
FRACTION: M	SAMP_DATE	6/3/2014			6/2/2014			6/3/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.413	U	A	0.277	U	A	0.157	U		0.188	U	A
ARSENIC		0.211	U		0.226	J	P	0.806	J	P	0.286	J	P
BARIUM		83.9			49.4	U	A	944			173		
BERYLLIUM		0.236	J	P	0.067	J	P	2.9			0.552	J	P
CADMIUM		0.68	J	P	0.081	J	P	0.008	U		0.008	U	
CHROMIUM		4.1	U	A	2.2	U	A	0.763	U	A	0.938	U	A
COBALT		33.4	J	I	5.6	J	I	859	J	I	172	J	I
COPPER		14.3			0.875	J	P	3.6			12.2		
IRON		413			4200			41100			10800		
LEAD		0.779	J	P	0.27	J	P	0.304	J	P	1.1	J	P
MANGANESE		676			689			19800			1510		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.103	U	A	0.409	J	P	0.154	U	A	0.148	U	A
NICKEL		134			19.7			566			159		
SELENIUM		1.7	J	P	0.213	U		0.254	J	P	0.213	U	
SILICON		3740			5030			9230			6020		
SILVER		0.065	U	A	0.015	U		0.016	U	A	0.026	U	A
THALLIUM		0.054	J	P	0.031	UJ	N	0.031	U		0.031	U	
VANADIUM		0.713	U	A	0.479	U		0.479	U		0.479	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-115A-060214			MRC-MW-116A-060214			MRC-MW-11A-060214			MRC-MW-21A-060314		
SDG: R1404155	LAB_ID	R1404155-011			R1404155-010			R1404155-001			R1404155-015		
FRACTION: M	SAMP_DATE	6/2/2014			6/2/2014			6/2/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.302	U	A	21.9			0.178	U	A
ARSENIC		1.5			1.9			1.5			2.7		
BARIUM		248			46.1	U	A	46.5	U	A	41.1	U	A
BERYLLIUM		0.02	U		0.047	J	P	0.047	J	P	0.121	J	P
CADMIUM		0.008	U		0.065	J	P	0.008	U		0.008	U	
CHROMIUM		1.7	U	A	3.6	U	A	4.4	U	A	2.1	U	A
COBALT		43.2	J	I	1.9	J	I	2.4	J	I	3.5	J	I
COPPER		3.8			5.7			15.3			8.5		
IRON		4910			2380			4670			12500		
LEAD		0.122	U		0.718	J	P	2.4			0.311	J	P
MANGANESE		822			179			242			700		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		7.2			13.7			5.2			1.3		
NICKEL		40.1			5			8.9			5.1		
SELENIUM		0.213	U		0.355	J	P	1.4	J	P	0.213	U	
SILICON		8110			12900			18500			6140		
SILVER		0.015	U		0.015	U		0.05	U	A	0.015	U	
THALLIUM		0.031	U		0.031	UJ	N	0.031	U		0.031	U	
VANADIUM		0.479	U		3.7	U	A	12.7	J	P	0.95	U	A

PROJ_NO: 06247	NSAMPLE	MRC-MW-21B-060314			MRC-MW-22A-060314			MRC-MW-52A-060314			MRC-MW-70A-060214		
SDG: R1404155	LAB_ID	R1404155-016			R1404155-017			R1404155-006			R1404155-003		
FRACTION: M	SAMP_DATE	6/3/2014			6/3/2014			6/3/2014			6/2/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.157	U		1.1	U	A	0.202	U	A
ARSENIC		0.211	U		0.211	U		1.7			3.6		
BARIUM		110			43.2	U	A	751			92.6		
BERYLLIUM		0.488	J	P	0.045	J	NP	28.7			2.4		
CADMIUM		0.008	U		0.027	U	A	1.1			0.008	U	
CHROMIUM		1.2	U	A	1.5	U	A	2	U	A	2.7	U	A
COBALT		57.8	J	I	28.9	J	I	2100	J	I	29	J	I
COPPER		3.6			3.3			87.6			4.3		
IRON		33600			752			7700			59300		
LEAD		0.144	J	P	0.215	J	P	2.4			1.4	J	P
MANGANESE		3040			1240			28500			1400		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.098	U	A	0.073	U	A	0.264	U	A	0.377	J	P
NICKEL		70.3			56.1			1410			32.3		
SELENIUM		0.341	J	P	0.213	U		0.213	U		0.63	J	P
SILICON		6500			5020			12400			8220		
SILVER		0.015	U		0.015	U		0.296	J	P	0.031	U	A
THALLIUM		0.035	J	P	0.031	U		0.888	J	P	0.031	UJ	N
VANADIUM		0.479	U		0.479	U		2.4	U	A	4.2	U	A

PROJ_NO: 06247	NSAMPLE	MRC-MW-77A-060214			MRC-MW-79B-060214			MRC-MW-93A-060314		
SDG: R1404155	LAB_ID	R1404155-012			R1404155-013			R1404155-014		
FRACTION: M	SAMP_DATE	6/2/2014			6/2/2014			6/3/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.171	U	A	0.157	U		0.193	U	A
ARSENIC		0.627	J	P	1.2			3		
BARIUM		638			227			133		
BERYLLIUM		28.2			1.2			39.8		
CADMIUM		0.008	U		0.008	U		4		
CHROMIUM		0.967	U	A	823	U	A	4.5	U	A
COBALT		435	J	I	274	J	I	3400	J	I
COPPER		31.3			13			89.7		
IRON		69700			64300			5190		
LEAD		0.473	J	P	0.154	J	P	3.4	J	P
MANGANESE		25400			19900			8390		
MERCURY		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.213	U	A	0.195	U	A	0.859	J	P
NICKEL		661			74.2			3250		
SELENIUM		0.445	J	P	0.881	J	P	5.8		
SILICON		7970			3730			15600		
SILVER		0.201	U	A	0.015	U	A	0.063	U	A
THALLIUM		0.131	J	P	0.061	J	P	0.153	UJ	N
VANADIUM		0.479	U		0.479	U		2	U	A

PROJ_NO: 06247	NSAMPLE	MRC-MW-21B-060314
SDG: R1404155	LAB_ID	R1404155-016
FRACTION: MISC	SAMP_DATE	6/3/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	MG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
AMMONIA-N	0.035	J	P
CARBONATE ALKALINITY	41.5		
CHLORIDE	69.8		
DISSOLVED ORGANIC CARBON	1	U	
NITRATE	0.2	U	
NITRITE	0.3	U	
ORTHOPHOSPHATE-P	0.011	U	A
SILICA	14.9		
SULFATE	2.8		
TOTAL DISSOLVED SOLIDS	161		

PROJ_NO: 06247	NSAMPLE	MRC-MW-21B-060314
SDG: R1404155	LAB_ID	R1404155-016
FRACTION: MISC	SAMP_DATE	6/3/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	MG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
AMMONIA-N	0.035	J	P
CARBONATE ALKALINITY	41.5		
CHLORIDE	69.8		
DISSOLVED ORGANIC CARBON	1	U	
NITRATE-N	0.2	U	
NITRITE-N	0.3	U	
ORTHOPHOSPHATE-P	0.011	U	A
SILICA	14.9		
SULFATE	2.8		
TOTAL DISSOLVED SOLIDS	161		

Appendix B

Results as Reported by the Laboratory

ALS Environmental

METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-07A-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-005

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.413	J		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	83.9			P
7440-41-7	Beryllium	0.236	J		MS
7440-43-9	Cadmium	0.680	J		MS
7440-47-3	Chromium	4.1			MS
7440-48-4	Cobalt	33.4		E	MS
7440-50-8	Copper	14.3			MS
7439-89-6	Iron	413			P
7439-92-1	Lead	0.779	J		MS
7439-96-5	Manganese	676			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	134			MS
7782-49-2	Selenium	1.7	J		MS
7440-22-4	Silver	0.065	J		MS
7440-28-0	Thallium	0.054	J		MS
7440-62-2	Vanadium	0.713	J		P
7440-21-3	Silicon	3740			P
7439-98-7	Molybdenum	0.103	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-107 B/C-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-002

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.277	J		MS
7440-38-2	Arsenic	0.226	J		MS
7440-39-3	Barium	49.4			P
7440-41-7	Beryllium	0.067	J		MS
7440-43-9	Cadmium	0.081	J		MS
7440-47-3	Chromium	2.2			MS
7440-48-4	Cobalt	5.6		E	MS
7440-50-8	Copper	0.875	J		MS
7439-89-6	Iron	4200			P
7439-92-1	Lead	0.270	J		MS
7439-96-5	Manganese	689			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	19.7			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	5030			P
7439-98-7	Molybdenum	0.409	J		MS

Color Before: YELLOW Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-110A-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-007

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.806	J		MS
7440-39-3	Barium	944			P
7440-41-7	Beryllium	2.9			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	0.763	J		MS
7440-48-4	Cobalt	859		E	MS
7440-50-8	Copper	3.6			MS
7439-89-6	Iron	41100			P
7439-92-1	Lead	0.304	J		MS
7439-96-5	Manganese	19800			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	566			MS
7782-49-2	Selenium	0.254	J		MS
7440-22-4	Silver	0.017	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	9230			P
7439-98-7	Molybdenum	0.154	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-110B-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-008

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.188	J		MS
7440-38-2	Arsenic	0.286	J		MS
7440-39-3	Barium	173			P
7440-41-7	Beryllium	0.552	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	0.938	J		MS
7440-48-4	Cobalt	172		E	MS
7440-50-8	Copper	12.2			MS
7439-89-6	Iron	10800			P
7439-92-1	Lead	1.1	J		MS
7439-96-5	Manganese	1510			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	159			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.026	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	6020			P
7439-98-7	Molybdenum	0.148	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-115A-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-011

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	1.5			MS
7440-39-3	Barium	248			P
7440-41-7	Beryllium	0.020	U		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.7	J		MS
7440-48-4	Cobalt	43.2		E	MS
7440-50-8	Copper	3.8			MS
7439-89-6	Iron	4910			P
7439-92-1	Lead	0.122	U		MS
7439-96-5	Manganese	822			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	40.1			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	8110			P
7439-98-7	Molybdenum	7.2			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-116A-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-010

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.302	J		MS
7440-38-2	Arsenic	1.9			MS
7440-39-3	Barium	46.1			P
7440-41-7	Beryllium	0.047	J		MS
7440-43-9	Cadmium	0.065	J		MS
7440-47-3	Chromium	3.6			MS
7440-48-4	Cobalt	1.9		E	MS
7440-50-8	Copper	5.7			MS
7439-89-6	Iron	2380			P
7439-92-1	Lead	0.718	J		MS
7439-96-5	Manganese	179			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	5.0			MS
7782-49-2	Selenium	0.355	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	3.7	J		P
7440-21-3	Silicon	12900			P
7439-98-7	Molybdenum	13.7			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-11A-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-001

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	21.9			MS
7440-38-2	Arsenic	1.5			MS
7440-39-3	Barium	46.5			P
7440-41-7	Beryllium	0.047	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	4.4			MS
7440-48-4	Cobalt	2.4		E	MS
7440-50-8	Copper	15.3			MS
7439-89-6	Iron	4670			P
7439-92-1	Lead	2.4			MS
7439-96-5	Manganese	242			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	8.9			MS
7782-49-2	Selenium	1.4	J		MS
7440-22-4	Silver	0.050	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	12.7	J		P
7440-21-3	Silicon	18500			P
7439-98-7	Molybdenum	5.2			MS

Color Before: YELLOW Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-21A-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-015

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.178	J		MS
7440-38-2	Arsenic	2.7			MS
7440-39-3	Barium	41.1			P
7440-41-7	Beryllium	0.121	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.1			MS
7440-48-4	Cobalt	3.5		E	MS
7440-50-8	Copper	8.5			MS
7439-89-6	Iron	12500			P
7439-92-1	Lead	0.311	J		MS
7439-96-5	Manganese	700			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	5.1			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.950	J		P
7440-21-3	Silicon	6140			P
7439-98-7	Molybdenum	1.3			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: MRC-MW-21B-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-016

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	110			P
7440-41-7	Beryllium	0.488	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.2	J		MS
7440-48-4	Cobalt	57.8		E	MS
7440-50-8	Copper	3.6			MS
7439-89-6	Iron	33600			P
7439-92-1	Lead	0.144	J		MS
7439-96-5	Manganese	3040			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	70.3			MS
7782-49-2	Selenium	0.341	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.035	J		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	6500			P
7439-98-7	Molybdenum	0.098	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-22A-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-017

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	43.2			P
7440-41-7	Beryllium	0.045	J		MS
7440-43-9	Cadmium	0.027	J		MS
7440-47-3	Chromium	1.5	J		MS
7440-48-4	Cobalt	28.9		E	MS
7440-50-8	Copper	3.3			MS
7439-89-6	Iron	752			P
7439-92-1	Lead	0.215	J		MS
7439-96-5	Manganese	1240			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	56.1			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	5020			P
7439-98-7	Molybdenum	0.073	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-52A-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-006

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.1			MS
7440-38-2	Arsenic	1.7			MS
7440-39-3	Barium	751			P
7440-41-7	Beryllium	28.7			MS
7440-43-9	Cadmium	1.1			MS
7440-47-3	Chromium	2.0			MS
7440-48-4	Cobalt	2110		E	MS
7440-50-8	Copper	87.6			MS
7439-89-6	Iron	7700			P
7439-92-1	Lead	2.4			MS
7439-96-5	Manganese	28500			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	1410			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.296	J		MS
7440-28-0	Thallium	0.888	J		MS
7440-62-2	Vanadium	2.4	J		P
7440-21-3	Silicon	12400			P
7439-98-7	Molybdenum	0.264	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-70A-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-003

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.202	J		MS
7440-38-2	Arsenic	3.6			MS
7440-39-3	Barium	92.6			P
7440-41-7	Beryllium	2.4			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.7			MS
7440-48-4	Cobalt	29.0		E	MS
7440-50-8	Copper	4.3			MS
7439-89-6	Iron	59300			P
7439-92-1	Lead	1.4	J		MS
7439-96-5	Manganese	1400			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	32.3			MS
7782-49-2	Selenium	0.630	J		MS
7440-22-4	Silver	0.031	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	4.2	J		P
7440-21-3	Silicon	8220			P
7439-98-7	Molybdenum	0.377	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-77A-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-012

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.171	J		MS
7440-38-2	Arsenic	0.627	J		MS
7440-39-3	Barium	638			P
7440-41-7	Beryllium	28.2			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	0.967	J		MS
7440-48-4	Cobalt	435		E	MS
7440-50-8	Copper	31.3			MS
7439-89-6	Iron	69700			P
7439-92-1	Lead	0.473	J		MS
7439-96-5	Manganese	25400			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	661			MS
7782-49-2	Selenium	0.445	J		MS
7440-22-4	Silver	0.201	J		MS
7440-28-0	Thallium	0.131	J		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	7970			P
7439-98-7	Molybdenum	0.213	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-79B-060214

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-013

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	1.2			MS
7440-39-3	Barium	227			P
7440-41-7	Beryllium	1.2			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	0.823	J		MS
7440-48-4	Cobalt	274		E	MS
7440-50-8	Copper	13.0			MS
7439-89-6	Iron	64300			P
7439-92-1	Lead	0.154	J		MS
7439-96-5	Manganese	19900			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	74.2			MS
7782-49-2	Selenium	0.881	J		MS
7440-22-4	Silver	0.016	J		MS
7440-28-0	Thallium	0.061	J		MS
7440-62-2	Vanadium	0.479	U		P
7440-21-3	Silicon	3730			P
7439-98-7	Molybdenum	0.195	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-93A-060314

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Lab Sample ID: R1404155-014

Level (low/med): LOW Date Received: 6/4/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.193	J		MS
7440-38-2	Arsenic	3.0			MS
7440-39-3	Barium	133			P
7440-41-7	Beryllium	39.8			MS
7440-43-9	Cadmium	4.0			MS
7440-47-3	Chromium	4.5			MS
7440-48-4	Cobalt	3400		E	MS
7440-50-8	Copper	89.7			MS
7439-89-6	Iron	5190			P
7439-92-1	Lead	3.4	J		MS
7439-96-5	Manganese	8390			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	3250			MS
7782-49-2	Selenium	5.8			MS
7440-22-4	Silver	0.063	J		MS
7440-28-0	Thallium	0.153	U		MS
7440-62-2	Vanadium	2.0	J		P
7440-21-3	Silicon	15600			P
7439-98-7	Molybdenum	0.859	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 3/14 1042
Sample Matrix:	Water	**Date Received:**	6/ 4/14
Sample Name:	MRC-MW-21B-060314		
Lab Code:	R1404155-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**41.5**		mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	**0.035**	J	mg/L	0.050	0.004	1	NA	6/16/14 11:32	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0		1	NA	6/17/14 19:13	
Chloride	300.0	**69.8**		mg/L	2.0	0.3	10	NA	6/5/14 02:04	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/5/14 02:04	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/5/14 02:04	
Orthophosphate as Phosphorus	365.1	**0.011**	B	mg/L	0.010	0.002	1	NA	6/4/14 16:58	
Silica, Dissolved as SiO2	USGS I-2700-85	**14.9**		mg/L	0.20		20	NA	6/9/14 13:58	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**161**		mg/L	10	5	1	NA	6/6/14 10:47	
Sulfate	300.0	**2.8**		mg/L	2.0	1.9	10	NA	6/5/14 02:04	

Appendix C

Support Documentation

Mo 202.031†	-22.7	-0.0008	mg/L	0.00012	14.23%
Ni 231.604†	4176.7	0.0650	mg/L	0.00053	0.81%
Na 589.592†	101222.9	21.24	mg/L	0.096	0.45%
Pb 220.353†	-65.0	-0.0050	mg/L	0.00066	13.39%
Sb 206.836†	2.9	0.0007	mg/L	0.00124	167.98%
Se 196.026†	-1.3	0.0018	mg/L	0.00022	12.72%
Sn 189.927†	-251.1	-0.0234	mg/L	0.00013	0.54%
Ti 337.279†	317.9	0.0006	mg/L	0.00037	58.21%
Tl 190.801†	-12.0	-0.0037	mg/L	0.00120	32.28%
V 292.402†	-50.4	-0.0002	mg/L	0.00017	89.04%
Zn 206.200†	5100.0	0.0615	mg/L	0.00054	0.88%
Ca 227.546†	722.4	3.494	mg/L	0.0082	0.23%
Sr 421.552†	3421.1	0.0255	mg/L	0.00023	0.89%
Fe 259.939†	628029.5	4.667	mg/L	0.0256	0.55%

Sample conc. not calculated. Sample Prep. Vol. AND Initial Vol. required OR sample units incorrect.

Sequence No.: 19
Sample ID: R1404155-012 10X
Analyst:
Initial Sample Wt:
Dilution: 10X

MRC-MW-77A-060214

Autosampler Location: 43
Date Collected: 6/13/2014 10:06:34 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol: 50 mL

Mean Data: R1404155-012 10X

Analyte	Mean Corrected Intensity	Calib Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Y 371.029	5430531.5	1.005	mg/L	0.0075				0.74%
Ag 328.068†	-316.3	-0.0010	mg/L	0.00006				5.65%
Al 308.215†	2141.9	0.0926	mg/L	0.00094				1.01%
As 188.979†	0.2	0.0010	mg/L	0.00171				173.44%
B 249.772†	6145.7	0.0229	mg/L	0.00028				1.22%
Ba 233.527†	8634.8	0.0627	mg/L	0.00088				1.40%
Be 313.107†	10916.9	0.0032	mg/L	0.00000				0.06%
Cd 226.502†	-234.2	-0.0026	mg/L	0.00008				2.94%
Co 228.616†	2327.9	0.0431	mg/L	0.00000				0.00%
Cr 267.716†	140.1	0.0017	mg/L	0.00002				1.04%
Cu 324.752†	-676.4	-0.0014	mg/L	0.00028				19.95%
K 766.490†	338.5	0.0791	mg/L	0.00325				4.11%
Mg 279.077†	41999.9	2.668	mg/L	0.0252				0.95%
Mn 257.610†	2067016.0	2.541	mg/L	0.0122				0.48%
Mo 202.031†	-25.8	-0.0010	mg/L	0.00002				2.40%
Ni 231.604†	4625.4	0.0720	mg/L	0.00067				0.93%
Na 589.592†	185489.1	38.92	mg/L	0.620				1.59%
Pb 220.353†	-60.6	-0.0046	mg/L	0.00031				6.68%
Sb 206.836†	-2.5	-0.0006	mg/L	0.00152				240.06%
Se 196.026†	-11.6	-0.0033	mg/L	0.00057				17.01%
Sn 189.927†	-241.3	-0.0225	mg/L	0.00039				1.72%
Ti 337.279†	151.0	0.0003	mg/L	0.00002				6.55%
Tl 190.801†	-15.1	-0.0046	mg/L	0.00089				19.17%
V 292.402†	-106.6	-0.0005	mg/L	0.00002				3.07%
Zn 206.200†	7510.3	0.0905	mg/L	0.00125				1.39%
Ca 227.546†	205.8	0.9756	mg/L	0.00250				0.26%
Sr 421.552†	2739.3	0.0204	mg/L	0.00068				3.32%
Fe 259.939†	937991.3	6.970	mg/L	0.0408				0.59%

Sample conc. not calculated. Sample Prep. Vol. AND Initial Vol. required OR sample units incorrect.

Sequence No.: 20
Sample ID: R1404155-013 10X
Analyst:
Initial Sample Wt:
Dilution: 10X

Autosampler Location: 44
Date Collected: 6/13/2014 10:13:06 AM
Data Type: Original
Initial Sample Vol:
Sample Prep Vol: 50 mL

Mean Data: R1404155-013 10X

Analyte	Mean Corrected Intensity	Calib Conc.	Units	Std.Dev.	Sample Conc.	Units	Std.Dev.	RSD
Y 371.029	5405397.0	1.000	mg/L	0.0206				2.06%
Ag 328.068†	-370.3	-0.0012	mg/L	0.00008				6.81%
Al 308.215†	608.9	0.0259	mg/L	0.00175				6.75%
As 188.979†	-4.1	-0.0006	mg/L	0.00046				74.23%

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15150

ALS Environmental
1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: MRL Annual GW 2014	Project Number: 117IC06247
Project Manager: Tony Apenhouse	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: Tony.Apenhouse@tetratech.com
Sampler's Signature:	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 — — — — 2 — 7 1

NUMBER OF CONTAINERS

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	GCMS VOAs • 8260 • 624 • CLP VOCs	GCMS SVOAs • 8270 • 625	GC VOAs • 8021 • 601/602	PESTICIDES • 8081 • 608	PCBs • 8082 • 608	METALS, TOTAL (6020A) (List in comments below)	METALS, DISSOLVED (List in comments below)	1,4 dioxane (522)	Perchlorate (6850)
MRL-MW-11A-060214		6/2/14	0900	Aq	6	3	—	—	—	1	—	2	—
MRL-MW-107B/C-060214			1025		4	3	—	—	—	1	—	—	—
MRL-MW-70A-060214			1345		6	3	—	—	—	1	—	2	—
MRL-MW-70B-060214			1440		5	3	—	—	—	—	—	2	—
MRL-MW-07A-060314		6/3/14	0900		3	—	—	—	—	1	—	2	—
MRL-MW-52A-060314			1020		2	—	—	—	—	1	—	—	1
MRL-MW-110A-060314			1245		7	3	—	—	—	1	—	2	1
MRL-MW-110B-060314			1350		7	3	—	—	—	1	—	2	1
				JA									

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals: Total Metals, Beryllium, Cobalt, Nickel (6020A)

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature:	Signature:	Signature	Signature	Signature	
Printed Name: Josh Mullis	Printed Name:	Printed Name	Printed Name	Printed Name	
Firm: Tetra Tech	Firm:	Firm	Firm	Firm	
Date/Time: 6/3/14 1500	Date/Time: 6/4/14 0915	Date/Time	Date/Time	Date/Time	

R1404155 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15151

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Project Name: MRC - GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: Tetra Tech Inc, 20251 Century Blvd STE 200, Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature: Walt Pr	Sampler's Printed Name: Walt Pryor

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: HCl, HNO3, HCl, SO4, –, –, –, –, NaH SO4

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP 8260	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below) Perchlorate	RSK	NH3	AlK	TDS, Cl, SO4, OPO4	NO3, NO2	Silica	1,4 Dioxane	REMARKS/ ALTERNATE DESCRIPTION
TB-060214		6-2-14	—	GW	3	X														
MRC-MW-116A-060214		↓	0938	↓	7	X					X	X							X	
MRC-MW-115A-060214		↓	1209	↓	7	X					X	X							X	
MRC-MW-77A-060214		↓	1425	↓	4	X					X									
MRC-MW-79B-060214		↓	1543	↓	4	X					X									
MRC-MW-93A-060314		6-3-14	0810	↓	4	X					X									
MRC-MW-21A-060314		↓	0918	↓	6	X					X								X	
MRC-MW-21B-060314		↓	1042	↓	13	X					X		X	X	X	X	X	X	X	
MRC-MW-22A-060314		↓	1301	↓	6	X					X								X	

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day

REQUESTED REPORT DATE ____

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pry	Signature: Gregg Vafar	Signature	Signature	Signature	Signature
Printed Name: Walt Pryor	Printed Name: Gregg Vafar	Printed Name	Printed Name	Printed Name	Printed Name
Firm: TT INC	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 6-3-14 / 1800	Date/Time: 6/4/14 0915	Date/Time	Date/Time	Date/Time	Date/Time

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R1404155

Cooler received on 6/4/14 by: [illegible] COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set NA	

8. Temperature Readings Date: 6/4/14 Time: 1030 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.5°	2.9°					
Correction Factor (°C)	—	—					
Corrected Temp (°C)	3.5°	2.9°					
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 6/4/14 at 1038
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: KB 6/4/14

Cooler Breakdown: Date: _____ Time: _____ by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH				[illegible]	[illegible]			
≤2	HNO_3	✓		Client label	[illegible]				
≤2	H_2SO_4	✓		WC126101D	4/15	[illegible]			
<4	$NaHSO_4$	✓		Client label	[illegible]	[illegible]			
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, 021014-1BMC, 112612-EVV, 082613-2AAW

Other Comments:

Headspace: Trip Blanks (2 vials)

* No bottle provided for DOC (location-16), aliquoted from an unpreserved plastic bottle.

PC Secondary Review: [illegible]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1404155
Project:	Middle River	**Date Received:**	6/4/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Seventeen water samples were received for analysis at ALS-Environmental on 6/4/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 2.9-3.5°C within the 0-6°C temperature guidelines.

Wet Chemistry

The Continuing Calibration Blanks (CCB1 and CCB2) for Orthophosphate contained low level hits and have been flagged with a "J". No data was affected.

The Method Blank for Alkalinity, Orthophosphate and TDS contained low level hits and have been flagged with a "J". All affected data has been "B" flagged appropriately.

No analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. All QC was within limits.

The Serial dilution for Beryllium on sample MRC-MW-11A-060214 (R1404155-001) was outside of the control limits for Cobalt and has been flagged with an "E". All affected samples have been "E" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for:
6/11/14- 1,1,2,2-Tetrachloroethane, 1,2-Dichloroethane, Bromomethane, Carbon Tetrachloride, Methylene Chloride and Vinyl Acetate (>40%)
6/14/14- Acetone and Vinyl Acetate
All detected concentrations for these compounds in samples associated with their relevant CCV should be considered as estimated.

The Method Blank contained a low level hit of 1,2,4-Trichlorobenzene on 6/12/14and has been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on sample MRC-MW-21B-060314 (R1404155-016). All exceedences have been flagged with a "*".

The Laboratory Control Sample and Duplicate Laboratory Control Sample from 6/12/14 was outside of the control limits high for Bromodichloromethane and Carbon Tetrachloride and the Duplicate Laboratory Control Sample was outside of the control limits for 1,2-Dichloroethane and trans-1,3-Dichloropropene. These have been flagged with a "*". The high bias allows for appropriate sensitivity. There were no hits for these compounds and no data was affected.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Approved by _____ **Date** 6/30/14

Samples MRC-MW-107B/C-060214 (R1404155-002) and MRC-MW-21B-060314 (R1404155-016) had surrogate Toluene-d8 outside of the control limits low and has been flagged with a "*". The samples were repeated for confirmation of matrix interference and both sets of data have been reported.

Sample MRC-MW-11A-060214 (R1404155-001) was analyzed at a dilution of 1/10 due to the foamy nature of the sample.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The 6/6/14 Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

Sample MRC-MW-116A-060214 (R1404155-010 had surrogate 1,4-Dioxane-d8 outside of the control limits low and has been flagged with a "*". The sample was re-extracted and re-analyzed for confirmation of results and both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 6/30/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #:		Batch Complete: Yes	Date Revised:
Submission:	R1404155	Diskette Requested: No	Date Due: 6/18/14
Client:	Tetra Tech GEO	Date: 6/10/14	Protocol: SW846
Client Rep:	DPATTON	Custody Seal: Present/Absent:	Shipping No.:
Project:	Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:	SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1404155-001	MRC-MW-11A-060214	Water	7470A, 522, 6010C, 6020A, 8260C	6/2/14	6/4/14			
R1404155-002	MRC-MW-107 B/C-060214	Water	7470A, 8260C, 6010C, 6020A	6/2/14	6/4/14			
R1404155-003	MRC-MW-70A-060214	Water	6020A, 8260C, 522, 7470A, 6010C	6/2/14	6/4/14			
R1404155-004	MRC-MW-70B-060214	Water	522, 8260C	6/2/14	6/4/14			
R1404155-005	MRC-MW-07A-060314	Water	7470A, 6010C, 6020A, 522	6/3/14	6/4/14			
R1404155-006	MRC-MW-52A-060314	Water	6020A, 6850, 6010C, 7470A	6/3/14	6/4/14			
R1404155-007	MRC-MW-110A-060314	Water	7470A, 522, 6010C, 6020A, 8260C, 6850	6/3/14	6/4/14			
R1404155-008	MRC-MW-110B-060314	Water	7470A, 522, 6010C, 6020A, 8260C, 6850	6/3/14	6/4/14			
R1404155-009	TB-060214	Water	8260C	6/2/14	6/4/14			
R1404155-010	MRC-MW-116A-060214	Water	7470A, 6850, 6010C, 6020A, 8260C, 522	6/2/14	6/4/14			
R1404155-010.R01	MRC-MW-116A-060214	Water	522	6/2/14	6/4/14			
R1404155-011	MRC-MW-115A-060214	Water	7470A, 6850, 6010C, 6020A, 8260C, 522	6/2/14	6/4/14			
R1404155-012	MRC-MW-77A-060214	Water	7470A, 6010C, 6020A, 8260C	6/2/14	6/4/14			
R1404155-013	MRC-MW-79B-060214	Water	7470A, 6010C, 6020A, 8260C	6/2/14	6/4/14			
R1404155-014	MRC-MW-93A-060314	Water	7470A, 6010C, 6020A, 8260C	6/3/14	6/4/14			
R1404155-015	MRC-MW-21A-060314	Water	7470A, 6010C, 6020A, 8260C, 522	6/3/14	6/4/14			
R1404155-016	MRC-MW-21B-060314	Water	7470A, 300.0, RSK 175, 365.1, 6850, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, 9060A, 522, SM 2320 B-1997(2011), SM 2540 C-1997(2011), SM 5310B/C-2000(2011)	6/3/14	6/4/14			
R1404155-017	MRC-MW-22A-060314	Water	7470A, 6010C, 6020A, 8260C, 522	6/3/14	6/4/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Environmental

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1404155 SDG No.: MRC-MW-11A-

Lab Code: Case No.: SAS No.:

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-11A-060214	R1404155-001
MRC-MW-11A-060214D	R1404155-001D
MRC-MW-11A-060214S	R1404155-001S
MRC-MW-107 B/C-060214	R1404155-002
MRC-MW-70A-060214	R1404155-003
MRC-MW-07A-060314	R1404155-005
MRC-MW-52A-060314	R1404155-006
MRC-MW-110A-060314	R1404155-007
MRC-MW-110A-060314D	R1404155-007D
MRC-MW-110A-060314S	R1404155-007S
MRC-MW-110B-060314	R1404155-008
MRC-MW-116A-060214	R1404155-010
MRC-MW-115A-060214	R1404155-011
MRC-MW-77A-060214	R1404155-012
MRC-MW-79B-060214	R1404155-013
MRC-MW-93A-060314	R1404155-014
MRC-MW-21A-060314	R1404155-015
MRC-MW-21B-060314	R1404155-016
MRC-MW-22A-060314	R1404155-017
MRC-MW-22A-060314D	R1404155-017D
MRC-MW-22A-060314S	R1404155-017S
MRC-MW-22A-060314S	R1404155-017S-SI

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: Name: Deb Roth

Date: 6/30/14 Title: Project Chemist

00987

METALS

-10-

DETECTION LIMITS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 3 Date: 3/20/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Silicon	252.851		1000.0	161.0	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 4 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Barium	233.529		20.0	3.0	P
Iron	259.939		100.0	7.8	P
Manganese	257.610		10.0	1.3	P
Vanadium	292.402		50.0	0.5	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number: _____

Analyte	Wave-length (nm)	Back-ground	PQL ug/L ~~mg/Kg~~	MDL ug/L ~~mg/Kg~~	M
Mercury	253.70	BD	0.200	0.024	CV

Comments: _____

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 3 Date: 3/31/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.836	0.0954007	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0099568	0.0000000	-0.0801871	0.0000000
Barium	233.527	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	4.4044499	0.0000000
Cadmium	226.502	-0.0035345	0.0000000	0.1333330	0.0000000
Calcium	227.546	-2.9304600	0.0000000	-53.8955002	0.0000000
Chromium	267.716	0.0031845	0.0000000	-0.0140317	-0.1262880
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1145200	0.0000000
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1338530	0.0000000	0.0438866	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	-0.1267620	0.0000000
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0281652	0.0000000	-0.2522740	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.2778280	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0764274	0.0099938	-0.0434154	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0437078	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments: _____

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 4 Date: 6/4/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg	Mo
Aluminum	308.215	0.0000000	0.2492820	0.0000000	0.0882606	20.5888996
Antimony	206.836	-0.0272623	0.0000000	0.0000000	0.0000000	-2.1883199
Arsenic	188.979	0.0137033	0.0000000	-0.1297730	0.0000000	3.6756201
Barium	233.527	0.0102780	0.0191006	0.0734537	0.0068788	-0.0972404
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.1799100	0.0000000	3.6729901	0.0000000	0.0000000
Cadmium	226.502	-0.0024061	0.0000000	0.1129860	0.0000000	0.0000000
Calcium	227.546	0.0000000	0.0000000	3.5172000	0.0000000	0.0000000
Chromium	267.716	-0.0028476	-0.0040839	-0.0343265	-0.0197957	-0.1552690
Cobalt	228.616	0.0000000	0.0000000	0.0274548	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1358600	0.0000000	0.7647630
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1026960	-0.0128851	0.0000000	0.0000000	-1.8077000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	-0.0122028	0.0000000	-0.0461992	0.0000000	-0.2899630
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	0.0307649	0.0121338	-0.5742380	0.0138029	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0422032	0.0000000	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0103575	0.0000000	-0.0522143	0.0000000	-0.4455970
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000	1.8036700
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	-0.0403524	0.0000000	-0.1660290
Zinc	206.200	0.0000000	0.0000000	0.0000000	-0.0274378	0.0000000

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Silicon	0.200	20000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 4 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Barium	0.200	40000	P
Iron	0.200	50000	P
Manganese	0.200	10000	P
Vanadium	0.200	10000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: PE ICPMS Date: 5/9/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Antimony	0.100	200	MS
Arsenic	0.100	200	MS
Beryllium	0.100	200	MS
Cadmium	0.100	200	MS
Chromium	0.100	200	MS
Cobalt	0.100	200	MS
Copper	0.100	200	MS
Lead	0.100	200	MS
Nickel	0.100	200	MS
Selenium	0.100	200	MS
Silver	0.100	100	MS
Thallium	0.100	200	MS
Molybdenum	0.100	200	MS

Comments: _____

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	583	2070	0.711	
Be	9.012	9.028	2055	2070	0.656	
Mg	23.985	23.979	5682	2075	0.701	
Co	58.933	58.928	14186	2070	0.715	
Rh	102.905	102.928	24893	2105	0.715	
In	114.904	114.928	27818	2130	0.716	
Ba	137.905	137.879	33417	2150	0.692	
Ce	139.905	139.929	33903	2145	0.697	
Pb	207.977	207.929	50464	2190	0.721	
U	238.050	238.025	57770	2220	0.735	

01070

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	586	2070	0.718	
Be	9.012	9.028	2038	2070	0.691	
Mg	23.985	23.979	5666	2075	0.699	
Co	58.933	58.929	14194	2070	0.720	
Rh	102.905	102.929	24891	2105	0.728	
In	114.904	114.928	27816	2130	0.724	
Ba	137.905	137.929	33415	2150	0.691	
Ce	139.905	139.928	33901	2145	0.694	
Pb	207.977	207.979	50464	2190	0.742	
U	238.050	238.026	57782	2220	0.738	

91071

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	2.977	578	2070	0.712	
Be	9.012	8.978	2030	2070	0.666	
Mg	23.985	24.029	5676	2075	0.697	
Co	58.933	58.979	14204	2070	0.726	
Rh	102.905	102.878	24884	2105	0.734	
In	114.904	114.928	27821	2130	0.725	
Ba	137.905	137.929	33420	2150	0.696	
Ce	139.905	139.929	33906	2145	0.702	
Pb	207.977	207.929	50452	2190	0.729	
U	238.050	238.026	57776	2220	0.737	

01072

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.027	586	2075	0.672	
Be	9.012	9.028	2028	2070	0.674	
Mg	23.985	23.978	5666	2075	0.674	
Co	58.933	58.929	14182	2070	0.711	
Rh	102.905	102.928	24891	2110	0.693	
In	114.904	114.928	27816	2130	0.699	
Ba	137.905	137.929	33403	2145	0.667	
Ce	139.905	139.929	33901	2145	0.682	
Pb	207.977	207.979	50452	2200	0.689	
U	238.050	238.025	57777	2235	0.679	

01073

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	587	2075	0.667	
Be	9.012	9.028	2031	2070	0.690	
Mg	23.985	23.978	5664	2075	0.684	
Co	58.933	58.929	14180	2070	0.726	
Rh	102.905	102.928	24896	2110	0.715	
In	114.904	114.928	27821	2130	0.721	
Ba	137.905	137.929	33408	2145	0.691	
Ce	139.905	139.929	33906	2145	0.711	
Pb	207.977	207.979	50452	2200	0.698	
U	238.050	238.077	57783	2235	0.691	

01074

METALS

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PREPARATION LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-060214

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/9/2014	50.0	50.0
PBW	6/9/2014	50.0	50.0
MRC-MW-11A-060214	6/9/2014	50.0	50.0
MRC-MW-11A-060214D	6/9/2014	50.0	50.0
MRC-MW-11A-060214S	6/9/2014	50.0	50.0
MRC-MW-107 B/C-06021	6/9/2014	50.0	50.0
MRC-MW-70A-060214	6/9/2014	50.0	50.0
MRC-MW-07A-060314	6/9/2014	50.0	50.0
MRC-MW-52A-060314	6/9/2014	50.0	50.0
MRC-MW-110A-060314	6/9/2014	50.0	50.0
MRC-MW-110B-060314	6/9/2014	50.0	50.0
MRC-MW-116A-060214	6/9/2014	50.0	50.0
MRC-MW-115A-060214	6/9/2014	50.0	50.0
MRC-MW-77A-060214	6/9/2014	50.0	50.0
MRC-MW-79B-060214	6/9/2014	50.0	50.0
MRC-MW-93A-060314	6/9/2014	50.0	50.0
MRC-MW-21A-060314	6/9/2014	50.0	50.0
MRC-MW-21B-060314	6/9/2014	50.0	50.0
MRC-MW-22A-060314	6/9/2014	50.0	50.0

Comments:

METALS

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LABORATORY CONTROL SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	20	20.40	102					
Arsenic	20	20.10	100					
Barium	2000	2010	100					
Beryllium	20	20.20	101					
Cadmium	20	21.20	106					
Chromium	20	19.80	99					
Cobalt	20	19.90	100					
Copper	20	20.50	102					
Iron	1000	1010	101					
Lead	20	21.60	108					
Manganese	500	498	100					
Mercury	1.000	0.953	95					
Nickel	20	19.50	98					
Selenium	20	19.30	96					
Silver	20	20.90	104					
Thallium	20	22.30	112					
Vanadium	500	501	100					
Silicon	5000	4860	97					
Molybdenum	20	20.60	103					

Comments: _____

ALS Environmental

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-11A-060214S

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony	75 - 125	43.40		21.80		20.0	108		MS
Arsenic	75 - 125	20.10		1.45		20.0	93		MS
Beryllium	75 - 125	18.40		0.05	J	20.0	92		MS
Cadmium	75 - 125	20.70		0.01	U	20.0	104		MS
Chromium	75 - 125	19.60		4.38		20.0	76		MS
Cobalt	75 - 125	22.00		2.39		20.0	98		MS
Copper	75 - 125	33.20		15.30		20.0	90		MS
Lead	75 - 125	23.30		2.42		20.0	104		MS
Mercury	75 - 125	0.944		0.024	U	1.00	94		CV
Nickel	75 - 125	26.70		8.88		20.0	89		MS
Selenium	75 - 125	20.40		1.35	J	20.0	95		MS
Silver	75 - 125	20.40		0.05	J	20.0	102		MS
Thallium	75 - 125	21.400		0.031	U	20.0	107		MS
Molybdenum	75 - 125	26.50		5.19		20.0	107		MS

Comments: _____

METALS
-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-11A-060214A

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Antimony		44.90		21.80		20	116		MS
Arsenic		24.20		1.45		20	114		MS
Beryllium		20.50		0.05	J	20	102		MS
Cadmium		22.60		0.01	U	20	113		MS
Chromium		21.60		4.38		20	86		MS
Cobalt		23.70		2.39		20	107		MS
Copper		35.20		15.30		20	100		MS
Lead		23.80		1.21		20	113		MS
Nickel		29.00		8.88		20	101		MS
Selenium		23.30		1.35	J	20	110		MS
Silver		17.20		0.05	J	20	86		MS
Thallium		23.20		0.03	U	20	116		MS
Molybdenum		30.20		5.19		20	125		MS

Comments: _____

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-11A-060214D

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Antimony		21.80		21.90		0		MS
Arsenic	1.0	1.45		1.54		6		MS
Beryllium		RL=1 0.05	J	0.04	J	22		MS
Cadmium		0.01	U	0.01	U			MS
Chromium	2.0	4.38		4.33		1		MS
Cobalt	1.0	2.39		2.38		0		MS
Copper		15.30		15.00		2		MS
Lead		RL=1 2.42		1.79	J	30		MS
Mercury		0.024	U	0.024	U			CV
Nickel		8.88		8.72		2		MS
Selenium		RL=2 1.35	J	1.61	J	18		MS
Silver		RL=1 0.05	J	0.03	J	50		MS
Thallium		0.031	U	0.031	U			MS
Molybdenum		5.19		5.17		0		MS

Comments: _____

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-11A-060214L

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	21.85		22.78		4		MS
Arsenic	1.45		1.23	J	15		MS
Beryllium	0.05	J	0.10	U	100.0		MS
Cadmium	0.01	U	0.04	U			MS
Chromium	4.38		5.77	J	32		MS
Cobalt	2.39		1.92	J	20	E	MS
Copper	15.27		15.92		4		MS
Lead	1.21		1.19	J	2		MS
Nickel	8.88		9.27		4		MS
Selenium	1.35	J	1.79	J	33		MS
Silver	0.05	J	0.08	U	100.0		MS
Thallium	0.03	U	0.15	U			MS
Molybdenum	5.19		5.24		1		MS

Comments: _____

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-110A-060314L

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Copper	3.62		3.70	J	2.2		MS

Comments: _____

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-93A-060314L

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Lead	0.67	J	0.85	J	27		MS

Comments: _____

METALS

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PREPARATION LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-060214

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume (mL)
LCSW	6/6/2014	25.0	25.0
PBW	6/6/2014	25.0	25.0
MRC-MW-11A-060214	6/6/2014	25.0	25.0
MRC-MW-11A-060214D	6/6/2014	25.0	25.0
MRC-MW-11A-060214S	6/6/2014	25.0	25.0
MRC-MW-107 B/C-06021	6/6/2014	25.0	25.0
MRC-MW-70A-060214	6/6/2014	25.0	25.0
MRC-MW-07A-060314	6/6/2014	25.0	25.0
MRC-MW-52A-060314	6/6/2014	25.0	25.0
MRC-MW-110A-060314	6/6/2014	25.0	25.0
MRC-MW-110A-060314D	6/6/2014	25.0	25.0
MRC-MW-110A-060314S	6/6/2014	25.0	25.0
MRC-MW-110B-060314	6/6/2014	25.0	25.0
MRC-MW-116A-060214	6/6/2014	25.0	25.0
MRC-MW-115A-060214	6/6/2014	25.0	25.0
MRC-MW-77A-060214	6/6/2014	25.0	25.0
MRC-MW-79B-060214	6/6/2014	25.0	25.0
MRC-MW-93A-060314	6/6/2014	25.0	25.0
MRC-MW-21A-060314	6/6/2014	25.0	25.0
MRC-MW-21B-060314	6/6/2014	25.0	25.0
MRC-MW-22A-060314	6/6/2014	25.0	25.0

Comments:

ALS Environmental

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-110A-060314S

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Mercury	75 - 125	0.884		0.024	U	1.00	88		CV

Comments: _____

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-110A-060314D

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Mercury		0.024	U	0.024	U			CV

Comments:

METALS

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PREPARATION LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-060214

Method: P

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/9/2014	50.0	50.0
LCSW	6/9/2014	50.0	50.0
PBW	6/9/2014	50.0	50.0
MRC-MW-11A-060214	6/9/2014	50.0	50.0
MRC-MW-107 B/C-06021	6/9/2014	50.0	50.0
MRC-MW-70A-060214	6/9/2014	50.0	50.0
MRC-MW-07A-060314	6/9/2014	50.0	50.0
MRC-MW-52A-060314	6/9/2014	50.0	50.0
MRC-MW-110A-060314	6/9/2014	50.0	50.0
MRC-MW-110B-060314	6/9/2014	50.0	50.0
MRC-MW-116A-060214	6/9/2014	50.0	50.0
MRC-MW-115A-060214	6/9/2014	50.0	50.0
MRC-MW-77A-060214	6/9/2014	50.0	50.0
MRC-MW-79B-060214	6/9/2014	50.0	50.0
MRC-MW-93A-060314	6/9/2014	50.0	50.0
MRC-MW-21A-060314	6/9/2014	50.0	50.0
MRC-MW-21B-060314	6/9/2014	50.0	50.0
MRC-MW-22A-060314	6/9/2014	50.0	50.0
MRC-MW-22A-060314D	6/9/2014	50.0	50.0
MRC-MW-22A-060314S	6/9/2014	50.0	50.0
MRC-MW-22A-060314S	6/9/2014	50.0	50.0

Comments:

ALS Environmental

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-22A-060314S

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Barium	75 - 125	2030.00		43.20		2000.0	99		P
Iron	75 - 125	1710.00		752.00		1000.0	96		P
Manganese	75 - 125	1700.00		1240.00		500.0	92		P
Vanadium	75 - 125	494.00		0.48	U	500.0	99		P

Comments: _____

METALS

-5A-

SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-22A-060314S

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Silicon	75 - 125	9740.00		5020.00		5000.0	94		P

Comments:

METALS
-5B-

POST DIGEST SPIKE SAMPLE RECOVERY

SAMPLE NO.

MRC-MW-22A-060314A

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added(SA)	%R	Q	M
Barium		2120.00		43.20		2000.0	104		P
Iron		1770.00		752.00		1000.0	102		P
Manganese		1740.00		1240.00		500.0	100		P
Vanadium		520.00		0.48	U	500.0	104		P
Silicon		9500.00		5020.00		5000.0	90		P

Comments: _____

METALS
-6-
DUPLICATES

SAMPLE NO.

MRC-MW-22A-060314D

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

% Solids for Sample: 0.0 % Solids for Duplicate: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	M
Barium	20.0	43.20		42.60		1		P
Iron		752.00		788.00		5		P
Manganese		1240.00		1260.00		2		P
Vanadium		0.48	U	0.48	U			P
Silicon	1000.0	5020.00		4890.00		3		P

Comments: _____

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-22A-060314L

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Barium	43.20		45.80	J	6		P
Iron	752.00		752.00		0		P
Manganese	1240.00		1290.00		4		P
Vanadium	0.48	U	2.40	U			P
Silicon	5020.00		5430.00		8		P

Comments: _____

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-79B-060214L

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Iron	6430.00		6450.00		0		P
Manganese	1990.00		2010.00		1		P

Comments: _____

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/16/2014 End Date: 6/16/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Li	Q	Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q
Blank	Blank	15:11	100		100		100		100		100		100	
Standard 1	Standard 1	15:17	105		105		103		106		104		100	
Standard 2	Standard 2	15:23	105		104		101		104		101		100	
Standard 3	Standard 3	15:30	100		103		101		102		100		103	
ICV1	ICV1	15:36	101		103		102		103		103		102	
ICB1	ICB1	15:43	101		103		105		104		102		105	
CRDL1	CRDL1	15:49	100		104		104		103		104		102	
ICS-A1	ICS-A1	15:55	98		96		96		99		97		99	
ICS-AB1	ICS-AB1	16:02	99		97		98		100		97		100	
CCV1	CCV1	16:08	96		98		100		95		97		99	
CCB1	CCB1	16:15	99		99		101		100		102		102	
CRDL2	CRDL2	17:01	97		94		96		96		96		98	
CCV2	CCV2	17:14	94		95		96		94		96		95	
CCB2	CCB2	17:20	94		95		96		95		97		99	
PBW-210311	PBW	17:26	99		93		101		91		96		99	
LCSW-210311	LCSW	17:33	98		91		99		90		97		100	
R1404155-00	MRC-MW-11A-06021	17:39	108		83		94		83		112		96	
R1404155-00	MRC-MW-11A-06021	17:46	108		86		100		83		113		95	
R1404155-00	MRC-MW-11A-06021	17:52	107		83		96		81		110		96	
R1404155-00	MRC-MW-11A-06021	17:59	99		76		90		76		101		91	
R1404155-00	MRC-MW-11A-06021	18:05	93		88		98		85		95		96	
CRDL3	CRDL3	18:11	88		94		101		91		94		103	
CCV3	CCV3	18:18	84		95		99		89		93		101	
CCB3	CCB3	18:24	85		95		102		90		94		105	
R1404155-00	MRC-MW-107 B/C-0	18:31	111		94		105		88		99		103	
R1404155-00	MRC-MW-70A-06021	18:37	89		85		114		91		96		118	
R1404155-00	MRC-MW-07A-06031	18:44	93		78		93		78		92		95	
R1404155-00	MRC-MW-52A-06031	18:50	90		83		100		79		88		101	
R1404155-00	MRC-MW-110A-0603	18:56	86		88		98		84		88		96	
R1404155-00	MRC-MW-110B-0603	19:03	88		84		92		84		90		92	
R1404155-01	MRC-MW-116A-0602	19:09	94		81		94		78		96		94	
R1404155-01	MRC-MW-115A-0602	19:16	93		78		91		77		92		92	
CRDL4	CRDL4	19:22	87		86		91		85		88		93	
CCV4	CCV4	19:29	85		86		91		85		88		93	
CCB4	CCB4	19:35	86		90		95		87		90		93	
R1404155-01	MRC-MW-77A-06021	19:42	107		77		99		90		97		107	
R1404155-01	MRC-MW-79B-06021	19:48	95		82		91		93		94		93	
R1404155-01	MRC-MW-93A-06031	19:54	96		72		201	*	78		99		228	*
R1404155-01	MRC-MW-21A-06031	20:01	88		88		103		84		94		99	
R1404155-01	MRC-MW-21B-06031	20:07	118		89		102		95		101		103	
R1404155-01	MRC-MW-22A-06031	20:14	128	*	91		102		86		96		101	
CRDL5	CRDL5	20:20	87		91		97		91		93		98	
CCV5	CCV5	20:26	84		91		94		90		91		95	
CCB5	CCB5	20:33	87		93		94		94		95		98	
R1404155-00	MRC-MW-52A-06031	20:39	137	*	78		104		80		101		104	

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METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/16/2014 End Date: 6/16/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Li	Q	Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q
R1404155-00	MRC-MW-110A-0603	20:46	112		74		84		82		91		86	
R1404155-00	MRC-MW-110B-0603	20:52	91		72		80		75		86		80	
CRDL6	CRDL6	20:59	87		87		87		89		89		88	
CCV6	CCV6	21:05	83		86		87		87		86		89	
CCB6	CCB6	21:11	85		87		87		90		89		89	

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/17/2014 End Date: 6/17/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	09:14	100		100		100		100		100			
Standard 1	Standard 1	09:20	98		99		99		99		99			
Standard 2	Standard 2	09:27	104		106		102		102		104			
Standard 3	Standard 3	09:33	104		109		101		103		104			
ICV2	ICV2	09:40	98		103		97		98		99			
ICB2	ICB2	09:46	97		101		94		94		98			
CRDL1	CRDL1	09:53	96		99		96		96		99			
ICS-A1	ICS-A1	09:59	95		100		97		95		100			
ICS-AB1	ICS-AB1	10:05	97		106		99		97		101			
CCV1	CCV1	10:12	100		106		99		98		107			
CCB1	CCB1	10:18	99		107		100		99		104			
PBW-210311	PBW	10:31	98		107		96		99		107			
LCSW-210311	LCSW	10:38	94		108		92		97		104			
R1404155-00	MRC-MW-11A-06021	10:44	82		103		82		110		96			
R1404155-00	MRC-MW-11A-06021	10:50	86		111		84		114		103			
R1404155-00	MRC-MW-11A-06021	10:57	86		113		83		116		109			
R1404155-00	MRC-MW-11A-06021	11:03	88		114		85		118		113			
R1404155-00	MRC-MW-11A-06021	11:10	101		129	*	94		111		120		QC	
HLCCV2	HLCCV2	11:23	109		124		100		109		119			
CCV2	CCV2	11:29	99		117		93		102		115			
CCB2	CCB2	11:35	100		116		94		103		113			
R1404155-00	MRC-MW-107 B/C-0	11:42	101		126	*	94		113		121		Ti	
R1404155-00	MRC-MW-70A-06021	11:48	88		128	*	94		105		128	*	Ti	
R1404155-00	MRC-MW-07A-06031	11:55	83		108		82		103		106			
R1404155-00	MRC-MW-52A-06031	12:01	93		116		89		99		114			
R1404155-00	MRC-MW-52A-06031	12:08	80		123		77		105		120			
R1404155-00	MRC-MW-110A-0603	12:14	85		109		88		104		102			
CRDL3	CRDL3	12:20	94		110		90		99		110			
CCV3	CCV3	12:27	95		114		91		99		110			
CCB3	CCB3	12:33	96		111		91		99		107			
R1404155-00	MRC-MW-110B-0603	12:40	86		109		85		105		104			
R1404155-01	MRC-MW-116A-0602	12:46	101		129	*	93		117		124		Ti	
R1404155-01	MRC-MW-115A-0602	12:52	93		120		86		109		115			
R1404155-01	MRC-MW-77A-06021	12:59	100		125	*	96		104		121		NA	
R1404155-01	MRC-MW-77A-06021	13:05	80		112		90		101		115			
R1404155-01	MRC-MW-79B-06021	13:12	93		108		91		100		106			
R1404155-01	MRC-MW-79B-06021	13:18	83		104		91		99		101			
CRDL4	CRDL4	13:25	92		108		90		98		106			
CCV4	CCV4	13:31	95		111		92		99		105			
CCB4	CCB4	13:37	93		106		91		98		106			
R1404155-01	MRC-MW-93A-06031	13:44	95		111		93		100		110			
R1404155-01	MRC-MW-93A-06031	13:50	86		136	*	85		98		140	*	Ti	
R1404155-01	MRC-MW-93A-06031	13:57	77		233	*	79		106		252	*	NA	
R1404155-01	MRC-MW-21A-06031	14:03	87		113		82		98		108			
R1404155-01	MRC-MW-21B-06031	14:10	88		109		90		102		106			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/17/2014 End Date: 6/17/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
R1404155-01	MRC-MW-22A-06031	14:16	87		106		81		98		105			
CRDL5	CRDL5	14:22	92		106		87		96		102			
CCV5	CCV5	14:29	91		104		87		97		104			
CCB5	CCB5	14:35	91		104		88		96		101			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/18/2014 End Date: 6/18/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Ge	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
Blank	Blank	13:05	100											
Standard 1	Standard 1	13:12	103											
Standard 2	Standard 2	13:18	103											
Standard 3	Standard 3	13:25	101											
ICV3	ICV3	13:31	104											
ICB3	ICB3	13:37	103											
CRDL1	CRDL1	13:44	106											
ICS-A1	ICS-A1	13:50	104											
ICS-AB1	ICS-AB1	13:57	106											
CCV1	CCV1	14:03	110											
CCB1	CCB1	14:10	109											
PBW-210311	PBW	14:23	109											
LCSW-210311	LCSW	14:29	109											
R1404155-00	MRC-MW-110A-0603	14:36	109											
R1404155-00	MRC-MW-110A-0603	14:42	112											
CRDL2	CRDL2	14:48	112											
CCV2	CCV2	15:01	109											
CCB2	CCB2	15:08	110											
R1404155-00	MRC-MW-11A-06021	15:14	104											
R1404155-00	MRC-MW-11A-06021	15:28	99											
R1404155-00	MRC-MW-11A-06021	15:34	101											
R1404155-00	MRC-MW-11A-06021	15:41	96											
R1404155-00	MRC-MW-11A-06021	15:47	99											
R1404155-00	MRC-MW-107 B/C-0	15:54	99											
CRDL3	CRDL3	16:00	97											
CCV3	CCV3	16:07	99											
CCB3	CCB3	16:13	98											
R1404155-00	MRC-MW-70A-06021	16:19	98											
R1404155-00	MRC-MW-07A-06031	16:26	94											
R1404155-00	MRC-MW-52A-06031	16:32	89											
R1404155-00	MRC-MW-110A-0603	16:39	89											
R1404155-00	MRC-MW-110B-0603	16:45	89											
R1404155-01	MRC-MW-116A-0602	16:51	89											
R1404155-01	MRC-MW-115A-0602	16:58	89											
CRDL4	CRDL4	17:04	100											
CCV4	CCV4	17:11	99											
CCB4	CCB4	17:17	97											
R1404155-01	MRC-MW-77A-06021	17:24	97											
R1404155-01	MRC-MW-79B-06021	17:30	97											
R1404155-01	MRC-MW-93A-06031	17:37	97											
R1404155-01	MRC-MW-21A-06031	17:43	97											
R1404155-01	MRC-MW-21B-06031	17:50	97											
R1404155-01	MRC-MW-22A-06031	17:56	97											
CRDL5	CRDL5	18:02	105											
CCV5	CCV5	18:09	102											

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/18/2014 End Date: 6/18/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Ge	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
CCB5	CCB5	18:15	103											

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/24/2014 End Date: 6/25/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	17:54	100		100		100		100		100			
Standard 1	Standard 1	18:01	97		100		98		95		96			
Standard 2	Standard 2	18:07	106		107		104		102		100			
Standard 3	Standard 3	18:13	102		101		100		99		100			
ICV1	ICV1	18:20	104		102		102		100		96			
ICB1	ICB1	18:26	101		103		100		99		95			
CRDL1	CRDL1	18:33	99		98		100		98		96			
ICS-A1	ICS-A1	18:39	93		97		97		90		92			
ICS-AB1	ICS-AB1	18:46	93		93		97		91		89			
CCV1	CCV1	18:52	100		102		97		94		98			
CCB1	CCB1	18:59	102		103		101		101		97			
CRDL2	CRDL2	19:45	104		104		105		105		105			
CCV2	CCV2	19:58	102		106		101		100		102			
CCB2	CCB2	20:05	107		106		105		108		101			
CCV3	CCV3	20:58	93		94		91		92		90			
CCB3	CCB3	21:04	92		94		88		88		90			
CRDL3	CRDL3	21:44	111		112		108		109		111			
CCV4	CCV4	21:51	117		116		111		111		108			
CCB4	CCB4	21:57	112		114		108		108		111			
PBW-210311	PBW	22:04	99		99		101		99		98			
LCSW-210311	LCSW	22:10	101		100		106		105		97			
R1404155-00	MRC-MW-11A-06021	22:17	97		98		100		113		95			
R1404155-00	MRC-MW-11A-06021	22:24	99		102		100		113		101			
R1404155-00	MRC-MW-11A-06021	22:30	89		95		93		101		92			
R1404155-00	MRC-MW-11A-06021	22:37	87		93		87		98		89			
R1404155-00	MRC-MW-11A-06021	22:44	107		105		103		105		98			
R1404155-00	MRC-MW-107 B/C-0	22:50	106		105		104		108		102			
CCV5	CCV5	22:57	111		111		108		106		105			
CCB5	CCB5	23:04	112		109		111		109		106			
R1404155-00	MRC-MW-70A-06021	23:10	95		107		101		102		108			
R1404155-00	MRC-MW-07A-06031	23:17	96		99		95		103		93			
R1404155-00	MRC-MW-52A-06031	23:24	86		96		90		102		94			
R1404155-00	MRC-MW-110A-0603	23:30	101		105		108		117		102			
R1404155-00	MRC-MW-110B-0603	23:37	89		92		94		101		89			
R1404155-01	MRC-MW-116A-0602	23:44	91		93		93		100		88			
CCV6	CCV6	23:50	106		107		104		105		107			
CCB6	CCB6	23:57	104		105		103		101		101			
R1404155-01	MRC-MW-115A-0602	00:03	89		90		89		98		88			
R1404155-01	MRC-MW-77A-06021	00:10	90		99		101		104		101			
R1404155-01	MRC-MW-79B-06021	00:17	95		99		103		101		92			
R1404155-01	MRC-MW-93A-06031	00:23	89		171	*	93		114		174	*	Pb	
R1404155-01	MRC-MW-21A-06031	00:30	100		104		99		112		100			
R1404155-01	MRC-MW-21B-06031	00:37	103		106		106		111		99			
R1404155-01	MRC-MW-22A-06031	00:43	102		105		100		108		104			
CRDL4	CRDL4	00:50	113		114		113		114		113			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/24/2014 End Date: 6/25/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
CCV7	CCV7	00:56	113		113		114		114		112			
CCB7	CCB7	01:03	115		114		116		116		114			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404155

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/25/2014 End Date: 6/25/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element Ho	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
Blank	Blank	07:55	100											
Standard 1	Standard 1	08:01	99											
Standard 2	Standard 2	08:06	101											
Standard 3	Standard 3	08:11	99											
ICV2	ICV2	08:16	100											
ICB2	ICB1	08:22	101											
CRDL1	CRDL1	08:27	101											
ICS-A1	ICS-A1	08:32	105											
ICS-AB1	ICS-AB1	08:37	106											
CCV1	CCV1	08:42	110											
CCB1	CCB1	08:48	112											
CRDL2	CRDL2	09:30	115											
CCV2	CCV2	09:40	122											
CCB2	CCB2	09:45	118											
PBW-210311	PBW	10:05	118											
LCSW-210311	LCSW	10:19	118											
R1404155-01	MRC-MW-93A-06031	10:24	142	*									Pb	
R1404155-01	MRC-MW-93A-06031	10:29	115											
CCV3	CCV3	10:35	110											
CCB3	CCB3	10:40	118											
CRDL3	CRDL3	10:47	109											
CCV4	CCV4	10:52	110											
CCB4	CCB4	10:57	112											

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 6/12/2014 End Date: 6/12/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	13:59					X							X			X								X		
Calib Std 1	1.00	14:05					X										X								X		
Calib Std 2	1.00	14:10																										
Calib Std 3	1.00	14:16												X											X		
Calib Std 4	1.00	14:22					X							X			X								X		
Calib Std 5	1.00	14:29					X							X			X								X		
ICV1	1.00	14:35					X							X			X								X		
ICB1	1.00	14:42					X							X			X								X		
CRDL1	1.00	14:48					X							X			X								X		
ICS-A1	1.00	14:54					X							X			X								X		
ICS-AB1 *	1.00	15:01					X							X			X								X		
CCV1	1.00	15:07					X							X			X								X		
CCB1	1.00	15:14					X							X			X								X		
PBW	1.00	15:20					X							X			X								X		
LCSW	1.00	15:26					X							X			X								X		
MRC-MW-11A-060214	1.00	15:33					X							X			X								X		
MRC-MW-107 B/C-060	1.00	15:39					X							X			X								X		
MRC-MW-70A-060214	1.00	15:46					X										X								X		
MRC-MW-07A-060314	1.00	15:52					X							X			X								X		
MRC-MW-52A-060314	1.00	15:59					X							X											X		
MRC-MW-110A-060314	1.00	16:06					X							X											X		
MRC-MW-110B-060314	1.00	16:13					X							X			X								X		
MRC-MW-116A-060214	1.00	16:19					X							X			X								X		
CCV2	1.00	16:26					X							X			X								X		
CCB2	1.00	16:32					X							X			X								X		
MRC-MW-115A-060214	1.00	16:38					X							X			X								X		
MRC-MW-77A-060214	1.00	16:45					X																		X		
MRC-MW-79B-060214	1.00	16:52					X																		X		
MRC-MW-93A-060314	1.00	16:59					X							X			X								X		
MRC-MW-21A-060314	1.00	17:06					X							X			X								X		
MRC-MW-21B-060314	1.00	17:12					X							X			X								X		
MRC-MW-22A-060314	1.00	17:19					X							X			X								X		
MRC-MW-22A-060314D	1.00	17:25					X							X			X								X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 6/12/2014 End Date: 6/12/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-22A-060314S	1.00	17:32					X							X			X								X		
MRC-MW-22A-060314A	1.00	17:38					X							X			X								X		
CCV3	1.00	17:45					X							X			X								X		
CCB3	1.00	17:51					X							X			X								X		
MRC-MW-22A-060314L	5.00	17:57					X							X			X								X		
CCV4	1.00	18:04					X							X			X								X		
CCB4	1.00	18:10					X							X			X								X		
CRDL2	1.00	18:16					X							X			X								X		
ICS-A2	1.00	18:22					X							X			X								X		
ICS-AB2	1.00	18:29					X							X			X								X		
ZZZZZZ	1.00	18:36																									
ZZZZZZ	1.00	18:42																									
CCV5	1.00	18:48					X							X			X								X		
CCB5	1.00	18:54					X							X			X								X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	15:11			X			X	X		X	X	X						X		X	X						*
Standard 1	1.00	15:17			X			X	X		X	X	X						X		X	X						*
Standard 2	1.00	15:23			X			X	X		X	X	X						X		X	X						*
Standard 3	1.00	15:30			X			X	X		X	X	X						X		X	X						*
ICV1	1.00	15:36			X			X	X		X	X	X						X		X	X						*
ICB1	1.00	15:43			X			X	X		X	X	X						X		X	X						*
CRDL1	1.00	15:49			X			X	X		X	X	X						X		X	X						*
ICS-A1	1.00	15:55			X			X	X		X	X	X						X		X	X						*
ICS-AB1	1.00	16:02			X			X	X		X	X	X						X		X	X						*
CCV1	1.00	16:08			X			X	X		X	X	X						X		X	X						*
CCB1	1.00	16:15			X			X	X		X	X	X						X		X	X						*
ZZZZZZ	1.00	16:21																											
ZZZZZZ	1.00	16:27																											
ZZZZZZ	1.00	16:35																											
ZZZZZZ	1.00	16:41																											
ZZZZZZ	1.00	16:48																											
ZZZZZZ	1.00	16:54																											
CRDL2	1.00	17:01			X			X	X		X	X	X						X		X	X						*
ZZZZZZ	1.00	17:07																											
CCV2	1.00	17:14			X			X	X		X	X	X						X		X	X						*
CCB2	1.00	17:20			X			X	X		X	X	X						X		X	X						*
PBW	1.00	17:26			X			X	X		X	X	X						X		X	X						*
LCSW	1.00	17:33			X			X	X		X	X	X						X		X	X						*
MRC-MW-11A-060214	1.00	17:39			X			X	X		X	X	X						X		X	X						*
MRC-MW-11A-060214D	1.00	17:46			X			X	X		X	X	X						X		X	X						*
MRC-MW-11A-060214S	1.00	17:52			X			X	X		X	X	X						X		X	X						*
MRC-MW-11A-060214A	1.00	17:59			X			X	X		X	X	X						X		X	X						*
MRC-MW-11A-060214L	5.00	18:05			X			X	X		X	X	X						X		X	X						*
CRDL3	1.00	18:11			X			X	X		X	X	X						X		X	X						*
CCV3	1.00	18:18			X			X	X		X	X	X						X		X	X						*
CCB3	1.00	18:24			X			X	X		X	X	X						X		X	X						*
MRC-MW-107 B/C-060	1.00	18:31			X			X	X		X	X	X						X		X	X						*
MRC-MW-70A-060214	1.00	18:37			X			X	X		X	X	X						X		X	X						*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
MRC-MW-07A-060314	1.00	18:44			X			X	X		X	X	X						X			X						*
MRC-MW-52A-060314	5.00	18:50						X					X															
MRC-MW-110A-060314	5.00	18:56										X							X									
MRC-MW-110B-060314	5.00	19:03											X															
MRC-MW-116A-060214	1.00	19:09			X			X	X		X	X	X						X		X	X						*
MRC-MW-115A-060214	1.00	19:16			X			X	X		X	X	X						X		X	X						*
CRDL4	1.00	19:22			X			X	X		X	X	X						X		X	X						*
CCV4	1.00	19:29			X			X	X		X	X	X						X		X	X						*
CCB4	1.00	19:35			X			X	X		X	X	X						X		X	X						*
MRC-MW-77A-060214	1.00	19:42			X			X	X		X		X								X	X						*
MRC-MW-79B-060214	1.00	19:48			X			X	X		X		X						X		X	X						*
MRC-MW-93A-060314	1.00	19:54			X			X	X		X		X								X	X						*
MRC-MW-21A-060314	1.00	20:01			X			X	X		X	X	X						X		X	X						*
MRC-MW-21B-060314	1.00	20:07			X			X	X		X	X	X						X		X	X						*
MRC-MW-22A-060314	1.00	20:14			X			X	X		X	X	X						X		X	X						*
CRDL5	1.00	20:20			X			X	X		X	X	X						X		X	X						*
CCV5	1.00	20:26			X			X	X		X	X	X						X		X	X						*
CCB5	1.00	20:33			X			X	X		X	X	X						X		X	X						*
MRC-MW-52A-060314	1.00	20:39			X						X											X	X						*
MRC-MW-110A-060314	1.00	20:46			X			X	X		X											X	X						*
MRC-MW-110B-060314	1.00	20:52			X			X	X		X	X							X			X	X						*
CRDL6	1.00	20:59			X			X	X		X	X	X						X			X	X						*
CCV6	1.00	21:05			X			X	X		X	X	X						X			X	X						*
CCB6	1.00	21:11			X			X	X		X	X	X						X			X	X						*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	15:11					X																					
Standard 1	1.00	15:17					X																					
Standard 2	1.00	15:23					X																					
Standard 3	1.00	15:30					X																					
ICV1	1.00	15:36					X																					
ICB1	1.00	15:43					X																					
CRDL1	1.00	15:49					X																					
ICS-A1	1.00	15:55					X																					
ICS-AB1	1.00	16:02					X																					
CCV1	1.00	16:08					X																					
CCB1	1.00	16:15					X																					
ZZZZZZ	1.00	16:21																										
ZZZZZZ	1.00	16:27																										
ZZZZZZ	1.00	16:35																										
ZZZZZZ	1.00	16:41																										
ZZZZZZ	1.00	16:48																										
ZZZZZZ	1.00	16:54																										
CRDL2	1.00	17:01					X																					
ZZZZZZ	1.00	17:07																										
CCV2	1.00	17:14					X																					
CCB2	1.00	17:20					X																					
PBW	1.00	17:26					X																					
LCSW	1.00	17:33					X																					
MRC-MW-11A-060214	1.00	17:39					X																					
MRC-MW-11A-060214D	1.00	17:46					X																					
MRC-MW-11A-060214S	1.00	17:52					X																					
MRC-MW-11A-060214A	1.00	17:59					X																					
MRC-MW-11A-060214L	5.00	18:05					X																					
CRDL3	1.00	18:11					X																					
CCV3	1.00	18:18					X																					
CCB3	1.00	18:24					X																					
MRC-MW-107 B/C-060214	1.00	18:31					X																					
MRC-MW-70A-060214	1.00	18:37					X																					
MRC-MW-07A-060314	1.00	18:44					X																					

METALS

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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/16/2014 End Date: 6/16/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
MRC-MW-52A-060314	5.00	18:50																										
MRC-MW-110A-060314	5.00	18:56																										
MRC-MW-110B-060314	5.00	19:03																										
MRC-MW-116A-060214	1.00	19:09					X																					
MRC-MW-115A-060214	1.00	19:16					X																					
CRDL4	1.00	19:22					X																					
CCV4	1.00	19:29					X																					
CCB4	1.00	19:35					X																					
MRC-MW-77A-060214	1.00	19:42					X																					
MRC-MW-79B-060214	1.00	19:48					X																					
MRC-MW-93A-060314	1.00	19:54					X																					
MRC-MW-21A-060314	1.00	20:01					X																					
MRC-MW-21B-060314	1.00	20:07					X																					
MRC-MW-22A-060314	1.00	20:14					X																					
CRDL5	1.00	20:20					X																					
CCV5	1.00	20:26					X																					
CCB5	1.00	20:33					X																					
MRC-MW-52A-060314	1.00	20:39					X																					
MRC-MW-110A-060314	1.00	20:46					X																					
MRC-MW-110B-060314	1.00	20:52					X																					
CRDL6	1.00	20:59					X																					
CCV6	1.00	21:05					X																					
CCB6	1.00	21:11					X																					

METALS

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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
Calib Blank 1	1.00	07:14										X															
Calib Std 1	1.00	07:19										X															
Calib Std 2	1.00	07:23										X															
Calib Std 3	1.00	07:28										X															
ICV1	1.00	07:32										X															
ICB1	1.00	07:37										X															
CRDL1	1.00	07:41										X															
ICS-A1	1.00	07:46										X															
ICS-AB1	1.00	07:51										X															
CCV1	1.00	07:55										X															
CCB1	1.00	08:00										X															
ZZZZZZ	1.00	08:04																									
ZZZZZZ	1.00	08:09																									
ZZZZZZ	1.00	08:14																									
ZZZZZZ	1.00	08:18																									
ZZZZZZ	1.00	08:22																									
ZZZZZZ	10.00	08:26																									
ZZZZZZ	1.00	08:31																									
ZZZZZZ	5.00	08:36																									
CCV2	1.00	08:40										X															
CCB2	1.00	08:45										X															
CRDL2	1.00	08:49										X															
ICS-A2	1.00	08:54										X															
ICS-AB2	1.00	08:58										X															
ZZZZZZ	1.00	09:03																									
ZZZZZZ	1.00	09:07																									
CCV3	1.00	09:12										X															
CCB3	1.00	09:16										X															
ZZZZZZ	1.00	09:21																									
ZZZZZZ	1.00	09:25																									
ZZZZZZ	1.00	09:30																									
ZZZZZZ	5.00	09:35																									
ZZZZZZ	1.00	09:39																									
ZZZZZZ	1.00	09:44																									

METALS

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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
ZZZZZZ	1.00	09:49																										
ZZZZZZ	5.00	09:53																										
ZZZZZZ	1.00	09:58																										
ZZZZZZ	1.00	10:02																										
CCV4	1.00	10:07										X																
CCB4	1.00	10:11										X																
ZZZZZZ	1.00	10:16																										
ZZZZZZ	1.00	10:20																										
ZZZZZZ	50.00	10:24																										
ZZZZZZ	5.00	10:29																										
ZZZZZZ	1.00	10:34																										
ZZZZZZ	1.00	10:38																										
ZZZZZZ	1.00	10:43																										
ZZZZZZ	5.00	10:48																										
CCV5	1.00	10:52										X																
CCB5	1.00	10:57										X																
ZZZZZZ	1.00	11:00																										
CCV6	1.00	11:04										X																
CCB6	1.00	11:08										X																
CRDL3	1.00	11:13										X																
ICS-A3	1.00	11:20										X																
ICS-AB3	1.00	11:25										X																
CCV7	1.00	11:29										X																
CCB7	1.00	11:34										X																
ZZZZZZ	1.00	11:38																										
ZZZZZZ	1.00	11:43																										
CCV8	1.00	11:48										X																
CCB8	1.00	11:52										X																
PBW	1.00	11:57										X																
LCSW	1.00	12:01										X																
MRC-MW-11A-060214	1.00	12:06										X																
MRC-MW-107 B/C-060214	1.00	12:10										X																
MRC-MW-70A-060214	1.00	12:15										X																
MRC-MW-07A-060314	1.00	12:20										X																

METALS

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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
MRC-MW-52A-060314	1.00	12:24										X																
MRC-MW-110A-060314	1.00	12:29										X																
MRC-MW-110B-060314	1.00	12:33										X																
MRC-MW-116A-060214	1.00	12:38										X																
CCV9	1.00	12:43										X																
CCB9	1.00	12:47										X																
MRC-MW-115A-060214	1.00	12:52										X																
MRC-MW-77A-060214	1.00	12:56										X																
MRC-MW-79B-060214	1.00	13:01										X																
MRC-MW-93A-060314	1.00	13:05										X																
MRC-MW-21A-060314	1.00	13:10										X																
MRC-MW-21B-060314	1.00	13:15										X																
MRC-MW-22A-060314	1.00	13:19										X																
MRC-MW-22A-060314D	1.00	13:24										X																
MRC-MW-22A-060314S	1.00	13:29										X																
MRC-MW-22A-060314A	1.00	13:33										X																
CCV10	1.00	13:38										X																
CCB10	1.00	13:42										X																
MRC-MW-22A-060314L	5.00	13:47										X																
CCV11	1.00	13:51										X																
CCB11	1.00	13:56										X																
CRDL4	1.00	14:01										X																
ICS-A4	1.00	14:05										X																
ICS-AB4	1.00	14:10										X																
CCV12	1.00	14:14										X																
CCB12	1.00	14:19										X																

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	17:54													X												
Standard 1	1.00	18:01													X												
Standard 2	1.00	18:07													X												
Standard 3	1.00	18:13													X												
ICV1	1.00	18:20													X												
ICB1	1.00	18:26													X												
CRDL1	1.00	18:33													X												
ICS-A1	1.00	18:39													X												
ICS-AB1	1.00	18:46													X												
CCV1	1.00	18:52													X												
CCB1	1.00	18:59													X												
ZZZZZZ	1.00	19:05																									
ZZZZZZ	1.00	19:12																									
ZZZZZZ	1.00	19:18																									
ZZZZZZ	1.00	19:25																									
ZZZZZZ	1.00	19:32																									
ZZZZZZ	5.00	19:39																									
CRDL2	1.00	19:45													X												
ZZZZZZ	1.00	19:52																									
CCV2	1.00	19:58													X												
CCB2	1.00	20:05													X												
ZZZZZZ	1.00	20:11																									
ZZZZZZ	1.00	20:18																									
ZZZZZZ	1.00	20:25																									
ZZZZZZ	5.00	20:31																									
ZZZZZZ	1.00	20:38																									
ZZZZZZ	1.00	20:45																									
ZZZZZZ	1.00	20:52																									
CCV3	1.00	20:58													X												
CCB3	1.00	21:04													X												
ZZZZZZ	1.00	21:11																									
ZZZZZZ	1.00	21:18																									
ZZZZZZ	1.00	21:24																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.00	21:31																												
ZZZZZZ	5.00	21:38																												
CRDL3	1.00	21:44													X															
CCV4	1.00	21:51													X															
CCB4	1.00	21:57													X															
PBW	1.00	22:04													X															
LCSW	1.00	22:10													X															
MRC-MW-11A-060214	2.00	22:17													X															
MRC-MW-11A-060214D	2.00	22:24													X															
MRC-MW-11A-060214S	2.00	22:30													X															
MRC-MW-11A-060214A	2.00	22:37													X															
MRC-MW-11A-060214L	10.00	22:44													X															
MRC-MW-107 B/C-060	2.00	22:50													X															
CCV5	1.00	22:57													X															
CCB5	1.00	23:04													X															
MRC-MW-70A-060214	2.00	23:10													X															
MRC-MW-07A-060314	2.00	23:17													X															
MRC-MW-52A-060314	2.00	23:24													X															
MRC-MW-110A-060314	2.00	23:30													X															
MRC-MW-110B-060314	2.00	23:37													X															
MRC-MW-116A-060214	2.00	23:44													X															
CCV6	1.00	23:50													X															
CCB6	1.00	23:57													X															
MRC-MW-115A-060214	2.00	00:03													X															
MRC-MW-77A-060214	2.00	00:10													X															
MRC-MW-79B-060214	2.00	00:17													X															
MRC-MW-93A-060314	2.00	00:23																												
MRC-MW-21A-060314	2.00	00:30													X															
MRC-MW-21B-060314	2.00	00:37													X															
MRC-MW-22A-060314	2.00	00:43													X															
CRDL4	1.00	00:50													X															
CCV7	1.00	00:56													X															
CCB7	1.00	01:03													X															

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/6/2014 End Date: 6/6/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	05:20																X									
0.2ppb std	1.00	05:21																X									
0.5ppb std	1.00	05:23																X									
1.0ppb std	1.00	05:25																X									
2.0ppb std	1.00	05:26																X									
5.0ppb std	1.00	05:28																X									
10.0ppb std	1.00	05:29																X									
ICV1	1.00	05:31																X									
ICB1	1.00	05:33																X									
CRDL1	1.00	05:34																X									
CCV1	1.00	05:36																X									
CCB1	1.00	05:38																X									
PBW	1.00	05:39																X									
LCSW	1.00	05:41																X									
MRC-MW-11A-060214	1.00	05:42																X									
MRC-MW-11A-060214D	1.00	05:44																X									
MRC-MW-11A-060214S	1.00	05:46																X									
MRC-MW-107 B/C-060	1.00	05:47																X									
MRC-MW-70A-060214	1.00	05:49																X									
MRC-MW-07A-060314	1.00	05:51																X									
MRC-MW-52A-060314	1.00	05:52																X									
CCV2	1.00	05:54																X									
CCB2	1.00	05:55																X									
MRC-MW-110A-060314	1.00	05:57																X									
MRC-MW-110A-060314	1.00	05:59																X									
MRC-MW-110A-060314	1.00	06:00																X									
MRC-MW-110B-060314	1.00	06:02																X									
MRC-MW-116A-060214	1.00	06:04																X									
MRC-MW-115A-060214	1.00	06:05																X									
MRC-MW-77A-060214	1.00	06:07																X									
MRC-MW-79B-060214	1.00	06:09																X									
MRC-MW-93A-060314	1.00	06:10																X									
CCV3	1.00	06:12																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/6/2014 End Date: 6/6/2014

Sample ID.	D/F	Time	% R	Analytes																							
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB3	1.00	06:13																X								
MRC-MW-21A-060314	1.00	06:15																X								
MRC-MW-21B-060314	1.00	06:17																X								
MRC-MW-22A-060314	1.00	06:18																X								
ZZZZZZ	1.00	06:20																								
ZZZZZZ	1.00	06:22																								
ZZZZZZ	1.00	06:23																								
CRDL2	1.00	06:25																X								
CCV4	1.00	06:27																X								
CCB4	1.00	06:28																X								

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibration					M
	True		Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	6/16	50	50	100	50	50	100	51	102	MS
Beryllium	〃	50	49	98	50	51	102	50	100	MS
Barium	6/12	10000	10500	105	10000	10400	104	10500	105	P
Cadmium	6/16	50	52	104	50	52	104	53	106	MS
Chromium	〃	50	49	98	50	51	102	48	96	MS
Cobalt	〃	50	51	102	50	51	102	51	102	MS
Copper	〃	50	51	102	50	52	104	51	102	MS
Iron	6/12	5000	5180	104	5000	5060	101	5130	103	P
Lead	6/24-25	50	50	100	50	51	102	51	102	MS
Manganese	6/12	750	770	103	750	759	101	777	104	P
Mercury	6/16	3.00	3.06	102	3.00	3.07	102	3.04	101	CV
Nickel	6/16	50	50	100	50	51	102	49	98	MS
Selenium	〃	50	50	100	50	52	104	51	102	MS
Silver	〃	50	54	108	50	53	106	54	108	MS
Vanadium	6/12	2500	2600	104	2500	2580	103	2640	106	P
Silicon	6/17	5000	4900	98	5000	4950	99	5100	102	P
Molybdenum	6/16	50	53	106	50	53	106	53	106	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	49	98	50	100	MS
Beryllium				50	54	108	53	106	MS
Barium				10000	10400	104	10500	105	P
Cadmium				50	53	106	53	106	MS
Chromium				50	49	98	49	98	MS
Cobalt				50	51	102	51	102	MS
Copper				50	52	104	51	102	MS
Iron				5000	5150	103	5130	103	P
Lead				50	50	100	50	100	MS
Manganese				750	768	102	775	103	P
Mercury				3.00	3.00	100	3.00	100	CV
Nickel				50	50	100	50	100	MS
Selenium				50	51	102	49	98	MS
Silver				50	55	110	54	108	MS
Vanadium				2500	2590	104	2590	104	P
Silicon				5000	4910	98	4810	96	P
Molybdenum				50	52	104	53	106	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	49	98	50	100	MS
Beryllium				50	53	106	51	102	MS
Barium				10000	10500	105			P
Cadmium				50	52	104	52	104	MS
Chromium				50	51	102	51	102	MS
Cobalt				50	52	104	51	102	MS
Copper				50	52	104	52	104	MS
Iron				5000	5150	103			P
Lead				50	51	102	52	104	MS
Manganese				750	773	103			P
Nickel				50	51	102	50	100	MS
Selenium				50	50	100	49	98	MS
Silver				50	54	108	53	106	MS
Vanadium				2500	2620	105			P
Silicon				5000	4860	97	4900	98	P
Molybdenum				50	53	106	54	108	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Lead				50	51	102			MS
Silicon				5000	4800	96	4780	96	P

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Silicon				5000	4890	98	4830	97	P

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Silicon				5000	4700	94	4870	97	P

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	1.11	111	1.07	107
Beryllium				1.0	1.02	102	1.10	110
Barium				200.0	223.21	112	220.99	110
Cadmium				1.0	1.01	101	1.05	105
Chromium				2.0	1.92	96	2.16	108
Cobalt				1.0	1.02	102	1.02	102
Copper				1.0	1.07	107	1.11	111
Iron				100.0	111.78	112	106.39	106
Lead				1.0	1.05	105	1.09	109
Manganese				15.0	16.43	110	18.78	125
Mercury	0.200	0.180	90					
Nickel				1.0	0.99	99	0.99	99
Selenium				2.0	1.96	98	2.17	108
Silver				1.0	1.05	105	1.05	105
Vanadium				50.0	54.22	108	54.34	109
Silicon				1000.0	1036.63	104	1066.27	107
Molybdenum				1.0	1.05	105	1.04	104

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.09	109
Beryllium				1.0			1.06	106
Cadmium				1.0			1.07	107
Chromium				2.0			1.96	98
Cobalt				1.0			0.98	98
Copper				1.0			1.02	102
Lead				1.0			1.06	106
Mercury	0.200	0.177	88					
Nickel				1.0			0.96	96
Selenium				2.0			1.89	94
Silver				1.0			1.09	109
Silicon				1000.0			1003.36	100
Molybdenum				1.0			1.03	103

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.07	107
Beryllium				1.0			1.04	104
Cadmium				1.0			1.03	103
Chromium				2.0			1.98	99
Cobalt				1.0			1.03	103
Copper				1.0			1.08	108
Lead				1.0			1.08	108
Nickel				1.0			0.97	97
Selenium				2.0			2.06	103
Silver				1.0			1.04	104
Silicon				1000.0			1008.89	101
Molybdenum				1.0			1.03	103

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.05	105
Beryllium				1.0			1.06	106
Cadmium				1.0			1.03	103
Chromium				2.0			2.05	102
Cobalt				1.0			1.09	109
Copper				1.0			1.25	125
Nickel				1.0			0.97	97
Selenium				2.0			1.97	98
Silver				1.0			1.05	105
Molybdenum				1.0			1.03	103

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.08	108
Beryllium				1.0			1.07	107
Cadmium				1.0			1.01	101
Chromium				2.0			2.01	100
Cobalt				1.0			1.09	109
Copper				1.0			2.49	249
Nickel				1.0			0.96	96
Selenium				2.0			1.89	94
Silver				1.0			1.06	106
Molybdenum				1.0			1.05	105

CRDL 6
6/16 @ 20:59
no Co
reported
from assoc.
Samples

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	0.324	J	0.157	U	0.198	J	0.169	J	0.217	J	MS
Barium	6.915	J	5.586	J	4.195	J	3.855	J	3.030	U	P
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cadmium	0.011	J	0.008	U	0.008	U	0.008	U	0.008	U	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	1.497	J	MS
Cobalt	0.052	J	0.008	U	0.033	J	0.013	J	-0.139	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.252	U	MS
Iron	7.800	U	18.744	J	7.800	U	7.800	U	7.800	U	P
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Manganese	1.290	U	1.290	U	5.034	J	4.496	J	1.290	U	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	MS
Vanadium	0.835	J	0.479	U	0.595	J	0.479	U	0.479	U	P
Silicon	161.00	U	161.00	U	161.00	U	161.00	U	161.000	U	P
Molybdenum	0.068	U	0.071	J	0.071	J	0.068	U	0.068	U	MS

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.174	J	0.189	J	0.192	J			MS
Barium			4.502	J	11.427	J					P
Beryllium			0.020	U	0.020	U	0.020	U			MS
Cadmium			0.011	J	0.008	U	0.008	U			MS
Chromium			0.470	U	0.470	U	0.470	U			MS
Cobalt			0.051	J	0.108	J	0.138	J			MS
Copper			0.252	U	0.252	U	0.663	J			MS
Iron			7.800	U	12.532	J					P
Lead			0.061	U	0.061	U	0.061	U			MS
Manganese			3.426	J	3.501	J					P
Mercury			0.024	U							CV
Nickel			0.236	U	0.236	U	0.236	U			MS
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.015	U	0.015	U	0.017	J			MS
Vanadium			0.604	J	0.889	J					P
Silicon			161.00	U	161.00	U	161.00	U			P
Molybdenum			0.068	U	0.068	U	0.068	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Lead			0.061	U							MS
Silicon			161.00	U	161.00	U	161.00	U			P

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Silicon			161.00	U	161.00	U	161.00	U			P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 4 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500	-5.7	525	105	-7.5	527	105
Iron	100000	100000	89300.0	91100	91	89200.0	89900	90
Manganese		500	7.8	522	104	9.8	526	105
Vanadium		500	-0.2	518	104	-0.1	523	105

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon			-188.0	319		-148.0	315	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon						-161.0	308	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon						-166.0	284	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	0.10	20.58	103			
Beryllium	0.00	20.00	0.01	19.36	97			
Cadmium	0.00	20.00	0.09	19.52	98			
Chromium	0.00	20.00	0.39	19.17	96			
Cobalt	0.00	20.00	0.07	18.93	95			
Copper	0.00	20.00	0.65	18.19	91			
Lead	0.00	20.00	0.06	20.71	104			
Nickel	0.00	20.00	0.73	17.72	89			
Selenium	0.00	20.00	-0.07	17.77	89			
Silver	0.00	20.00	0.05	20.29	101			
Molybdenum	400.00	400.00	391.21	382.07	96			

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank 1	1.00	08:12												X			X													
Calib Std 1	1.00	08:18															X													
Calib Std 2	1.00	08:24																												
Calib Std 3	1.00	08:29												X																
Calib Std 4	1.00	08:36												X			X													
Calib Std 5	1.00	08:42												X			X													
ICV2	1.00	08:49												X			X													
ICB2	1.00	08:55												X			X													
CRDL1	1.00	09:01												X			X													
ICS-A1	1.00	09:08												X			X													
ICS-AB1	1.00	09:14												X			X													
CCV1	1.00	09:21												X			X													
CCB1	1.00	09:28												X			X													
PBW-210336	1.00	09:34																												
LCSW-210336	1.00	09:40																												
MRC-MW-70A-060214	10.00	09:47												X																
MRC-MW-52A-060314	10.00	09:53															X													
MRC-MW-110A-060314	10.00	10:00															X													
MRC-MW-77A-060214	10.00	10:06												X			X													
MRC-MW-79B-060214	10.00	10:13												X			X													
MRC-MW-79B-060214L	50.00	10:19												X			X													
ZZZZZZ	1.00	10:26																												
ZZZZZZ	1.00	10:32																												
CCV2	1.00	10:38												X			X													
CCB2	1.00	10:45												X			X													
ZZZZZZ	10.00	10:51																												
ZZZZZZ	10.00	10:58																												
ZZZZZZ	10.00	11:04																												
ZZZZZZ	10.00	11:11																												
ZZZZZZ	10.00	11:18																												
ZZZZZZ	10.00	11:24																												
ZZZZZZ	1.00	11:30																												
ZZZZZZ	5.00	11:36																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: Optima ICP 4 Method: P

Start Date: 6/13/2014 End Date: 6/13/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.00	11:43																												
ZZZZZZ	1.00	11:49																												
CCV3	1.00	11:56												X			X													
CCB3	1.00	12:02												X			X													
ZZZZZZ	1.00	12:08																												
ZZZZZZ	1.00	12:15																												
ZZZZZZ	1.00	12:21																												
ZZZZZZ	1.00	12:28																												
CCV4	1.00	12:34												X			X													
CCB4	1.00	12:40												X			X													
CRDL2	1.00	12:47												X			X													
ICS-A2	1.00	12:53												X			X													
ICS-AB2	1.00	13:00												X			X													
ZZZZZZ	1.00	13:06																												
ZZZZZZ	1.00	13:12																												
CCV5	1.00	13:18												X			X													
CCB5	1.00	13:25												X			X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	09:14				X			X			X							X					X			
Standard 1	1.00	09:20				X			X			X							X					X			
Standard 2	1.00	09:27				X			X			X							X					X			
Standard 3	1.00	09:33				X			X			X							X					X			
ICV2	1.00	09:40				X			X			X							X					X			
ICB2	1.00	09:46				X			X			X							X					X			
CRDL1	1.00	09:53				X			X			X							X					X			
ICS-A1	1.00	09:59				X			X			X							X					X			
ICS-AB1	1.00	10:05				X			X			X							X					X			
CCV1	1.00	10:12				X			X			X							X					X			
CCB1	1.00	10:18				X			X			X							X					X			
ZZZZZZ	1.00	10:25																									
PBW	1.00	10:31				X																	X			
LCSW	1.00	10:38				X																	X			
MRC-MW-11A-060214	1.00	10:44																					X			
MRC-MW-11A-060214D	1.00	10:50																					X			
MRC-MW-11A-060214S	1.00	10:57																					X			
MRC-MW-11A-060214A	1.00	11:03																					X			
MRC-MW-11A-060214L	5.00	11:10																					X			
ZZZZZZ	1.00	11:16																								
HLCCV2	1.00	11:23				X			X			X							X					X			
CCV2	1.00	11:29				X			X			X							X					X			
CCB2	1.00	11:35				X			X			X							X					X			
MRC-MW-107 B/C-060	1.00	11:42				X																	X			
MRC-MW-70A-060214	1.00	11:48				X																	X			
MRC-MW-07A-060314	1.00	11:55				X																	X			
MRC-MW-52A-060314	50.00	12:01										X							X								
MRC-MW-52A-060314	1.00	12:08							X														X			
MRC-MW-110A-060314	1.00	12:14				X																	X			
CRDL3	1.00	12:20				X			X			X							X					X			
CCV3	1.00	12:27				X			X			X							X					X			
CCB3	1.00	12:33				X			X			X							X					X			
MRC-MW-110B-060314	1.00	12:40				X																	X			

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-116A-060214	1.00	12:46				X																	X			
MRC-MW-115A-060214	1.00	12:52				X																	X			
MRC-MW-77A-060214	10.00	12:59										X							X							
MRC-MW-77A-060214	1.00	13:05				X																	X			
MRC-MW-79B-060214	10.00	13:12										X														
MRC-MW-79B-060214	1.00	13:18				X																	X			
CRDL4	1.00	13:25				X			X			X							X				X			
CCV4	1.00	13:31				X			X			X							X				X			
CCB4	1.00	13:37				X			X			X							X				X			
MRC-MW-93A-060314	100.00	13:44										X							X							
MRC-MW-93A-060314	5.00	13:50																					X			
MRC-MW-93A-060314	1.00	13:57				X																				
MRC-MW-21A-060314	1.00	14:03				X																	X			
MRC-MW-21B-060314	1.00	14:10				X																	X			
MRC-MW-22A-060314	1.00	14:16				X																	X			
CRDL5	1.00	14:22				X			X			X							X				X			
CCV5	1.00	14:29				X			X			X							X				X			
CCB5	1.00	14:35				X			X			X							X				X			

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/25/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Blank	1.00	07:55													X															
Standard 1	1.00	08:01													X															
Standard 2	1.00	08:06													X															
Standard 3	1.00	08:11													X															
ICV2	1.00	08:16													X															
ICB2	1.00	08:22													X															
CRDL1	1.00	08:27													X															
ICS-A1	1.00	08:32													X															
ICS-AB1	1.00	08:37													X															
CCV1	1.00	08:42													X															
CCB1	1.00	08:48													X															
ZZZZZZ	1.00	08:53																												
ZZZZZZ	1.00	08:58																												
ZZZZZZ	1.00	09:03																												
ZZZZZZ	1.00	09:09																												
ZZZZZZ	1.00	09:14																												
ZZZZZZ	5.00	09:19																												
ZZZZZZ	25.00	09:24																												
CRDL2	1.00	09:30													X															
ZZZZZZ	1.00	09:35																												
CCV2	1.00	09:40													X															
CCB2	1.00	09:45													X															
ZZZZZZ	1.00	09:51																												
ZZZZZZ	1.00	09:56																												
PBW	1.00	10:05																												
ZZZZZZ	1.00	10:10																												
LCSW	1.00	10:19																												
MRC-MW-93A-060314	5.00	10:24													X															
MRC-MW-93A-060314L	25.00	10:29													X															
CCV3	1.00	10:35													X															
CCB3	1.00	10:40													X															
CRDL3	1.00	10:47													X															
CCV4	1.00	10:52													X															

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/25/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
CCB4	1.00	10:57													X															

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration				Continuing Calibration					M
	True		Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	6/17	50	51	102	50	51	102	52	104	MS
Cadmium	"	50	52	104	50	54	108	54	108	MS
Cobalt	"	50	51	102	50	50	100	51	102	MS
Iron 6/13		5000	5120	102	5000	5100	102	5200	104	P
Lead 6/15		50	50	100	50	49	98	49	98	MS
Manganese	6/13	750	771	103	750	763	102	776	103	P
Nickel	6/17	50	50	100	50	50	100	51	102	MS
Thallium	"	50	52	104	50	54	108	54	108	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic				50	52	104	50	100	MS
Cadmium				50	53	106	53	106	MS
Cobalt				50	52	104	51	102	MS
Iron				5000	5150	103	5140	103	P
Lead				50	50	100	49	98	MS
Manganese				750	773	103	771	103	P
Nickel				50	51	102	51	102	MS
Thallium				50	53	106	53	106	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic				50	52	104			MS
Cadmium				50	55	110			MS
Cobalt				50	52	104			MS
Iron				5000	5160	103			P
Manganese				750	775	103			P
Nickel				50	51	102			MS
Thallium				50	55	110			MS

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0	1.04	104	1.11	111
Cadmium				1.0	1.10	110	1.08	108
Cobalt				1.0	1.01	101	1.05	105
Iron				100.0	101.56	102	95.54	96
Lead				1.0	1.02	102	1.04	104
Manganese				15.0	14.10	94	12.65	84
Nickel				1.0	1.04	104	1.05	105
Thallium				1.0	1.10	110	1.15	115

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0			1.12	112
Cadmium				1.0			1.09	109
Cobalt				1.0			1.01	101
Lead				1.0			1.03	103
Nickel				1.0			1.04	104
Thallium				1.0			1.07	107

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0			1.08	108
Cadmium				1.0			1.04	104
Cobalt				1.0			1.08	108
Nickel				1.0			1.02	102
Thallium				1.0			1.09	109

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	-0.256	J	MS
Cadmium	-0.022	J	-0.040	J	-0.028	J	-0.028	J			MS
Cobalt	-0.013	J	-0.032	J	-0.035	J	0.008	U			MS
Iron	-7.892	J	7.800	U	-11.948	J	-14.127	J			P
Lead	0.061	U	0.061	U	0.061	U	0.061	U			MS
Manganese	-1.510	J	-2.524	J	-2.437	J	-2.979	J			P
Nickel	0.236	U	0.236	U	0.236	U	0.236	U			MS
Thallium	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U	MS

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic			0.211	U	0.211	U					MS
Cadmium			-0.033	J	-0.048	J					MS
Cobalt			-0.033	J	0.018	J					MS
Iron			-15.673	J	7.800	U					P
Lead			0.061	U							MS
Manganese			-3.208	J	-1.869	J					P
Nickel			0.236	U	0.236	U					MS
Thallium			0.031	U	0.031	U					MS

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: Optima ICP 4 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000	91100.0	90900	91	92000.0	92400	92
Manganese		500	5.3	510	102	3.9	523	105

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic	0.00	20.00	0.06	19.11	96			
Cadmium	0.00	20.00	0.26	20.01	100			
Cobalt	0.00	20.00	0.06	19.33	97			
Lead	0.00	20.00	0.04	19.84	99			
Nickel	0.00	20.00	0.59	18.43	92			
Thallium	0.00	20.00	0.01	20.86	104			

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/18/2014 End Date: 6/18/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	13:05				X							X								X								
Standard 1	1.00	13:12				X							X								X								
Standard 2	1.00	13:18				X							X								X								
Standard 3	1.00	13:25				X							X								X								
ICV3	1.00	13:31				X							X								X								
ICB3	1.00	13:37				X							X								X								
CRDL1	1.00	13:44				X							X								X								
ICS-A1	1.00	13:50				X							X								X								
ICS-AB1	1.00	13:57				X							X								X								
CCV1	1.00	14:03				X							X								X								
CCB1	1.00	14:10				X							X								X								
ZZZZZZ	1.00	14:16																												
PBW	1.00	14:23																												
LCSW	1.00	14:29																												
MRC-MW-110A-060314	2.00	14:36											X																	
MRC-MW-110A-060314	10.00	14:42											X																	
CRDL2	1.00	14:48				X							X								X								
ZZZZZZ	1.00	14:55																												
CCV2	1.00	15:01				X							X								X								
CCB2	1.00	15:08				X							X								X								
MRC-MW-11A-060214	1.00	15:14				X																								
ZZZZZZ	1.00	15:22																												
MRC-MW-11A-060214D	1.00	15:28				X																								
MRC-MW-11A-060214S	1.00	15:34				X																								
MRC-MW-11A-060214A	1.00	15:41				X																								
MRC-MW-11A-060214L	5.00	15:47				X																								
MRC-MW-107 B/C-060	1.00	15:54																												
CRDL3	1.00	16:00				X							X								X								
CCV3	1.00	16:07				X							X								X								
CCB3	1.00	16:13				X							X								X								
MRC-MW-70A-060214	1.00	16:19																												
MRC-MW-07A-060314	1.00	16:26																			X									
MRC-MW-52A-060314	1.00	16:32				X																								

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/18/2014 End Date: 6/18/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-110A-060314	1.00	16:39																												
MRC-MW-110B-060314	1.00	16:45																												
MRC-MW-116A-060214	1.00	16:51																												
MRC-MW-115A-060214	1.00	16:58																												
CRDL4	1.00	17:04				X							X								X									
CCV4	1.00	17:11				X							X								X									
CCB4	1.00	17:17				X							X								X									
MRC-MW-77A-060214	1.00	17:24																												
MRC-MW-79B-060214	1.00	17:30																												
MRC-MW-93A-060314	5.00	17:37																												
MRC-MW-21A-060314	1.00	17:43																												
MRC-MW-21B-060314	1.00	17:50																												
MRC-MW-22A-060314	1.00	17:56																												
CRDL5	1.00	18:02				X							X								X									
CCV5	1.00	18:09				X							X								X									
CCB5	1.00	18:15				X							X								X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic	50	51	102	50	50	100	51	102	MS
Copper	50	52	104	50	51	102	51	102	MS
Selenium	50	51	102	50	51	102	51	102	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic				50	51	102	51	102	MS
Copper				50	51	102	53	106	MS
Selenium				50	51	102	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Arsenic				50	52	104			MS
Copper				50	53	106			MS
Selenium				50	52	104			MS

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0	0.98	98	1.04	104
Copper				1.0	1.10	110	1.10	110
Selenium				2.0	2.05	102	2.02	101

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0			0.96	96
Copper				1.0			1.11	111
Selenium				2.0			1.87	94

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0			1.09	109
Copper				1.0			2.07	207
Selenium				2.0			2.17	108

CRDL 4

no samples

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-11A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0			1.00	100
Copper				1.0			2.34	234
Selenium				2.0			2.16	108

CRDLS
no samples

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U			MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U			MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic			0.211	U	0.211	U					MS
Copper			0.279	J	0.481	J					MS
Selenium			0.213	U	0.213	U					MS

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404155

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-11A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic	0.00	20.00	0.03	19.20	96			
Copper	0.00	20.00	0.55	19.00	95			
Selenium	0.00	20.00	-0.06	19.48	97			

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404155
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404155-MB	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	1.1	J	mg/L	2.0	0.3	1	NA	6/9/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	6/16/14 11:13	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0		1	NA	6/17/14 18:10	
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	6/4/14 22:27	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	0.02	1	NA	6/4/14 22:27	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	0.03	1	NA	6/4/14 22:27	
Orthophosphate as Phosphorus	365.1	0.004	J	mg/L	0.010	0.002	1	NA	6/4/14 16:52	
Silica, Dissolved as SiO2	USGS I-2700-85	0.010	U	mg/L	0.010		1	NA	6/9/14 13:47	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	6	J	mg/L	10	5	1	NA	6/6/14 10:47	
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	6/4/14 22:27	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404155
Date Analyzed: 6/ 4/14 - 6/17/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404155-LCS Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	18.2	20.0	91	81 - 112
Ammonia as Nitrogen, undistilled	350.1	0.507	0.500	101	90 - 110
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	9.19	10.0	92	76 - 123
Chloride	300.0	1.96	2.00	98	90 - 110
Nitrate as Nitrogen	300.0	0.977	1.00	98	90 - 110
Nitrite as Nitrogen	300.0	0.959	1.0	96	90 - 110
Orthophosphate as Phosphorus	365.1	0.238	0.250	95	90 - 110
Silica, Dissolved as SiO2	USGS I-2700-85	0.240	0.250	96	90 - 110
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	898	914	98	90 - 110
Sulfate	300.0	1.91	2.00	96	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Tetra Tech GEO **Service Request:** R1404155
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397250	RQ1406627-01	6/16/14 11:12	0.900	0.900	100	90 - 110
CCV2	397250	RQ1406627-06	6/16/14 11:24	0.900	0.911	101	90 - 110
CCV3	397250	RQ1406627-11	6/16/14 11:35	0.900	0.911	101	90 - 110
CCV4	397250	RQ1406627-14	6/16/14 11:47	0.900	0.903	100	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	397250	RQ1406627-02	6/16/14 11:13	0.004	0.050	0.050	U
CCB2	397250	RQ1406627-05	6/16/14 11:24	0.004	0.050	0.050	U
CCB3	397250	RQ1406627-12	6/16/14 11:36	0.004	0.050	0.050	U
CCB4	397250	RQ1406627-13	6/16/14 11:48	0.004	0.050	0.050	U

Client: Tetra Tech GEO **Service Request:** R1404155
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	397670	RQ1406779-01	6/17/14 17:49	15.0	13.5	90	85 - 115
CCV2	397670	RQ1406779-07	6/17/14 22:01	15.0	13.9	93	85 - 115
CCV3	397670	RQ1406779-09	6/18/14 02:11	15.0	14.4	96	85 - 115

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011)

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	397670	RQ1406779-02	6/17/14 18:10		1.0	1.0	U
CCB2	397670	RQ1406779-08	6/17/14 22:21		1.0	1.0	U
CCB3	397670	RQ1406779-10	6/18/14 02:32		1.0	1.0	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395684	RQ1406121-11	6/4/14 22:16	3.25	3.33	102	90 - 110
CCV2	395684	RQ1406121-12	6/5/14 00:21	3.25	3.32	102	90 - 110
CCV3	395684	RQ1406121-13	6/5/14 02:25	3.25	3.33	103	90 - 110
CCV4	395684	RQ1406121-14	6/5/14 04:29	3.25	3.33	102	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Chloride

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395684	RQ1406121-07	6/4/14 22:27	0.03	0.20	0.20	U
CCB2	395684	RQ1406121-08	6/5/14 00:31	0.03	0.20	0.20	U
CCB3	395684	RQ1406121-09	6/5/14 02:35	0.03	0.20	0.20	U
CCB4	395684	RQ1406121-10	6/5/14 04:39	0.03	0.20	0.20	U

Client: Tetra Tech GEO **Service Request:** R1404155
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395684	RQ1406121-11	6/4/14 22:16	1.80	1.82	101	90 - 110
CCV2	395684	RQ1406121-12	6/5/14 00:21	1.80	1.82	101	90 - 110
CCV3	395684	RQ1406121-13	6/5/14 02:25	1.80	1.82	101	90 - 110
CCV4	395684	RQ1406121-14	6/5/14 04:29	1.80	1.82	101	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404155
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395684	RQ1406121-07	6/4/14 22:27	0.02	0.10	0.10	U
CCB2	395684	RQ1406121-08	6/5/14 00:31	0.02	0.10	0.10	U
CCB3	395684	RQ1406121-09	6/5/14 02:35	0.02	0.10	0.10	U
CCB4	395684	RQ1406121-10	6/5/14 04:39	0.02	0.10	0.10	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Verification (CCV) Summary
Nitrite as Nitrogen

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395684	RQ1406121-11	6/4/14 22:16	1.80	1.86	103	90 - 110
CCV2	395684	RQ1406121-12	6/5/14 00:21	1.80	1.87	104	90 - 110
CCV3	395684	RQ1406121-13	6/5/14 02:25	1.80	1.89	105	90 - 110
CCV4	395684	RQ1406121-14	6/5/14 04:29	1.80	1.89	105	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Nitrite as Nitrogen

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395684	RQ1406121-07	6/4/14 22:27	0.03	0.10	0.10	U
CCB2	395684	RQ1406121-08	6/5/14 00:31	0.03	0.10	0.10	U
CCB3	395684	RQ1406121-09	6/5/14 02:35	0.03	0.10	0.10	U
CCB4	395684	RQ1406121-10	6/5/14 04:39	0.03	0.10	0.10	U

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Verification (CCV) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396128	RQ1406288-01	6/4/14 16:51	0.360	0.345	96	90 - 110
CCV2	396128	RQ1406288-07	6/4/14 17:00	0.360	0.347	96	90 - 110

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	396128	RQ1406288-02	6/4/14 16:52	0.002	0.010	0.004	J
CCB2	396128	RQ1406288-08	6/4/14 17:01	0.002	0.010	0.007	J

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Verification (CCV) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	396184	RQ1406299-01	6/9/14 13:46	0.400	0.417	104	90 - 110
CCV2	396184	RQ1406299-04	6/9/14 14:03	0.400	0.422	105	90 - 110
CCV3	396184	RQ1406299-10	6/9/14 14:15	0.400	0.421	105	90 - 110

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MRL	Result	Q
CCB1	396184	RQ1406299-02	6/9/14 13:47	0.010	0.010	U
CCB2	396184	RQ1406299-03	6/9/14 14:04	0.010	0.010	U
CCB3	396184	RQ1406299-09	6/9/14 14:17	0.010	0.010	U

Client: Tetra Tech GEO **Service Request:** R1404155
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Sulfate

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	395684	RQ1406121-11	6/4/14 22:16	3.20	3.03	95	90 - 110
CCV2	395684	RQ1406121-12	6/5/14 00:21	3.20	3.00	94	90 - 110
CCV3	395684	RQ1406121-13	6/5/14 02:25	3.20	3.22	101	90 - 110
CCV4	395684	RQ1406121-14	6/5/14 04:29	3.20	3.01	94	90 - 110

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404155

Continuing Calibration Blank (CCB) Summary
Sulfate

Analytical Method: 300.0

Units: mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	395684	RQ1406121-07	6/4/14 22:27	0.19	0.20	0.20	U
CCB2	395684	RQ1406121-08	6/5/14 00:31	0.19	0.20	0.20	U
CCB3	395684	RQ1406121-09	6/5/14 02:35	0.19	0.20	0.20	U
CCB4	395684	RQ1406121-10	6/5/14 04:39	0.19	0.20	0.20	U

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. APANAVAGE** **DATE:** **AUGUST 25, 2014**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC & INORGANIC DATA VALIDATION – VOC/OVG/1,4-DIOXANE/ PERCHLORATE/METALS/MISCELLANEOUS**
LOCKHEED MARTIN CORPORATION (LMC)
GROUNDWATER 2014
SDG R1404353

SAMPLES: 11/Aqueous/VOC

DUP-04-060514	MRC-MW-109A-060514	MRC-MW-109B-060514
MRC-MW-112A-060514	MRC-MW-14A-060414	MRC-MW-14B-060514
MRC-MW-14C-060414	MRC-MW-17A-060514	MRC-MW-37B-060514
MRC-MW-37C-060514	TB-060514	

2/Aqueous/OVG/Miscellaneous

MRC-MW-14B-060514	MRC-MW-37B-060514

5/Aqueous/1,4-Dioxane

MRC-EXT-06-060514	MRC-MW-14A-060414	MRC-MW-14B-060514
MRC-MW-14C-060414	MRC-MW-17A-060514	

3/Aqueous/Perchlorate

MRC-MW-109A-060514	MRC-MW-109B-060514	MRC-MW-17A-060514

7/Aqueous/Metals

MRC-MW-109A-060514	MRC-MW-109B-060514	MRC-MW-112A-060514
MRC-MW-14A-060414	MRC-MW-14B-060514	MRC-MW-14C-060414
MRC-MW-17A-060514		

Overview

The sample set for LMC-Groundwater 2014, SDG R1404353 consisted of eleven (11) aqueous environmental samples and one (1) trip blank. Ten (10) aqueous samples and one (1) trip blank were analyzed volatile organic compounds (VOC). Two (2) aqueous samples were analyzed for organic volatile gases (OVG) and miscellaneous parameters (ammonia, alkalinity as $CaCO_3$, Dissolved Organic Carbon (DOC), and silica). Five (5) aqueous samples were analyzed for 1,4-dioxane. Three (3) aqueous samples were analyzed for perchlorate. Seven (7) aqueous samples were analyzed for metals. One field duplicate sample pair was included in this SDG: DUP-04-060514/MRC-MW-37C-060514.

The samples were collected by Tetra Tech, Inc. on June 4 - 5, 2014 and analyzed by ALS Environmental. All analyses were conducted in accordance with SW-846 Methods 8260C, 6850, 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, 365.3, and 522, RSK 175, USGS I-2700-85, and Standard Methods 2540 C and 5310 B/C analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method/calibration blanks, trip blank results, Interference Check Sample (ICS), surrogate spike recoveries, laboratory control

sample/laboratory control sample duplicate results, internal standard areas and recoveries, ICP serial dilution results, chromatographic resolution, field duplicate precision, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- Sample MRC-EXT-06-060514 was not analyzed for VOCs by the laboratory as indicated on the sample Chain of Custody (COC). The laboratory was contacted and confirmed that the sample was not analyzed for VOCs.

- The continuing calibration performed on 06/17/14 @ 10:24 had Percent Differences (%Ds) for 2-butanone and acetone greater than the 20% quality control limit. Samples MRC-MW-14C-060414, MRC-MW-17A-060514, and MRC-MW-37C-060514 were affected. The non-detected results reported for these compounds in the affected samples were qualified as estimated, (UJ).

- The following analytes/compounds/parameters below were detected in the laboratory method, trip and/or preparation blanks at the following maximum concentrations:

Analyte/Compound	Maximum Concentration (µg/L)	Action Level (µg/L)
Bromomethane [1]	0.31	1.55
Methylene Chloride [1]	0.52	5.2
Naphthalene [1]	0.25	1.25
1,2,4-Trichlorobenzene [2]	0.33	1.65
Naphthalene [2]	0.28	1.4
Acetone [3]	3.9	39
Antimony [4]	0.177	0.885
Cadmium [4]	0.010	0.050
Cobalt [4]	0.014	0.07
Molybdenum [4]	0.071	0.355
Silver [4]	0.015	0.075
Barium [5]	0.80	4.0
Manganese [5]	2.19	10.95
Vanadium [5]	0.55	2.75
Iron [6]	17.06	85.3

[1] - Maximum concentration detected in the laboratory preparation blank from analytical/preparation batch #397230 analyzed on 06/16/14 (indicated in the electronic deliverable) affecting the samples associated with this analytical/preparation batch.
[2] - Maximum concentration detected in the laboratory preparation blank from analytical/preparation batch #397445 analyzed on 06/17/14 (indicated in the electronic deliverable) affecting the samples associated with this analytical/preparation batch.

(3) - Maximum concentration detected in the trip blank, TB-060514, affecting all samples.
(4) - Maximum concentration detected in the initial and/or continuing calibration blanks from 6020A analysis affecting samples analyzed on 06/24-25/14.
(5) - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/20/14.
(6) - Maximum concentration detected in the continuing calibration blanks from 6010C analysis affecting samples analyzed on 06/21/14.

An action level of 10X the maximum concentration was established for the common laboratory contaminants, acetone and methylene chloride, and an action level of 5X the maximum concentration for the remaining compounds/analytes was established to evaluate for laboratory and trip blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected results reported for these compounds/analytes in the affected samples below the established action level were qualified as non-detected, (U).

- The Percent Recovery (%R) for the VOC surrogate spike compound, toluene-d8 (TOL), was below the lower quality control limit in sample MRC-MW-112A-060514. The sample was reanalyzed with similar results. The initial analysis was used in the data validation. The detected and non-detected results reported for the target compounds in this sample were qualified as estimated, (J) and (UJ), respectively.

- The following internal standard Percent Recoveries (%R) were above the 125% quality control limit:

Sample	Internal Standard	Affected Analytes
MRC-MW-14B-060514	Sc	Co, Ni
MRC-MW-14C-060414	Sc	Co, Ni

The detected and non-detected results reported for the affected analytes were qualified as estimated, (J) and (UJ), respectively.

- The 6020A Matrix Spike (MS) analysis had %Rs for antimony, arsenic, selenium, and molybdenum below the 75% quality control limit. The post digestion spike had acceptable recoveries. All samples were affected. The detected and non-detected results reported for these analytes in the affected samples were qualified as estimated, (J) and (UJ), respectively.

- Detected results reported below the Reporting Limit (RL) limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The following parameters were detected in the laboratory method and/or preparation blanks at the following maximum concentrations:

Parameter	Maximum Concentration (mg/L)	Action Level (mg/L)
Chloride [1]	0.16	0.8
Orthophosphate as P [2]	0.01	0.05
Alkalinity (as $CaCO_3$) [3]	0.9	4.5
Alkalinity (as $CaCO_3$) [4]	0.9	4.5
Silica, dissolved [5]	0.007	0.035

[1] - Maximum concentration detected in the initial and/or continuing calibration blanks from EPA Method 300.0 analyses affecting samples MRC-MW-14B-060514 and MRC-MW-37B-060514.
[2] - Maximum concentration detected in the continuing calibration blank from EPA Method 365.3 analyses affecting samples MRC-MW-14B-060514 and MRC-MW-37B-060514.
[3] - Maximum concentration detected in the laboratory preparation blank, R1404353-MB1, from preparation batch #397291 (indicated in the electronic deliverable) affecting MRC-MW-14B-060514 and MRC-MW-37B-060514.
[4] - Maximum concentration detected in the laboratory preparation blank, R1404353-MB2, from preparation batch #397291 (indicated in the electronic deliverable) affecting MRC-MW-14B-060514 and MRC-MW-37B-060514.
[5] - Maximum concentration detected in the continuing calibration blanks affecting MRC-MW-14B-060514 and MRC-MW-37B-060514.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. No action was necessary because the parameters were not detected or detected results in the affected samples were above the established action levels.

Sample MRC-MW-17A-060514 was analyzed for perchlorate but was not requested for analysis on the sample COC. However, the laboratory received a sample bottle for perchlorate. The sample was analyzed for this parameter and the result was reported in the database.

Trichloroethene exceeded the linear calibration range of instrument in the initial analysis (5X) of sample MRC-MW-14B-060514. The sample was reanalyzed at a 10X dilution. The 10X diluted result for trichloroethene was used in the data validation.

The electronic deliverable from the laboratory did not contain results for EPA Methods 300.0 and 365.3. The results for these parameters were manually added to the database.

Non-detected results were reported to the MDL.

Executive Summary

Laboratory Performance: One sample was not analyzed for VOCs as requested on the COC. VOC continuing calibration %Ds exceeded 20%. Contaminants were detected in the laboratory preparation and method blanks. Internal standard %Rs in the metals fraction were high for two samples.

Other Factors Affecting Data Quality: A VOC surrogate had a low %R in one sample. One VOC sample required further dilution. The metals MS sample had low %Rs for some analytes. Results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review" (June 2008), the "National Functional Guidelines for Inorganic Review" (January 2010), and SW-846 Methods 8260C, 6850, 6010C, 6020A, and 7470A, EPA Methods 300.0, 350.1, 365.3, and 522, RSK 175, USGS I-2700-85, and Standard Methods 2540 C and 5310 B/C analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	DUP-04-060514			MRC-MW-109A-060514			MRC-MW-109B-060514			MRC-MW-112A-060514		
SDG: R1404353	LAB_ID	R1404353-006			R1404353-010			R1404353-011			R1404353-007		
FRACTION: OV	SAMP_DATE	6/5/2014			6/5/2014			6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	MRC-MW-37C-060514											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		0.22	U		0.22	UJ	R
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.25	U		0.25	U		0.25	U		0.25	UJ	R
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		0.31	U		0.31	UJ	R
1,1-DICHLOROETHANE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
1,1-DICHLOROETHENE		0.57	U		1.3			0.57	U		0.57	UJ	R
1,1-DICHLOROPROPENE		0.29	U		0.29	U		0.29	U		0.29	UJ	R
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		0.82	U		0.82	UJ	R
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		0.7	U		0.7	UJ	R
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		0.23	U		0.23	UJ	R
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		0.74	U		0.74	UJ	R
1,2-DIBROMOETHANE		0.24	U		0.24	U		0.24	U		0.24	UJ	R
1,2-DICHLOROBENZENE		0.21	U		0.21	U		0.21	U		0.21	UJ	R
1,2-DICHLOROETHANE		0.36	U		0.36	U		0.36	U		0.36	UJ	R
1,2-DICHLOROPROPANE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
1,3-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
1,3-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	UJ	R
1,4-DICHLOROBENZENE		0.2	U		0.2	U		0.2	U		0.34	J	PR
2,2-DICHLOROPROPANE		0.27	U		0.27	U		0.27	U		0.27	UJ	R
2-BUTANONE		0.81	U		0.81	U		0.81	U		0.81	UJ	R
2-CHLOROETHYL VINYL ETHER		0.44	U		0.44	U		0.44	U		0.44	UJ	R
2-CHLOROTOLUENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
2-HEXANONE		1.7	U		1.7	U		1.7	U		1.7	UJ	R
4-CHLOROTOLUENE		0.24	U		0.24	U		0.24	U		0.24	UJ	R
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
4-METHYL-2-PENTANONE		0.67	U		0.67	U		0.67	U		0.67	UJ	R
ACETONE		1.3	U		6.3	U	B	1.3	U		1.3	UJ	R
BENZENE		0.2	U		0.21	J	P	10			0.27	J	PR
BROMOBENZENE		0.28	U		0.28	U		0.28	U		0.28	UJ	R
BROMOCHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	UJ	R
BROMODICHLOROMETHANE		0.32	U		0.32	U		0.32	U		0.32	UJ	R
BROMOFORM		0.42	U		0.42	U		0.42	U		0.42	UJ	R
BROMOMETHANE		0.29	U		0.29	U		0.29	U		0.29	UJ	R
CARBON DISULFIDE		0.22	U		0.22	U		0.22	U		0.22	UJ	R
CARBON TETRACHLORIDE		0.45	U		0.45	U		0.45	U		0.45	UJ	R

PROJ_NO: 06247	NSAMPLE	MRC-MW-14A-060414			MRC-MW-14B-060514			MRC-MW-14B-060514-DL			MRC-MW-14C-060414		
SDG: R1404353	LAB_ID	R1404353-001			R1404353-003			R1404353-003			R1404353-002		
FRACTION: OV	SAMP_DATE	6/4/2014			6/5/2014			6/5/2014			6/4/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		1.1	U					0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U		3.7	J	P				0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	U		1.3	U					0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		3.9	J	P				0.31	U	
1,1-DICHLOROETHANE		0.98	J	P	24						0.2	U	
1,1-DICHLOROETHENE		0.98	J	P	240						0.57	U	
1,1-DICHLOROPROPENE		0.29	U		1.5	U					0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U		4.1	U					0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U		3.5	U					0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U		1.2	U					0.24	U	A
1,2,4-TRIMETHYLBENZENE		0.2	U		1	U					0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		3.7	U					0.74	U	
1,2-DIBROMOETHANE		0.24	U		1.2	U					0.24	U	
1,2-DICHLOROBENZENE		0.21	U		1.1	U					0.21	U	
1,2-DICHLOROETHANE		0.36	U		1.8	U					0.36	U	
1,2-DICHLOROPROPANE		0.2	U		1	U					0.2	U	
1,3-DICHLOROBENZENE		0.2	U		1	U					0.2	U	
1,3-DICHLOROPROPANE		0.27	U		1.4	U					0.27	U	
1,4-DICHLOROBENZENE		0.2	U		1	U					0.2	U	
2,2-DICHLOROPROPANE		0.27	U		1.4	U					0.27	U	
2-BUTANONE		0.81	U		4.1	U					0.81	UJ	C
2-CHLOROETHYL VINYL ETHER		0.44	U		2.2	U					0.44	U	
2-CHLOROTOLUENE		0.2	U		1	U					0.2	U	
2-HEXANONE		1.7	U		8.3	U					1.7	U	
4-CHLOROTOLUENE		0.24	U		1.2	U					0.24	U	
4-ISOPROPYLTOLUENE		0.2	U		1	U					0.2	U	
4-METHYL-2-PENTANONE		0.67	U		3.4	U					0.67	U	
ACETONE		2	U	B	6.2	U					1.3	UJ	C
BENZENE		0.2	U		18						0.2	U	
BROMOBENZENE		0.28	U		1.5	U					0.28	U	
BROMOCHLOROMETHANE		0.32	U		1.6	U					0.32	U	
BROMODICHLOROMETHANE		0.32	U		1.6	U					0.32	U	
BROMOFORM		0.42	U		2.1	U					0.42	U	
BROMOMETHANE		0.29	U		1.5	U					0.29	J	P
CARBON DISULFIDE		0.22	U		1.1	U					0.22	U	
CARBON TETRACHLORIDE		0.45	U		2.3	U					0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-17A-060514			MRC-MW-37B-060514			MRC-MW-37C-060514			TB-060514		
SDG: R1404353	LAB_ID	R1404353-009			R1404353-004			R1404353-005			R1404353-008		
FRACTION: OV	SAMP_DATE	6/5/2014			6/5/2014			6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE	0.36	J	P	0.2	U		0.2	U		0.2	U	
1,1-DICHLOROETHENE	0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	4.6			0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,2-DICHLOROPROPANE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE	0.81	UJ	C	0.81	U		0.81	UJ	C	0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE	1.7	U		1.7	U		1.7	U		1.7	U	
4-CHLOROTOLUENE	0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.55	J	P	0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	U		0.67	U		0.67	U		0.67	U	
ACETONE	1.3	UJ	C	1.3	U		1.3	UJ	C	3.9	J	P
BENZENE	160			0.2	U		0.2	U		0.2	U	
BROMOBENZENE	0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM	0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE	0.29	U		0.29	U		0.29	U		0.29	U	
CARBON DISULFIDE	0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	DUP-04-060514			MRC-MW-109A-060514			MRC-MW-109B-060514			MRC-MW-112A-060514		
SDG: R1404353	LAB_ID	R1404353-006			R1404353-010			R1404353-011			R1404353-007		
FRACTION: OV	SAMP_DATE	6/5/2014			6/5/2014			6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	MRC-MW-37C-060514											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		1.8	J	R
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	UJ	R
CHLOROETHANE		0.24	U		0.24	U		0.24	U		0.24	UJ	R
CHLOROFORM		0.25	U		0.25	U		0.25	U		0.25	UJ	R
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	UJ	R
CIS-1,2-DICHLOROETHENE		0.3	U		45			21			1.9	J	R
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	UJ	R
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	UJ	R
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	UJ	R
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	UJ	R
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	UJ	R
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	UJ	R
ISOPROPYLBENZENE		0.2	U		0.2	U		0.25	J	P	0.2	UJ	R
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	UJ	R
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		0.29	UJ	R
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	UJ	R
NAPHTHALENE		0.2	U		0.2	U		0.33	U	A	0.2	UJ	R
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.21	UJ	R
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
O-XYLENE		0.2	U		0.2	U		0.42	J	P	0.2	UJ	R
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		0.27	UJ	R
STYRENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	UJ	R
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	UJ	R
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	UJ	R
TOLUENE		0.2	U		0.36	J	P	0.2	U		0.2	UJ	R
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	UJ	R
TRANS-1,2-DICHLOROETHENE		0.33	U		1.1			1.6			0.33	UJ	R
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
TRICHLOROETHENE		0.22	U		0.22	U		4.1			3.1	J	R
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	UJ	R
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	UJ	R
VINYL CHLORIDE		0.32	U		31			0.6	J	P	1.4	J	R

PROJ_NO: 06247	NSAMPLE	MRC-MW-14A-060414			MRC-MW-14B-060514			MRC-MW-14B-060514-DL			MRC-MW-14C-060414		
SDG: R1404353	LAB_ID	R1404353-001			R1404353-003			R1404353-003			R1404353-002		
FRACTION: OV	SAMP_DATE	6/4/2014			6/5/2014			6/5/2014			6/4/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												

PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE	0.29	U		1.5	U					0.29	U	
CHLORODIBROMOMETHANE	0.31	U		1.6	U					0.31	U	
CHLOROETHANE	0.24	U		1.2	U					0.24	U	
CHLOROFORM	0.25	U		2.7	J	P				0.25	U	
CHLOROMETHANE	0.21	U		1.1	U					0.21	U	
CIS-1,2-DICHLOROETHENE	9.4			34						0.3	U	
CIS-1,3-DICHLOROPROPENE	0.24	U		1.2	U					0.24	U	
DIBROMOMETHANE	0.32	U		1.6	U					0.32	U	
DICHLORODIFLUOROMETHANE	0.46	U		2.4	U					0.46	U	
DIISOPROPYL ETHER	0.2	U		1	U					0.2	U	
ETHYL TERT-BUTYL ETHER	0.2	U		1	U					0.2	U	
ETHYLBENZENE	0.2	U		1	U					0.2	U	
HEXACHLOROBUTADIENE	0.62	U		3.1	U					0.62	U	
ISOPROPYLBENZENE	0.2	U		1	U					0.2	U	
M+P-XYLENES	0.33	U		1.7	U					0.33	U	
METHYL TERT-BUTYL ETHER	0.29	U		1.5	U					0.29	U	
METHYLENE CHLORIDE	0.32	U		1.6	U					0.32	U	
NAPHTHALENE	0.2	U		1	U					0.23	U	A
N-BUTYLBENZENE	0.21	U		1.1	U					0.21	U	
N-PROPYLBENZENE	0.2	U		1	U					0.2	U	
O-XYLENE	0.2	U		1	U					0.2	U	
SEC-BUTYLBENZENE	0.27	U		1.4	U					0.27	U	
STYRENE	0.2	U		1	U					0.2	U	
TERT-AMYL METHYL ETHER	0.2	U		1	U					0.2	U	
TERT-BUTYLBENZENE	0.2	U		1	U					0.2	U	
TERTIARY-BUTYL ALCOHOL	11	U		54	U					11	U	
TETRACHLOROETHENE	0.3	U		2.5	J	P				0.3	U	
TOLUENE	0.2	U		1	U					0.2	U	
TOTAL XYLENES	0.53	U		2.7	U					0.53	U	
TRANS-1,2-DICHLOROETHENE	1.6			2.4	J	P				0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U		1	U					0.2	U	
TRICHLOROETHENE	2.3						1000			0.22	U	
TRICHLOROFLUOROMETHANE	0.2	U		1	U					0.2	U	
VINYL ACETATE	1.1	U		5.1	U					1.1	U	
VINYL CHLORIDE	0.32	U		1.6	U					0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-17A-060514			MRC-MW-37B-060514			MRC-MW-37C-060514			TB-060514		
SDG: R1404353	LAB_ID	R1404353-009			R1404353-004			R1404353-005			R1404353-008		
FRACTION: OV	SAMP_DATE	6/5/2014			6/5/2014			6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.32	J	P	0.24	U		0.24	U		0.24	U	
CHLOROFORM		0.25	J	P	0.25	U		0.25	U		0.25	U	
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		2			1.5			0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		10			0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		45			0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		3.5			0.2	U		0.2	U		0.2	U	
M+P-XYLENES		21			0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	U		0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		3.9			0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.48	J	P	0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		5.9			0.2	U		0.2	U		0.2	U	
O-XYLENE		4.9			0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.67	J	P	0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	U		11	U		11	U		11	U	
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		32			0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		26			0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		12			4.8			0.28	J	P	0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	U		1.1	U	
VINYL CHLORIDE		0.54	J	P	0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-14B-060514			MRC-MW-37B-060514		
SDG: R1404353	LAB_ID	R1404353-003			R1404353-004		
FRACTION: OVG	SAMP_DATE	6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		0.2	U		0.2	U	
ETHENE		0.29	J	P	0.11	U	
METHANE		12			0.21	U	

PROJ_NO: 06247	NSAMPLE	MRC-EXT-06-060514			MRC-MW-14A-060414			MRC-MW-14B-060514			MRC-MW-14C-060414		
SDG: R1404353	LAB_ID	R1404353-012			R1404353-001			R1404353-003			R1404353-002		
FRACTION: OS	SAMP_DATE	6/5/2014			6/4/2014			6/5/2014			6/4/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		1.7			3.65			177			0.0286	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-17A-060514		
SDG: R1404353	LAB_ID	R1404353-009		
FRACTION: OS	SAMP_DATE	6/5/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,4-DIOXANE		5.04		

PROJ_NO: 06247	NSAMPLE	MRC-MW-109A-060514			MRC-MW-109B-060514			MRC-MW-17A-060514		
SDG: R1404353	LAB_ID	R1404353-010			R1404353-011			R1404353-009		
FRACTION: MISCO	SAMP_DATE	6/5/2014			6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		0.026	U		0.16	J	P	0.026	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-109A-060514			MRC-MW-109B-060514			MRC-MW-112A-060514			MRC-MW-14A-060414		
SDG: R1404353	LAB_ID	R1404353-010			R1404353-011			R1404353-007			R1404353-001		
FRACTION: M	SAMP_DATE	6/5/2014			6/5/2014			6/5/2014			6/4/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	UJ	D	2.8	J	D	0.759	U	A	0.157	UJ	D
ARSENIC		6	J	D	0.629	J	DP	0.871	J	DP	1.3	J	D
BARIUM		102			74.5			115			87.9		
BERYLLIUM		0.083	J	P	0.675	J	P	9.6			0.066	J	P
CADMIUM		0.008	U		0.03	U	A	0.008	U		0.052	J	P
CHROMIUM		1.8	J	P	1.5	J	P	2	J	P	0.492	J	P
COBALT		70.2			31.9			67.9			31.8		
COPPER		2.5			3.7			2.7			2.2		
IRON		60000			164			12500			31800		
LEAD		0.233	J	P	0.345	J	P	0.394	J	P	0.069	J	P
MANGANESE		944			83			284			2010		
MERCURY		0.024	U		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.42	J	DP	0.652	J	DP	0.068	UJ	D	0.068	UJ	D
NICKEL		48.8			56.6			86.9			32.7		
SELENIUM		3.7	J	D	0.546	J	DP	1.1	J	DP	1.3	J	DP
SILICON		10300			5330			4140			8860		
SILVER		0.03	U	A	0.015	U		0.015	U		0.015	U	
THALLIUM		0.031	U		0.031	U		0.031	U		0.031	U	
VANADIUM		0.375	U	A	3.2	J	P	4.1	J	P	0.169	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-14B-060514			MRC-MW-14C-060414			MRC-MW-17A-060514		
SDG: R1404353	LAB_ID	R1404353-003			R1404353-002			R1404353-009		
FRACTION: M	SAMP_DATE	6/5/2014			6/4/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.184	U	A	0.157	UJ	D	0.157	UJ	D
ARSENIC		69.4	J	D	0.652	J	DP	1.3	J	D
BARIUM		132			72.3			331		
BERYLLIUM		0.467	J	P	0.186	J	P	0.427	J	P
CADMIUM		0.068	J	P	0.046	U	A	0.008	U	
CHROMIUM		4.3			7.5			0.694	J	P
COBALT		56.6	J	N	9.4	J	N	59.4		
COPPER		3			6.9			9.6		
IRON		26300			14700			60600		
LEAD		1			4.6			0.263	J	P
MANGANESE		2280			869			8740		
MERCURY		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		0.206	U	A	0.068	UJ	D	0.068	UJ	D
NICKEL		120	J	N	13.2	J	N	70.3		
SELENIUM		258	J	D	0.213	UJ	D	0.213	UJ	D
SILICON		9460			16700			6320		
SILVER		0.073	U	A	0.043	U	A	0.019	U	A
THALLIUM		0.031	U		0.031	U		0.031	U	
VANADIUM		4.9	J	P	25.3	J	P	0.169	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-14B-060514			MRC-MW-37B-060514		
SDG: R1404353	LAB_ID	R1404353-003			R1404353-004		
FRACTION: MISC	SAMP_DATE	6/5/2014			6/5/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.044	J	P	0.004	U	
CARBONATE ALKALINITY		0.3	U		90.4		
CHLORIDE		72.3			27		
DISSOLVED ORGANIC CARBON		0.8	J	P	6.4		
NITRATE-N		0.2	U		0.2	U	
NITRITE-N		0.2	U		0.2	U	
ORTHOPHOSPHATE-P		0.02	U		0.17		
SILICA		16.3			8.31		
SULFATE		15.1			11.9		

Appendix B

Results as Reported by the Laboratory

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 16:52
Sample Name:	DUP-04-060514	**Units:**	µg/L
Lab Code:	R1404353-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6577.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 16:52
Sample Name:	DUP-04-060514	**Units:**	µg/L
Lab Code:	R1404353-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6577.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 16:52
Sample Name:	DUP-04-060514	**Units:**	µg/L
Lab Code:	R1404353-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6577.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/16/14 16:52	
Dibromofluoromethane	103	89-119	6/16/14 16:52	
Toluene-d8	94	87-121	6/16/14 16:52	

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1036
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 17:57
Sample Name:	MRC-MW-109A-060514	**Units:**	µg/L
Lab Code:	R1404353-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6579.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**1.3**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**6.3**		5.0	1.3	
71-43-2	Benzene	**0.21**	**J**	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1036
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 17:57
Sample Name:	MRC-MW-109A-060514	**Units:**	µg/L
Lab Code:	R1404353-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6579.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	**0.36**	J	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**31**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**45**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.1**		1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1036
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 17:57
Sample Name:	MRC-MW-109A-060514	**Units:**	µg/L
Lab Code:	R1404353-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6579.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/16/14 17:57	
Dibromofluoromethane	103	89-119	6/16/14 17:57	
Toluene-d8	99	87-121	6/16/14 17:57	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1132
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 18:30
Sample Name:	MRC-MW-109B-060514	**Units:**	µg/L
Lab Code:	R1404353-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6580.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	10		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1132
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 18:30
Sample Name:	MRC-MW-109B-060514	**Units:**	µg/L
Lab Code:	R1404353-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6580.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	**0.25**	J	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.33**	BJ	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**4.1**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.60**	J	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**21**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	**0.42**	J	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.6**		1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1132
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 18:30
Sample Name:	MRC-MW-109B-060514	**Units:**	µg/L
Lab Code:	R1404353-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6580.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/16/14 18:30	
Dibromofluoromethane	103	89-119	6/16/14 18:30	
Toluene-d8	98	87-121	6/16/14 18:30	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1340
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 17:25
Sample Name:	MRC-MW-112A-060514	**Units:**	µg/L
Lab Code:	R1404353-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6578.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	**0.34**	J	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**0.27**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1340
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 17:25
Sample Name:	MRC-MW-112A-060514	**Units:**	µg/L
Lab Code:	R1404353-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6578.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	**1.8**		1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**3.1**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**1.4**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.9**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1340
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 17:25
Sample Name:	MRC-MW-112A-060514	**Units:**	µg/L
Lab Code:	R1404353-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6578.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100		85-122	6/16/14 17:25	
Dibromofluoromethane	102		89-119	6/16/14 17:25	
Toluene-d8	85	*	87-121	6/16/14 17:25	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1340
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 13:05
Sample Name:	MRC-MW-112A-060514	**Units:**	µg/L
Lab Code:	R1404353-007	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6614.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	**0.35**	J	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**1.4**	J	5.0	1.3	
71-43-2	Benzene	**0.25**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1340
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 13:05
Sample Name:	MRC-MW-112A-060514	**Units:**	µg/L
Lab Code:	R1404353-007	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6614.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	**1.8**		1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**3.1**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**1.3**		1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.8**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1340
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 13:05
Sample Name:	MRC-MW-112A-060514	**Units:**	µg/L
Lab Code:	R1404353-007	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6614.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102		85-122	6/17/14 13:05	
Dibromofluoromethane	104		89-119	6/17/14 13:05	
Toluene-d8	85	*	87-121	6/17/14 13:05	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1050
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 14:09
Sample Name:	MRC-MW-14A-060414	**Units:**	µg/L
Lab Code:	R1404353-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6572.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.98**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**0.98**	J	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**2.0**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1050
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 14:09
Sample Name:	MRC-MW-14A-060414	**Units:**	µg/L
Lab Code:	R1404353-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6572.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**2.3**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**9.4**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**1.6**		1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1050
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 14:09
Sample Name:	MRC-MW-14A-060414	**Units:**	µg/L
Lab Code:	R1404353-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6572.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/16/14 14:09	
Dibromofluoromethane	102	89-119	6/16/14 14:09	
Toluene-d8	90	87-121	6/16/14 14:09	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 15:47
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6575.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0	1.1	
71-55-6	1,1,1-Trichloroethane (TCA)	**3.7**	J	5.0	1.8	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	1.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	**3.9**	J	5.0	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**24**		5.0	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**240**		5.0	2.9	
563-58-6	1,1-Dichloropropene	5.0	U	5.0	1.5	
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0	4.1	
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0	3.5	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	1.2	
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0	1.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	3.7	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	1.2	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	1.1	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	1.8	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	1.0	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	1.0	
142-28-9	1,3-Dichloropropane	5.0	U	5.0	1.4	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	1.0	
594-20-7	2,2-Dichloropropane	5.0	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	25	U	25	4.1	
110-75-8	2-Chloroethyl Vinyl Ether	5.0	U	5.0	2.2	
95-49-8	2-Chlorotoluene	5.0	U	5.0	1.0	
591-78-6	2-Hexanone	25	U	25	8.3	
75-65-0	tert-Butyl Alcohol	200	U	200	54	
106-43-4	4-Chlorotoluene	5.0	U	5.0	1.2	
99-87-6	4-Isopropyltoluene	5.0	U	5.0	1.0	
108-10-1	4-Methyl-2-pentanone	25	U	25	3.4	
67-64-1	Acetone	25	U	25	6.2	
71-43-2	Benzene	**18**		5.0	1.0	
108-86-1	Bromobenzene	5.0	U	5.0	1.5	
74-97-5	Bromochloromethane	5.0	U	5.0	1.6	
75-27-4	Bromodichloromethane	5.0	U	5.0	1.6	
75-25-2	Bromoform	5.0	U	5.0	2.1	
74-83-9	Bromomethane	5.0	U	5.0	1.5	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 15:47
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6575.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	5.0	U	5.0	1.1	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	2.3	
108-90-7	Chlorobenzene	5.0	U	5.0	1.5	
75-00-3	Chloroethane	5.0	U	5.0	1.2	
67-66-3	Chloroform	**2.7**	J	5.0	1.3	
74-87-3	Chloromethane	5.0	U	5.0	1.1	
124-48-1	Dibromochloromethane	5.0	U	5.0	1.6	
74-95-3	Dibromomethane	5.0	U	5.0	1.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	2.4	
75-09-2	Methylene Chloride	5.0	U	5.0	1.6	
108-20-3	Diisopropyl Ether	5.0	U	5.0	1.0	
637-92-3	Ethyl tert-Butyl Ether	5.0	U	5.0	1.0	
100-41-4	Ethylbenzene	5.0	U	5.0	1.0	
87-68-3	Hexachlorobutadiene	10	U	10	3.1	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	1.0	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	1.5	
91-20-3	Naphthalene	5.0	U	5.0	1.0	
100-42-5	Styrene	5.0	U	5.0	1.0	
127-18-4	Tetrachloroethene (PCE)	**2.5**	J	5.0	1.5	
108-88-3	Toluene	5.0	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	**1100**	E	5.0	1.1	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1.0	
108-05-4	Vinyl Acetate	10	U	10	5.1	
75-01-4	Vinyl Chloride	5.0	U	5.0	1.6	
1330-20-7	Xylenes, Total	15	U	15	2.7	
156-59-2	cis-1,2-Dichloroethene	**34**		5.0	1.5	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	1.2	
179601-23-1	m,p-Xylenes	10	U	10	1.7	
104-51-8	n-Butylbenzene	5.0	U	5.0	1.1	
103-65-1	n-Propylbenzene	5.0	U	5.0	1.0	
95-47-6	o-Xylene	5.0	U	5.0	1.0	
135-98-8	sec-Butylbenzene	5.0	U	5.0	1.4	
994-05-8	tert-Amyl Methyl Ether	5.0	U	5.0	1.0	
98-06-6	tert-Butylbenzene	5.0	U	5.0	1.0	
156-60-5	trans-1,2-Dichloroethene	**2.4**	J	5.0	1.7	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 15:47
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6575.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/16/14 15:47	
Dibromofluoromethane	101	89-119	6/16/14 15:47	
Toluene-d8	100	87-121	6/16/14 15:47	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 15:48
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6618.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	10	U	10	2.2	
71-55-6	1,1,1-Trichloroethane (TCA)	**3.8**	DJ	10	3.6	
79-34-5	1,1,2,2-Tetrachloroethane	10	U	10	2.5	
76-13-1	1,1,2-Trichlorotrifluoroethane	**3.4**	DJ	10	3.1	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**23**	D	10	2.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**240**	D	10	5.7	
563-58-6	1,1-Dichloropropene	10	U	10	2.9	
87-61-6	1,2,3-Trichlorobenzene	10	U	10	8.2	
96-18-4	1,2,3-Trichloropropane	10	U	10	7.0	
120-82-1	1,2,4-Trichlorobenzene	10	U	10	2.4	
95-63-6	1,2,4-Trimethylbenzene	10	U	10	2.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	20	U	20	7.4	
106-93-4	1,2-Dibromoethane	10	U	10	2.4	
95-50-1	1,2-Dichlorobenzene	10	U	10	2.1	
107-06-2	1,2-Dichloroethane	10	U	10	3.6	
78-87-5	1,2-Dichloropropane	10	U	10	2.0	
541-73-1	1,3-Dichlorobenzene	10	U	10	2.0	
142-28-9	1,3-Dichloropropane	10	U	10	2.7	
106-46-7	1,4-Dichlorobenzene	10	U	10	2.0	
594-20-7	2,2-Dichloropropane	10	U	10	2.7	
78-93-3	2-Butanone (MEK)	50	U	50	8.2	
110-75-8	2-Chloroethyl Vinyl Ether	10	U	10	4.4	
95-49-8	2-Chlorotoluene	10	U	10	2.0	
591-78-6	2-Hexanone	50	U	50	17	
75-65-0	tert-Butyl Alcohol	400	U	400	110	
106-43-4	4-Chlorotoluene	10	U	10	2.4	
99-87-6	4-Isopropyltoluene	10	U	10	2.0	
108-10-1	4-Methyl-2-pentanone	50	U	50	6.7	
67-64-1	Acetone	50	U	50	13	
71-43-2	Benzene	**16**	D	10	2.0	
108-86-1	Bromobenzene	10	U	10	2.9	
74-97-5	Bromochloromethane	10	U	10	3.2	
75-27-4	Bromodichloromethane	10	U	10	3.2	
75-25-2	Bromoform	10	U	10	4.2	
74-83-9	Bromomethane	10	U	10	2.9	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 15:48
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6618.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	10	U	10	2.2	
56-23-5	Carbon Tetrachloride	10	U	10	4.5	
108-90-7	Chlorobenzene	10	U	10	2.9	
75-00-3	Chloroethane	10	U	10	2.4	
67-66-3	Chloroform	**7.8**	DJ	10	2.5	
74-87-3	Chloromethane	10	U	10	2.1	
124-48-1	Dibromochloromethane	10	U	10	3.1	
74-95-3	Dibromomethane	10	U	10	3.2	
75-71-8	Dichlorodifluoromethane (CFC 12)	10	U	10	4.7	
75-09-2	Methylene Chloride	10	U	10	3.2	
108-20-3	Diisopropyl Ether	10	U	10	2.0	
637-92-3	Ethyl tert-Butyl Ether	10	U	10	2.0	
100-41-4	Ethylbenzene	10	U	10	2.0	
87-68-3	Hexachlorobutadiene	20	U	20	6.2	
98-82-8	Isopropylbenzene (Cumene)	10	U	10	2.0	
1634-04-4	Methyl tert-Butyl Ether	10	U	10	2.9	
91-20-3	Naphthalene	10	U	10	2.0	
100-42-5	Styrene	10	U	10	2.0	
127-18-4	Tetrachloroethene (PCE)	10	U	10	3.0	
108-88-3	Toluene	10	U	10	2.0	
79-01-6	Trichloroethene (TCE)	**1000**	D	10	2.2	
75-69-4	Trichlorofluoromethane (CFC 11)	10	U	10	2.0	
108-05-4	Vinyl Acetate	20	U	20	11	
75-01-4	Vinyl Chloride	10	U	10	3.2	
1330-20-7	Xylenes, Total	30	U	30	5.4	
156-59-2	cis-1,2-Dichloroethene	**36**	D	10	3.0	
10061-01-5	cis-1,3-Dichloropropene	10	U	10	2.4	
179601-23-1	m,p-Xylenes	20	U	20	3.4	
104-51-8	n-Butylbenzene	10	U	10	2.1	
103-65-1	n-Propylbenzene	10	U	10	2.0	
95-47-6	o-Xylene	10	U	10	2.0	
135-98-8	sec-Butylbenzene	10	U	10	2.7	
994-05-8	tert-Amyl Methyl Ether	10	U	10	2.0	
98-06-6	tert-Butylbenzene	10	U	10	2.0	
156-60-5	trans-1,2-Dichloroethene	10	U	10	3.4	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 15:48
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6618.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	10	U	10	2.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/17/14 15:48	
Dibromofluoromethane	105	89-119	6/17/14 15:48	
Toluene-d8	101	87-121	6/17/14 15:48	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1435
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 12:33
Sample Name:	MRC-MW-14C-060414	**Units:**	µg/L
Lab Code:	R1404353-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6613.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.24**	BJ	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.29**	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1435
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 12:33
Sample Name:	MRC-MW-14C-060414	**Units:**	µg/L
Lab Code:	R1404353-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6613.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.23**	BJ	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1435
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 12:33
Sample Name:	MRC-MW-14C-060414	**Units:**	µg/L
Lab Code:	R1404353-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6613.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/17/14 12:33	
Dibromofluoromethane	104	89-119	6/17/14 12:33	
Toluene-d8	89	87-121	6/17/14 12:33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0920
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 14:10
Sample Name:	MRC-MW-17A-060514	**Units:**	µg/L
Lab Code:	R1404353-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6616.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.36**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	**4.6**		1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	**0.55**	J	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	**160**		1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0920
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 14:10
Sample Name:	MRC-MW-17A-060514	**Units:**	µg/L
Lab Code:	R1404353-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6616.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	**0.32**	J	1.0	0.24	
67-66-3	Chloroform	**0.25**	J	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	**10**		1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	**45**		1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	**3.5**		1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**3.9**		1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	**32**		1.0	0.20	
79-01-6	Trichloroethene (TCE)	**12**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**0.54**	J	1.0	0.32	
1330-20-7	Xylenes, Total	**26**		3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**2.0**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	**21**		2.0	0.33	
104-51-8	n-Butylbenzene	**0.48**	J	1.0	0.21	
103-65-1	n-Propylbenzene	**5.9**		1.0	0.20	
95-47-6	o-Xylene	**4.9**		1.0	0.20	
135-98-8	sec-Butylbenzene	**0.67**	J	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0920
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 14:10
Sample Name:	MRC-MW-17A-060514	**Units:**	µg/L
Lab Code:	R1404353-009	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6616.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/17/14 14:10	
Dibromofluoromethane	103	89-119	6/17/14 14:10	
Toluene-d8	98	87-121	6/17/14 14:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1045
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 15:14
Sample Name:	MRC-MW-37B-060514	**Units:**	µg/L
Lab Code:	R1404353-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6574.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1045
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 15:14
Sample Name:	MRC-MW-37B-060514	**Units:**	µg/L
Lab Code:	R1404353-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6574.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**4.8**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.5**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1045
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 15:14
Sample Name:	MRC-MW-37B-060514	**Units:**	µg/L
Lab Code:	R1404353-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6574.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/16/14 15:14	
Dibromofluoromethane	102	89-119	6/16/14 15:14	
Toluene-d8	100	87-121	6/16/14 15:14	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1200
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 13:38
Sample Name:	MRC-MW-37C-060514	**Units:**	µg/L
Lab Code:	R1404353-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6615.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1200
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 13:38
Sample Name:	MRC-MW-37C-060514	**Units:**	µg/L
Lab Code:	R1404353-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6615.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.28**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1200
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 13:38
Sample Name:	MRC-MW-37C-060514	**Units:**	µg/L
Lab Code:	R1404353-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6615.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/17/14 13:38	
Dibromofluoromethane	103	89-119	6/17/14 13:38	
Toluene-d8	92	87-121	6/17/14 13:38	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 13:36
Sample Name:	TB-060514	**Units:**	µg/L
Lab Code:	R1404353-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6571.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**3.9**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 13:36
Sample Name:	TB-060514	**Units:**	µg/L
Lab Code:	R1404353-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6571.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/16/14 13:36
Sample Name:	TB-060514	**Units:**	µg/L
Lab Code:	R1404353-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6571.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/16/14 13:36	
Dibromofluoromethane	103	89-119	6/16/14 13:36	
Toluene-d8	99	87-121	6/16/14 13:36	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 14:28
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	397489
Data File Name:	1005.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	**0.29**	J	1.0	0.11	
74-82-8	Methane	**12**		1.0	0.21	

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1045
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Analyzed:	6/17/14 14:39
Sample Name:	MRC-MW-37B-060514	**Units:**	µg/L
Lab Code:	R1404353-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	397489
Data File Name:	1006.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	1.0	U	1.0	0.21	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1407
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/13/14
		Date Analyzed:	6/13/14 14:21
Sample Name:	MRC-EXT-06-060514	**Units:**	µg/L
Lab Code:	R1404353-012	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	397133
Prep Method:	Method	**Extraction Lot:**	210544
Data File Name:	I:\ACQUDATA\5975E\data\061314\Af948.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**1.70**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	92	70-130	6/13/14 14:21	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1050
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/13/14
		Date Analyzed:	6/13/14 13:08
Sample Name:	MRC-MW-14A-060414	**Units:**	µg/L
Lab Code:	R1404353-001	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	397133
Prep Method:	Method	**Extraction Lot:**	210544
Data File Name:	I:\ACQUDATA\5975E\data\061314\Af944.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**3.65**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	98	70-130	6/13/14 13:08	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/13/14
		Date Analyzed:	6/13/14 21:00
Sample Name:	MRC-MW-14B-060514	**Units:**	µg/L
Lab Code:	R1404353-003	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	397133
Prep Method:	Method	**Extraction Lot:**	210544
Data File Name:	I:\ACQUDATA\5975E\data\061314\Af965.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	177		2.00	0.200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	86	70-130	6/13/14 21:00	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 4/14 1435
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/13/14
		Date Analyzed:	6/13/14 13:26
Sample Name:	MRC-MW-14C-060414	**Units:**	µg/L
Lab Code:	R1404353-002	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	397133
Prep Method:	Method	**Extraction Lot:**	210544
Data File Name:	I:\ACQUDATA\5975E\data\061314\Af945.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**0.0286**	J	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	97	70-130	6/13/14 13:26	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0920
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/13/14
		Date Analyzed:	6/13/14 14:03
Sample Name:	MRC-MW-17A-060514	**Units:**	µg/L
Lab Code:	R1404353-009	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	397133
Prep Method:	Method	**Extraction Lot:**	210544
Data File Name:	I:\ACQUDATA\5975E\data\061314\Af947.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	5.04		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	106	70-130	6/13/14 14:03	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1036
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 18:46
Sample Name:	MRC-MW-109A-060514	**Units:**	µg/L
Lab Code:	R1404353-010	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031505.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1132
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 19:00
Sample Name:	MRC-MW-109B-060514	**Units:**	µg/L
Lab Code:	R1404353-011	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031506.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.16**	J	0.20	0.026	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0920
Sample Matrix:	Water	**Date Received:**	6/10/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 17:53
Sample Name:	MRC-MW-17A-060514	**Units:**	µg/L
Lab Code:	R1404353-009	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031501.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2011004 AER056|Tetra Tec hMaryland112

Lab ID: **2011004001** Date Collected: 6/5/2014 09:05 Matrix: Water

Sample ID: **MRC-MW-14B-060514** Date Received: 6/5/2014 20:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Chloride	72.3		mg/L	2.0	EPA 300.0	6/7/14	SSL	6/7/14 03:44	SSL	A
Nitrate-N	ND		mg/L	0.20	EPA 300.0	6/7/14	SSL	6/7/14 03:44	SSL	A
Nitrite-N	ND		mg/L	0.20	EPA 300.0	6/7/14	SSL	6/7/14 03:44	SSL	A
Orthophosphate	ND		mg/L	0.020	EPA 365.3	6/7/14	MSA	6/7/14 02:25	MSA	A
Sulfate	15.1		mg/L	2.0	EPA 300.0	6/7/14	SSL	6/7/14 03:44	SSL	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

ANALYTICAL RESULTS

Workorder: 2011004 AER056|Tetra Tec hMaryland112

Lab ID: **2011004002** Date Collected: 6/5/2014 10:45 Matrix: Water

Sample ID: **MRC-MW-37B-060514** Date Received: 6/5/2014 20:55

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Chloride	27.0		mg/L	2.0	EPA 300.0	6/7/14	SSL	6/7/14 04:26	SSL	A
Nitrate-N	ND		mg/L	0.20	EPA 300.0	6/7/14	SSL	6/7/14 04:26	SSL	A
Nitrite-N	ND		mg/L	0.20	EPA 300.0	6/7/14	SSL	6/7/14 04:26	SSL	A
Orthophosphate	0.17		mg/L	0.020	EPA 365.3	6/7/14	MSA	6/7/14 02:25	MSA	A
Sulfate	11.9		mg/L	2.0	EPA 300.0	6/7/14	SSL	6/7/14 04:26	SSL	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 0905
Sample Matrix:	Water	**Date Received:**	6/10/14
Sample Name:	MRC-MW-14B-060514		
Lab Code:	R1404353-003	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	2.0	U	mg/L	2.0	0.3	1	NA	6/16/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	**0.044**	J	mg/L	0.050	0.004	1	NA	6/23/14 12:03	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**0.8**	J	mg/L	1.0	0.4	1	NA	6/27/14 02:54	
Silica, Dissolved as SiO2	USGS I-2700-85	**16.3**		mg/L	0.20	0.06	20	NA	6/20/14 12:14	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 5/14 1045
Sample Matrix:	Water	**Date Received:**	6/10/14
Sample Name:	MRC-MW-37B-060514		
Lab Code:	R1404353-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**90.4**		mg/L	2.0	0.3	1	NA	6/16/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	6/23/14 12:04	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**6.4**		mg/L	1.0	0.4	1	NA	6/27/14 03:15	
Silica, Dissolved as SiO2	USGS I-2700-85	**8.31**		mg/L	0.10	0.03	10	NA	6/20/14 12:16	

ALS Environmental

METALS

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-109A-060514

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-010

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U	N	MS
7440-38-2	Arsenic	6.0		N	MS
7440-39-3	Barium	102			P
7440-41-7	Beryllium	0.083	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.8	J		MS
7440-48-4	Cobalt	70.2			MS
7440-50-8	Copper	2.5			MS
7439-89-6	Iron	60000			P
7439-92-1	Lead	0.233	J		MS
7439-96-5	Manganese	944			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	48.8			MS
7782-49-2	Selenium	3.7		N	MS
7440-22-4	Silver	0.030	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.375	J		P
7440-21-3	Silicon	10300			P
7439-98-7	Molybdenum	0.420	J	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-109B-060514

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-011

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	2.8		N	MS
7440-38-2	Arsenic	0.629	J	N	MS
7440-39-3	Barium	74.5			P
7440-41-7	Beryllium	0.675	J		MS
7440-43-9	Cadmium	0.030	J		MS
7440-47-3	Chromium	1.5	J		MS
7440-48-4	Cobalt	31.9			MS
7440-50-8	Copper	3.7			MS
7439-89-6	Iron	164			P
7439-92-1	Lead	0.345	J		MS
7439-96-5	Manganese	83.0			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	56.6			MS
7782-49-2	Selenium	0.546	J	N	MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	3.2	J		P
7440-21-3	Silicon	5330			P
7439-98-7	Molybdenum	0.652	J	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-112A-060514

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-007

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.759	J	N	MS
7440-38-2	Arsenic	0.871	J		MS
7440-39-3	Barium	115			P
7440-41-7	Beryllium	9.6			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.0	J		MS
7440-48-4	Cobalt	67.9			MS
7440-50-8	Copper	2.7			MS
7439-89-6	Iron	12500			P
7439-92-1	Lead	0.394	J		MS
7439-96-5	Manganese	284			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	86.9			MS
7782-49-2	Selenium	1.1	J	N	MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	4.1	J		P
7440-21-3	Silicon	4140			P
7439-98-7	Molybdenum	0.068	U	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-14A-060414

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-001

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U	N	MS
7440-38-2	Arsenic	1.3			MS
7440-39-3	Barium	87.9			P
7440-41-7	Beryllium	0.066	J		MS
7440-43-9	Cadmium	0.052	J		MS
7440-47-3	Chromium	0.492	J		MS
7440-48-4	Cobalt	31.8			MS
7440-50-8	Copper	2.2			MS
7439-89-6	Iron	31800			P
7439-92-1	Lead	0.069	J		MS
7439-96-5	Manganese	2010			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	32.7			MS
7782-49-2	Selenium	1.3	J	N	MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	8860			P
7439-98-7	Molybdenum	0.068	U	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-14B-060514

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-003

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.184	J	N	MS
7440-38-2	Arsenic	69.4		N	MS
7440-39-3	Barium	132			P
7440-41-7	Beryllium	0.467	J		MS
7440-43-9	Cadmium	0.068	J		MS
7440-47-3	Chromium	4.3			MS
7440-48-4	Cobalt	56.6			MS
7440-50-8	Copper	3.0			MS
7439-89-6	Iron	26300			P
7439-92-1	Lead	1.0			MS
7439-96-5	Manganese	2280			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	120			MS
7782-49-2	Selenium	258		N	MS
7440-22-4	Silver	0.073	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	4.9	J		P
7440-21-3	Silicon	9460			P
7439-98-7	Molybdenum	0.206	J	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.: MRC-MW-14C-060414

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-002

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U	N	MS
7440-38-2	Arsenic	0.652	J	N	MS
7440-39-3	Barium	72.3			P
7440-41-7	Beryllium	0.186	J		MS
7440-43-9	Cadmium	0.046	J		MS
7440-47-3	Chromium	7.5			MS
7440-48-4	Cobalt	9.4			MS
7440-50-8	Copper	6.9			MS
7439-89-6	Iron	14700			P
7439-92-1	Lead	4.6			MS
7439-96-5	Manganese	869			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	13.2			MS
7782-49-2	Selenium	0.213	U	N	MS
7440-22-4	Silver	0.043	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	25.3	J		P
7440-21-3	Silicon	16700			P
7439-98-7	Molybdenum	0.068	U	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-17A-060514

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Lab Sample ID: R1404353-009

Level (low/med): LOW Date Received: 6/10/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U	N	MS
7440-38-2	Arsenic	1.3		N	MS
7440-39-3	Barium	331			P
7440-41-7	Beryllium	0.427	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	0.694	J		MS
7440-48-4	Cobalt	59.4			MS
7440-50-8	Copper	9.6			MS
7439-89-6	Iron	60600			P
7439-92-1	Lead	0.263	J		MS
7439-96-5	Manganese	8740			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	70.3			MS
7782-49-2	Selenium	0.213	U	N	MS
7440-22-4	Silver	0.019	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.169	U		P
7440-21-3	Silicon	6320			P
7439-98-7	Molybdenum	0.068	U	N	MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Appendix C

Support Documentation

LOCKHEED-MRC
WATER DATA
R1404353

FRACTION	CHEMICAL	MRC-MW-37C-060514	UNITS	DUP-04-060514	RPD	D
OV	TRICHLOROETHENE	0.28 J	UG/L	ND	200.00	0.28

Current RPD Quality Control Limit: 30 %.
Shaded cells indicate RPDs that exceed the applicable quality control limit.

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15154

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: MRC Annual GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (include Method Number and Container Preservative)

PRESERVATIVE: 1 1 0 0 3 2 – 7 0

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP VOCs (8260C)	GC/MS SVOAs ○ 8270 ○ 625 RSK-175	GC VOAs ○ 8021 ○ 601/602 Silica+DOC	PESTICIDES ○ 8081 ○ 608 Alkalinity	PCBs ○ 8082 ○ 608 NH3	METALS, TOTAL (List in comments below) (6020A)	METALS, DISSOLVED (List in comments below)	1-4 dioxane (522)	TDS, NO3, NO2, SO4, Cl, OPO4	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-14A-060414	1	6/4/14	1050	Aq	6	3	—	—	—	—	1	—	2		
MRC-MW-14C-060414	2	6/4/14	1435	Aq	6	3	—	—	—	—	1	—	2		
MRC-MW-14B-060514	3	6/5/14	0905	Aq	13	3	3	1	1	1	1	—	2	+	→ RCVD IN MIDDLETOWN
MRC-MW-37B-060514	4		1045	Aq	10 ~~13~~	3	3	1	1	1	—	—	—	+	AM 6/9/14
MRC-MW-37C-060514	5		1200	Aq	3	3	—	—	—	—	—	—	—		
DUP-04-060514	6		—	Aq	3	3	—	—	—	—	—	—	—		
MRC-MW-112A-060514	7		1340	Aq	4	3	—	—	—	—	1	—	—		

SPECIAL INSTRUCTIONS/COMMENTS

Metals

* DOC to be taken out of unpreserved poly for MW-14B and MW-37B

* Total Metals, Beryllium, Cobalt, Nickel

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

____ 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

Standard

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report w

Edata ____ Yes ____ No

INVOICE INFORMATION

PO #

BILL TO:

R1404353 7

Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: GG ALS	Signature: GG ALS	Signature: [signature]	Signature: [signature]	Signature: [signature]
Printed Name: Josh Mullis	Printed Name: GEOFF GRABOSKI	Printed Name: GEOFF GRABOSKI	Printed Name: SRK	Printed Name: SRB	Printed Name:
Firm: Tetra Tech	Firm: ALS	Firm: ALS	Firm:	Firm:	Firm:
Date/Time: 6/5/14 1430	Date/Time: 6/5/14 1500	Date/Time: 6/5/14	Date/Time: 6-5-14 1945	Date/Time: 6-5-14 2155	Date/Time: 6/5 2155

Distribution: White - Lab Copy; Yellow - Return to Originator

Chris Wright ALS 6/10/14 0950

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CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 15152

ALS Environmental

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 2 OF 2

Project Name: MRC-GW-2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: Tetra Tech Inc 20251 Century Blvd STE 200 Germantown, MD 20874	
Phone #: 301 528-5021	Email:
Sampler's Signature: Walt Pryon	Sampler's Printed Name: Walt Pryon

ANALYSIS REQUESTED *(Include Method Number and Container Preservative)*

PRESERVATIVE: HCl | HNO3 | NaOH/Zn

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)	1,4 Dioxane	Perchlorate						
TB-060514		6-5-14	—	GW	3	X														
MRC-MW-17A-060514			0920		7	X					X		X	○						
MRC-MW-109A-060514			1036		3	X					X			X						
MRC-MW-109B-060514			1132		5	X					X			X						
MRC-EXT-06-060514			1407		2	⊗							X							

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other _____

REMARKS/ ALTERNATE DESCRIPTION

SPECIAL INSTRUCTIONS/COMMENTS
Metals

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
_____ RUSH (SURCHARGES APPLY)
_____ 1 day _____ 2 day _____ 3 day
_____ 4 day _____ 5 day
21 day
REQUESTED REPORT DATE: _____

REPORT REQUIREMENTS
_____ I. Results Only
_____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
_____ III. Results + QC and Calibration Summaries
_____ IV. Data Validation Report with Raw Data
Edata _____ Yes _____ No

INVOICE INFORMATION
PO #:
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pr	Signature: G.G. ALS	Signature: G.G. ALS	Signature:	Signature:	Signature:
Printed Name: Walt Pryon	Printed Name: GEORGE GRABUSKI	Printed Name: GEORGE GRABUSKI	Printed Name: SAD	Printed Name: SAD	Printed Name:
Firm: TT Inc	Firm: ALS	Firm: ALS	Firm:	Firm:	Firm:
Date/Time: 6-5-14 / 1500	Date/Time: 6/5/14 1500	Date/Time: 6/5/14	Date/Time: 6-5-14 1845	Date/Time: 6-5-14 2155	Date/Time: 6/5 2155

Chris Wriate ALS 6/10/14 0950

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client ALS Middletown Folder Number R14-4353

Cooler received on 6/10/14 by: CW

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	(Y)	N
2	Custody papers properly completed (ink, signed)?	(Y)	N
3	Did all bottles arrive in good condition (unbroken)?	(Y)	N
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y)	N

5a	Perchlorate samples have required headspace?	Y	(N)	NA
5b	Did VOA vials, Alk or Sulfide have sig* bubbles?	(Y)	N	NA
6	Where did the bottles originate?	(ALS/ROC)	CLIENT	
7	Soil VOA received as: Bulk Encore 5035set			(NA)

8. Temperature Readings Date: 6/10/14 Time: 10:00 ID: (IR#3) IR#4 From: (Temp Blank) Sample Bottle

Observed Temp (°C)	4.6	3.3					
Correction Factor (°C)	+0.2	+0.2					
Corrected Temp (°C)	4.8	3.5					
Within 0-6°C?	(Y) N	(Y) N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by CW on 6/10/14 at 1620

5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 6/10/14 Time: 1325 by: DH

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BD8261358	5/15				
≤2	H_2SO_4	✓		client label					
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-	BD8261234	4/15				
	ZnAcetate	-	-						
	HCl	**	**	4112120	4/15				

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 112612-ZW, 020114-IBMC, 4-002-0003

Other Comments:

1 - VOA trip blank - headspace

2 - Perchlorate - headspace

All Alkalinity - headspace

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC > 1 in. diameter

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1404353
Project:	Middle River	**Date Received:**	6/10/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Twelve water samples were received for analysis at ALS-Environmental on 6/10/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 3.5-4.8°C within the 0-6°C temperature guidelines.

Wet Chemistry

The Alkalinity Method Blanks (R1404353-MB1 and R1404353-MB2 contained a low level hit and has been flagged with a "J". No data was affected.

No other analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on several samples. Sample MRC-MW-14C-060414 (R1404353-002) was outside of the control limits for Antimony, Arsenic, Selenium and Molybdenum and have been flagged with a "N". All affected data has been "N" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for 2-Butanone and Acetone on 6/17/14. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

The Method Blanks contained low level hits of Bromomethane, Methylene Chloride and Naphthalene on 6/16/14 and 1,2,4-Trichlorobenzene and Naphthalene on 6/17/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

Surrogate Toluene-d8 was outside of the control limits low on sample MRC-MW-112A-060514 (R1404353-007) and has been flagged with a "*". The sample was repeated for confirmation of matrix interference and both sets of data have been reported.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Samples MRC-MW-102B-050814 (R1403433-001) and MRC-MW-102A-050814 (R1403433-002) were originally analyzed within the method specified holding time of 14 days. The samples were repeated outside of the method specified holding time and have been flagged with a "*". Both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 7/9/14

Extractable Organics- 522

The low level Laboratory Control Sample (RQ1406525-04) was outside of the control limits high and has been flagged with a "*". Both the Laboratory Control Sample and Duplicate Laboratory Control Sample (RQ1406525-02 and RQ1406525-03) were within limits and no data was affected.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

Site specific QC was not requested but was analyzed on sample MRC-MW-17A-060514 (R1404353-009). All QC was within limits.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 7/9/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #:		Batch Complete: Yes	Date Revised:
Submission:	R1404353	Diskette Requested: No	Date Due: 7/1/14
Client:	Tetra Tech GEO	Date: 6/13/14	Protocol: SW846
Client Rep:	DPATTON	Custody Seal: Present/Absent:	Shipping No.:
Project:	Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:	SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1404353-001	MRC-MW-14A-060414	Water	7470A, 6010C, 6020A, 8260C, 522	6/4/14	6/10/14			
R1404353-002	MRC-MW-14C-060414	Water	7470A, 6010C, 6020A, 8260C, 522	6/4/14	6/10/14			
R1404353-003	MRC-MW-14B-060514	Water	7470A, 300.0, RSK 175, SM 2540 C, 350.1, USGS I-2700-85, 6010C, 6020A, 8260C, 522, SM 2320 B-1997(2011), SM 5310B/C-2000(2011)	6/5/14	6/10/14			
R1404353-004	MRC-MW-37B-060514	Water	300.0, RSK 175, SM 2540 C, 350.1, USGS I-2700-85, 8260C, SM 2320 B-1997(2011), SM 5310B/C-2000(2011)	6/5/14	6/10/14			
R1404353-005	MRC-MW-37C-060514	Water	8260C	6/5/14	6/10/14			
R1404353-006	DUP-04-060514	Water	8260C	6/5/14	6/10/14			
R1404353-007	MRC-MW-112A-060514	Water	6020A, 6010C, 7470A, 8260C	6/5/14	6/10/14			
R1404353-008	TB-060514	Water	8260C	6/5/14	6/10/14			
R1404353-009	MRC-MW-17A-060514	Water	8260C, 6020A, 6010C, 6850, 7470A, 522	6/5/14	6/10/14			
R1404353-010	MRC-MW-109A-060514	Water	7470A, 8260C, 6010C, 6020A, 6850	6/5/14	6/10/14			
R1404353-011	MRC-MW-109B-060514	Water	7470A, 6850, 6010C, 6020A, 8260C	6/5/14	6/10/14			
R1404353-012	MRC-EXT-06-060514	Water	522	6/5/14	6/10/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/17/14 13:52

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name: Method Blank
Lab Code: RQ1406712-01
Instrument ID: R-GC-02
File ID: 1002.run

Analytical Method: RSK 175

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406712-02	1003.run	6/17/14 14:02
Duplicate Lab Control Sample	RQ1406712-03	1004.run	6/17/14 14:12
MRC-MW-14B-060514	R1404353-003	1005.run	6/17/14 14:28
MRC-MW-37B-060514	R1404353-004	1006.run	6/17/14 14:39

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/17/14 13:52
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406712-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	397489
Data File Name:	1002.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	1.0	U	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/17/14

Lab Control Sample Summary
Dissolved Gases by GC/FID

Analytical Method: RSK 175

Units: µg/L
Basis: NA

Analysis Lot: 397489

	Lab Control Sample RQ1406712-02			Duplicate Lab Control Sample RQ1406712-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Ethane	27.4	26.1	105	25.5	26.1	98	75 - 118	7	30
Ethene	27.1	24.3	111	25.6	24.3	105	73 - 129	6	30
Methane	26.2	26.2	100	24.6	26.2	94	65 - 126	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analysis: RSK.175 | Analyst: Dan Harris, Dan W/ assistance | Run Method: rsk082713.M

Date: 8/27/13 | Data Path: Z:\ACQDATA\V2\DATA\082713 | LIMS Run#:

Instr. V2

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	Blank										
	He Blank								1	Y	
	TCAL Blank								1001	Y	
	1 ppb		25 uL of 20 ppb						1002	(N)	Acetylene ↑
	1 ppb		~~50 uL of 100 ppb~~ "						1003	Y	
	2 ppb		50 uL of 20 ppb						1004	(N)	Propane ↓
	10 ppb		100 uL of 50 ppb						1005	(N)	Propane ↓
	10 ppb		"						1006	Y	
	20 ppb		5 uL 1° mix / 42.5 mL						1007	Y	
	50 ppb		25 uL " "						1008	Y	
	75 ppb		30 uL " "						1009	Y	
	100 ppb		40 uL " "						1010	Y	
	2 ppb		50 uL of 50 ppb						1011	Y	
	ICV								1014	Y	

dlh 8/27/13

All samples = NA mL + NA uL Surrogate; NA mL purged

* dlh 9/3/13

Primary mix	49492	Secondary mix	49493
Primary Propane	27095 (Tier)	Secondary Propane	27095 (Tier)
Primary		Secondary	
Primary		Secondary	

10 mL/42.5 mL = ICV

Surrogate : NA

0118

Analysis: RSK 175 Analyst: J. Cushman Run Method: RSK082713.m

Date: 6/17/14 Data Path: J:\ACQDATA\V3\DATA\061714

Instr. V2 LIMS Run#: 397489

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
-	Mt Blank	-	-				-	-	1	-	
-	CCV	-	-				1	-	1001	Y	
-	MBlank	-	-				1	-	1002	Y	
-	LCS	-	-				1	-	1003	Y	
-	DLCS	-	-				2	-	1004	Y	
-	R1404353-003	1	-	Tetra Tech EM	979	IV	1	42	1005	Y	
-	↓ -004	1	-	↓	↓	↓	1	42	1006	Y	
-	CCV						1	-	1007	Y	

JC 6/17/14

All samples = NA mL + NA uL Surrogate; NA mL purged

Primary : 62941 20 mL/42.5mL CCV Secondary : 62942 10 mL/42.5mL LCS DLCS Surrogate : NA

Primary : Secondary :

Primary : Secondary :

Primary : Secondary :

00432

d/h 9/5/13

ALS Environmental-Rochester

Analyst: B Wojtaslewicz
Date: 8/27/2013

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	Avg. R.T.	1PPB R F STD 1	2PPB R F STD 2	10.0PPB R F STD 3	20PPB R F STD 4	50PPB R F STD 5	75PPB R F STD 6	100PPB R F STD 7	Avg R F	% RSD
Methane	0.29	0.8369	0.7754	0.7632	0.7422	0.7178	0.7195	0.7307	**0.7551**	5.6%
Ethylene	0.77	0.5121	0.5030	0.4969	0.5145	0.4921	0.5080	0.5206	**0.5067**	2.0%
Ethane	1.15	0.7478	0.7047	0.7275	0.7211	0.6941	0.7031	0.7167	**0.7164**	2.5%
Propene	4.81		0.1874	0.1532	0.1732	0.2013	0.2286	0.2484	**0.1987**	17.8%
Propane	5.80	0.7040	0.7346	0.7895	0.7607	0.7480	0.7493	0.7625	**0.7498**	3.5%
Acetylene	0.64	0.0922	0.0935	0.0769	0.0923	0.0921	0.1004	0.1072	**0.0935**	9.9%

***LR =Linear Regression**

BW 09/03/13

ALS Environmental-Rochester

Analyst: B Wwojtaslewicz
Date: 08/27/13
Time: 12:27

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)

ICAL Date: 8/27/2013

ICV EVALUATION

Compound	R.T. WINDOW MIN. FROM	MIN. TO	Time	Area Units	Conc. Result	True Value	Percent Recovery	% LIMITS
Methane	0.19	0.39	0.29	19.54	25.87	26.2	98.7%	70-130
Ethylene	0.78	0.98	0.88	12.56	24.78	24.3	102.1%	70-130
Ethane	1.05	1.25	1.15	18.81	26.25	26.1	100.8%	70-130
Propene	4.71	4.91	4.81	5.45	27.43	24.0	114.1%	70-130
Propane	5.70	5.90	5.80	19.55	26.07	25.5	102.3%	70-130
Acetylene	0.54	0.74	0.64	4.65	49.72	50.1	99.2%	70-130

*LR = Linear Regression
X = Out of Control Limits

JC 6/17/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/17/14
Time: 13:42

Method: RSK-175 Dissolved Gases

CCV EVALUATION
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

ICAL Date: 08/27/13

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	36.201	0.7551	0.6917	8.4%	52.3
Ethylene	0.78	0.98	0.88	24.649	0.5067	0.5072	0.1%	48.6
Ethane	1.04	1.24	1.14	35.718	0.7164	0.6865	4.2%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.69	5.89	5.79	35.148	0.7498	0.6900	8.0%	50.9
Acetylene	0.54	0.74	0.64	9.407	0.0935	0.0940	0.5%	100.1
						Avg %D:	4.2%	(#62941)

JC 6/17/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/17/14
Time: 14:54

Method: RSK-175 Dissolved Gases

CCV EVALUATION
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

ICAL Date: 08/27/13

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	34.657	0.7551	0.6622	12.3%	52.3
Ethylene	0.77	0.97	0.87	24.332	0.5067	0.5006	1.2%	48.6
Ethane	1.04	1.24	1.14	34.284	0.7164	0.6590	8.0%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.69	5.89	5.79	33.629	0.7498	0.6602	12.0%	50.9
Acetylene	0.54	0.74	0.64	10.676	0.0935	0.1067	14.1%	100.1
						Avg %D:	9.5%	(#62941)

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/13/14 11:22

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\061314\Af939.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406578-02
Analysis Lot: 397133
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	48,604	2.82
	Upper Limit ==>	63,185	3.32
	Lower Limit ==>	34,023	2.32
	ICAL Result ==>	62,687	2.84
Associated Analyses			
Method Blank	RQ1406525-01	46,842	2.83
Lab Control Sample	RQ1406525-02	47,370	2.81
Duplicate Lab Control Sample	RQ1406525-03	46,925	2.83
Lab Control Sample	RQ1406525-04	48,858	2.83
MRC-MW-14A-060414	R1404353-001	48,202	2.81
MRC-MW-14C-060414	R1404353-002	50,084	2.81
MRC-MW-17A-060514	R1404353-009	45,878	2.81
MRC-EXT-06-060514	R1404353-012	51,687	2.80

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/13/14 19:55

Internal Standard Area and RT Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\061314\Af961.D\
Instrument ID: R-MS-56
Analytical Method: 522

Lab Code: RQ1406578-05
Analysis Lot: 397133
Signal ID:

		Tetrahydrofuran-d8	
		Area	**RT**
	Results ==>	47,933	2.82
	Upper Limit ==>	62,313	3.32
	Lower Limit ==>	33,553	2.32
	ICAL Result ==>	62,687	2.84
Associated Analyses			
MRC-MW-14B-060514	R1404353-003	46,036	2.81
Continuing Cal. Verification	RQ1406578-06	49,115	2.84

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/13/14 11:55
Sample Matrix:	Water	**Date Extracted:**	6/13/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1406525-01	**File ID:**	I:\ACQUDATA\5975E\data\061314\Af940.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406525-02	I:\ACQUDATA\5975E\data\061314\Af941.D\	6/13/14 12:13
Duplicate Lab Control Sample	RQ1406525-03	I:\ACQUDATA\5975E\data\061314\Af942.D\	6/13/14 12:32
Lab Control Sample	RQ1406525-04	I:\ACQUDATA\5975E\data\061314\Af943.D\	6/13/14 12:50
MRC-MW-14A-060414	R1404353-001	I:\ACQUDATA\5975E\data\061314\Af944.D\	6/13/14 13:08
MRC-MW-14C-060414	R1404353-002	I:\ACQUDATA\5975E\data\061314\Af945.D\	6/13/14 13:26
MRC-MW-17A-060514	R1404353-009	I:\ACQUDATA\5975E\data\061314\Af947.D\	6/13/14 14:03
MRC-EXT-06-060514	R1404353-012	I:\ACQUDATA\5975E\data\061314\Af948.D\	6/13/14 14:21
MRC-MW-14B-060514	R1404353-003	I:\ACQUDATA\5975E\data\061314\Af965.D\	6/13/14 21:00

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/13/14
		Date Analyzed:	6/13/14 11:55
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406525-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	397133
Prep Method:	Method	**Extraction Lot:**	210544
Data File Name:	I:\ACQUDATA\5975E\data\061314\Af940.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	106	70-130	6/13/14 11:55	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/13/14

Lab Control Sample Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method: 522
Prep Method: Method

Units: µg/L
Basis: As Received

Extraction Lot: 210544

Analyte Name	Lab Control Sample RQ1406525-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1406525-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,4-Dioxane	10.2	10.1	101	10.6	10.1	105	70 - 130	3	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 5/2/14 09:52

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\050214\Af625.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 393191

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	74.76	45403	Pass
175	174	5	9	7.72	3505	Pass
176	174	95	101	95.51	43363	Pass
177	176	5	9	6.47	2805	Pass
50	95	15	40	16.50	10021	Pass
75	95	30	60	45.23	27469	Pass
95	95	100	100	100.00	60728	Pass
96	95	5	9	6.97	4230	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial Calibration	RQ1405292-02	I:\ACQUDATA\5975E\data\050214\Af629.D\	5/2/14 11:21	
Initial Calibration	RQ1405292-03	I:\ACQUDATA\5975E\data\050214\Af630.D\	5/2/14 11:39	
Initial Calibration	RQ1405292-04	I:\ACQUDATA\5975E\data\050214\Af631.D\	5/2/14 11:58	
Initial Calibration	RQ1405292-05	I:\ACQUDATA\5975E\data\050214\Af632.D\	5/2/14 12:17	
Initial Calibration	RQ1405292-06	I:\ACQUDATA\5975E\data\050214\Af633.D\	5/2/14 12:36	
Initial Calibration	RQ1405292-07	I:\ACQUDATA\5975E\data\050214\Af634.D\	5/2/14 12:55	
Initial Calibration	RQ1405292-08	I:\ACQUDATA\5975E\data\050214\Af635.D\	5/2/14 13:14	
Initial Calibration	RQ1405292-09	I:\ACQUDATA\5975E\data\050214\Af636.D\	5/2/14 13:42	

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX050214.M
Title : 8270 BNA ANALYSIS
Last Update : Mon May 05 07:43:33 2014
Response Via : Initial Calibration

Calibration Files
2 =Af629.D 10 =Af630.D 20 =Af631.D 100 =Af632.D 200 =Af633.D 500 =Af634.D 1000=Af635.D 5000=Af636.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1) IR	d8-THF	----------ISTD----------									
2) T	1,4-Dioxane	1.161	1.195	1.093	1.239	1.188	1.055	1.305	1.204	1.180	6.67
3) S	SURR,1,4-DIOXA...	1.161	1.031	0.922	1.071	1.019	0.906	1.103	1.007	1.027	8.37

(#) = Out of Range

9595

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\050214\
Data File : Af637.D
Acq On : 2 May 2014 2:01 pm
Operator : m.pedro
Sample : icv
Misc : initial cal
ALS Vial : 17 Sample Multiplier: 1

Quant Time: May 05 07:44:00 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	98	-0.02
2	T	1,4-Dioxane	200.000	171.335	14.3	83	0.00
3	S	SURR,1,4-DIOXANE-d8	200.000	188.714	5.6	91	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00496

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/13/14 10:49

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\061314\Af938.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 397133

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.00	0	Pass
174	95	50	120	76.98	34568	Pass
175	174	5	9	7.89	2726	Pass
176	174	95	101	98.87	34176	Pass
177	176	5	9	7.37	2520	Pass
50	95	15	40	15.17	6810	Pass
75	95	30	60	43.74	19640	Pass
95	95	100	100	100.00	44904	Pass
96	95	5	9	6.45	2895	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406578-02	I:\ACQUDATA\5975E\data\061314\Af939.D\	6/13/14 11:22	
Method Blank	RQ1406525-01	I:\ACQUDATA\5975E\data\061314\Af940.D\	6/13/14 11:55	
Lab Control Sample	RQ1406525-02	I:\ACQUDATA\5975E\data\061314\Af941.D\	6/13/14 12:13	
Duplicate Lab Control Sample	RQ1406525-03	I:\ACQUDATA\5975E\data\061314\Af942.D\	6/13/14 12:32	
Lab Control Sample	RQ1406525-04	I:\ACQUDATA\5975E\data\061314\Af943.D\	6/13/14 12:50	
MRC-MW-14A-060414	R1404353-001	I:\ACQUDATA\5975E\data\061314\Af944.D\	6/13/14 13:08	
MRC-MW-14C-060414	R1404353-002	I:\ACQUDATA\5975E\data\061314\Af945.D\	6/13/14 13:26	
MRC-MW-17A-060514	R1404353-009	I:\ACQUDATA\5975E\data\061314\Af947.D\	6/13/14 14:03	
MRC-EXT-06-060514	R1404353-012	I:\ACQUDATA\5975E\data\061314\Af948.D\	6/13/14 14:21	
Continuing Calibration Verification	RQ1406578-03	I:\ACQUDATA\5975E\data\061314\Af950.D\	6/13/14 14:58	
Continuing Cal. VerificationCCVA	RQ1406578-04	I:\ACQUDATA\5975E\data\061314\Af960.D\	6/13/14 18:04	
Continuing Calibration Verification	RQ1406578-05	I:\ACQUDATA\5975E\data\061314\Af961.D\	6/13/14 19:55	
MRC-MW-14B-060514	R1404353-003	I:\ACQUDATA\5975E\data\061314\Af965.D\	6/13/14 21:00	
Continuing Cal. VerificationCCVA	RQ1406578-06	I:\ACQUDATA\5975E\data\061314\Af967.D\	6/13/14 21:13	

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\061314\
Data File : Af939.D
Acq On : 13 Jun 2014 11:22 am
Operator : m.pedro
Sample : ccv
Misc : ccv .002ppm
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 13 11:47:03 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	86	-0.01
2	T	1,4-Dioxane	2.000	1.980	1.0	84	0.04
3	S	SURR,1,4-DIOXANE-d8	2.000	1.831	8.5	79	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

6/20/13

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\061314\
Data File : Af950.D
Acq On : 13 Jun 2014 2:58 pm
Operator : m.pedro
Sample : ccv.2ppm
Misc : ccv .2ppm
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 13 19:26:26 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	77	-0.02
2 T	1,4-Dioxane	200.000	226.207	-13.1	86	-0.01
3 S	SURR,1,4-DIOXANE-d8	200.000	226.922	-13.5	85	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

LP
6/13

Data Path : I:\ACQUDATA\5975E\data\061314\
Data File : Af950.D
Acq On : 13 Jun 2014 2:58 pm
Operator : m.pedro
Sample : ccv.2ppm
Misc : ccv .2ppm
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 13 19:26:26 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	77	-0.02
2	T	1,4-Dioxane	200.000	226.207	-13.1	86	-0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	226.922	-13.5	85	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

LP
6/13

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\061314\
Data File : Af960.D
Acq On : 13 Jun 2014 6:04 pm
Operator : m.pedro
Sample : ccv 1.0ppm
Misc : ccv 1.0ppm
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jun 13 19:26:48 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	76	-0.02
2	T	1,4-Dioxane	1000.000	1216.778	-21.7#	84	-0.03
3	S	SURR,1,4-DIOXANE-d8	1000.000	1224.027	-22.4#	84	-0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

MB 6/13

no Samples

Data Path : I:\ACQUDATA\5975E\data\061314\
Data File : Af961.D
Acq On : 13 Jun 2014 7:55 pm
Operator : m.pedro
Sample : ccv
Misc : ccv .002ppm
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Jun 13 20:07:33 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	84	-0.01
2	T	1,4-Dioxane	2.000	2.078	-3.9	88	0.02
3	S	SURR,1,4-DIOXANE-d8	2.000	2.112	-5.6	88	0.03

(#) = Out of Range SPCC's out = 0 CCC's out = 0

MB 6/13

0051

Data Path : I:\ACQUDATA\5975E\data\061314\
Data File : Af967.D
Acq On : 13 Jun 2014 9:13 pm
Operator : m.pedro
Sample : ccv.2ppm
Misc : ccv .2ppm
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 13 21:19:46 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX050214.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Mon May 05 07:43:33 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	78	0.00
2	T	1,4-Dioxane	200.000	222.472	-11.2	86	0.00
3	S	SURR,1,4-DIOXANE-d8	200.000	221.824	-10.9	85	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

6/13

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/16/14 10:37

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\061614\M6566.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406610-02
Analysis Lot: 397230
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	788,678	10.75	1,621,126	5.46	1,511,040	8.74
	Upper Limit ==>	1,577,356	11.25	3,242,252	5.96	3,022,080	9.24
	Lower Limit ==>	394,339	10.25	810,563	4.96	755,520	8.24
	ICAL Result ==>	748,434	10.75	1,534,701	5.46	1,409,806	8.75
Associated Analyses							
Lab Control Sample	RQ1406610-03	770,009	10.75	1,614,636	5.46	1,486,748	8.75
Method Blank	RQ1406610-04	741,024	10.75	1,592,636	5.46	1,453,943	8.75
TB-060514	R1404353-008	722,521	10.75	1,578,332	5.46	1,431,128	8.75
MRC-MW-14A-060414	R1404353-001	712,913	10.75	1,553,919	5.46	1,436,307	8.75
MRC-MW-37B-060514	R1404353-004	715,818	10.75	1,565,298	5.45	1,418,226	8.75
MRC-MW-14B-060514	R1404353-003	700,804	10.75	1,537,436	5.45	1,403,136	8.75
DUP-04-060514	R1404353-006	697,631	10.75	1,511,737	5.46	1,403,588	8.75
MRC-MW-112A-060514	R1404353-007	693,874	10.75	1,513,968	5.45	1,393,601	8.75
MRC-MW-109A-060514	R1404353-010	683,258	10.75	1,511,005	5.45	1,384,698	8.75
MRC-MW-109B-060514	R1404353-011	682,978	10.75	1,504,269	5.45	1,375,785	8.75

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/16/14 10:37

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\061614\M6566.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406610-02
Analysis Lot: 397230
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	1,014,887	4.25
	Upper Limit ==>	2,029,774	4.75
	Lower Limit ==>	507,444	3.75
	ICAL Result ==>	976,069	4.25
Associated Analyses			
Lab Control Sample	RQ1406610-03	1,001,240	4.26
Method Blank	RQ1406610-04	966,494	4.26
TB-060514	R1404353-008	967,091	4.26
MRC-MW-14A-060414	R1404353-001	962,884	4.26
MRC-MW-37B-060514	R1404353-004	956,435	4.25
MRC-MW-14B-060514	R1404353-003	948,527	4.25
DUP-04-060514	R1404353-006	928,156	4.25
MRC-MW-112A-060514	R1404353-007	930,797	4.26
MRC-MW-109A-060514	R1404353-010	921,199	4.25
MRC-MW-109B-060514	R1404353-011	910,890	4.26

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/17/14 10:24

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\061714\M6609.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406692-02
Analysis Lot: 397445
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	**RT**	**Area**	**RT**	**Area**	**RT**
	Results ==>	707,958	10.75	1,452,836	5.46	1,357,805	8.75
	Upper Limit ==>	1,415,916	11.25	2,905,672	5.96	2,715,610	9.25
	Lower Limit ==>	353,979	10.25	726,418	4.96	678,903	8.25
	ICAL Result ==>	748,434	10.75	1,534,701	5.46	1,409,806	8.75
Associated Analyses							
Lab Control Sample	RQ1406692-03	689,556	10.75	1,461,441	5.45	1,356,769	8.75
Method Blank	RQ1406692-04	669,654	10.75	1,467,087	5.46	1,354,045	8.74
MRC-MW-14C-060414	R1404353-002	598,908	10.75	1,428,973	5.45	1,321,693	8.74
MRC-MW-112A-060514	R1404353-007	637,774	10.75	1,429,432	5.45	1,329,132	8.74
MRC-MW-37C-060514	R1404353-005	644,532	10.75	1,433,238	5.45	1,308,255	8.75
MRC-MW-17A-060514	R1404353-009	648,104	10.75	1,420,684	5.45	1,307,242	8.74
MRC-MW-14B-060514	R1404353-003	594,791	10.75	1,393,809	5.46	1,276,936	8.75

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/17/14 10:24

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\061714\M6609.D\
Instrument ID: R-MS-12
Analytical Method: 8260C

Lab Code: RQ1406692-02
Analysis Lot: 397445
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	890,688	4.26
	Upper Limit ==>	1,781,376	4.76
	Lower Limit ==>	445,344	3.76
	ICAL Result ==>	976,069	4.25
Associated Analyses			
Lab Control Sample	RQ1406692-03	896,328	4.25
Method Blank	RQ1406692-04	897,554	4.25
MRC-MW-14C-060414	R1404353-002	875,712	4.25
MRC-MW-112A-060514	R1404353-007	883,618	4.25
MRC-MW-37C-060514	R1404353-005	856,413	4.25
MRC-MW-17A-060514	R1404353-009	855,262	4.26
MRC-MW-14B-060514	R1404353-003	838,218	4.26

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/13/14 13:13

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061314\M6497.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.96	88496	Pass
75	95	30	60	46.42	228800	Pass
95	95	100	100	100.00	492843	Pass
96	95	5	9	6.24	30756	Pass
173	174	0	2	0.83	3219	Pass
174	95	50	120	78.43	386539	Pass
175	174	5	9	7.37	28496	Pass
176	174	95	101	96.13	371584	Pass
177	176	5	9	6.54	24288	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6499.D\	6/13/14 14:37	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6500.D\	6/13/14 15:09	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6501.D\	6/13/14 15:42	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6502.D\	6/13/14 16:14	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6503.D\	6/13/14 16:46	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6504.D\	6/13/14 17:19	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6505.D\	6/13/14 17:51	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6506.D\	6/13/14 18:23	

KRC 6/14/14

Initial Calibration - Summary Report

Calibration ID: RC1400048 **Instrument ID:** R-MS-12
8260 Waters-MS#12-W061314 **Column Name:** 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3312	<=20	4.7
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7425	<=20	6.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5662	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2285	<=20	4.4
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.4199	<=20	1.7
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8965	<=20	3.6
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3927	<=20	11.3
1,1-Dichloropropene	T	Average RF			0.3962	<=20	1.6
1,2,3-Trichlorobenzene	T	Average RF			0.6167	<=20	10.9
1,2,3-Trichloropropane	T	Average RF			0.1619	<=20	8.3
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7261	<=20	4.9
1,2,4-Trimethylbenzene	T	Average RF			2.431	<=20	5.3
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.1025	<=20	3.4
1,2-Dibromoethane	T	Average RF		0.100	0.2437	<=20	7.0
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5809	<=20	1.5
1,2-Dichlorobenzene	T	Average RF		0.400	1.278	<=20	2.1
1,2-Dichloroethane	T	Average RF		0.100	0.3640	<=20	3.1
1,2-Dichloropropane	T	Average RF		0.100	0.3329	<=20	3.7
1,3,5-Trichlorobenzene	T	Average RF			0.8305	<=20	6.6
1,3,5-Trimethylbenzene	T	Average RF			2.418	<=20	5.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.364	<=20	3.1
1,3-Dichloropropane	T	Average RF			0.4524	<=20	1.6
1,4-Dichlorobenzene	T	Average RF		0.500	1.393	<=20	5.6
1,4-Dioxane	T	Average RF			0.002072	<=20	6.4
1-Butanol	T	Average RF			0.004952	<=20	9.4
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.4185	<=20	3.7
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6622	<=20	4.7
2,2-Dichloropropane	T	Average RF			0.7868	<=20	9.0
2,3,6-Trichlorotoluene	T	Average RF			0.3666	<=20	4.9
2,4,5-Trichlorotoluene	T	Average RF			0.3902	<=20	3.7
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			1.031	<=20	5.0
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5290	<=20	4.6
2,5-Dichlorobenzotrifluoride	T	Average RF			0.5736	<=20	3.0
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1412	<=20	9.2
2-Chloro-1,3-butadiene	T	Average RF			0.8140	<=20	4.2
2-Chlorobenzotrifluoride	T	Average RF			0.8449	<=20	2.9
2-Chloroethyl Vinyl Ether	T	Average RF			0.1598	<=20	3.4
2-Chlorotoluene	T	Average RF			2.021	<=20	3.9
2-Hexanone	T	Average RF		0.05	0.1585	<=20	4.9
2-Methyl-1-propanol	T	Average RF			0.008422	<=20	9.8
2-Methyl-2-propanol	T	Average RF			0.03095	<=20	4.8
2-Nitropropane	T	Average RF			0.05251	<=20	7.5
2-Propanol	T	Average RF			0.01880	<=20	5.4
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.106	<=20	8.8
3,4-Dichlorobenzotrifluoride	T	Average RF			0.5797	<=20	4.2
3-Chloro-1-propene	T	Average RF			0.2910	<=20	6.7
3-Chlorobenzotrifluoride	T	Average RF			0.4621	<=20	3.3
3-Chlorotoluene	T	Average RF			2.109	<=20	5.1
4-Chlorotoluene	T	Average RF			2.390	<=20	3.8
4-Isopropyltoluene	T	Average RF			2.384	<=20	5.6
4-Methyl-2-pentanone	T	Average RF		0.05	0.2123	<=20	5.0

00180

Initial Calibration - Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09881	<=20	1.1
Acetonitrile	T	Average RF			0.01689	<=20	4.1
Acrolein	T	Average RF			0.03774	<=20	12.9
Acrylonitrile	T	Average RF			0.1206	<=20	3.5
Benzene	T	Average RF		0.500	1.285	<=20	3.8
Bromobenzene	T	Average RF			0.7321	<=20	2.1
Bromochloromethane	T	Average RF			0.2794	<=20	3.9
Bromodichloromethane	T	Average RF		0.200	0.3973	<=20	3.1
Bromoform	T	Average RF		0.100	0.3115	<=20	4.3
Bromomethane	T	Average RF		0.100	0.2636	<=20	16.0
Carbon Disulfide	T	Average RF		0.100	1.516	<=20	9.7
Carbon Tetrachloride	T	Average RF		0.05	0.1243	<=20	11.9
Chlorobenzene	T	Average RF		0.500	0.9545	<=20	3.1
Chloroethane	T	Average RF		0.100	0.3700	<=20	7.9
Chloroform	T	Average RF		0.200	0.8431	<=20	6.5
Chloromethane	T	Average RF		0.100	0.5810	<=20	4.1
Cyclohexane	T	Average RF		0.100	0.3451	<=20	14.2
Cyclohexanone	T	Average RF			0.02767	<=20	9.4
Dibromochloromethane	T	Average RF		0.100	0.2867	<=20	5.7
Dibromomethane	T	Average RF			0.1473	<=20	3.3
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5045	<=20	8.3
Dichlorofluoromethane (CFC 21)	T	Average RF			0.8818	<=20	7.1
Dichloromethane	T	Average RF		0.100	0.5147	<=20	15.5
Diethyl Ether	T	Average RF			0.3887	<=20	6.0
Diisopropyl Ether	T	Average RF			1.752	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.3281	<=20	5.1
Ethyl tert-Butyl Ether	T	Average RF			1.490	<=20	3.9
Ethylbenzene	T	Average RF		0.100	0.5238	<=20	2.7
Hexachlorobutadiene	T	Average RF			0.3114	<=20	18.0
Iodomethane	T	Linear	1/X		0.4370	>=0.99	0.9981
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.886	<=20	6.2
Methacrylonitrile	T	Linear	1/X		0.1489	>=0.99	0.9994
Methyl Acetate	T	Average RF		0.100	0.2364	<=20	4.9
Methyl Methacrylate	T	Average RF			0.1654	<=20	6.8
Methyl tert-Butyl Ether	T	Average RF		0.100	1.152	<=20	3.7
Methylcyclohexane	T	Average RF		0.100	0.3992	<=20	9.7
Naphthalene	T	Average RF			1.392	<=20	7.3
Propionitrile	T	Average RF			0.04557	<=20	17.0
Styrene	T	Average RF		0.300	1.047	<=20	3.3
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2709	<=20	3.8
Tetrahydrofuran (THF)	T	Average RF			0.09777	<=20	8.2
Toluene	T	Average RF		0.400	1.361	<=20	3.9
Trichloroethene (TCE)	T	Average RF		0.200	0.3273	<=20	4.0
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7177	<=20	2.5
Vinyl Acetate	T	Average RF			0.07886	<=20	8.7
Vinyl Chloride	T	Average RF		0.100	0.6376	<=20	3.5
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5403	<=20	3.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.5023	<=20	3.7
m,p-Xylenes	T	Average RF		0.100	0.6427	<=20	3.6
n-Butyl Acetate	T	Average RF			0.4040	<=20	7.4
n-Butylbenzene	T	Average RF			2.114	<=20	4.3
n-Heptane	T	Average RF			0.3698	<=20	13.7

Initial Calibration - Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.379	<=20	8.8
o-Xylene	T	Average RF		0.300	0.6461	<=20	2.0
sec-Butylbenzene	T	Average RF			2.797	<=20	6.6
tert-Amyl Methyl Ether	T	Average RF			1.288	<=20	4.6
tert-Butylbenzene	T	Average RF			1.995	<=20	4.1
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4855	<=20	6.7
trans-1,3-Dichloropropene	T	Average RF		0.100	0.4146	<=20	3.4
trans-1,4-Dichloro-2-butene	T	Average RF			0.1778	<=20	17.1
1,2-Dichloroethane-d4	S	Average RF			0.3043	<=20	1.5
4-Bromofluorobenzene	S	Average RF			0.4652	<=20	1.4
Dibromofluoromethane	S	Average RF			0.2865	<=20	0.6
Toluene-d8	S	Average RF			1.241	<=20	0.6

Initial Calibration Verification Summary Report

KPC 6/14/14

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
	WQ613/14	**Column Name:**	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
1,1,1,2-Tetrachloroethane	RC1400048-09	T	Average RF	50	46.96	ppm	-6.1	<=30
1,1,1-Trichloroethane (TCA)	RC1400048-09	T	Average RF	50	46.80	ppm	-6.4	<=30
1,1,2,2-Tetrachloroethane	RC1400048-09	T	Average RF	50	46.02	ppm	-8.0	<=30
1,1,2-Trichloroethane	RC1400048-09	T	Average RF	50	46.74	ppm	-6.5	<=30
1,1,2-Trichlorotrifluoroethane	RC1400048-09	T	Average RF	50	47.71	ppm	-4.6	<=30
1,1-Dichloroethane (1,1-DCA)	RC1400048-09	T	Average RF	50	46.32	ppm	-7.4	<=30
1,1-Dichloroethene (1,1-DCE)	RC1400048-09	T	Average RF	50	51.17	ppm	2.3	<=30
1,1-Dichloropropene	RC1400048-09	T	Average RF	50	47.79	ppm	-4.4	<=30
1,2,3-Trichlorobenzene	RC1400048-09	T	Average RF	50	47.12	ppm	-5.8	<=30
1,2,3-Trichloropropane	RC1400048-09	T	Average RF	50	45.24	ppm	-9.5	<=30
1,2,4-Trichlorobenzene	RC1400048-09	T	Average RF	50	48.82	ppm	-2.4	<=30
1,2,4-Trimethylbenzene	RC1400048-09	T	Average RF	50	45.86	ppm	-8.3	<=30
1,2-Dibromo-3-chloropropane (DBCP)	RC1400048-09	T	Average RF	50	46.52	ppm	-7.0	<=30
1,2-Dibromoethane	RC1400048-09	T	Average RF	50	46.28	ppm	-7.4	<=30
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	RC1400048-09	T	Average RF	50	59.45	ppm	18.9	<=30
1,2-Dichlorobenzene	RC1400048-09	T	Average RF	50	46.06	ppm	-7.9	<=30
1,2-Dichloroethane	RC1400048-09	T	Average RF	50	46.14	ppm	-7.7	<=30
1,2-Dichloropropane	RC1400048-09	T	Average RF	50	47.12	ppm	-5.8	<=30
1,3,5-Trichlorobenzene	RC1400048-09	T	Average RF	50	48.51	ppm	-3.0	<=30
1,3,5-Trimethylbenzene	RC1400048-09	T	Average RF	50	45.88	ppm	-8.2	<=30
1,3-Dichlorobenzene	RC1400048-09	T	Average RF	50	46.41	ppm	-7.2	<=30
1,3-Dichloropropane	RC1400048-09	T	Average RF	50	46.74	ppm	-6.5	<=30
1,4-Dichlorobenzene	RC1400048-09	T	Average RF	50	46.11	ppm	-7.8	<=30
1,4-Dioxane	RC1400048-09	T	Average RF	1000	1044	ppm	4.4	<=30
1-Butanol	RC1400048-09	T	Average RF	2500	2907	ppm	16.3	<=30
1-Chloro-4-(trifluoromethyl)benzene	RC1400048-09	T	Average RF	50	49.39	ppm	-1.2	<=30
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	RC1400048-09	T	Average RF	50	50.02	ppm	0.0	<=30
2,2-Dichloropropane	RC1400048-09	T	Average RF	50	46.46	ppm	-7.1	<=30
2,3,6-Trichlorotoluene	RC1400048-09	T	Average RF	50	52.44	ppm	4.9	<=30
2,4,5-Trichlorotoluene	RC1400048-09	T	Average RF	50	55.49	ppm	11.0	<=30
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	RC1400048-09	T	Average RF	150	151.7	ppm	1.1	<=30
2,4-Dichlorobenzotrifluoride	RC1400048-09	T	Average RF	50	47.30	ppm	-5.4	<=30
2,5-Dichlorobenzotrifluoride	RC1400048-09	T	Average RF	50	50.74	ppm	1.5	<=30
2-Butanone (MEK)	RC1400048-09	T	Average RF	50	51.00	ppm	2.0	<=30
2-Chloro-1,3-butadiene	RC1400048-09	T	Average RF	50	47.81	ppm	-4.4	<=30
2-Chlorobenzotrifluoride	RC1400048-09	T	Average RF	50	48.54	ppm	-2.9	<=30
2-Chloroethyl Vinyl Ether	RC1400048-09	T	Average RF	50	45.92	ppm	-8.2	<=30
2-Chlorotoluene	RC1400048-09	T	Average RF	50	46.13	ppm	-7.7	<=30
2-Hexanone	RC1400048-09	T	Average RF	50	51.83	ppm	3.7	<=30
2-Methyl-1-propanol	RC1400048-09	T	Average RF	1000	1047	ppm	4.7	<=30
2-Methyl-2-propanol	RC1400048-09	T	Average RF	1000	1040	ppm	4.0	<=30
2-Nitropropane	RC1400048-09	T	Average RF	100	95.92	ppm	-4.1	<=30
2-Propanol	RC1400048-09	T	Average RF	1000	1102	ppm	10.2	<=30
3,4- and 2,3-Dichlorotoluene Coelution	RC1400048-09	T	Average RF	100	99.71	ppm	-0.3	<=30
3,4-Dichlorobenzotrifluoride	RC1400048-09	T	Average RF	50	48.55	ppm	-2.9	<=30
3-Chloro-1-propene	RC1400048-09	T	Average RF	50	44.97	ppm	-10.1	<=30
3-Chlorobenzotrifluoride	RC1400048-09	T	Average RF	50	48.83	ppm	-2.3	<=30
3-Chlorotoluene	RC1400048-09	T	Average RF	50	48.54	ppm	-2.9	<=30
4-Chlorotoluene	RC1400048-09	T	Average RF	50	46.27	ppm	-7.5	<=30
4-Isopropyltoluene	RC1400048-09	T	Average RF	50	47.03	ppm	-5.9	<=30
4-Methyl-2-pentanone	RC1400048-09	T	Average RF	50	50.47	ppm	0.9	<=30

Initial Calibration Verification Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Acetone	RC1400048-09	T	Average RF	50	47.89	ppm	-4.2	<=30
Acetonitrile	RC1400048-09	T	Average RF	250	245.8	ppm	-1.7	<=30
Acrolein	RC1400048-09	T	Average RF	100	90.76	ppm	-9.2	<=30
Acrylonitrile	RC1400048-09	T	Average RF	250	237.4	ppm	-5.0	<=30
Benzene	RC1400048-09	T	Average RF	50	46.20	ppm	-7.6	<=30
Bromobenzene	RC1400048-09	T	Average RF	50	45.18	ppm	-9.6	<=30
Bromochloromethane	RC1400048-09	T	Average RF	50	47.15	ppm	-5.7	<=30
Bromodichloromethane	RC1400048-09	T	Average RF	50	46.61	ppm	-6.8	<=30
Bromoform	RC1400048-09	T	Average RF	50	45.47	ppm	-9.1	<=30
Bromomethane	RC1400048-09	T	Average RF	50	50.54	ppm	1.1	<=30
Carbon Disulfide	RC1400048-09	T	Average RF	50	44.92	ppm	-10.2	<=30
Carbon Tetrachloride	RC1400048-09	T	Average RF	50	46.54	ppm	-6.9	<=30
Chlorobenzene	RC1400048-09	T	Average RF	50	46.78	ppm	-6.4	<=30
Chloroethane	RC1400048-09	T	Average RF	50	45.07	ppm	-9.9	<=30
Chloroform	RC1400048-09	T	Average RF	50	46.68	ppm	-6.6	<=30
Chloromethane	RC1400048-09	T	Average RF	50	47.96	ppm	-4.1	<=30
Cyclohexane	RC1400048-09	T	Average RF	50	44.02	ppm	-12.0	<=30
Cyclohexanone	RC1400048-09	T	Average RF	1000	813.6	ppm	-18.6	<=30
Dibromochloromethane	RC1400048-09	T	Average RF	50	47.68	ppm	-4.6	<=30
Dibromomethane	RC1400048-09	T	Average RF	50	47.52	ppm	-5.0	<=30
Dichlorodifluoromethane (CFC 12)	RC1400048-09	T	Average RF	50	52.43	ppm	4.9	<=30
Dichlorofluoromethane (CFC 21)	RC1400048-09	T	Average RF	50	42.30	ppm	-15.4	<=30
Dichloromethane	RC1400048-09	T	Average RF	50	44.83	ppm	-10.3	<=30
Diethyl Ether	RC1400048-09	T	Average RF	50	46.97	ppm	-6.1	<=30
Diisopropyl Ether	RC1400048-09	T	Average RF	50	45.93	ppm	-8.1	<=30
Ethyl Methacrylate	RC1400048-09	T	Average RF	50	48.94	ppm	-2.1	<=30
Ethyl tert-Butyl Ether	RC1400048-09	T	Average RF	50	46.56	ppm	-6.9	<=30
Ethylbenzene	RC1400048-09	T	Average RF	50	43.45	ppm	-13.1	<=30
Hexachlorobutadiene	RC1400048-09	T	Average RF	50	45.76	ppm	-8.5	<=30
Iodomethane	RC1400048-09	T	Linear	50	45.49	ppm	-9.0	<=30
Isopropylbenzene (Cumene)	RC1400048-09	T	Average RF	50	45.93	ppm	-8.1	<=30
Methacrylonitrile	RC1400048-09	T	Linear	50	47.30	ppm	-5.4	<=30
Methyl Acetate	RC1400048-09	T	Average RF	50	53.03	ppm	6.1	<=30
Methyl Methacrylate	RC1400048-09	T	Average RF	50	46.16	ppm	-7.7	<=30
Methyl tert-Butyl Ether	RC1400048-09	T	Average RF	50	50.64	ppm	1.3	<=30
Methylcyclohexane	RC1400048-09	T	Average RF	50	46.48	ppm	-7.0	<=30
Naphthalene	RC1400048-09	T	Average RF	50	51.73	ppm	3.5	<=30
Propionitrile	RC1400048-09	T	Average RF	250	232.8	ppm	-6.9	<=30
Styrene	RC1400048-09	T	Average RF	50	47.64	ppm	-4.7	<=30
Tetrachloroethene (PCE)	RC1400048-09	T	Average RF	50	45.79	ppm	-8.4	<=30
Tetrahydrofuran (THF)	RC1400048-09	T	Average RF	50	49.35	ppm	-1.3	<=30
Toluene	RC1400048-09	T	Average RF	50	46.59	ppm	-6.8	<=30
Trichloroethene (TCE)	RC1400048-09	T	Average RF	50	46.08	ppm	-7.8	<=30
Trichlorofluoromethane (CFC 11)	RC1400048-09	T	Average RF	50	46.64	ppm	-6.7	<=30
Vinyl Acetate	RC1400048-09	T	Average RF	50	50.98	ppm	2.0	<=30
Vinyl Chloride	RC1400048-09	T	Average RF	50	46.85	ppm	-6.3	<=30
cis-1,2-Dichloroethene	RC1400048-09	T	Average RF	50	45.97	ppm	-8.1	<=30
cis-1,3-Dichloropropene	RC1400048-09	T	Average RF	50	47.96	ppm	-4.1	<=30
m,p-Xylenes	RC1400048-09	T	Average RF	100	93.70	ppm	-6.3	<=30
n-Butyl Acetate	RC1400048-09	T	Average RF	50	50.41	ppm	0.8	<=30
n-Butylbenzene	RC1400048-09	T	Average RF	50	48.26	ppm	-3.5	<=30

00304

Initial Calibration Verification Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
n-Heptane	RC1400048-09	T	Average RF	50	47.29	ppm	-5.4	<=30
n-Propylbenzene	RC1400048-09	T	Average RF	50	46.01	ppm	-8.0	<=30
o-Xylene	RC1400048-09	T	Average RF	50	45.36	ppm	-9.3	<=30
sec-Butylbenzene	RC1400048-09	T	Average RF	50	46.12	ppm	-7.8	<=30
tert-Amyl Methyl Ether	RC1400048-09	T	Average RF	50	47.61	ppm	-4.8	<=30
tert-Butylbenzene	RC1400048-09	T	Average RF	50	45.78	ppm	-8.4	<=30
trans-1,2-Dichloroethene	RC1400048-09	T	Average RF	50	46.99	ppm	-6.0	<=30
trans-1,3-Dichloropropene	RC1400048-09	T	Average RF	50	49.07	ppm	-1.9	<=30
trans-1,4-Dichloro-2-butene	RC1400048-09	T	Average RF	50	38.08	ppm	-23.8	<=30
1,2-Dichloroethane-d4	RC1400048-09	S	Average RF	50	51.29	ppm	2.6	<=30
4-Bromofluorobenzene	RC1400048-09	S	Average RF	50	50.65	ppm	1.3	<=30
Dibromofluoromethane	RC1400048-09	S	Average RF	50	50.79	ppm	1.6	<=30
Toluene-d8	RC1400048-09	S	Average RF	50	50.02	ppm	0.0	<=30

00305

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/16/14 10:04

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\061614\M6565.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 397230

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	19.01	102395	Pass
75	95	30	60	48.97	263723	Pass
95	95	100	100	100.00	538496	Pass
96	95	5	9	6.54	35219	Pass
173	174	0	2	0.94	3927	Pass
174	95	50	120	77.87	419328	Pass
175	174	5	9	7.13	29901	Pass
176	174	95	101	97.22	407681	Pass
177	176	5	9	6.60	26920	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406610-02	I:\ACQUDATA\MSVOA12\DATA\061614\M6566.D\	6/16/14 10:37	
Lab Control Sample	RQ1406610-03	I:\ACQUDATA\MSVOA12\DATA\061614\M6567.D\	6/16/14 11:09	
Method Blank	RQ1406610-04	I:\ACQUDATA\MSVOA12\DATA\061614\M6569.D\	6/16/14 12:31	
TB-060514	R1404353-008	I:\ACQUDATA\MSVOA12\DATA\061614\M6571.D\	6/16/14 13:36	
MRC-MW-14A-060414	R1404353-001	I:\ACQUDATA\MSVOA12\DATA\061614\M6572.D\	6/16/14 14:09	
MRC-MW-37B-060514	R1404353-004	I:\ACQUDATA\MSVOA12\DATA\061614\M6574.D\	6/16/14 15:14	
MRC-MW-14B-060514	R1404353-003	I:\ACQUDATA\MSVOA12\DATA\061614\M6575.D\	6/16/14 15:47	
DUP-04-060514	R1404353-006	I:\ACQUDATA\MSVOA12\DATA\061614\M6577.D\	6/16/14 16:52	
MRC-MW-112A-060514	R1404353-007	I:\ACQUDATA\MSVOA12\DATA\061614\M6578.D\	6/16/14 17:25	
MRC-MW-109A-060514	R1404353-010	I:\ACQUDATA\MSVOA12\DATA\061614\M6579.D\	6/16/14 17:57	
MRC-MW-109B-060514	R1404353-011	I:\ACQUDATA\MSVOA12\DATA\061614\M6580.D\	6/16/14 18:30	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/16/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\061614\M6566.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 397230
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	47.4	0.3312	0.3142	-5.1	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	48.4	0.7425	0.7183	-3.3	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	48.8	0.5662	0.5527	-2.4	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	48.8	0.4199	0.4100	-2.4	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	49.8	0.8965	0.8934	-0.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	46.4	0.3927	0.3644	-7.2	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	48.1	0.3962	0.3808	-3.9	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	49.1	0.6167	0.6054	-1.8	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	48.5	0.1619	0.1572	-2.9	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	49.9	0.7261	0.7250	-0.2	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	48.4	2.431	2.351	-3.3	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	48.6	0.1025	0.09970	-2.7	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	46.7	0.2437	0.2275	-6.6	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	48.2	1.278	1.230	-3.7	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	51.1	0.3640	0.3718	2.1	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	49.3	0.3329	0.3284	-1.3	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	47.6	1.364	1.298	-4.8	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	49.5	0.4524	0.4476	-1.1	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	47.0	1.393	1.308	-6.0	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	48.7	0.7868	0.7658	-2.7	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	55.2	0.1412	0.1560	10.5	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	52.1	0.1598	0.1666	4.2	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	49.1	2.021	1.987	-1.7	NA	± 20 %	Average RF
2-Hexanone	50.0	52.5	0.1585	0.1663	4.9	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1180	0.03095	0.03651	18.0	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	49.6	2.390	2.369	-0.9	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	48.8	2.384	2.324	-2.5	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	52.9	0.2123	0.2246	5.8	NA	± 20 %	Average RF
Acetone	50.0	53.1	0.09881	0.1049	6.2	NA	± 20 %	Average RF
Benzene	50.0	47.9	1.285	1.230	-4.3	NA	± 20 %	Average RF
Bromobenzene	50.0	46.6	0.7321	0.6818	-6.9	NA	± 20 %	Average RF
Bromochloromethane	50.0	49.4	0.2794	0.2760	-1.2	NA	± 20 %	Average RF
Bromodichloromethane	50.0	48.5	0.3973	0.3852	-3.0	NA	± 20 %	Average RF
Bromoform	50.0	47.5	0.3115	0.2958	-5.0	NA	± 20 %	Average RF
Bromomethane	50.0	49.6	0.2636	0.2614	-0.9	NA	± 20 %	Average RF
Carbon Disulfide	50.0	49.2	1.516	1.493	-1.5	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	48.0	0.1243	0.1193	-4.0	NA	± 20 %	Average RF
Chlorobenzene	50.0	47.5	0.9545	0.9062	-5.1	NA	± 20 %	Average RF
Chloroethane	50.0	46.2	0.3700	0.3417	-7.6	NA	± 20 %	Average RF
Chloroform	50.0	49.1	0.8431	0.8278	-1.8	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/16/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\061614\M6566.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 397230
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	49.3	0.5810	0.5731	-1.4	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.0	0.2867	0.2750	-4.1	NA	± 20 %	Average RF
Dibromomethane	50.0	50.9	0.1473	0.1498	1.7	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	51.1	0.5045	0.5160	2.3	NA	± 20 %	Average RF
Methylene Chloride	50.0	45.0	0.5147	0.4635	-9.9	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	49.3	1.752	1.729	-1.3	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	50.3	1.490	1.501	0.7	NA	± 20 %	Average RF
Ethylbenzene	50.0	47.2	0.5238	0.4942	-5.7	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	50.0	0.3114	0.3112	0.0	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	47.7	2.886	2.755	-4.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	52.3	1.152	1.205	4.6	NA	± 20 %	Average RF
Naphthalene	50.0	53.4	1.392	1.487	6.8	NA	± 20 %	Average RF
Styrene	50.0	48.2	1.047	1.009	-3.6	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	45.5	0.2709	0.2466	-9.0	NA	± 20 %	Average RF
Toluene	50.0	48.0	1.361	1.306	-4.0	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	47.0	0.3273	0.3075	-6.1	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	49.6	0.7177	0.7122	-0.8	NA	± 20 %	Average RF
Vinyl Acetate	50.0	55.2	0.07886	0.08708	10.4	NA	± 20 %	Average RF
Vinyl Chloride	50.0	49.1	0.6376	0.6261	-1.8	NA	± 20 %	Average RF
Xylenes, Total	150	141	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	47.9	0.5403	0.5177	-4.2	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	49.0	0.5023	0.4923	-2.0	NA	± 20 %	Average RF
m,p-Xylenes	100	94.6	0.6427	0.6080	-5.4	NA	± 20 %	Average RF
n-Butylbenzene	50.0	50.7	2.114	2.146	1.5	NA	± 20 %	Average RF
n-Propylbenzene	50.0	48.5	3.379	3.279	-3.0	NA	± 20 %	Average RF
o-Xylene	50.0	46.4	0.6461	0.5989	-7.3	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	48.6	2.797	2.718	-2.8	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	50.2	1.288	1.293	0.4	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	46.9	1.995	1.869	-6.3	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	47.8	0.4855	0.4646	-4.3	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	50.6	0.4146	0.4194	1.2	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	51.8	0.4652	0.4821	3.6	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	51.5	0.2865	0.2950	3.0	NA	± 20 %	Average RF
Toluene-d8	50.0	50.7	1.241	1.259	1.4	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/16/14 12:31

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406610-04
Instrument ID: R-MS-12
File ID: I:\ACQUDATA\MSVOA12\DATA\061614\M6569.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406610-03	I:\ACQUDATA\MSVOA12\DATA\061614\M6567.D\	6/16/14 11:09
TB-060514	R1404353-008	I:\ACQUDATA\MSVOA12\DATA\061614\M6571.D\	6/16/14 13:36
MRC-MW-14A-060414	R1404353-001	I:\ACQUDATA\MSVOA12\DATA\061614\M6572.D\	6/16/14 14:09
MRC-MW-37B-060514	R1404353-004	I:\ACQUDATA\MSVOA12\DATA\061614\M6574.D\	6/16/14 15:14
MRC-MW-14B-060514	R1404353-003	I:\ACQUDATA\MSVOA12\DATA\061614\M6575.D\	6/16/14 15:47
DUP-04-060514	R1404353-006	I:\ACQUDATA\MSVOA12\DATA\061614\M6577.D\	6/16/14 16:52
MRC-MW-112A-060514	R1404353-007	I:\ACQUDATA\MSVOA12\DATA\061614\M6578.D\	6/16/14 17:25
MRC-MW-109A-060514	R1404353-010	I:\ACQUDATA\MSVOA12\DATA\061614\M6579.D\	6/16/14 17:57
MRC-MW-109B-060514	R1404353-011	I:\ACQUDATA\MSVOA12\DATA\061614\M6580.D\	6/16/14 18:30

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/16/14 12:31
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406610-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6569.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	0.31	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/16/14 12:31
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406610-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6569.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	0.52	J	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.25	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/16/14 12:31
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406610-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397230
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061614\M6569.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/16/14 12:31	
Dibromofluoromethane	100	89-119	6/16/14 12:31	
Toluene-d8	99	87-121	6/16/14 12:31	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/16/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397230

Lab Control Sample
RQ1406610-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	19.1	20.0	95	79 - 119
1,1,1-Trichloroethane (TCA)	19.4	20.0	97	71 - 123
1,1,2,2-Tetrachloroethane	21.4	20.0	107	74 - 127
1,1,2-Trichlorotrifluoroethane	19.1	20.0	96	64 - 136
1,1-Dichloroethane (1,1-DCA)	19.7	20.0	99	76 - 128
1,1-Dichloroethene (1,1-DCE)	20.8	20.0	104	74 - 135
1,1-Dichloropropene	19.4	20.0	97	74 - 136
1,2,3-Trichlorobenzene	22.5	20.0	112	60 - 144
1,2,3-Trichloropropane	21.8	20.0	109	68 - 136
1,2,4-Trichlorobenzene	22.0	20.0	110	60 - 141
1,2,4-Trimethylbenzene	18.8	20.0	94	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	22.6	20.0	113	69 - 135
1,2-Dibromoethane	21.1	20.0	105	81 - 123
1,2-Dichlorobenzene	19.4	20.0	97	80 - 119
1,2-Dichloroethane	21.4	20.0	107	72 - 130
1,2-Dichloropropane	19.6	20.0	98	80 - 119
1,3-Dichlorobenzene	18.8	20.0	94	79 - 121
1,3-Dichloropropane	20.9	20.0	104	82 - 116
1,4-Dichlorobenzene	19.0	20.0	95	79 - 119
2,2-Dichloropropane	19.3	20.0	96	59 - 135
2-Butanone (MEK)	23.0	20.0	115	66 - 129
2-Chloroethyl Vinyl Ether	19.9	20.0	99	58 - 139
2-Chlorotoluene	19.1	20.0	95	71 - 125
2-Hexanone	22.4	20.0	112	61 - 131
tert-Butyl Alcohol	549	400	137	63 - 142
4-Chlorotoluene	19.2	20.0	96	73 - 127
4-Isopropyltoluene	18.7	20.0	94	74 - 130
4-Methyl-2-pentanone	23.8	20.0	119	68 - 129
Acetone	21.3	20.0	106	51 - 146
Benzene	19.3	20.0	97	76 - 118
Bromobenzene	18.7	20.0	94	79 - 121
Bromochloromethane	20.6	20.0	103	81 - 126
Bromodichloromethane	19.8	20.0	99	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/16/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397230

Analyte Name	Lab Control Sample RQ1406610-03 Result	Spike Amount	% Rec	% Rec Limits
Bromoform	19.6	20.0	98	65 - 138
Bromomethane	19.2	20.0	96	41 - 159
Carbon Disulfide	18.2	20.0	91	63 - 141
Carbon Tetrachloride	18.2	20.0	91	66 - 128
Chlorobenzene	18.8	20.0	94	80 - 121
Chloroethane	17.8	20.0	89	71 - 128
Chloroform	20.8	20.0	104	76 - 120
Chloromethane	20.4	20.0	102	64 - 140
Dibromochloromethane	19.7	20.0	99	79 - 125
Dibromomethane	21.5	20.0	108	79 - 120
Dichlorodifluoromethane (CFC 12)	21.8	20.0	109	60 - 150
Methylene Chloride	19.2	20.0	96	73 - 122
Diisopropyl Ether	19.0	20.0	95	76 - 131
Ethyl tert-Butyl Ether	19.8	20.0	99	77 - 126
Ethylbenzene	16.9	20.0	84	76 - 120
Hexachlorobutadiene	21.2	20.0	106	57 - 147
Isopropylbenzene (Cumene)	18.6	20.0	93	76 - 126
Methyl tert-Butyl Ether	23.6	20.0	118	73 - 131
Naphthalene	25.5	20.0	127	73 - 133
Styrene	18.7	20.0	94	81 - 122
Tetrachloroethene (PCE)	17.9	20.0	89	69 - 124
Toluene	19.0	20.0	95	77 - 120
Trichloroethene (TCE)	18.7	20.0	94	76 - 123
Trichlorofluoromethane (CFC 11)	19.5	20.0	97	69 - 130
Vinyl Acetate	23.4	20.0	117	43 - 165
Vinyl Chloride	19.0	20.0	95	69 - 136
Xylenes, Total	54.9	60.0	92	78 - 121
cis-1,2-Dichloroethene	19.1	20.0	95	80 - 121
cis-1,3-Dichloropropene	19.9	20.0	100	77 - 125
m,p-Xylenes	36.9	40.0	92	78 - 123
n-Butylbenzene	19.3	20.0	96	69 - 135
n-Propylbenzene	18.7	20.0	94	76 - 125
o-Xylene	18.0	20.0	90	77 - 131

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/16/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397230

Lab Control Sample
RQ1406610-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	18.7	20.0	93	72 - 130
tert-Amyl Methyl Ether	20.6	20.0	103	76 - 123
tert-Butylbenzene	18.2	20.0	91	73 - 124
trans-1,2-Dichloroethene	19.7	20.0	99	78 - 124
trans-1,3-Dichloropropene	21.5	20.0	108	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/17/14 09:53

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061714\M6608.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 397445

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	19.84	94797	Pass
75	95	30	60	50.41	240875	Pass
95	95	100	100	100.00	477803	Pass
96	95	5	9	6.85	32733	Pass
173	174	0	2	0.91	3278	Pass
174	95	50	120	75.66	361493	Pass
175	174	5	9	7.79	28168	Pass
176	174	95	101	98.87	357419	Pass
177	176	5	9	6.34	22669	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406692-02	I:\ACQUDATA\MSVOA12\DATA\061714\M6609.D\	6/17/14 10:24	
Lab Control Sample	RQ1406692-03	I:\ACQUDATA\MSVOA12\DATA\061714\M6610.D\	6/17/14 10:57	
Method Blank	RQ1406692-04	I:\ACQUDATA\MSVOA12\DATA\061714\M6612.D\	6/17/14 12:02	
MRC-MW-14C-060414	R1404353-002	I:\ACQUDATA\MSVOA12\DATA\061714\M6613.D\	6/17/14 12:33	
MRC-MW-112A-060514RE	R1404353-007	I:\ACQUDATA\MSVOA12\DATA\061714\M6614.D\	6/17/14 13:05	
MRC-MW-37C-060514	R1404353-005	I:\ACQUDATA\MSVOA12\DATA\061714\M6615.D\	6/17/14 13:38	
MRC-MW-17A-060514	R1404353-009	I:\ACQUDATA\MSVOA12\DATA\061714\M6616.D\	6/17/14 14:10	
MRC-MW-14B-060514DL	R1404353-003	I:\ACQUDATA\MSVOA12\DATA\061714\M6618.D\	6/17/14 15:48	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/17/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\061714\M6609.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 397445
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	48.4	0.3312	0.3206	-3.2	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	52.9	0.7425	0.7848	5.7	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	50.4	0.5662	0.5710	0.8	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	51.4	0.4199	0.4317	2.8	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	53.9	0.8965	0.9659	7.7	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	49.7	0.3927	0.3900	-0.7	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	51.3	0.3962	0.4069	2.7	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	48.9	0.6167	0.6033	-2.2	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	49.5	0.1619	0.1603	-1.0	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.4	0.7261	0.7312	0.7	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	50.4	2.431	2.448	0.7	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	46.7	0.1025	0.09578	-6.6	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	48.1	0.2437	0.2344	-3.8	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	48.5	1.278	1.239	-3.0	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	54.5	0.3640	0.3964	8.9	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	51.6	0.3329	0.3434	3.2	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	48.0	1.364	1.308	-4.1	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	51.4	0.4524	0.4652	2.8	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	47.3	1.393	1.318	-5.3	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	52.3	0.7868	0.8236	4.7	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	61.5	0.1412	0.1738	23.0 *	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	50.8	0.1598	0.1624	1.7	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	51.1	2.021	2.065	2.2	NA	± 20 %	Average RF
2-Hexanone	50.0	54.7	0.1585	0.1734	9.5	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1140	0.03095	0.03520	13.7	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	50.6	2.390	2.418	1.2	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	50.2	2.384	2.391	0.3	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	52.4	0.2123	0.2225	4.8	NA	± 20 %	Average RF
Acetone	50.0	65.0	0.09881	0.1284	29.9 *	NA	± 20 %	Average RF
Benzene	50.0	50.5	1.285	1.298	1.0	NA	± 20 %	Average RF
Bromobenzene	50.0	46.4	0.7321	0.6786	-7.3	NA	± 20 %	Average RF
Bromochloromethane	50.0	50.1	0.2794	0.2799	0.2	NA	± 20 %	Average RF
Bromodichloromethane	50.0	51.5	0.3973	0.4089	2.9	NA	± 20 %	Average RF
Bromoform	50.0	47.0	0.3115	0.2925	-6.1	NA	± 20 %	Average RF
Bromomethane	50.0	51.7	0.2636	0.2723	3.3	NA	± 20 %	Average RF
Carbon Disulfide	50.0	47.5	1.516	1.440	-5.0	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	51.2	0.1243	0.1272	2.4	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.4	0.9545	0.9244	-3.2	NA	± 20 %	Average RF
Chloroethane	50.0	47.2	0.3700	0.3492	-5.6	NA	± 20 %	Average RF
Chloroform	50.0	53.6	0.8431	0.9031	7.1	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/17/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\061714\M6609.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 397445
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	50.8	0.5810	0.5899	1.5	NA	± 20 %	Average RF
Dibromochloromethane	50.0	48.9	0.2867	0.2804	-2.2	NA	± 20 %	Average RF
Dibromomethane	50.0	52.7	0.1473	0.1553	5.4	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	53.7	0.5045	0.5413	7.3	NA	± 20 %	Average RF
Methylene Chloride	50.0	47.9	0.5147	0.4931	-4.2	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	51.5	1.752	1.805	3.0	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	52.5	1.490	1.566	5.1	NA	± 20 %	Average RF
Ethylbenzene	50.0	48.9	0.5238	0.5123	-2.2	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	50.3	0.3114	0.3133	0.6	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	49.5	2.886	2.858	-1.0	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	56.0	1.152	1.289	12.0	NA	± 20 %	Average RF
Naphthalene	50.0	52.8	1.392	1.471	5.7	NA	± 20 %	Average RF
Styrene	50.0	49.5	1.047	1.036	-1.1	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	46.8	0.2709	0.2534	-6.4	NA	± 20 %	Average RF
Toluene	50.0	49.7	1.361	1.353	-0.6	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	46.9	0.3273	0.3070	-6.2	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	53.4	0.7177	0.7664	6.8	NA	± 20 %	Average RF
Vinyl Acetate	50.0	57.7	0.07886	0.09094	15.3	NA	± 20 %	Average RF
Vinyl Chloride	50.0	50.2	0.6376	0.6400	0.4	NA	± 20 %	Average RF
Xylenes, Total	150	145	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	51.2	0.5403	0.5534	2.4	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	51.7	0.5023	0.5189	3.3	NA	± 20 %	Average RF
m,p-Xylenes	100	96.8	0.6427	0.6223	-3.2	NA	± 20 %	Average RF
n-Butylbenzene	50.0	53.1	2.114	2.243	6.1	NA	± 20 %	Average RF
n-Propylbenzene	50.0	51.1	3.379	3.453	2.2	NA	± 20 %	Average RF
o-Xylene	50.0	47.8	0.6461	0.6180	-4.3	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	50.6	2.797	2.832	1.2	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	51.8	1.288	1.335	3.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	49.0	1.995	1.953	-2.1	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	49.3	0.4855	0.4789	-1.4	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	51.4	0.4146	0.4264	2.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	52.1	0.4652	0.4850	4.3	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	51.4	0.2865	0.2943	2.7	NA	± 20 %	Average RF
Toluene-d8	50.0	51.2	1.241	1.271	2.4	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/17/14 12:02

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name: Method Blank
Lab Code: RQ1406692-04
Instrument ID: R-MS-12
File ID: I:\ACQUDATA\MSVOA12\DATA\061714\M6612.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406692-03	I:\ACQUDATA\MSVOA12\DATA\061714\M6610.D\	6/17/14 10:57
MRC-MW-14C-060414	R1404353-002	I:\ACQUDATA\MSVOA12\DATA\061714\M6613.D\	6/17/14 12:33
MRC-MW-112A-060514RE	R1404353-007	I:\ACQUDATA\MSVOA12\DATA\061714\M6614.D\	6/17/14 13:05
MRC-MW-37C-060514	R1404353-005	I:\ACQUDATA\MSVOA12\DATA\061714\M6615.D\	6/17/14 13:38
MRC-MW-17A-060514	R1404353-009	I:\ACQUDATA\MSVOA12\DATA\061714\M6616.D\	6/17/14 14:10
MRC-MW-14B-060514DL	R1404353-003	I:\ACQUDATA\MSVOA12\DATA\061714\M6618.D\	6/17/14 15:48

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/17/14 12:02
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406692-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6612.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.33	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/17/14 12:02
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406692-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6612.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.28	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/17/14 12:02
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406692-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397445
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\061714\M6612.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/17/14 12:02	
Dibromofluoromethane	103	89-119	6/17/14 12:02	
Toluene-d8	101	87-121	6/17/14 12:02	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/17/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397445

Lab Control Sample
RQ1406692-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,1,1,2-Tetrachloroethane	19.1	20.0	95	79 - 119
1,1,1-Trichloroethane (TCA)	21.5	20.0	108	71 - 123
1,1,2,2-Tetrachloroethane	20.3	20.0	102	74 - 127
1,1,2-Trichlorotrifluoroethane	21.0	20.0	105	64 - 136
1,1-Dichloroethane (1,1-DCA)	21.6	20.0	108	76 - 128
1,1-Dichloroethene (1,1-DCE)	22.6	20.0	113	74 - 135
1,1-Dichloropropene	21.4	20.0	107	74 - 136
1,2,3-Trichlorobenzene	21.3	20.0	107	60 - 144
1,2,3-Trichloropropane	20.0	20.0	100	68 - 136
1,2,4-Trichlorobenzene	21.2	20.0	106	60 - 141
1,2,4-Trimethylbenzene	20.3	20.0	101	76 - 126
1,2-Dibromo-3-chloropropane (DBCP)	18.3	20.0	92	69 - 135
1,2-Dibromoethane	19.8	20.0	99	81 - 123
1,2-Dichlorobenzene	19.7	20.0	98	80 - 119
1,2-Dichloroethane	22.3	20.0	112	72 - 130
1,2-Dichloropropane	20.9	20.0	104	80 - 119
1,3-Dichlorobenzene	19.2	20.0	96	79 - 121
1,3-Dichloropropane	21.0	20.0	105	82 - 116
1,4-Dichlorobenzene	19.5	20.0	97	79 - 119
2,2-Dichloropropane	20.7	20.0	103	59 - 135
2-Butanone (MEK)	24.6	20.0	123	66 - 129
2-Chloroethyl Vinyl Ether	19.3	20.0	97	58 - 139
2-Chlorotoluene	20.9	20.0	105	71 - 125
2-Hexanone	21.6	20.0	108	61 - 131
tert-Butyl Alcohol	472	400	118	63 - 142
4-Chlorotoluene	20.7	20.0	103	73 - 127
4-Isopropyltoluene	20.5	20.0	103	74 - 130
4-Methyl-2-pentanone	21.5	20.0	108	68 - 129
Acetone	26.5	20.0	132	51 - 146
Benzene	20.4	20.0	102	76 - 118
Bromobenzene	19.0	20.0	95	79 - 121
Bromochloromethane	20.4	20.0	102	81 - 126
Bromodichloromethane	20.7	20.0	104	79 - 122

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/17/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397445

Lab Control Sample
RQ1406692-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Bromoform	18.0	20.0	90	65 - 138
Bromomethane	21.0	20.0	105	41 - 159
Carbon Disulfide	19.1	20.0	96	63 - 141
Carbon Tetrachloride	20.2	20.0	101	66 - 128
Chlorobenzene	19.4	20.0	97	80 - 121
Chloroethane	18.7	20.0	93	71 - 128
Chloroform	22.0	20.0	110	76 - 120
Chloromethane	21.9	20.0	110	64 - 140
Dibromochloromethane	19.2	20.0	96	79 - 125
Dibromomethane	20.9	20.0	105	79 - 120
Dichlorodifluoromethane (CFC 12)	25.2	20.0	126	60 - 150
Methylene Chloride	20.0	20.0	100	73 - 122
Diisopropyl Ether	20.6	20.0	103	76 - 131
Ethyl tert-Butyl Ether	21.0	20.0	105	77 - 126
Ethylbenzene	17.9	20.0	89	76 - 120
Hexachlorobutadiene	22.0	20.0	110	57 - 147
Isopropylbenzene (Cumene)	20.3	20.0	101	76 - 126
Methyl tert-Butyl Ether	23.3	20.0	116	73 - 131
Naphthalene	22.4	20.0	112	73 - 133
Styrene	19.4	20.0	97	81 - 122
Tetrachloroethene (PCE)	18.9	20.0	95	69 - 124
Toluene	20.3	20.0	102	77 - 120
Trichloroethene (TCE)	19.3	20.0	96	76 - 123
Trichlorofluoromethane (CFC 11)	21.9	20.0	110	69 - 130
Vinyl Acetate	20.8	20.0	104	43 - 165
Vinyl Chloride	20.0	20.0	100	69 - 136
Xylenes, Total	57.7	60.0	96	78 - 121
cis-1,2-Dichloroethene	20.2	20.0	101	80 - 121
cis-1,3-Dichloropropene	20.6	20.0	103	77 - 125
m,p-Xylenes	38.7	40.0	97	78 - 123
n-Butylbenzene	21.6	20.0	108	69 - 135
n-Propylbenzene	20.6	20.0	103	76 - 125
o-Xylene	19.0	20.0	95	77 - 131

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/17/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397445

Lab Control Sample
RQ1406692-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
sec-Butylbenzene	20.4	20.0	102	72 - 130
tert-Amyl Methyl Ether	21.1	20.0	105	76 - 123
tert-Butylbenzene	19.8	20.0	99	73 - 124
trans-1,2-Dichloroethene	21.0	20.0	105	78 - 124
trans-1,3-Dichloropropene	20.9	20.0	104	72 - 123

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404353
Date Analyzed: 6/18/14 15:52

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1406862-03
Analysis Lot: 397877
Signal ID:

		Sodium Perchlorate	
		Area	RT
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1406862-03	182,894	7.94
Method Blank	RQ1406802-01	196,961	8.08
Limit of Detection Verification	RQ1406802-04	201,606	8.12
Lab Control Sample	RQ1406802-02	195,676	8.08
Duplicate Lab Control Sample	RQ1406802-03	199,780	8.12
Interference Check Standard	RQ1406802-05	210,824	7.21
MRC-MW-17A-060514	R1404353-009	209,061	7.67
MRC-MW-17A-060514MS	RQ1406802-06	210,055	7.70
Continuing Cal. Verification	RQ1406862-04	187,082	7.94
MRC-MW-17A-060514DMS	RQ1406802-07	212,534	7.70
MRC-MW-109A-060514	R1404353-010	210,281	7.74
MRC-MW-109B-060514	R1404353-011	209,780	7.81
Continuing Cal. Verification	RQ1406862-05	186,397	7.91
Limit of Detection Verification	RQ1406802-04	209,084	8.05
Continuing Cal. Verification	RQ1406862-06	188,109	7.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/18/14
Sample Matrix:	Water	**Time Analyzed:**	16:19:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\061814\B0031494.D\		
		Extraction Lot:	211135

RQ1406802-04

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/18/14
Sample Matrix:	Water	**Time Analyzed:**	22:21:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\061814\B0031521.D\		
		Extraction Lot:	211135

	RQ1406802-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/18/14 16:05
Sample Matrix:	Water	**Date Extracted:**	6/18/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1406802-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\061814\B0031493.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1406802-04	I:\ACQUDATA\HPLC02\DATA\061814\B0031494.D\	6/18/14 16:19
Lab Control Sample	RQ1406802-02	I:\ACQUDATA\HPLC02\DATA\061814\B0031495.D\	6/18/14 16:32
Duplicate Lab Control Sample	RQ1406802-03	I:\ACQUDATA\HPLC02\DATA\061814\B0031496.D\	6/18/14 16:46
Interference Check StandardICS	RQ1406802-05	I:\ACQUDATA\HPLC02\DATA\061814\B0031497.D\	6/18/14 16:59
MRC-MW-17A-060514	R1404353-009	I:\ACQUDATA\HPLC02\DATA\061814\B0031501.D\	6/18/14 17:53
MRC-MW-17A-060514MS	RQ1406802-06	I:\ACQUDATA\HPLC02\DATA\061814\B0031502.D\	6/18/14 18:06
MRC-MW-17A-060514DMS	RQ1406802-07	I:\ACQUDATA\HPLC02\DATA\061814\B0031504.D\	6/18/14 18:33
MRC-MW-109A-060514	R1404353-010	I:\ACQUDATA\HPLC02\DATA\061814\B0031505.D\	6/18/14 18:46
MRC-MW-109B-060514	R1404353-011	I:\ACQUDATA\HPLC02\DATA\061814\B0031506.D\	6/18/14 19:00
Limit of Detection VerificationLODV	RQ1406802-04	I:\ACQUDATA\HPLC02\DATA\061814\B0031521.D\	6/18/14 22:21

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 16:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406802-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031493.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Collected: 6/5/14
Date Received: 6/10/14
Date Analyzed: 6/18/14

Matrix Spike Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name: MRC-MW-17A-060514
Lab Code: R1404353-009

Units: µg/L
Basis: NA

Analytical Method: 6850
Prep Method: Method

		MRC-MW-17A-060514MS Matrix Spike RQ1406802-06			MRC-MW-17A-060514DMS Duplicate Matrix Spike RQ1406802-07					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	ND	0.380	0.400	95	0.370	0.400	92	80 - 120	3	15

Results flagged with an asterisk (*) indicate values outside control criteria.
Results flagged with a pound (#) indicate the control criteria is not applicable.
Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/18/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211135

Analyte Name	Lab Control Sample RQ1406802-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1406802-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Perchlorate	0.180	0.200	90	0.180	0.200	90	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analysis: DSTD Analyst: MPINTO Run Method: Decadrol

Date: 1/29/14 Instr. HPLC-02 Quant Method: Dec0129

LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min

Mobile Phase: 60/40 MeCN/H2O 0.1 CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBIK			Bm30534	—	
	↓			535	—	
	CCV Ion/MSS			526	Y	
	RIK			527	Y	
	.1 ppb	1ml/10ml	66006	528	Y	
	.2 ppb	2ml/10ml		529	Y	
	.5 ppb	5ml/10ml		530	Y	
	.75 ppb	7.5ml/10ml		531	Y	
	1.0 ppb	10ml/10ml		532	Y	
	2.0 ppb	20ml/10ml		533	Y	
	5.0 ppb	50ml/10ml	↓	534	Y	
	ICV	10ml/10ml	66005	535	Y ICV	exp 5/31/14
	CCV 1.0 ppb		66007	536	YC	
	RB 1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RB1400431-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0 ppb		66007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RB 1400431-04			552	Y	
	CCV 1.0 ppb		66007	553	YC	
	RB1400826-01			554	Y	
	01			555	Y	
	02			556	N	OUT †
	03			557	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 66007 exp: 4/30/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

Analysis: 6850. Perc Analyst: BA Run Method: Percdodz
Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#:
Setup: Column: K 'Prime # 2011 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H2O/MECN 0.1cH3 COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BUL			B0031481	—	
	ION/MASS CCV			82		
	PCV 1.00 PPB		70263	83	YC	
	RQ1406647-04	LOD		84	Y	
	R1404436-003	25.0		85	Y	
	RQ1406647-04	LOD		86	Y	
	RQ1406734-04	LOD		87	Y	
	R1404437-006	5.0		88		
	~~RQ1406734-04~~	~~LOD~~				
	-007	50.0		89	Y	
	-008	100.0		90	Y	
	RQ1406734-04	LOD		91	Y	
	CCV 1.00 PPB		70263	92	YC	
	RQ1406802.01			93	Y	
	-04			94	Y	
	-02			95	Y	
	-03			96	Y	
	-05			97	Y	
	R1404568-001			98	Y	
	-002			99	Y	
	-003			500	Y	
	4353-009			01	Y	
	RQ1406802-06 ~~CCV 1.00 PPB~~	MS		02	Y	
	CCV 1.00 PPB		70263	03	YC	
	-07	MSD		04	Y	
	4353-010			05	Y	
	-011			06	Y	
	4412-001			07	Y	
	-002			08	Y	
	4421-002			09	Y	
	4507-005			10	Y	
	4548-001			11	Y	
	4354-001			12	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

Analysis: 6850.PERC Analyst: BA Run Method: Peradodz
Date: 6/18/14 Instr. _HPLC-02_ Quant Method: Perc0129
LIMS Run#: _____
Setup: Column: K' Prime # 2011 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H_2O/MECN 0.1 CH_3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	R1404354-002			B0031513	Y	
	CCV 1.00PPB		70263	14	YC	
	-003			15	Y	
	-004			16	Y	
	4565-003			17	Y	
	-008			18	Y	
	-010			19	Y	
	-013			20	Y	
	R01406802-04	LOD		21	Y	
	CCV 1.00PPB		70263	22	YC	
	$\bar{x}$ = 191901					
	High = 387852					
	Low = 95957					

BA 6/18/14

All samples = _____mL + _____uL Combined IS/Surr.;

Primary : 70263 exp: 11/3/14 Secondary : _____ exp:
Primary: _____ exp: Secondary : _____ exp:

Runlog HPLC02r1
1/10/13

Response Factor Report Instrumen

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00570

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	018LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

1/29

00595

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030535.D PERC0129.M Wed Jan 29 13:54:02 2014 Page 1

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-109A-060514L

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Iron	6000.00		6030.00		0		P

Comments: _____

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-109B-060514L

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Barium	74.50		73.90	J	1		P
Iron	164.00		165.00	J	1		P
Manganese	83.00		82.60		0		P
Vanadium	3.23	J	3.58	J	11		P
Silicon	5330.00		5710.00		7		P

Comments: _____

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	05:07																X									
0.2ppb std	1.00	05:08																X									
0.5ppb std	1.00	05:10																X									
1.0ppb std	1.00	05:11																X									
2.0ppb std	1.00	05:13																X									
5.0ppb std	1.00	05:15																X									
10.0ppb std	1.00	05:16																X									
ICV1	1.00	05:18																X									
ICB1	1.00	05:20																X									
CRDL1	1.00	05:21																X									
CCV1	1.00	05:23																X									
CCB1	1.00	05:24																X									
PBW	1.00	05:26																X									
LCSW	1.00	05:28																X									
ZZZZZZ	1.00	05:29																									
ZZZZZZ	1.00	05:31																									
ZZZZZZ	1.00	05:33																									
ZZZZZZ	1.00	05:34																									
ZZZZZZ	1.00	05:36																									
ZZZZZZ	1.00	05:38																									
CCV2	1.00	05:39																X									
CCB2	1.00	05:41																X									
ZZZZZZ	1.00	05:42																									
ZZZZZZ	1.00	05:44																									
ZZZZZZ	1.00	05:46																									
MRC-MW-14A-060414	1.00	05:47																X									
MRC-MW-14A-060414D	1.00	05:49																X									
MRC-MW-14A-060414S	1.00	05:51																X									
MRC-MW-14C-060414	1.00	05:52																X									
MRC-MW-14B-060514	1.00	05:54																X									
CCV3	1.00	05:56																X									
CCB3	1.00	05:57																X									
MRC-MW-112A-060514	1.00	05:59																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-17A-060514	1.00	06:01																X									
MRC-MW-109A-060514	1.00	06:02																X									
MRC-MW-109B-060514	1.00	06:04																X									
ZZZZZZ	1.00	06:06																									
ZZZZZZ	1.00	06:07																									
ZZZZZZ	1.00	06:09																									
ZZZZZZ	1.00	06:10																									
CRDL2	1.00	06:12																X									
CCV4	1.00	06:14																X									
CCB4	1.00	06:15																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/19/2014 End Date: 6/19/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
Calib Blank 1	1.00	09:00										X															
Calib Std 1	1.00	09:05										X															
Calib Std 2	1.00	09:09										X															
Calib Std 3	1.00	09:14										X															
ICV1	1.00	09:18										X															
ICB1	1.00	09:23										X															
CRDL1	1.00	09:28										X															
ICS-A1	1.00	09:32										X															
ICS-AB1	1.00	09:37										X															
CCV1	1.00	09:41										X															
CCB1	1.00	09:46										X															
ZZZZZZ	1.00	09:50																									
ZZZZZZ	1.00	09:55																									
ZZZZZZ	1.00	10:00																									
ZZZZZZ	1.00	10:04																									
ZZZZZZ	5.00	10:09																									
PBW	1.00	10:13										X															
LCSW	1.00	10:18										X															
MRC-MW-14A-060414	1.00	10:23										X															
MRC-MW-14C-060414	1.00	10:27										X															
MRC-MW-14B-060514	1.00	10:32										X															
CCV2	1.00	10:36										X															
CCB2	1.00	10:41										X															
MRC-MW-112A-060514	1.00	10:45										X															
MRC-MW-17A-060514	1.00	10:50										X															
MRC-MW-109A-060514	1.00	10:55										X															
MRC-MW-109B-060514	1.00	10:59										X															
MRC-MW-109B-060514L	5.00	11:04										X															
ZZZZZZ	1.00	11:08																									
ZZZZZZ	5.00	11:13																									
CCV3	1.00	11:17										X															
CCB3	1.00	11:22										X															
CRDL2	1.00	11:27										X															
ICS-A2	1.00	11:31										X															

METALS

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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/19/2014 End Date: 6/19/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
ICS-AB2	1.00	11:36										X															
ZZZZZZ	1.00	11:40																									
ZZZZZZ	1.00	11:45																									
CCV4	1.00	11:49										X															
CCB4	1.00	11:54										X															

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	13:14					X							X			X							X		
Calib Std 1	1.00	13:20					X										X							X		
Calib Std 2	1.00	13:27																								
Calib Std 3	1.00	13:33												X										X		
Calib Std 4	1.00	13:39					X							X			X							X		
Calib Std 5	1.00	13:45					X							X			X							X		
ICV1	1.00	13:50					X							X			X							X		
ICB1	1.00	13:56					X							X			X							X		
CRDL1	1.00	14:02					X							X			X							X		
ICS-A1	1.00	14:07					X							X			X							X		
ICS-AB1	1.00	14:13					X							X			X							X		
CCV1	1.00	14:19					X							X			X							X		
CCB1	1.00	14:25					X							X			X							X		
ZZZZZZ	1.00	14:31																								
ZZZZZZ	1.00	14:37																								
ZZZZZZ	10.00	14:43																								
ZZZZZZ	10.00	14:49																								
ZZZZZZ	10.00	14:55																								
ZZZZZZ	1.00	15:01																								
ZZZZZZ	1.00	15:07																								
ZZZZZZ	1.00	15:12																								
ZZZZZZ	1.00	15:18																								
ZZZZZZ	1.00	15:24																								
CCV2	1.00	15:30					X							X			X							X		
CCB2	1.00	15:36					X							X			X							X		
ZZZZZZ	1.00	15:42																								
ZZZZZZ	1.00	15:48																								
ZZZZZZ	5.00	15:54																								
ZZZZZZ	1.00	16:00																								
CCV3	1.00	16:06					X							X			X							X		
CCB3	1.00	16:12					X							X			X							X		
CRDL2	1.00	16:18					X							X			X							X		
ICS-A2	1.00	16:24					X							X			X							X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICS-AB2	1.00	16:30					X							X			X								X		
ZZZZZZ	1.00	16:36																									
ZZZZZZ	1.00	16:41																									
CCV4	1.00	16:45					X							X			X								X		
CCB4	1.00	16:52					X							X			X								X		
ZZZZZZ	1.00	16:57																									
ZZZZZZ	1.00	17:03																									
ZZZZZZ	1.00	17:09																									
ZZZZZZ	1.00	17:15																									
ZZZZZZ	1.00	17:21																									
ZZZZZZ	1.00	17:27																									
ZZZZZZ	1.00	17:33																									
ZZZZZZ	1.00	17:39																									
ZZZZZZ	1.00	17:45																									
ZZZZZZ	1.00	17:51																									
CCV5	1.00	17:57					X							X			X								X		
CCB5	1.00	18:04					X							X			X								X		
ZZZZZZ	1.00	18:09																									
ZZZZZZ	1.00	18:15																									
ZZZZZZ	1.00	18:21																									
ZZZZZZ	1.00	18:27																									
ZZZZZZ	1.00	18:33																									
ZZZZZZ	1.00	18:39																									
ZZZZZZ	1.00	18:45																									
ZZZZZZ	1.00	18:51																									
ZZZZZZ	5.00	18:58																									
ZZZZZZ	1.00	19:03																									
CCV6	1.00	19:10					X							X			X								X		
CCB6	1.00	19:16					X							X			X								X		
ZZZZZZ	1.00	19:21																									
ZZZZZZ	1.00	19:28																									
ZZZZZZ	1.00	19:34																									
ZZZZZZ	1.00	19:40																									

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METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	5.00	19:46																												
ZZZZZZ	1.00	19:52																												
ZZZZZZ	1.00	19:58																												
ZZZZZZ	1.00	20:04																												
ZZZZZZ	1.00	20:10																												
CCV7	1.00	20:16					X							X			X								X					
CCB7	1.00	20:22					X							X			X								X					
CRDL3	1.00	20:28					X							X			X								X					
ICS-A3	1.00	20:34					X							X			X								X					
ICS-AB3	1.00	20:40					X							X			X								X					
CCV8	1.00	20:46					X							X			X								X					
CCB8	1.00	20:52					X							X			X								X					
PBW	1.00	20:58					X							X			X								X					
LCSW	1.00	21:04					X							X			X								X					
MRC-MW-14A-060414	1.00	21:10					X							X			X								X					
MRC-MW-14C-060414	1.00	21:16					X							X			X								X					
MRC-MW-14B-060514	1.00	21:22					X							X			X								X					
MRC-MW-112A-060514	1.00	21:28					X							X			X								X					
MRC-MW-17A-060514	1.00	21:35					X										X								X					
MRC-MW-109A-060514	1.00	21:41					X										X								X					
MRC-MW-109B-060514	1.00	21:48					X							X			X								X					
MRC-MW-109B-060514	5.00	21:54					X							X			X								X					
CCV9	1.00	22:00					X							X			X								X					
CCB9	1.00	22:06					X							X			X								X					
ZZZZZZ	1.00	22:12																												
ZZZZZZ	1.00	22:18																												
ZZZZZZ	1.00	22:24																												
ZZZZZZ	1.00	22:30																												
ZZZZZZ	1.00	22:36																												
ZZZZZZ	1.00	22:42																												
ZZZZZZ	1.00	22:48																												
ZZZZZZ	1.00	22:54																												
ZZZZZZ	5.00	23:00																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	23:06																										
CCV10	1.00	23:12					X							X			X								X		
CCB10	1.00	23:18					X							X			X								X		
ZZZZZZ	1.00	23:24																										
ZZZZZZ	1.00	23:30																										
ZZZZZZ	5.00	23:37																										
CCV11	1.00	23:43					X							X			X								X		
CCB11	1.00	23:49					X							X			X								X		
CRDL4	1.00	23:55					X							X			X								X		
ICS-A4	1.00	00:01					X							X			X								X		
ICS-AB4	1.00	00:07					X							X			X								X		
CCV12	1.00	00:13					X							X			X								X		
CCB12	1.00	00:20					X							X			X								X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	17:54			X	X			X			X			X				X		X	X		X				*
Standard 1	1.00	18:01			X	X			X			X			X				X		X	X		X				*
Standard 2	1.00	18:07			X	X			X			X			X				X		X	X		X				*
Standard 3	1.00	18:13			X	X			X			X			X				X		X	X		X				*
ICV1	1.00	18:20			X	X			X			X			X				X		X	X		X				*
ICB1	1.00	18:26			X	X			X			X			X				X		X	X		X				*
CRDL1	1.00	18:33			X	X			X			X			X				X		X	X		X				*
ICS-A1	1.00	18:39			X	X			X			X			X				X		X	X		X				*
ICS-AB1	1.00	18:46			X	X			X			X			X				X		X	X		X				*
CCV1	1.00	18:52			X	X			X			X			X				X		X	X		X				*
CCB1	1.00	18:59			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	19:05																												
ZZZZZZ	1.00	19:12																												
ZZZZZZ	1.00	19:18																												
ZZZZZZ	1.00	19:25																												
ZZZZZZ	1.00	19:32																												
ZZZZZZ	5.00	19:39																												
CRDL2	1.00	19:45			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	19:52																												
CCV2	1.00	19:58			X	X			X			X			X				X		X	X		X				*
CCB2	1.00	20:05			X	X			X			X			X				X		X	X		X				*
PBW	1.00	20:11			X	X			X			X			X				X		X	X		X				*
LCSW	1.00	20:18			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	20:25																												
ZZZZZZ	5.00	20:31																												
ZZZZZZ	1.00	20:38																												
ZZZZZZ	1.00	20:45																												
ZZZZZZ	1.00	20:52																												
CCV3	1.00	20:58			X	X			X			X			X				X		X	X		X				*
CCB3	1.00	21:04			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	21:11																												
ZZZZZZ	1.00	21:18																												
ZZZZZZ	1.00	21:24																												

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METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
ZZZZZZ	1.00	21:31																										
ZZZZZZ	5.00	21:38																										
CRDL3	1.00	21:44			X	X			X			X			X				X		X	X		X				*
CCV4	1.00	21:51			X	X			X			X			X				X		X	X		X				*
CCB4	1.00	21:57			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	22:04																										
ZZZZZZ	1.00	22:10																										
ZZZZZZ	1.00	22:17																										
ZZZZZZ	1.00	22:24																										
ZZZZZZ	1.00	22:30																										
ZZZZZZ	1.00	22:37																										
ZZZZZZ	1.00	22:44																										
ZZZZZZ	1.00	22:50																										
CCV5	1.00	22:57			X	X			X			X			X				X		X	X		X				*
CCB5	1.00	23:04			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	23:10																										
ZZZZZZ	1.00	23:17																										
ZZZZZZ	1.00	23:24																										
ZZZZZZ	1.00	23:30																										
ZZZZZZ	1.00	23:37																										
ZZZZZZ	1.00	23:44																										
CCV6	1.00	23:50			X	X			X			X			X				X		X	X		X				*
CCB6	1.00	23:57			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	00:03																										
ZZZZZZ	1.00	00:10																										
ZZZZZZ	1.00	00:17																										
ZZZZZZ	1.00	00:23																										
ZZZZZZ	1.00	00:30																										
ZZZZZZ	1.00	00:37																										
ZZZZZZ	1.00	00:43																										
CRDL4	1.00	00:50			X	X			X			X			X				X		X	X		X				*
CCV7	1.00	00:56			X	X			X			X			X				X		X	X		X				*
CCB7	1.00	01:03			X	X			X			X			X				X		X	X		X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404353

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/24/2014 End Date: 6/25/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	17:54	100		100		100		100		100			
Standard 1	Standard 1	18:01	97		100		98		95		96			
Standard 2	Standard 2	18:07	106		107		104		102		100			
Standard 3	Standard 3	18:13	102		101		100		99		100			
ICV1	ICV1	18:20	104		102		102		100		96			
ICB1	ICB1	18:26	101		103		100		99		95			
CRDL1	CRDL1	18:33	99		98		100		98		96			
ICS-A1	ICS-A1	18:39	93		97		97		90		92			
ICS-AB1	ICS-AB1	18:46	93		93		97		91		89			
CCV1	CCV1	18:52	100		102		97		94		98			
CCB1	CCB1	18:59	102		103		101		101		97			
CRDL2	CRDL2	19:45	104		104		105		105		105			
CCV2	CCV2	19:58	102		106		101		100		102			
CCB2	CCB2	20:05	107		106		105		108		101			
PBW-210970	PBW	20:11	101		102		99		102		102			
LCSW-210970	LCSW	20:18	105		106		101		104		99			
CCV3	CCV3	20:58	93		94		91		92		90			
CCB3	CCB3	21:04	92		94		88		88		90			
CRDL3	CRDL3	21:44	111		112		108		109		111			
CCV4	CCV4	21:51	117		116		111		111		108			
CCB4	CCB4	21:57	112		114		108		108		111			
CCV5	CCV5	22:57	111		111		108		106		105			
CCB5	CCB5	23:04	112		109		111		109		106			
CCV6	CCV6	23:50	106		107		104		105		107			
CCB6	CCB6	23:57	104		105		103		101		101			
CRDL4	CRDL4	00:50	113		114		113		114		113			
CCV7	CCV7	00:56	113		113		114		114		112			
CCB7	CCB7	01:03	115		114		116		116		114			
R1404353-00	MRC-MW-14A-06041	01:09	102		106		103		108		101			
R1404353-00	MRC-MW-14C-06041	01:16	61	*	62	*	60	*	66	*	61	*	not used	
R1404353-00	MRC-MW-14C-06041	01:23	108		108		109		117		101			
R1404353-00	MRC-MW-14C-06041	01:29	103		105		103		111		103			
R1404353-00	MRC-MW-14C-06041	01:36	107		109		104		113		102			
R1404353-00	MRC-MW-14C-06041	01:43	105		109		106		111		105			
CCV8	CCV8	01:49	109		112		110		112		106			
CCB8	CCB8	01:56	114		114		112		114		107			
R1404353-00	MRC-MW-14B-06051	02:02	105		108		110		113		101			
R1404353-00	MRC-MW-112A-0605	02:09	101		104		103		107		98			
R1404353-00	MRC-MW-17A-06051	02:16	91		94		98		102		87			
R1404353-01	MRC-MW-109A-0605	02:22	89		85		94		92		83			
R1404353-01	MRC-MW-109B-0605	02:29	92		93		97		99		93			
CRDL5	CRDL5	02:35	118		118		118		121		110			
CCV9	CCV9	02:42	104		105		103		107		99			
CCB9	CCB9	02:48	100		97		103		101		92			
R1404353-00	MRC-MW-14A-06041	03:08	97		103		104		117		101			

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
MRC-MW-14A-060414	5.00	01:09																										
MRC-MW-14C-060414	5.00	01:16																										
MRC-MW-14C-060414D	5.00	01:23																										
MRC-MW-14C-060414S	5.00	01:29																										
MRC-MW-14C-060414A	5.00	01:36																										
MRC-MW-14C-060414L	25.00	01:43																										
CCV8	1.00	01:49			X	X			X			X			X				X		X	X		X				*
CCB8	1.00	01:56			X	X			X			X			X				X		X	X		X				*
MRC-MW-14B-060514	5.00	02:02																			X							
MRC-MW-112A-060514	5.00	02:09																										
MRC-MW-17A-060514	5.00	02:16																										
MRC-MW-109A-060514	5.00	02:22																										
MRC-MW-109B-060514	5.00	02:29																										
CRDL5	1.00	02:35			X	X			X			X			X				X		X	X		X				*
CCV9	1.00	02:42			X	X			X			X			X				X		X	X		X				*
CCB9	1.00	02:48			X	X			X			X			X				X		X	X		X				*
ZZZZZZ	1.00	02:55																										
ZZZZZZ	1.00	03:02																										
MRC-MW-14A-060414	1.00	03:08			X				X			X			X				X		X	X		X				*
MRC-MW-14C-060414	1.00	03:15			X	X			X			X			X				X		X	X		X				*
MRC-MW-14C-060414D	1.00	03:22			X	X			X			X			X				X		X	X		X				*
MRC-MW-14C-060414S	1.00	03:28			X	X			X			X			X				X		X	X		X				*
MRC-MW-14C-060414A	1.00	03:36			X	X			X			X			X				X		X	X		X				*
MRC-MW-14C-060414L	5.00	03:42			X	X			X			X			X				X		X	X		X				*
CCV10	1.00	03:49			X	X			X			X			X				X		X	X		X				*
CCB10	1.00	03:55			X	X			X			X			X				X		X	X		X				*
MRC-MW-14B-060514	1.00	04:02			X	X			X			X			X				X			X		X				*
MRC-MW-112A-060514	1.00	04:08			X				X			X			X				X		X	X		X				*
MRC-MW-17A-060514	1.00	04:15			X	X			X			X			X				X		X	X		X				*
MRC-MW-109A-060514	1.00	04:22			X	X			X			X			X				X		X	X		X				*
MRC-MW-109B-060514	1.00	04:28			X	X			X			X			X				X		X	X		X				*
CRDL6	1.00	04:35			X	X			X			X			X				X		X	X		X				*
CCV11	1.00	04:41			X	X			X			X			X				X		X	X		X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
CCB11	1.00	04:48			X	X			X			X			X				X		X	X		X						*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	17:54					X																					
Standard 1	1.00	18:01					X																					
Standard 2	1.00	18:07					X																					
Standard 3	1.00	18:13					X																					
ICV1	1.00	18:20					X																					
ICB1	1.00	18:26					X																					
CRDL1	1.00	18:33					X																					
ICS-A1	1.00	18:39					X																					
ICS-AB1	1.00	18:46					X																					
CCV1	1.00	18:52					X																					
CCB1	1.00	18:59					X																					
ZZZZZZ	1.00	19:05																										
ZZZZZZ	1.00	19:12																										
ZZZZZZ	1.00	19:18																										
ZZZZZZ	1.00	19:25																										
ZZZZZZ	1.00	19:32																										
ZZZZZZ	5.00	19:39																										
CRDL2	1.00	19:45					X																					
ZZZZZZ	1.00	19:52																										
CCV2	1.00	19:58					X																					
CCB2	1.00	20:05					X																					
PBW	1.00	20:11					X																					
LCSW	1.00	20:18					X																					
ZZZZZZ	1.00	20:25																										
ZZZZZZ	5.00	20:31																										
ZZZZZZ	1.00	20:38																										
ZZZZZZ	1.00	20:45																										
ZZZZZZ	1.00	20:52																										
CCV3	1.00	20:58					X																					
CCB3	1.00	21:04					X																					
ZZZZZZ	1.00	21:11																										
ZZZZZZ	1.00	21:18																										
ZZZZZZ	1.00	21:24																										
ZZZZZZ	1.00	21:31																										

METALS

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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
ZZZZZZ	5.00	21:38																										
CRDL3	1.00	21:44					X																					
CCV4	1.00	21:51					X																					
CCB4	1.00	21:57					X																					
ZZZZZZ	1.00	22:04																										
ZZZZZZ	1.00	22:10																										
ZZZZZZ	1.00	22:17																										
ZZZZZZ	1.00	22:24																										
ZZZZZZ	1.00	22:30																										
ZZZZZZ	1.00	22:37																										
ZZZZZZ	1.00	22:44																										
ZZZZZZ	1.00	22:50																										
CCV5	1.00	22:57					X																					
CCB5	1.00	23:04					X																					
ZZZZZZ	1.00	23:10																										
ZZZZZZ	1.00	23:17																										
ZZZZZZ	1.00	23:24																										
ZZZZZZ	1.00	23:30																										
ZZZZZZ	1.00	23:37																										
ZZZZZZ	1.00	23:44																										
CCV6	1.00	23:50					X																					
CCB6	1.00	23:57					X																					
ZZZZZZ	1.00	00:03																										
ZZZZZZ	1.00	00:10																										
ZZZZZZ	1.00	00:17																										
ZZZZZZ	1.00	00:23																										
ZZZZZZ	1.00	00:30																										
ZZZZZZ	1.00	00:37																										
ZZZZZZ	1.00	00:43																										
CRDL4	1.00	00:50					X																					
CCV7	1.00	00:56					X																					
CCB7	1.00	01:03					X																					
MRC-MW-14A-060414	5.00	01:09																										
MRC-MW-14C-060414	5.00	01:16																										

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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
MRC-MW-14C-060414D	5.00	01:23																									
MRC-MW-14C-060414S	5.00	01:29																									
MRC-MW-14C-060414A	5.00	01:36																									
MRC-MW-14C-060414L	25.00	01:43																									
CCV8	1.00	01:49					X																				
CCB8	1.00	01:56					X																				
MRC-MW-14B-060514	5.00	02:02																									
MRC-MW-112A-060514	5.00	02:09																									
MRC-MW-17A-060514	5.00	02:16																									
MRC-MW-109A-060514	5.00	02:22																									
MRC-MW-109B-060514	5.00	02:29																									
CRDL5	1.00	02:35					X																				
CCV9	1.00	02:42					X																				
CCB9	1.00	02:48					X																				
ZZZZZZ	1.00	02:55																									
ZZZZZZ	1.00	03:02																									
MRC-MW-14A-060414	1.00	03:08					X																				
MRC-MW-14C-060414	1.00	03:15					X																				
MRC-MW-14C-060414D	1.00	03:22					X																				
MRC-MW-14C-060414S	1.00	03:28					X																				
MRC-MW-14C-060414A	1.00	03:36					X																				
MRC-MW-14C-060414L	5.00	03:42					X																				
CCV10	1.00	03:49					X																				
CCB10	1.00	03:55					X																				
MRC-MW-14B-060514	1.00	04:02					X																				
MRC-MW-112A-060514	1.00	04:08					X																				
MRC-MW-17A-060514	1.00	04:15					X																				
MRC-MW-109A-060514	1.00	04:22					X																				
MRC-MW-109B-060514	1.00	04:28					X																				
CRDL6	1.00	04:35					X																				
CCV11	1.00	04:41					X																				
CCB11	1.00	04:48					X																				

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/26/2014 End Date: 6/26/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	16:20						X			X																	
Standard 1	1.00	16:27						X			X																	
Standard 2	1.00	16:33						X			X																	
Standard 3	1.00	16:39						X			X																	
ICV1	1.00	16:46						X			X																	
ICB1	1.00	16:52						X			X																	
CRDL1	1.00	16:59						X			X																	
ICS-A1	1.00	17:05						X			X																	
ICS-AB1	1.00	17:12						X			X																	
CCV1	1.00	17:18						X			X																	
CCB1	1.00	17:24						X			X																	
ZZZZZZ	1.00	17:31																										
PBW	1.00	17:38						X			X																	
LCSW	1.00	17:44						X			X																	
MRC-MW-14A-060414	1.00	17:51						X			X																	
MRC-MW-14C-060414	1.00	17:58						X			X																	
MRC-MW-14C-060414D	1.00	18:04						X			X																	
CCV2	1.00	18:11						X			X																	
CCB2	1.00	18:17						X			X																	
MRC-MW-14C-060414S	1.00	18:24						X			X																	
MRC-MW-14C-060414A	1.00	18:30						X			X																	
MRC-MW-14C-060414L	5.00	18:37						X			X																	
MRC-MW-14B-060514	1.00	18:44						X			X																	
MRC-MW-112A-060514	1.00	18:51						X			X																	
CCV3	1.00	18:57						X			X																	
CCB3	1.00	19:03						X			X																	
MRC-MW-17A-060514	1.00	19:10						X			X																	
MRC-MW-109A-060514	1.00	19:17						X			X																	
MRC-MW-109B-060514	1.00	19:24						X			X																	
CRDL2	1.00	19:30						X			X																	
ZZZZZZ	1.00	19:37																										
CCV4	1.00	19:43						X			X																	
CCB4	1.00	19:50						X			X																	

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/30/2014 End Date: 6/30/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Blank	1.00	08:02											X																	
Standard 1	1.00	08:08											X																	
Standard 2	1.00	08:15											X																	
Standard 3	1.00	08:21											X																	
ICV1	1.00	08:28											X																	
ICB1	1.00	08:34											X																	
CRDL1	1.00	08:41											X																	
ICS-A1	1.00	08:47											X																	
ICS-AB1	1.00	08:53											X																	
CCV1	1.00	09:00											X																	
CCB1	1.00	09:06											X																	
ZZZZZZ	1.00	09:13																												
PBW	1.00	09:19											X																	
LCSW	1.00	09:26											X																	
MRC-MW-14A-060414	1.00	09:33											X																	
MRC-MW-14C-060414	2.00	09:39											X																	
MRC-MW-14C-060414D	2.00	09:46											X																	
MRC-MW-14C-060414S	2.00	09:53											X																	
MRC-MW-14C-060414A	2.00	09:59											X																	
MRC-MW-14C-060414L	10.00	10:06											X																	
CCV2	1.00	10:13											X																	
CCB2	1.00	10:19											X																	
MRC-MW-14B-060514	1.00	10:26											X																	
MRC-MW-112A-060514	2.00	10:32											X																	
MRC-MW-17A-060514	5.00	10:39											X																	
MRC-MW-109A-060514	2.00	10:46											X																	
MRC-MW-109B-060514	2.00	10:52											X																	
ZZZZZZ	7.00	10:59																												
ZZZZZZ	7.00	11:06																												
CRDL2	1.00	11:12											X																	
ZZZZZZ	1.00	11:19																												
CCV3	1.00	11:25											X																	
CCB3	1.00	11:32											X																	

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony	6/24-25 50	49	98	50	49	98	49	98	MS
Arsenic	50	49	98	50	50	100	49	98	MS
Beryllium	6/26 50	50	100	50	51	102	49	98	MS
Barium	6/20 10000	9840	98	10000	9660	97	9400	94	P
Cadmium	6/24-25 50	49	98	50	49	98	50	100	MS
Chromium	6/26 50	49	98	50	48	96	48	96	MS
Cobalt	6/24-25 50	49	98	50	47	94	49	98	MS
Copper	6/20 50	52	104	50	53	106	52	104	MS
Iron	6/20 5000	4810	96	5000	4700	94	4630	93	P
Lead	6/24-25 50	50	100	50	51	102	51	102	MS
Manganese	6/20 750	768	102	750	747	100	737	98	P
Mercury	6/17 3.00	3.10	103	3.00	3.06	102	3.07	102	CV
Nickel	6/24-25 50	47	94	50	49	98	49	98	MS
Selenium	50	49	98	50	49	98	49	98	MS
Silver	50	52	104	50	51	102	53	106	MS
Thallium	50	51	102	50	49	98	50	100	MS
Vanadium	6/20 2500	2390	96	2500	2340	94	2370	95	P
Silicon	6/19 5000	4970	99	5000	4910	98	5030	101	P
Molybdenum	6/24-25 50	50	100	50	52	104	53	106	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	49	98	48	96	MS
Arsenic				50	47	94	48	96	MS
Beryllium				50	51	102	53	106	MS
Barium				10000	9700	97	9700	97	P
Cadmium				50	49	98	49	98	MS
Chromium				50	48	96	48	96	MS
Cobalt				50	48	96	50	100	MS
Copper				50	53	106			MS
Iron				5000	4760	95	4780	96	P
Lead				50	50	100	50	100	MS
Manganese				750	758	101	758	101	P
Mercury				3.00	3.07	102	3.10	103	CV
Nickel				50	45	90	48	96	MS
Selenium				50	47	94	48	96	MS
Silver				50	52	104	52	104	MS
Thallium				50	50	100	50	100	MS
Vanadium				2500	2390	96	2340	94	P
Silicon				5000	4800	96	4860	97	P
Molybdenum				50	49	98	48	96	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	48	96	49	98	MS
Arsenic				50	48	96	49	98	MS
Barium				10000	9770	98	9520	95	P
Cadmium				50	48	96	51	102	MS
Cobalt				50	48	96	49	98	MS
Iron				5000	4790	96	4690	94	P
Lead				50	51	102	52	104	MS
Manganese				750	762	102	744	99	P
Nickel				50	48	96	48	96	MS
Selenium				50	49	98	47	94	MS
Silver				50	51	102	54	108	MS
Thallium				50	49	98	52	104	MS
Vanadium				2500	2380	95	2350	94	P
Molybdenum				50	51	102	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	47	94	48	96	MS
Arsenic				50	50	100	49	98	MS
Barium				10000	9770	98	9970	100	P
Cadmium				50	51	102	51	102	MS
Cobalt				50	51	102	49	98	MS
Iron				5000	4790	96	4910	98	P
Lead				50	51	102	50	100	MS
Manganese				750	761	101	767	102	P
Nickel				50	51	102	50	100	MS
Selenium				50	48	96	49	98	MS
Silver				50	55	110	53	106	MS
Thallium				50	50	100	49	98	MS
Vanadium				2500	2360	94	2330	93	P
Molybdenum				50	52	104	53	106	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	48	96	46	92	MS
Arsenic				50	49	98	49	98	MS
Barium				10000	9790	98	9940	99	P
Cadmium				50	50	100	50	100	MS
Cobalt				50	49	98	50	100	MS
Iron				5000	4810	96	4880	98	P
Lead				50	50	100	52	104	MS
Manganese				750	756	101	767	102	P
Nickel				50	48	96	50	100	MS
Selenium				50	49	98	48	96	MS
Silver				50	53	106	53	106	MS
Thallium				50	49	98	50	100	MS
Vanadium				2500	2350	94	2400	96	P
Molybdenum				50	52	104	50	100	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	47	94			MS
Arsenic				50	49	98			MS
Barium				10000	9850	98	9900	99	P
Cadmium				50	51	102			MS
Cobalt				50	50	100			MS
Iron				5000	4840	97	4880	98	P
Lead				50	52	104			MS
Manganese				750	762	102	765	102	P
Nickel				50	50	100			MS
Selenium				50	48	96			MS
Silver				50	55	110			MS
Thallium				50	52	104			MS
Vanadium				2500	2380	95	2380	95	P
Molybdenum				50	51	102			MS

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	1.05	105	1.02	102
Arsenic				1.0	1.05	105	1.00	100
Beryllium				1.0	1.05	105	1.05	105
Barium				200.0	216.03	108	214.98	107
Cadmium				1.0	1.01	101	1.04	104
Chromium				2.0	2.03	102	1.90	95
Cobalt				1.0	0.89	89	0.82	82
Copper				1.0	1.00	100	1.21	121
Iron				100.0	105.02	105	107.22	107
Lead				1.0	1.05	105	1.09	109
Manganese				15.0	15.41	103	15.50	103
Mercury	0.200	0.196	98					
Nickel				1.0	0.96	96	0.97	97
Selenium				2.0	1.95	98	1.91	96
Silver				1.0	1.10	110	1.09	109
Thallium				1.0	1.03	103	1.03	103
Vanadium				50.0	52.59	105	51.58	103
Silicon				1000.0	1052.10	105	989.63	99
Molybdenum				1.0	1.02	102	1.02	102

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.03	103
Arsenic				1.0			1.07	107
Barium				200.0			218.04	109
Cadmium				1.0			1.07	107
Cobalt				1.0			0.85	85
Iron				100.0			107.06	107
Lead				1.0			1.06	106
Manganese				15.0			15.51	103
Mercury	0.200	0.202	101					
Nickel				1.0			1.01	101
Selenium				2.0			2.18	109
Silver				1.0			1.10	110
Thallium				1.0			0.98	98
Vanadium				50.0			51.67	103
Molybdenum				1.0			0.99	99

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.00	100
Arsenic				1.0			1.00	100
Barium				200.0			217.15	109
Cadmium				1.0			1.05	105
Cobalt				1.0			0.81	81
Iron				100.0			109.35	109
Lead				1.0			1.08	108
Manganese				15.0			17.81	119
Nickel				1.0			1.04	104
Selenium				2.0			1.96	98
Silver				1.0			1.11	111
Thallium				1.0			0.95	95
Vanadium				50.0			51.12	102
Molybdenum				1.0			1.04	104

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.00	100
Arsenic				1.0			0.98	98
Cadmium				1.0			0.98	98
Cobalt				1.0			0.84	84
Lead				1.0			1.02	102
Nickel				1.0			0.97	97
Selenium				2.0			2.08	104
Silver				1.0			1.08	108
Thallium				1.0			0.98	98
Molybdenum				1.0			1.02	102

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			0.98	98
Arsenic				1.0			1.04	104
Cadmium				1.0			0.99	99
Cobalt				1.0			0.76	76
Lead				1.0			1.06	106
Nickel				1.0			1.00	100
Selenium				2.0			2.15	108
Silver				1.0			1.07	107
Thallium				1.0			0.95	95
Molybdenum				1.0			0.98	98

Comments:

METALS

-3-

BLANKS

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	0.157	U	0.157	U	0.157	U	0.157	U	0.157	U	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	0.211	U	MS
Barium	0.55	U	0.59	J	0.57	J	0.55	U	0.549	U	P
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cadmium	0.008	U	0.008	U	0.008	U	0.008	U	0.008	U	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	0.470	U	MS
Cobalt	0.014	J	-0.010	J	-0.012	J	-0.029	J	-0.356	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.252	U	MS
Iron	9.97	U	9.97	U	9.97	U	9.97	U	9.970	U	P
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Manganese	0.35	U	0.35	U	0.35	U	0.35	U	0.353	U	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS
Silver	0.015	U	0.015	U	0.016	J	0.015	U	0.015	U	MS
Thallium	0.031	U	0.031	U	0.031	U	-0.035	J	-0.109	J	MS
Vanadium	0.21	J	0.55	J	0.34	J	0.34	J	0.169	U	P
Silicon	161.00	U	161.00	U	161.00	U	161.00	U	161.000	U	P
Molybdenum	0.068	U	0.071	J	0.068	U	0.068	U	0.068	U	MS

Comments:

METALS

-3-

BLANKS

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.157	U	0.157	U	0.157	U			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			0.61	J	0.57	J	0.76	J			P
Beryllium			0.020	U							MS
Cadmium			0.008	U	0.008	U	0.008	U			MS
Chromium			0.470	U							MS
Cobalt			-0.037	J	-0.039	J	0.008	U			MS
Iron			9.97	U	9.97	U	9.97	U			P
Lead			0.061	U	0.061	U	0.061	U			MS
Manganese			0.69	J	0.35	U	0.35	U			P
Mercury			0.024	U							CV
Nickel			0.236	U	0.236	U	0.236	U			MS
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.015	U	0.015	U	0.015	U			MS
Thallium			0.031	U	0.031	U	0.031	U			MS
Vanadium			0.39	J	0.24	J	0.17	U			P
Silicon			161.00	U							P
Molybdenum			0.068	U	0.068	U	0.068	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.157	U	0.157	U	0.159	J			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			0.80	J	0.55	U	0.55	U			P
Cadmium			0.010	J	0.008	U	0.008	U			MS
Cobalt			-0.040	J	-0.022	J	0.008	U			MS
Iron			9.97	U	9.97	U	9.97	U			P
Lead			0.061	U	0.061	U	0.061	U			MS
Manganese			0.35	U	0.35	U	0.58	J			P
Nickel			0.236	U	0.236	U	0.236	U			MS
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.015	U	0.015	U	0.015	J			MS
Thallium			0.031	U	0.031	U	0.031	U			MS
Vanadium			0.43	J	0.17	U	0.32	J			P
Molybdenum			0.068	U	0.068	U	0.068	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.177	J	0.169	J					MS
Arsenic			0.211	U	0.211	U					MS
Barium			0.55	U	0.57	J	0.55	U			P
Cadmium			0.008	U	0.008	U					MS
Cobalt			-0.128	J	-0.134	J					MS
Iron			9.97	U	9.97	U	9.97	U			P
Lead			0.061	U	0.061	U					MS
Manganese			0.62	J	2.19	J	1.50	J			P
Nickel			0.236	U	0.236	U					MS
Selenium			0.213	U	0.213	U					MS
Silver			0.015	U	0.015	U					MS
Thallium			0.031	U	-0.032	J					MS
Vanadium			0.21	J	0.17	U	0.32	J			P
Molybdenum			0.068	U	0.068	U					MS

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500	2.4	535	107	2.4	543	109
Iron	100000	100000	93000.0	93000	93	93700.0	93500	94
Manganese		500	-1.6	502	100	-1.7	508	102
Vanadium		500	-1.4	495	99	-1.3	497	99

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500				2.6	552	110
Iron	100000	100000				94000.0	94700	95
Manganese		500				-1.9	513	103
Vanadium		500				-1.2	489	98

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Barium		500				2.7	551	110
Iron	100000	100000				93600.0	93500	94
Manganese		500				1.4	517	103
Vanadium		500				-1.2	497	99

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon			-194.0	221		-170.0	252	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	0.05	21.27	106			
Arsenic	0.00	20.00	0.09	18.38	92			
Beryllium	0.00	20.00	0.02	19.44	97			
Cadmium	0.00	20.00	0.09	19.16	96			
Chromium	0.00	20.00	0.37	21.43	107			
Cobalt	0.00	20.00	-0.03	18.03	90			
Copper	0.00	20.00	0.89	19.25	96			
Lead	0.00	20.00	0.06	20.71	104			
Nickel	0.00	20.00	0.81	17.39	87			
Selenium	0.00	20.00	0.01	18.67	93			
Silver	0.00	20.00	0.04	20.35	102			
Thallium	0.00	20.00	-0.05	20.57	103			
Molybdenum	400.00	400.00	408.84	400.95	100			

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/21/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	09:02												X													
Calib Std 1	1.00	09:08																									
Calib Std 2	1.00	09:14																									
Calib Std 3	1.00	09:20												X													
Calib Std 4	1.00	09:26												X													
Calib Std 5	1.00	09:32												X													
ICV2	1.00	09:38												X													
ICB2	1.00	09:44												X													
CRDL1	1.00	09:50												X													
ICS-A1	1.00	09:56												X													
ICS-AB1	1.00	10:02												X													
CCV1	1.00	10:08												X													
CCB1	1.00	10:14												X													
PBW	1.00	10:20																									
LCSW	1.00	10:26																									
MRC-MW-17A-060514	10.00	10:32												X													
MRC-MW-109A-060514	10.00	10:38												X													
MRC-MW-109A-060514	50.00	10:44												X													
ZZZZZZ	1.00	10:50																									
ZZZZZZ	1.00	10:56																									
ZZZZZZ	1.00	11:02																									
ZZZZZZ	1.00	11:08																									
ZZZZZZ	1.00	11:14																									
CCV2	1.00	11:20												X													
CCB2	1.00	11:26												X													
ZZZZZZ	1.00	11:32																									
ZZZZZZ	1.00	11:38																									
ZZZZZZ	1.00	11:44																									
ZZZZZZ	5.00	11:50																									
ZZZZZZ	1.00	11:56																									
ZZZZZZ	1.00	12:02																									
ZZZZZZ	10.00	12:08																									
ZZZZZZ	10.00	12:14																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/21/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	12:20																											
ZZZZZZ	1.00	12:26																											
CCV3	1.00	12:32												X															
CCB3	1.00	12:38												X															
ZZZZZZ	10.00	12:44																											
ZZZZZZ	20.00	12:50																											
ZZZZZZ	10.00	12:56																											
ZZZZZZ	10.00	13:02																											
ZZZZZZ	5.00	13:08																											
ZZZZZZ	10.00	13:14																											
CCV4	1.00	13:20												X															
CCB4	1.00	13:26												X															
CRDL2	1.00	13:31												X															
ICS-A2	1.00	13:37												X															
ICS-AB2	1.00	13:43												X															
ZZZZZZ	1.00	13:49																											
ZZZZZZ	1.00	13:54																											
CCV5	1.00	14:00												X															
CCB5	1.00	14:06												X															

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/25/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	07:55				X																					
Standard 1	1.00	08:01				X																					
Standard 2	1.00	08:06				X																					
Standard 3	1.00	08:11				X																					
ICV2	1.00	08:16				X																					
ICB2	1.00	08:22				X																					
CRDL1	1.00	08:27				X																					
ICS-A1	1.00	08:32				X																					
ICS-AB1	1.00	08:37				X																					
CCV1	1.00	08:42				X																					
CCB1	1.00	08:48				X																					
ZZZZZZ	1.00	08:53																									
PBW	1.00	08:58																									
LCSW	1.00	09:03																									
ZZZZZZ	1.00	09:09																									
ZZZZZZ	1.00	09:14																									
ZZZZZZ	1.00	09:19																									
ZZZZZZ	5.00	09:24																									
CRDL2	1.00	09:30				X																					
ZZZZZZ	1.00	09:35																									
CCV2	1.00	09:40				X																					
CCB2	1.00	09:45				X																					
MRC-MW-14A-060414	1.00	09:51				X																					
MRC-MW-112A-060514	1.00	09:56				X																					
ZZZZZZ	1.00	10:05																									
ZZZZZZ	1.00	10:10																									
ZZZZZZ	1.00	10:19																									
ZZZZZZ	1.00	10:24																									
ZZZZZZ	1.00	10:29																									
CCV3	1.00	10:35				X																					
CCB3	1.00	10:40				X																					
CRDL3	5.00	10:47				X																					
CCV4	1.00	10:52				X																					

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/25/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCB4	1.00	10:57				X																				

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Arsenic 6/25	50	51	102	50	50	100	50	100	MS
Iron 6/21	5000	5010	100	5000	5030	101	4880	98	P

Comments:

00688

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Arsenic				50	51	102	51	102	MS
Iron				5000	4940	99	4890	98	P

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Iron				5000	5010	100			P

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				1.0	0.99	99	1.03	103
Iron				100.0	110.24	110	111.17	111

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-14A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Arsenic				5.0			5.06	101

Comments:

METALS

-3-

BLANKS

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C		Preparation Blank	C		M
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U					MS
Iron	9.97	U	17.06	J	9.97	U	9.97	U					P

Comments:

METALS

-3-

BLANKS

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Arsenic			0.211	U							MS
Iron			9.97	U	14.55	J					P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000	93300.0	93900	94	92100.0	93100	93

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404353

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-14A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Arsenic	0.00	20.00	-0.03	18.53	93			

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404353-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**0.9**	**J**	mg/L	2.0	0.3	1	NA	6/16/14 09:00	
Ammonia as Nitrogen, undistilled	350.1	0.050	U	mg/L	0.050	0.004	1	NA	6/23/14 11:45	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0	0.4	1	NA	6/27/14 00:29	
Silica, Dissolved as SiO2	USGS I-2700-85	0.010	U	mg/L	0.010	0.003	1	NA	6/20/14 12:05	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/16/14 - 6/27/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404353-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	19.2	20.0	96	81 - 112
Ammonia as Nitrogen, undistilled	350.1	0.514	0.500	103	90 - 110
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	11.0	10.0	110	76 - 123
Silica, Dissolved as SiO2	USGS I-2700-85	0.244	0.250	97	90 - 110

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Tetra Tech GEO	**Service Request:**	R1404353
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404353-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	0.9	J	mg/L	2.0	0.3	1	NA	6/16/14 09:00	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp
Sample Matrix: Water

Service Request: R1404353
Date Analyzed: 6/16/14

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample R1404353-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	19.2	20.0	96	81 - 112

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO **Service Request:** R1404353
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398408	RQ1407037-01	6/23/14 11:44	0.900	0.894	99	90 - 110
CCV2	398408	RQ1407037-04	6/23/14 11:57	0.900	0.894	99	90 - 110
CCV3	398408	RQ1407037-08	6/23/14 12:12	0.900	0.893	99	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404353
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398408	RQ1407037-02	6/23/14 11:45	0.004	0.050	0.050	U
CCB2	398408	RQ1407037-03	6/23/14 11:58	0.004	0.050	0.050	U
CCB3	398408	RQ1407037-07	6/23/14 12:13	0.004	0.050	0.050	U

Client: Tetra Tech GEO **Service Request:** R1404353
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	399384	RQ1407361-03	6/26/14 23:48	15.0	15.1	101	85 - 115
CCV2	399384	RQ1407361-04	6/27/14 04:38	15.0	15.2	101	85 - 115
CCV3	399384	RQ1407361-05	6/27/14 08:07	15.0	15.5	103	85 - 115

Client: Tetra Tech GEO **Service Request:** R1404353
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	399384	RQ1407361-06	6/27/14 00:29	0.4	1.0	1.0	U
CCB2	399384	RQ1407361-07	6/27/14 04:59	0.4	1.0	1.0	U
CCB3	399384	RQ1407361-08	6/27/14 08:28	0.4	1.0	1.0	U

Client: Tetra Tech GEO **Service Request:** R1404353
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398142	RQ1406960-01	6/20/14 12:03	0.400	0.420	105	90 - 110
CCV2	398142	RQ1406960-08	6/20/14 12:20	0.400	0.436	109	90 - 110
CCV3	398142	RQ1406960-10	6/20/14 12:41	0.400	0.437	109	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404353
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398142	RQ1406960-02	6/20/14 12:05	0.003	0.010	0.010	U
CCB2	398142	RQ1406960-07	6/20/14 12:22	0.003	0.010	0.004	J
CCB3	398142	RQ1406960-09	6/20/14 12:44	0.003	0.010	0.007	J

ALS - Middletown
Analytical Narrative
ALS Environmental - Rochester NY
AER-056

SAMPLE MANAGEMENT

This report contains the results of the analysis of two (2) water samples collected on June 5, 2014. Analytical results and quality control information are summarized in this data package.

SAMPLE RECEIPT

The sample arrived at ALS via courier on June 5, 2014. Upon receipt, the samples were inspected and compared to the Chain of Custody. Sample temperature was documented on the enclosed Chain of Custody. Samples were received intact and properly preserved, unless noted on the enclosed Certificate of Analysis and/or Chain of Custody.

Anions by EPA 300.0

Sample handling. Two (2) aqueous samples were analyzed for chloride, nitrite-nitrogen, nitrate-nitrogen, and sulfate by EPA Method 300.0. The samples were analyzed within the method recommended holding time for each analyte.

Calibration. The calibration recoveries were within the QC limits.

Blanks. Initial and continuing blanks were analyzed with the samples. No analytes were detected above the reporting limits in the blanks.

Laboratory Control Samples. Laboratory control samples, identified as 2027261 and SSL, were analyzed initially and every 20 samples. Recoveries were within the QC limits.

Ortho-Phosphate by EPA 365.3

Sample handling. Two (2) aqueous samples were analyzed for ortho-phosphate by EPA 365.3. The samples were analyzed within the hold time established for the method.

Calibration. All recoveries were within the QC limits.

Blanks. Initial and continuing method blanks were analyzed with the samples. Ortho-phosphate was not detected above the reporting limit in the blanks.

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 421 , WV 343

SAMPLE SUMMARY

Workorder: 2011004 AER056|Tetra Tec hMaryland112

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2011004001	MRC-MW-14B-060514	Water	6/5/2014 09:05	6/5/2014 20:55	Collected by Client
2011004002	MRC-MW-37B-060514	Water	6/5/2014 10:45	6/5/2014 20:55	Collected by Client

Notes

-- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
-- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
-- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
-- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
-- The Chain of Custody document is included as part of this report.
-- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
-- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
-- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit

Title: 060714
Datasource: WETCHEMIC
Location: DX-500\DX-500 Seq\2014\1-1406
Timebase: DX-500
#Samples: 89
Created: 6/7/2014 12:01:01 AM by almdt.nouser
Last Update: 6/7/2014 10:34:36 AM by almdt.nouser

No.	Name	*DilutionFactor	*SampleType	Comment	Program	Method	*Analyst	*Batch	*Queue
1	CAL STD 1				300_0	A1_051614	SSL		WETC
2	CAL STD 2				300_0	A1_051614	SSL		WETC
3	CAL STD 3				300_0	A1_051614	SSL		WETC
4	CAL STD 4				300_0	A1_051614	SSL		WETC
5	CAL STD 5				300_0	A1_051614	SSL		WETC
6	CAL STD 6				300_0	A1_051614	SSL		WETC
7	CAL STD 7				300_0	A1_051614	SSL		WETC
8	CAL STD 8				300_0	A1_051614	SSL		WETC
9	CAL STD 9				300_0	A1_051614	SSL		WETC
10	CAL STD 1				300_0	L1_051614	SSL		WETC
11	CAL STD 2				300_0	L1_051614	SSL		WETC
12	CAL STD 3				300_0	L1_051614	SSL		WETC
13	CAL STD 4				300_0	L1_051614	SSL		WETC
14	CAL STD 5				300_0	L1_051614	SSL		WETC
15	CAL STD 6				300_0	L1_051614	SSL		WETC
16	2027259	1	MB	BLANK	300_0	L1_051614	SSL	139045	WETC
17	2027260	1	CCVL	1A	300_0	A1_051614	SSL	139045	WETC
18	CCV LEVEL 1L	1		1L	300_0	L1_051614	SSL	139045	WETC
19	2027261	1	LCS	SSA	300_0	A1_051614	SSL	139045	WETC
20	SSL	1		SSL	300_0	L1_051614	SSL	139045	WETC
21	2027262	1	CCVH	2A	300_0	A1_051614	SSL	139045	WETC
22	CCV LEVEL 2L	1		2L	300_0	L1_051614	SSL	139045	WETC
23	2010996001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
24	2011085001	5	SAMPLE		300_0	A1_051614	SSL	139045	WETC
25	2011004001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
26	2010997001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
27	2010998001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
28	~~2010994002~~ 2011004002	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
29	2010972001	2	SAMPLE	NJ	300_0	A1_051614	SSL	139045	WETC
30	2010987001	2	SAMPLE	NJ	300_0	A1_051614	SSL	139045	WETC
31	2027332	2	MS		300_0	A1_051614	SSL	139045	WETC
32	2027333	2	MSD		300_0	A1_051614	SSL	139045	WETC
33	2027334	1	CCVL	1A	300_0	A1_051614	SSL	139045	WETC
34	CCV LEVEL 1L	1		1L	300_0	L1_051614	SSL	139045	WETC
35	2027335	1	MB	BLANK	300_0	L1_051614	SSL	139045	WETC
36	2010971001	2	SAMPLE	NJ	300_0	A1_051614	SSL	139045	WETC
37	2011029001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
38	2011030001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
39	2011031001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
40	2011161001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
41	2011161002	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC

Title: 060714
Datasource: WETCHEMIC
Location: DX-500\DX-500 Seq\2014\1-1406
Timebase: DX-500 Created: 6/7/2014 12:01:01 AM by almdt.nouser
#Samples: 89 Last Update: 6/7/2014 10:34:38 AM by almdt.nouser

No.	Name	*DilutionFactor	*SampleType	Comment	Program	Method	*Analyst	*Batch	*Queue
42	2010944002	5	SAMPLE		300_0	A1_051614	SSL	139045	WETC
43	2010945002	5	SAMPLE		300_0	A1_051614	SSL	139045	WETC
44	2010946002	5	SAMPLE		300_0	A1_051614	SSL	139045	WETC
45	2027336	5	MS		300_0	A1_051614	SSL	139045	WETC
46	2027337	1	CCVH	2A	300_0	A1_051614	SSL	139045	WETC
47	CCV LEVEL 2L	1		2L	300_0	L1_051614	SSL	139045	WETC
48	2027338	1	LCS	SSA	300_0	A1_051614	SSL	139045	WETC
49	SSL	1		SSL	300_0	L1_051614	SSL	139045	WETC
50	2027339	1	MB	BLANK	300_0	L1_051614	SSL	139045	WETC
51	2011100002	5	SAMPLE		300_0	A1_051614	SSL	139045	WETC
52	2011100003	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
53	2011100004	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
▷	2011100005	10	SAMPLE		300_0	A1_051614	SSL	139045	WETC
55	2011100006	5	SAMPLE		300_0	A1_051614	SSL	139045	WETC
56	2011100007	1	SAMPLE		300_0	A1_051614	SSL	139045	WETC
57	2011100008	1	SAMPLE		300_0	A1_051614	SSL	139045	WETC
58	2011106001	2	SAMPLE		300_0	A1_051614	SSL	139045	WETC
59	2027340	2	MS		300_0	A1_051614	SSL	139045	WETC
60	2027341	2	MSD		300_0	A1_051614	SSL	139045	WETC
61	2027342	1	CCVL	1A	300_0	A1_051614	SSL	139045	WETC
62	CCV LEVEL 1L	1		1L	300_0	L1_051614	SSL	139045	WETC
63	2027343	1	MB	BLANK	300_0	L1_051614	SSL	139045	WETC
64	2010684001	5000	SAMPLE	RR	300_0	A1_051614	SSL	139045	WETC
65	2010688001	5000	SAMPLE	RR	300_0	A1_051614	SSL	139045	WETC
66	2010689001	5000	SAMPLE	RR	300_0	A1_051614	SSL	139045	WETC
67	2010857003	60	SAMPLE	RR	300_0	A1_051614	SSL	139045	WETC
68	2010710001	5	SAMPLE	RR	300_0	A1_051614	SSL	139045	WETC
69	W14020280	2 1195-1	SAMPLE	1035	300_0	A1_051614	SSL	139045	WETC
70	W14020280P	2 1195-3	SAMPLE	1045	300_0	A1_051614	SSL	139045	WETC
71	W14020270	2 1196-1	SAMPLE	1300	300_0	A1_051614	SSL	139045	WETC
72	W14020277	2 1197-1	SAMPLE	910	300_0	A1_051614	SSL	139045	WETC
73	MS 2027456	2	MS		300_0	A1_051614	SSL	139045	WETC
74	2A 57	1	CCVH	2A	300_0	A1_051614	SSL	139045	WETC
75	CCV LEVEL 2L	1		2L	300_0	L1_051614	SSL	139045	WETC
76	SSA 58	1	LCS	SSA	300_0	A1_051614	SSL	139045	WETC
77	SSL	1		SSL	300_0	L1_051614	SSL	139045	WETC
78	BLANK 59	1	MB	BLANK	300_0	L1_051614	SSL	139045	WETC
79	43-ST1 1200-1	2	SAMPLE	1425	300_0	A1_051614	SSL	139045	WETC
80	43-P1 1201-1	2	SAMPLE	1426	300_0	A1_051614	SSL	139045	WETC
81	43-W1 1202-1	2	SAMPLE	1143	300_0	A1_051614	SSL	139045	WETC
82	43-W2 1203-1	2	SAMPLE	1218	300_0	A1_051614	SSL	139045	WETC

Title: 060714
Datasource: WETCHEMIC
Location: DX-500\DX-500 Seq\2014\1-1406
Timebase: DX-500 Created: 6/7/2014 12:01:01 AM by almdl.nouser
#Samples: 89 Last Update: 6/7/2014 10:34:38 AM by almdl.nouser

No.	Name	*DilutionFactor	*SampleType	Comment	Program	Method	*Analyst	*Batch	*Queue
83	MS 66	2	MS		300_0	A1_051614	SSL	139045	WETC
84	MSD 61	2	MSD		300_0	A1_051614	SSL	139045	WETC
85	WINE SINK	2 1194-1	SAMPLE	800	300_0	A1_051614	SSL	139045	WETC
86	1A 62	1	CCVL	1A	300_0	A1_051614	SSL	139045	WETC
87	CCV LEVEL 1L	1		1L	300_0	L1_051614	SSL	139045	WETC
88	BLANK 63	1	MB	BLANK	300_0	L1_051614	SSL	139045	WETC
89	SHUTDOWN				Shutdown	A1_051614	SSL	139045	WETC

Form 6B- Method A
Inorganic Initial and Continuing Calibration Summary

Analysis Method: 300.0 SDG No.: AER-056

Instrument ID: DX-500
Concentration Units: mg/L

Analyte	Initial Calibration					Continuing Calibration					
	True Conc.	Conc. Recovered (1)6/7/14	Recovery (%)	(2)	Acc. Limit (%)	True Conc.	Conc. Recovered (1)6/7/14	Recovery (%)	(2)	Conc. Recovered (1)6/7/14	Recovery (%) (2)	Acc. Limit (%)
Chloride	20.0	20.8	104		90-110	20.0	20.9	105				90-110
Nitrite-Nitrogen	0.50	0.53	106		90-110	0.50	0.55	110				90-110
Nitrate-Nitrogen	2.50	2.60	104		90-110	2.50	2.60	104				90-110
Sulfate	20.0	20.7	104		90-110	20.0	20.9	104				90-110
Chloride	40.0	39.2	98		90-110	40.0	--	--				90-110
Nitrite-Nitrogen	1.00	1.07	107		90-110	1.00	--	--				90-110
Nitrate-Nitrogen	5.00	4.97	99		90-110	5.00	--	--				90-110
Sulfate	40.0	38.3	96		90-110	40.0	--	--				90-110

(1) Analysis Date
(2) The following qualifiers are used:
* : Values outside of acceptable limits

Comments:

Form 6B- Method L
Inorganic Initial and Continuing Calibration Summary

Analysis Method: 300.0 SDG No.: AER-056

Instrument ID: DX-500
Concentration Units: mg/L

Analyte	Initial Calibration					Continuing Calibration						
	True Conc.	Conc. Recovered (1)6/7/14	Recovery (%)	(2)	Acc. Limit (%)	True Conc.	Conc. Recovered (1)6/7/14	Recovery (%)	(2)	Conc. Recovered (1)	Recovery (%)	(2)	Acc. Limit (%)
Chloride	2.50	2.30	92		90-110	2.50	2.29	92					90-110
Nitrite-Nitrogen	0.50	0.51	102		90-110	0.50	0.50	100					90-110
Nitrate-Nitrogen	0.50	0.48	96		90-110	0.50	0.48	96					90-110
Sulfate	2.50	2.34	94		90-110	2.50	2.29	92					90-110
Chloride	5.00	4.59	92		90-110	5.00	--	--					90-110
Nitrite-Nitrogen	1.00	1.00	100		90-110	1.00	--	--					90-110
Nitrate-Nitrogen	1.00	0.98	98		90-110	1.00	--	--					90-110
Sulfate	5.00	4.73	95		90-110	5.00	--	--					90-110

(1) Analysis Date
(2) The following qualifiers are used:
* : Values outside of acceptable limits

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: 300.0 SDG No.: AER-056

Prep Blank A Matrix (soil/water): _____ Units: _____
Prep Blank B Matrix (soil/water): _____ Units: _____

Analyte	Initial Calibration Blank (mg/L) (1)6/7/14 (2)		Continuing Calibration Blanks (mg/L) (1)6/7/14 (2)		(1) (2)		(1) (2)		Preparation Blank A ID: (1) (2)		Preparation Blank B ID: (1) (2)	
Chloride	0.13	J	0.16	J								
Nitrite-Nitrogen	0.10	U	0.10	U								
Nitrate-Nitrogen	0.10	U	0.10	U								
Sulfate	1.0	U	1.0	U								

(1) Analysis Date
(2) The following qualifiers are used:
U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments:

Form 8B- Method A
Laboratory Control Sample (LCS) Recovery Summary

Analysis Method: 300.0 SDG No.: AER-056

Matrix (soil/water): water Lab Sample ID: 2027261
Units: mg/L Lab File ID: N/A
Date Analyzed: 6/7/2014 Instrument ID: DX-500
GC Column: N/A

Analyte	Concentration Added	Concentration Recovered	LCS Recovery (%)	(1)	Acceptable Limits (%)
Chloride	20.0	20.0	100		90-110
Nitrite-nitrogen	0.50	0.55	110		90-110
Nitrate-nitrogen	2.50	2.51	100		90-110
Sulfate	20.0	20.6	103		90-110

(1) The following qualifiers are used:
* : Values outside of acceptable limits

Comments:

Form 8B- Method L
Laboratory Control Sample (LCS) Recovery Summary

Analysis Method: 300.0
SDG No.: AER-056

Matrix (soil/water): water
Units: mg/L
Date Analyzed: 6/7/2014

Lab Sample ID: SSL
Lab File ID: N/A
Instrument ID: DX-500
GC Column: N/A

Analyte	Concentration Added	Concentration Recovered	LCS Recovery (%)	(1)	Acceptable Limits (%)
Chloride	2.50	2.36	94		90-110
Nitrite-nitrogen	0.50	0.51	102		90-110
Nitrate-nitrogen	0.50	0.50	100		90-110
Sulfate	2.50	2.42	97		90-110

(1) The following qualifiers are used:
* : Values outside of acceptable limits

Comments:

Orthophosphate

Queue:	WETC
Rule:	365.3WO-P
Batch:	139043
HBN:	12154

Slope =	0.654
Intercept =	0.000
r =	0.9998365

mg/L = ABS - 0.000 / 0.654

Corr. coeff. = 0.99967 = Curve passed

X (mg/L)	Y (ABS)
0.020	0.013
0.100	0.068
0.200	0.128
0.400	0.259
0.600	0.395
0.800	0.518
1.000	0.656

Reviewed By:	MBJ
Reviewed Date:	6/7/14
Approved By:	MBJ
Approved Dare:	6/7/14

Analysis Date:	6/7/2014
Analysis Time:	2:25:00
Tech:	MSA

Calibration Date:	4/15/2014
Curve Expiration Date:	7/15/2014
Tech:	MSA

Sample	Comment	Dilution	Sample Vol	ABS	Blank ABS	Corrected ABS	Result (mg/L)	% Recovery	RPD %
2027253	MB	1	50	0.000	0.000	0.000	0.0000		
2027254	CCVL	1	50	0.128	0.000	0.128	0.1957	97.9	
2011004001		1	50	0.014	0.014	0.000	0.0000		
2011004002		1	50	0.118	0.004	0.114	0.1743		
2011171002		1	50	0.026	0.000	0.026	0.0398		
2027308	MS	1	50	0.359	0.000	0.359	0.5489	101.8	
2027309	MSD	1	50	0.354	0.000	0.354	0.5413	100.3	1.4
2027257	MB	1	50	0.007	0.000	0.007	0.0107		
2027258	CCVH	1	50	0.504	0.000	0.504	0.7706	96.3	

MSA 06/07/14

0.20 CCV:	WS140606009
0.80 CCV:	WS140606010
Spiking Solution:	101227005
Combined Color Reagent:	WR140606002

Pipettes: 2011-04, 2011-01, 2010-04

Comments:

Form 6B
Inorganic Initial and Continuing Calibration Summary

Analysis Method: 365.3 SDG No.: AER-056

Instrument ID: DR5000
Concentration Units: mg/L

Analyte	Initial Calibration					Continuing Calibration							
	True Conc.	Conc. Recovered (1)6/7/14	Recovery (%)	(2)	Acc. Limit (%)	True Conc.	Conc. Recovered (1)6/7/14	Recovery (%)	(2)	Conc. Recovered (1)	Recovery (%)	(2)	Acc. Limit (%)
Orthophosphate	0.200	0.196	98		90-110	0.800	0.771	96					90-110

(1) Analysis Date
(2) The following qualifiers are used:
* : Values outside of acceptable limits

Comments:

Form 4B
Inorganic Blank Summary

Analysis Method: 365.3 SDG No.: AER-056

Prep Blank A Matrix (soil/water): _____ Units: _____
Prep Blank B Matrix (soil/water): _____ Units: _____

Analyte	Initial Calibration Blank (mg/L) (1)6/7/14 (2)		Continuing Calibration Blanks (mg/L) (1)6/7/14 (2)		(1) (2)		(1) (2)		Preparation Blank A ID: (1) (2)		Preparation Blank B ID: (1) (2)	
Orthophosphate	0.02	U	0.01	J								

(1) Analysis Date
(2) The following qualifiers are used:
U: The analyte concentration is less than the reporting limit listed
J: The analyte concentration is less than the reporting limit but greater than the method detection limit

Comments: _____

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **A. APANAVAGE** **DATE:** **AUGUST 25, 2014**

FROM: **MICHELLE L. ALLEN** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC & INORGANIC DATA VALIDATION – VOC/PERCHLORATE/METALS**
LOCKHEED MARTIN CORPORATION (LMC)
GROUNDWATER 2014
SDG R1404412

SAMPLES: 4/Aqueous/VOC

MRC-MW-73B-060614 MRC-MW-74A-060614 MRC-MW-74B-060614
TB-060614

2/Aqueous/Perchlorate

MRC-MW-74A-060614 MRC-MW-74B-060614

1/Aqueous/Metals

MRC-MW-61A-060614

Overview

The sample set for LMC-Groundwater 2014, SDG R1404412 consisted of four (4) aqueous environmental samples and one (1) trip blank. Three (3) aqueous samples and one (1) trip blank were analyzed volatile organic compounds (VOC). Two (2) aqueous samples were analyzed for perchlorate. One (1) aqueous sample was analyzed for metals. No field duplicate sample pair was included in this SDG.

The samples were collected by Tetra Tech, Inc. on June 6-9, 2014 and analyzed by ALS Environmental. All analyses were conducted in accordance with SW-846 Methods 8260C, 6850, 6010C, 6020A, and 7470A analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters: data completeness, holding times, GC/MS tuning, initial/continuing calibrations, laboratory method/calibration blanks, trip blank results, Interference Check Sample (ICS), surrogate spike recoveries, laboratory control sample/laboratory control sample duplicate results, internal standard areas and recoveries, ICP serial dilution results, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

No major issues were identified.

Minor

- The continuing calibration performed on 06/11/14 @ 12:19 had a Percent Difference (%D) for naphthalene greater than the 20% quality control limit. All VOC samples were affected. The non-detected results reported for naphthalene in the affected samples were qualified as estimated, (UJ).

- The following analytes below were detected in the laboratory method and/or preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration (µg/L)	Action Level (µg/L)
Cobalt [1]	0.04	0.20
Molybdenum [1]	0.091	0.455
Antimony [2]	0.207	1.035
Cadmium [2]	0.010	0.050
Manganese [2]	1.154	5.77

[1] - Maximum concentration detected in the laboratory preparation blank from preparation batch # 210970 (indicated in the electronic deliverable) affecting the metals sample.
[2] - Maximum concentration detected in the initial and/or continuing calibration blanks from 6010C and 6020A analyses affecting the metals sample.

Action levels of 5X the maximum concentration were established to evaluate for laboratory blank contamination. Dilution factor and sample aliquot, if necessary, were taken into consideration during the application of the action level. The detected results reported for these analytes in the affected samples below the established action level were qualified as non-detected, (U).

- The serial dilution associated performed on the metals sample, MRC-MW-61A-060614, had %Ds greater than 10% for barium, beryllium, cobalt, nickel, and zinc. The detected results reported for these analytes in the metals sample were qualified as estimated, (J).

- Detected results reported below the Reporting Limit (RL) limit but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Notes

The VOC Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) analyses had a Percent Recovery (%R) for tert-amyl methyl ether marginally (3%) below the lower quality control limit. No action was taken because the %R in the LSCD sample was acceptable and this compound was not detected in the associated samples.

Trichloroethene exceeded the linear calibration range of instrument in the initial analysis (5X) of sample MRC-MW-74B-060614. The sample was reanalyzed at a 25X dilution. The 25X diluted result for trichloroethene was used in the data validation.

Non-detected results were reported to the MDL.

Executive Summary

Laboratory Performance: Contaminants were detected in the laboratory preparation and method blanks. The serial dilution had %Ds greater than 10%.

Other Factors Affecting Data Quality: One VOC sample required further dilution. Results below the RL were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review" (June 2008), the "National Functional Guidelines for Inorganic Review" (January 2010), and SW-846 Methods 8260c, 6850, 6010C, 6020A, and 7470A analytical and reporting protocols. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-73B-060614			MRC-MW-74A-060614			MRC-MW-74B-060614			MRC-MW-74B-060614-DL		
SDG: R1404412	LAB_ID	R1404412-003			R1404412-001			R1404412-002			R1404412-002		
FRACTION: OV	SAMP_DATE	6/6/2014			6/6/2014			6/6/2014			6/6/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U		0.22	U		1.1	U				
1,1,1-TRICHLOROETHANE		0.36	U		0.36	U		1.8	U				
1,1,2,2-TETRACHLOROETHANE		0.25	U		0.25	U		1.3	U				
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U		0.31	U		7.7					
1,1-DICHLOROETHANE		0.2	U		0.2	U		1	U				
1,1-DICHLOROETHENE		0.57	U		0.57	U		2.9	U				
1,1-DICHLOROPROPENE		0.29	U		0.29	U		1.5	U				
1,2,3-TRICHLOROBENZENE		0.82	U		0.82	U		4.1	U				
1,2,3-TRICHLOROPROPANE		0.7	U		0.7	U		3.5	U				
1,2,4-TRICHLOROBENZENE		0.23	U		0.23	U		1.2	U				
1,2,4-TRIMETHYLBENZENE		0.2	U		0.2	U		1	U				
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U		0.74	U		3.7	U				
1,2-DIBROMOETHANE		0.24	U		0.24	U		1.2	U				
1,2-DICHLOROBENZENE		0.21	U		0.21	U		1.1	U				
1,2-DICHLOROETHANE		0.36	U		0.36	U		1.8	U				
1,2-DICHLOROPROPANE		0.2	U		0.2	U		1	U				
1,3-DICHLOROBENZENE		0.2	U		0.32	J	P	1	U				
1,3-DICHLOROPROPANE		0.27	U		0.27	U		1.4	U				
1,4-DICHLOROBENZENE		0.2	U		0.64	J	P	1	U				
2,2-DICHLOROPROPANE		0.27	U		0.27	U		1.4	U				
2-BUTANONE		0.81	U		0.81	U		4.1	U				
2-CHLOROETHYL VINYL ETHER		0.44	U		0.44	U		2.2	U				
2-CHLOROTOLUENE		0.2	U		0.2	U		1	U				
2-HEXANONE		1.7	U		1.7	U		8.3	U				
4-CHLOROTOLUENE		0.24	U		0.24	U		1.2	U				
4-ISOPROPYLTOLUENE		0.2	U		0.2	U		1	U				
4-METHYL-2-PENTANONE		0.67	U		0.67	U		3.4	U				
ACETONE		1.3	U		1.6	J	P	6.2	U				
BENZENE		0.2	U		0.2	U		1	U				
BROMOBENZENE		0.28	U		0.28	U		1.5	U				
BROMOCHLOROMETHANE		0.32	U		0.32	U		1.6	U				
BROMODICHLOROMETHANE		0.32	U		0.32	U		1.6	U				
BROMOFORM		0.42	U		0.42	U		2.1	U				
BROMOMETHANE		0.29	U		0.29	U		1.5	U				
CARBON DISULFIDE		0.22	U		0.22	U		1.1	U				

PROJ_NO: 06247	NSAMPLE	TB-060614
SDG: R1404412	LAB_ID	R1404412-005
FRACTION: OV	SAMP_DATE	6/6/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U	
1,1-DICHLOROETHANE	0.2	U	
1,1-DICHLOROETHENE	0.57	U	
1,1-DICHLOROPROPENE	0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U	
1,2-DIBROMOETHANE	0.24	U	
1,2-DICHLOROBENZENE	0.21	U	
1,2-DICHLOROETHANE	0.36	U	
1,2-DICHLOROPROPANE	0.2	U	
1,3-DICHLOROBENZENE	0.2	U	
1,3-DICHLOROPROPANE	0.27	U	
1,4-DICHLOROBENZENE	0.2	U	
2,2-DICHLOROPROPANE	0.27	U	
2-BUTANONE	0.81	U	
2-CHLOROETHYL VINYL ETHER	0.44	U	
2-CHLOROTOLUENE	0.2	U	
2-HEXANONE	1.7	U	
4-CHLOROTOLUENE	0.24	U	
4-ISOPROPYLTOLUENE	0.2	U	
4-METHYL-2-PENTANONE	0.67	U	
ACETONE	1.3	U	
BENZENE	0.2	U	
BROMOBENZENE	0.28	U	
BROMOCHLOROMETHANE	0.32	U	
BROMODICHLOROMETHANE	0.32	U	
BROMOFORM	0.42	U	
BROMOMETHANE	0.29	U	
CARBON DISULFIDE	0.22	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-73B-060614			MRC-MW-74A-060614			MRC-MW-74B-060614			MRC-MW-74B-060614-DL		
SDG: R1404412	LAB_ID	R1404412-003			R1404412-001			R1404412-002			R1404412-002		
FRACTION: OV	SAMP_DATE	6/6/2014			6/6/2014			6/6/2014			6/6/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CARBON TETRACHLORIDE		0.45	U		0.45	U		2.3	U				
CHLOROBENZENE		0.29	U		0.29	U		1.5	U				
CHLORODIBROMOMETHANE		0.31	U		0.31	U		1.6	U				
CHLOROETHANE		0.24	U		0.24	U		1.2	U				
CHLOROFORM		0.25	U		0.25	U		1.3	U				
CHLOROMETHANE		0.21	U		0.21	U		1.1	U				
CIS-1,2-DICHLOROETHENE		2.2			2			21					
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		1.2	U				
DIBROMOMETHANE		0.32	U		0.32	U		1.6	U				
DICHLORODIFLUOROMETHANE		0.46	U		0.46	U		2.4	U				
DIISOPROPYL ETHER		0.2	U		0.2	U		1	U				
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		1	U				
ETHYLBENZENE		0.2	U		0.2	U		1	U				
HEXACHLOROBUTADIENE		0.62	U		0.62	U		3.1	U				
ISOPROPYLBENZENE		0.2	U		0.2	U		1	U				
M+P-XYLENES		0.33	U		0.33	U		1.7	U				
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		1.5	U				
METHYLENE CHLORIDE		0.32	U		0.32	U		1.6	U				
NAPHTHALENE		0.2	UJ	C	0.2	UJ	C	1	UJ	C			
N-BUTYLBENZENE		0.21	U		0.21	U		1.1	U				
N-PROPYLBENZENE		0.2	U		0.2	U		1	U				
O-XYLENE		0.2	U		0.2	U		1	U				
SEC-BUTYLBENZENE		0.27	U		0.27	U		1.4	U				
STYRENE		0.2	U		0.2	U		1	U				
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		1	U				
TERT-BUTYLBENZENE		0.2	U		0.2	U		1	U				
TERTIARY-BUTYL ALCOHOL		11	U		11	U		54	U				
TETRACHLOROETHENE		0.3	U		0.3	U		1.5	U				
TOLUENE		0.2	U		0.2	U		1	U				
TOTAL XYLENES		0.53	U		0.53	U		2.7	U				
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		1.7	U				
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		1	U				
TRICHLOROETHENE		100			83						1900		
TRICHLOROFLUOROMETHANE		0.2	U		0.2	U		1	U				
VINYL ACETATE		1.1	U		1.1	U		5.1	U				

PROJ_NO: 06247	NSAMPLE	TB-060614
SDG: R1404412	LAB_ID	R1404412-005
FRACTION: OV	SAMP_DATE	6/6/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	0.45	U	
CHLOROBENZENE	0.29	U	
CHLORODIBROMOMETHANE	0.31	U	
CHLOROETHANE	0.24	U	
CHLOROFORM	0.25	U	
CHLOROMETHANE	0.21	U	
CIS-1,2-DICHLOROETHENE	0.3	U	
CIS-1,3-DICHLOROPROPENE	0.24	U	
DIBROMOMETHANE	0.32	U	
DICHLORODIFLUOROMETHANE	0.46	U	
DIISOPROPYL ETHER	0.2	U	
ETHYL TERT-BUTYL ETHER	0.2	U	
ETHYLBENZENE	0.2	U	
HEXACHLOROBUTADIENE	0.62	U	
ISOPROPYLBENZENE	0.2	U	
M+P-XYLENES	0.33	U	
METHYL TERT-BUTYL ETHER	0.29	U	
METHYLENE CHLORIDE	0.32	U	
NAPHTHALENE	0.2	UJ	C
N-BUTYLBENZENE	0.21	U	
N-PROPYLBENZENE	0.2	U	
O-XYLENE	0.2	U	
SEC-BUTYLBENZENE	0.27	U	
STYRENE	0.2	U	
TERT-AMYL METHYL ETHER	0.2	U	
TERT-BUTYLBENZENE	0.2	U	
TERTIARY-BUTYL ALCOHOL	11	U	
TETRACHLOROETHENE	0.3	U	
TOLUENE	0.2	U	
TOTAL XYLENES	0.53	U	
TRANS-1,2-DICHLOROETHENE	0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	0.22	U	
TRICHLOROFLUOROMETHANE	0.2	U	
VINYL ACETATE	1.1	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-73B-060614			MRC-MW-74A-060614			MRC-MW-74B-060614			MRC-MW-74B-060614-DL		
SDG: R1404412	LAB_ID	R1404412-003			R1404412-001			R1404412-002			R1404412-002		
FRACTION: OV	SAMP_DATE	6/6/2014			6/6/2014			6/6/2014			6/6/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
VINYL CHLORIDE		0.32	U		0.32	U		1.6	U				

PROJ_NO: 06247	NSAMPLE	TB-060614		
SDG: R1404412	LAB_ID	R1404412-005		
FRACTION: OV	SAMP_DATE	6/6/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
VINYL CHLORIDE		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-74A-060614			MRC-MW-74B-060614		
SDG: R1404412	LAB_ID	R1404412-001			R1404412-002		
FRACTION: MISCO	SAMP_DATE	6/6/2014			6/6/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
PERCHLORATE		0.2			0.06	J	P

PROJ_NO: 06247	NSAMPLE	MRC-MW-61A-060614		
SDG: R1404412	LAB_ID	R1404412-004		
FRACTION: M	SAMP_DATE	6/6/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
ANTIMONY		0.251	U	A
ARSENIC		1.3		
BARIUM		273	J	I
BERYLLIUM		32.2	J	I
CADMIUM		1.2		
CHROMIUM		0.816	J	P
COBALT		519	J	I
COPPER		16.4		
IRON		174		
LEAD		3.3		
MANGANESE		18000		
MERCURY		0.024	U	
MOLYBDENUM		0.078	U	A
NICKEL		311	J	I
SELENIUM		0.213	U	
SILICON		5970		
SILVER		0.081	J	P
THALLIUM		0.069	J	P
VANADIUM		0.358	U	
ZINC		344	J	I

Appendix B

Results as Reported by the Laboratory

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1140
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 16:27
Sample Name:	MRC-MW-73B-060614	**Units:**	µg/L
Lab Code:	R1404412-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9566.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1140
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 16:27
Sample Name:	MRC-MW-73B-060614	**Units:**	µg/L
Lab Code:	R1404412-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9566.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**100**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**2.2**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1140
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 16:27
Sample Name:	MRC-MW-73B-060614	**Units:**	µg/L
Lab Code:	R1404412-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9566.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	6/17/14 16:27	
Dibromofluoromethane	103	89-119	6/17/14 16:27	
Toluene-d8	95	87-121	6/17/14 16:27	

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 0905
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 14:54
Sample Name:	MRC-MW-74A-060614	**Units:**	µg/L
Lab Code:	R1404412-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9563.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	**0.32**	J	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	**0.64**	J	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**1.6**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 0905
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 14:54
Sample Name:	MRC-MW-74A-060614	**Units:**	µg/L
Lab Code:	R1404412-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9563.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**83**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**2.0**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 0905
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 14:54
Sample Name:	MRC-MW-74A-060614	**Units:**	µg/L
Lab Code:	R1404412-001	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9563.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	6/17/14 14:54	
Dibromofluoromethane	104	89-119	6/17/14 14:54	
Toluene-d8	97	87-121	6/17/14 14:54	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 15:25
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9564.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0	1.1	
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1.8	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	1.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	7.7		5.0	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	5.0	U	5.0	2.9	
563-58-6	1,1-Dichloropropene	5.0	U	5.0	1.5	
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0	4.1	
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0	3.5	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	1.2	
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0	1.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	3.7	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	1.2	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	1.1	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	1.8	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	1.0	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	1.0	
142-28-9	1,3-Dichloropropane	5.0	U	5.0	1.4	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	1.0	
594-20-7	2,2-Dichloropropane	5.0	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	25	U	25	4.1	
110-75-8	2-Chloroethyl Vinyl Ether	5.0	U	5.0	2.2	
95-49-8	2-Chlorotoluene	5.0	U	5.0	1.0	
591-78-6	2-Hexanone	25	U	25	8.3	
75-65-0	tert-Butyl Alcohol	200	U	200	54	
106-43-4	4-Chlorotoluene	5.0	U	5.0	1.2	
99-87-6	4-Isopropyltoluene	5.0	U	5.0	1.0	
108-10-1	4-Methyl-2-pentanone	25	U	25	3.4	
67-64-1	Acetone	25	U	25	6.2	
71-43-2	Benzene	5.0	U	5.0	1.0	
108-86-1	Bromobenzene	5.0	U	5.0	1.5	
74-97-5	Bromochloromethane	5.0	U	5.0	1.6	
75-27-4	Bromodichloromethane	5.0	U	5.0	1.6	
75-25-2	Bromoform	5.0	U	5.0	2.1	
74-83-9	Bromomethane	5.0	U	5.0	1.5	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 15:25
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9564.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	5.0	U	5.0	1.1	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	2.3	
108-90-7	Chlorobenzene	5.0	U	5.0	1.5	
75-00-3	Chloroethane	5.0	U	5.0	1.2	
67-66-3	Chloroform	5.0	U	5.0	1.3	
74-87-3	Chloromethane	5.0	U	5.0	1.1	
124-48-1	Dibromochloromethane	5.0	U	5.0	1.6	
74-95-3	Dibromomethane	5.0	U	5.0	1.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	2.4	
75-09-2	Methylene Chloride	5.0	U	5.0	1.6	
108-20-3	Diisopropyl Ether	5.0	U	5.0	1.0	
637-92-3	Ethyl tert-Butyl Ether	5.0	U	5.0	1.0	
100-41-4	Ethylbenzene	5.0	U	5.0	1.0	
87-68-3	Hexachlorobutadiene	10	U	10	3.1	
98-82-8	Isopropylbenzene (Cumene)	5.0	U	5.0	1.0	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	1.5	
91-20-3	Naphthalene	5.0	U	5.0	1.0	
100-42-5	Styrene	5.0	U	5.0	1.0	
127-18-4	Tetrachloroethene (PCE)	5.0	U	5.0	1.5	
108-88-3	Toluene	5.0	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	**1900**	E	5.0	1.1	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1.0	
108-05-4	Vinyl Acetate	10	U	10	5.1	
75-01-4	Vinyl Chloride	5.0	U	5.0	1.6	
1330-20-7	Xylenes, Total	15	U	15	2.7	
156-59-2	cis-1,2-Dichloroethene	**21**		5.0	1.5	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	1.2	
179601-23-1	m,p-Xylenes	10	U	10	1.7	
104-51-8	n-Butylbenzene	5.0	U	5.0	1.1	
103-65-1	n-Propylbenzene	5.0	U	5.0	1.0	
95-47-6	o-Xylene	5.0	U	5.0	1.0	
135-98-8	sec-Butylbenzene	5.0	U	5.0	1.4	
994-05-8	tert-Amyl Methyl Ether	5.0	U	5.0	1.0	
98-06-6	tert-Butylbenzene	5.0	U	5.0	1.0	
156-60-5	trans-1,2-Dichloroethene	5.0	U	5.0	1.7	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 15:25
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9564.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	96	85-122	6/17/14 15:25	
Dibromofluoromethane	105	89-119	6/17/14 15:25	
Toluene-d8	96	87-121	6/17/14 15:25	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 15:56
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9565.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	25	U	25	5.5	
71-55-6	1,1,1-Trichloroethane (TCA)	25	U	25	9.0	
79-34-5	1,1,2,2-Tetrachloroethane	25	U	25	6.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	**11**	DJ	25	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25	U	25	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25	U	25	15	
563-58-6	1,1-Dichloropropene	25	U	25	7.3	
87-61-6	1,2,3-Trichlorobenzene	25	U	25	21	
96-18-4	1,2,3-Trichloropropane	25	U	25	18	
120-82-1	1,2,4-Trichlorobenzene	25	U	25	5.8	
95-63-6	1,2,4-Trimethylbenzene	25	U	25	5.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	19	
106-93-4	1,2-Dibromoethane	25	U	25	6.0	
95-50-1	1,2-Dichlorobenzene	25	U	25	5.3	
107-06-2	1,2-Dichloroethane	25	U	25	9.0	
78-87-5	1,2-Dichloropropane	25	U	25	5.0	
541-73-1	1,3-Dichlorobenzene	25	U	25	5.0	
142-28-9	1,3-Dichloropropane	25	U	25	6.8	
106-46-7	1,4-Dichlorobenzene	25	U	25	5.0	
594-20-7	2,2-Dichloropropane	25	U	25	6.8	
78-93-3	2-Butanone (MEK)	130	U	130	21	
110-75-8	2-Chloroethyl Vinyl Ether	25	U	25	11	
95-49-8	2-Chlorotoluene	25	U	25	5.0	
591-78-6	2-Hexanone	130	U	130	42	
75-65-0	tert-Butyl Alcohol	1000	U	1000	270	
106-43-4	4-Chlorotoluene	25	U	25	6.0	
99-87-6	4-Isopropyltoluene	25	U	25	5.0	
108-10-1	4-Methyl-2-pentanone	130	U	130	17	
67-64-1	Acetone	130	U	130	31	
71-43-2	Benzene	25	U	25	5.0	
108-86-1	Bromobenzene	25	U	25	7.1	
74-97-5	Bromochloromethane	25	U	25	8.0	
75-27-4	Bromodichloromethane	25	U	25	8.0	
75-25-2	Bromoform	25	U	25	11	
74-83-9	Bromomethane	25	U	25	7.3	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 15:56
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9565.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	25	U	25	5.5	
56-23-5	Carbon Tetrachloride	25	U	25	12	
108-90-7	Chlorobenzene	25	U	25	7.3	
75-00-3	Chloroethane	25	U	25	6.0	
67-66-3	Chloroform	25	U	25	6.3	
74-87-3	Chloromethane	25	U	25	5.3	
124-48-1	Dibromochloromethane	25	U	25	7.8	
74-95-3	Dibromomethane	25	U	25	8.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	25	U	25	12	
75-09-2	Methylene Chloride	25	U	25	8.0	
108-20-3	Diisopropyl Ether	25	U	25	5.0	
637-92-3	Ethyl tert-Butyl Ether	25	U	25	5.0	
100-41-4	Ethylbenzene	25	U	25	5.0	
87-68-3	Hexachlorobutadiene	50	U	50	16	
98-82-8	Isopropylbenzene (Cumene)	25	U	25	5.0	
1634-04-4	Methyl tert-Butyl Ether	25	U	25	7.3	
91-20-3	Naphthalene	25	U	25	5.0	
100-42-5	Styrene	25	U	25	5.0	
127-18-4	Tetrachloroethene (PCE)	25	U	25	7.5	
108-88-3	Toluene	25	U	25	5.0	
79-01-6	Trichloroethene (TCE)	**1900**	D	25	5.5	
75-69-4	Trichlorofluoromethane (CFC 11)	25	U	25	5.0	
108-05-4	Vinyl Acetate	50	U	50	26	
75-01-4	Vinyl Chloride	25	U	25	8.0	
1330-20-7	Xylenes, Total	75	U	75	14	
156-59-2	cis-1,2-Dichloroethene	**21**	DJ	25	7.5	
10061-01-5	cis-1,3-Dichloropropene	25	U	25	6.0	
179601-23-1	m,p-Xylenes	50	U	50	8.3	
104-51-8	n-Butylbenzene	25	U	25	5.3	
103-65-1	n-Propylbenzene	25	U	25	5.0	
95-47-6	o-Xylene	25	U	25	5.0	
135-98-8	sec-Butylbenzene	25	U	25	6.8	
994-05-8	tert-Amyl Methyl Ether	25	U	25	5.0	
98-06-6	tert-Butylbenzene	25	U	25	5.0	
156-60-5	trans-1,2-Dichloroethene	25	U	25	8.3	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 15:56
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9565.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	25	U	25	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	6/17/14 15:56	
Dibromofluoromethane	107	89-119	6/17/14 15:56	
Toluene-d8	97	87-121	6/17/14 15:56	

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 14:23
Sample Name:	TB-060614	**Units:**	µg/L
Lab Code:	R1404412-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9562.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 14:23
Sample Name:	TB-060614	**Units:**	µg/L
Lab Code:	R1404412-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9562.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Analyzed:	6/17/14 14:23
Sample Name:	TB-060614	**Units:**	µg/L
Lab Code:	R1404412-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9562.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	98	85-122	6/17/14 14:23	
Dibromofluoromethane	105	89-119	6/17/14 14:23	
Toluene-d8	97	87-121	6/17/14 14:23	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 0905
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 19:13
Sample Name:	MRC-MW-74A-060614	**Units:**	µg/L
Lab Code:	R1404412-001	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031507.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.20**		0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	6/ 6/14 1015
Sample Matrix:	Water	**Date Received:**	6/11/14
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 19:27
Sample Name:	MRC-MW-74B-060614	**Units:**	µg/L
Lab Code:	R1404412-002	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031508.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**0.060**	J	0.20	0.026	

ALS Environmental

METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-61A-060614

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Matrix (soil/water): WATER Lab Sample ID: R1404412-004

Level (low/med): LOW Date Received: 6/11/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.251	J		MS
7440-38-2	Arsenic	1.3			MS
7440-39-3	Barium	273		E	MS
7440-41-7	Beryllium	32.2		E	MS
7440-43-9	Cadmium	1.2			MS
7440-47-3	Chromium	0.816	J		MS
7440-48-4	Cobalt	519		E	MS
7440-50-8	Copper	16.4			MS
7439-89-6	Iron	174			P
7439-92-1	Lead	3.3			MS
7439-96-5	Manganese	18000			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	311		E	MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.081	J		MS
7440-28-0	Thallium	0.069	J		MS
7440-62-2	Vanadium	0.358	U		MS
7440-66-6	Zinc	344			MS
7440-21-3	Silicon	5970			P
7439-98-7	Molybdenum	0.078	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Appendix C

Support Documentation

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15153

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD, 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 | 2 | 0

Preservative Key: 0. NONE; 1. HCL; 2. HNO_3; 3. H_2SO_4; 4. NaOH; 5. Zn. Acetate; 6. MeOH; 7. $NaHSO_4$; 8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP VOCs	GC/MS SVOAs ○ 8270 ○ 625	GC VOAs ○ 8021 ○ 601/602	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	Perchlorate	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-74A-060614		6/6/14	0905	Aq	4	3							1	
MRC-MW-74B-060614			1015		4	3							1	
MRC-MW-73B-060614			1140		3	3								
MRC-MW-61A-060614			1415		1						1			
TB-060914		6/9/14	—	Aq	2	2								

SPECIAL INSTRUCTIONS/COMMENTS
Metals

R1404412 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

See QAPP ☐

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
STANDARD
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: GG	Signature: GG	Signature: [signature]	Signature: [signature]	Signature: [signature]
Printed Name: Josh Mullis	Printed Name: GEOFF GRABOWSKI	Printed Name: GEOFF GRABOWSKI	Printed Name: Andrew Wissler	Printed Name: Andrew Wissler	Printed Name: [signature]
Firm: Tetra Tech	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS
Date/Time: 6/9/14 1330	Date/Time: 6/9/14 1330	Date/Time: 6/9/14 1850	Date/Time: 6/9/14 1850	Date/Time: 6/9/14 1850	Date/Time: 6/11/14 1010

Distribution: White - Lab Copy; Yellow - Return to Originator

6/11/14 1870

6914 2050

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number RH-4412

Cooler received on 6/11/14 by: [illegible] COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 6/11/14 Time: 1018 ID: IR#3 - IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	6.3°	4.1	4.7°				
Correction Factor (°C)	-1.7	0.0	0.0				
Corrected Temp (°C)	4.6°	4.1	4.7°				
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [illegible] on 6/11/14 at 1028
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [illegible]

Cooler Breakdown: Date: 6/11/14 Time: 1936 by: [illegible]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? ~~YES~~ NO Trip Blank unlabelled
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		Client covered					
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522			If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	Client covered					

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: Client, 082613-2AAW, 112612-2VV

Other Comments:

2 vials rec'd w/ cracked caps (disposed off by SMO) SW9A

PC Secondary Review: [illegible]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS ENVIRONMENTAL

Client:	Tetra Tech	**Service Request No.:**	R1404412
Project:	Middle River	**Date Received:**	6/11/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Five water samples were received for analysis at ALS-Environmental on 6/11/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 4.1-4.7°C within the 0-6°C temperature guidelines.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

The Serial dilutions for Barium, Beryllium, Cobalt and Nickel were outside of the control limits and have been flagged with a "E". All affected samples have been "E" flagged appropriately.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for Naphthalene on 6/17/14. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Samples that exceed the calibration range of the instrument have been flagged with an "E". All samples are repeated at a dilution and have been flagged with a "D". Both sets of data have been reported.

The Laboratory Control Sample was outside of the control limits low for tert-Amyl Methyl Ether and has been flagged with a "*". The Duplicate Laboratory Control Sample was within limits and no data was affected.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 6850

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 7/9/14

ALS ASP/CLP Batching Form/Login Sheet

Client Proj #: Ground wATER 112ic06247	Batch Complete: Yes		Date Revised:
Submission: R1404412	Diskette Requested: No		Date Due: 7/2/14
Client: Tetra Tech GEO	Date: 6/13/14		Protocol: SW846
Client Rep: DPATTON	Custody Seal: Present/Absent:		Shipping No.:
Project: Middle River- Lockheed Martin Co	Chain of Custody: Present/Absent:		SDG #:

CAS Job #	Client/EPA ID	Matrix	Requested Parameters	Date Sampled	Date Received	pH (Solids)	% Solids	Remarks Sample Condition
R1404412-001	MRC-MW-74A-060614	Water	6850, 8260C	6/6/14	6/11/14			
R1404412-002	MRC-MW-74B-060614	Water	6850, 8260C	6/6/14	6/11/14			
R1404412-003	MRC-MW-73B-060614	Water	8260C	6/6/14	6/11/14			
R1404412-004	MRC-MW-61A-060614	Water	6020A, 7470A, 6010C	6/6/14	6/11/14			
R1404412-005	TB-060614	Water	8260C	6/6/14	6/11/14			

Folder Comments: TB& QC-NC; 1 invoice per month; 2CD's; **MDL U**

ALS Environmental

REPORT QUALIFIERS AND DEFINITIONS

U Analyte was analyzed for but not detected. The sample quantitation limit has been corrected for dilution and for percent moisture, unless otherwise noted in the case narrative.

J Estimated value due to either being a Tentatively Identified Compound (TIC) or that the concentration is between the MRL and the MDL. Concentrations are not verified within the linear range of the calibration. For DoD: concentration >40% difference between two GC columns (pesticides/Arclors).

B Analyte was also detected in the associated method blank at a concentration that may have contributed to the sample result.

E Inorganics- Concentration is estimated due to the serial dilution was outside control limits.

E Organics- Concentration has exceeded the calibration range for that specific analysis.

D Concentration is a result of a dilution, typically a secondary analysis of the sample due to exceeding the calibration range or that a surrogate has been diluted out of the sample and cannot be assessed.

* Indicates that a quality control parameter has exceeded laboratory limits. Under the "Notes" column of the Form I, this qualifier denotes analysis was performed out of Holding Time.

H Analysis was performed out of hold time for tests that have an "immediate" hold time criteria.

Spike was diluted out.

\+ Correlation coefficient for MSA is <0.995.

N Inorganics- Matrix spike recovery was outside laboratory limits.

N Organics- Presumptive evidence of a compound (reported as a TIC) based on the MS library search.

S Concentration has been determined using Method of Standard Additions (MSA).

W Post-Digestion Spike recovery is outside control limits and the sample absorbance is <50% of the spike absorbance.

P Concentration >40% (25% for CLP) difference between the two GC columns.

C Confirmed by GC/MS

Q DoD reports: indicates a pesticide/Aroclor is not confirmed (≥100% Difference between two GC columns).

X See Case Narrative for discussion.

MRL Method Reporting Limit. Also known as:
LOQ Limit of Quantitation (LOQ)
The lowest concentration at which the method analyte may be reliably quantified under the method conditions.

MDL Method Detection Limit. A statistical value derived from a study designed to provide the lowest concentration that will be detected 99% of the time. Values between the MDL and MRL are estimated (see J qualifier).

LOD Limit of Detection. A value at or above the MDL which has been verified to be detectable.

ND Non-Detect. Analyte was not detected at the concentration listed. Same as U qualifier.

ACCREDITED IN ACCORDANCE WITH nelac

Rochester Lab ID # for State Certifications[1]

NELAP Accredited	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Connecticut ID # PH0556	Nebraska Accredited	
Delaware Accredited	Nevada ID # NY-00032	North Carolina #676
DoD ELAP #65817	New Jersey ID # NY004	Pennsylvania ID# 68-786
Florida ID # E87674	New York ID # 10145	Rhode Island ID # 158
Illinois ID #200047		Virginia #460167

[1] Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state or agency requirements. The test results meet requirements of the current NELAP/TNI standards or state or agency requirements, where applicable, except as noted in the laboratory case narrative provided. For a specific list of accredited analytes, refer to http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads/North-America-Downloads

INORGANIC PREPARATION METHODS

The preparation methods associated with this report are found in these tables unless discussed in the case narrative.

Water/Liquid Matrix

Analytical Method	Preparation Method
200.7	3010A
200.8	ILM05.3
6010C	3010A
6020A	ILM05.3
9014 Cyanide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Reactivity	SW846 Ch7, 7.3.4.2
9034 Sulfide Acid Soluble	9030B
9056A Bomb (Halogens)	5050A
9066 Manual Distillation	9065
SM 4500-CN-E Residual Cyanide	SM 4500-CN-G
SM 4500-CN-E WAD Cyanide	SM 4500-CN-I

Solid/Soil/Non-Aqueous Matrix

Analytical Method	Preparation Method
6010C	3050B
6020A	3050B
6010C TCLP (1311) extract	3010A
6010 SPLP (1312) extract	3010A
7196A	3060A
7199	3060A
9056A Halogens/Halides	5050
300.0 Anions/ 350.1/ 353.2/ SM 2320B/ SM 5210B/ 9056A Anions	DI extraction

For analytical methods not listed, the preparation method is the same as the analytical method reference.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/11/14 15:27

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa10\data\061114\F9405.D\
Instrument ID: R-MS-10

Analytical Method: 8260C
Analysis Lot: 215799

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.14	104816	Pass
75	95	30	60	45.21	235313	Pass
95	95	100	100	100.00	520512	Pass
96	95	5	9	6.46	33616	Pass
173	174	0	2	0.00	0	Pass
174	95	50	120	83.11	432576	Pass
175	174	5	9	7.67	33184	Pass
176	174	95	101	95.32	412352	Pass
177	176	5	9	6.62	27280	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa10\data\061114\F9407.D\	6/11/14 16:24	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa10\data\061114\F9408.D\	6/11/14 16:54	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa10\data\061114\F9409.D\	6/11/14 17:25	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa10\data\061114\F9410.D\	6/11/14 17:55	
Initial CalibrationICAL	10 ppb	I:\ACQUDATA\msvoa10\data\061114\F9411.D\	6/11/14 18:25	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa10\data\061114\F9412.D\	6/11/14 18:56	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa10\data\061114\F9413.D\	6/11/14 19:26	
Initial CalibrationICAL	150 ppb	I:\ACQUDATA\msvoa10\data\061114\F9414.D\	6/11/14 19:56	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa10\data\061114\F9415.D\	6/11/14 20:27	

Initial Calibration - Summary Report

Calibration ID:	RC1400047 6/11/14	**Instrument ID:**	R-MS-10
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3774	<=20	4.9
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.6832	<=20	8.8
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5752	<=20	2.8
1,1,2-Trichloroethane	T	Average RF		0.100	0.2406	<=20	3.0
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.3801	<=20	8.8
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8705	<=20	3.6
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3332	<=20	8.2
1,1-Dichloropropene	T	Average RF			0.4044	<=20	6.9
1,2,3-Trichlorobenzene	T	Average RF			0.5318	<=20	4.5
1,2,3-Trichloropropane	T	Average RF			0.1529	<=20	7.5
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7820	<=20	5.1
1,2,4-Trimethylbenzene	T	Average RF			2.519	<=20	4.5
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.08846	<=20	10.2
1,2-Dibromoethane	T	Average RF		0.100	0.2683	<=20	4.5
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5668	<=20	4.8
1,2-Dichlorobenzene	T	Average RF		0.400	1.410	<=20	3.3
1,2-Dichloroethane	T	Average RF		0.100	0.4235	<=20	4.2
1,2-Dichloropropane	T	Average RF		0.100	0.3693	<=20	5.5
1,3,5-Trichlorobenzene	T	Average RF			0.9589	<=20	4.5
1,3,5-Trimethylbenzene	T	Average RF			2.491	<=20	3.7
1,3-Dichlorobenzene	T	Average RF		0.600	1.543	<=20	3.8
1,3-Dichloropropane	T	Average RF			0.4621	<=20	3.3
1,4-Dichlorobenzene	T	Average RF		0.500	1.563	<=20	4.7
1,4-Dioxane	T	Average RF			0.001813	<=20	5.5
1-Butanol	T	Quadratic	1/X2		0.004909	>=0.99	0.9977
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.5323	<=20	6.6
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6036	<=20	5.8
2,2-Dichloropropane	T	Average RF			0.6377	<=20	8.6
2,3,6-Trichlorotoluene	T	Average RF			0.2893	<=20	12.0
2,4,5-Trichlorotoluene	T	Average RF			0.2920	<=20	7.6
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			1.140	<=20	5.2
2,4-Dichlorobenzotrifluoride	T	Average RF			0.6694	<=20	6.8
2,5-Dichlorobenzotrifluoride	T	Average RF			0.7696	<=20	6.2
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1537	<=20	7.3
2-Chloro-1,3-butadiene	T	Average RF			0.8376	<=20	5.3
2-Chlorobenzotrifluoride	T	Average RF			0.5693	<=20	7.5
2-Chloroethyl Vinyl Ether	T	Average RF			0.1702	<=20	8.6
2-Chlorotoluene	T	Average RF			2.084	<=20	5.3
2-Hexanone	T	Average RF		0.05	0.1956	<=20	4.9
2-Methyl-1-propanol	T	Average RF			0.01049	<=20	9.9
2-Methyl-2-propanol	T	Average RF			0.03076	<=20	5.2
2-Nitropropane	T	Average RF			0.05775	<=20	11.2
2-Propanol	T	Average RF			0.01952	<=20	5.5
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.158	<=20	4.0
3,4-Dichlorobenzotrifluoride	T	Average RF			0.7466	<=20	6.9
3-Chloro-1-propene	T	Average RF			0.2411	<=20	7.5
3-Chlorobenzotrifluoride	T	Average RF			0.5750	<=20	8.3
3-Chlorotoluene	T	Average RF			2.111	<=20	7.0
4-Chlorotoluene	T	Average RF			2.524	<=20	3.8
4-Isopropyltoluene	T	Average RF			2.495	<=20	5.0
4-Methyl-2-pentanone	T	Average RF		0.05	0.2465	<=20	6.0

00065

Initial Calibration - Summary Report

Calibration ID:	RC1400047	**Instrument ID:**	R-MS-10
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.1127	<=20	11.3
Acetonitrile	T	Average RF			0.01514	<=20	7.5
Acrolein	T	Average RF			0.05806	<=20	6.8
Acrylonitrile	T	Average RF			0.1232	<=20	6.0
Benzene	T	Average RF		0.500	1.290	<=20	4.3
Bromobenzene	T	Average RF			0.8344	<=20	3.1
Bromochloromethane	T	Average RF			0.2816	<=20	4.9
Bromodichloromethane	T	Average RF		0.200	0.4057	<=20	5.7
Bromoform	T	Average RF		0.100	0.1979	<=20	10.4
Bromomethane	T	Quadratic	1/X2	0.100	0.2195	>=0.99	0.9981
Carbon Disulfide	T	Average RF		0.100	1.419	<=20	4.2
Carbon Tetrachloride	T	Average RF		0.05	0.1345	<=20	8.6
Chlorobenzene	T	Average RF		0.500	1.037	<=20	3.7
Chloroethane	T	Average RF		0.100	0.3307	<=20	8.8
Chloroform	T	Average RF		0.200	0.7782	<=20	3.7
Chloromethane	T	Average RF		0.100	0.5794	<=20	5.9
Cyclohexane	T	Average RF		0.100	0.3721	<=20	4.2
Cyclohexanone	T	Average RF			0.03907	<=20	5.1
Dibromochloromethane	T	Average RF		0.100	0.3305	<=20	7.8
Dibromomethane	T	Average RF			0.1690	<=20	5.4
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.4677	<=20	10.8
Dichlorofluoromethane (CFC 21)	T	Average RF			0.8807	<=20	2.6
Dichloromethane	T	Linear	1/X2	0.100	0.5021	>=0.99	0.9962
Diethyl Ether	T	Average RF			0.3751	<=20	4.0
Diisopropyl Ether	T	Average RF			1.762	<=20	3.5
Ethyl Methacrylate	T	Average RF			0.3115	<=20	14.3
Ethyl tert-Butyl Ether	T	Average RF			1.499	<=20	3.7
Ethylbenzene	T	Average RF		0.100	0.5354	<=20	6.4
Hexachlorobutadiene	T	Average RF			0.3747	<=20	11.1
Iodomethane	T	Quadratic	1/X		0.3489	>=0.99	0.9968
Isopropylbenzene (Cumene)	T	Average RF		0.100	1.620	<=20	5.6
Methacrylonitrile	T	Average RF			0.1248	<=20	6.3
Methyl Acetate	T	Average RF		0.100	0.2417	<=20	6.2
Methyl Methacrylate	T	Average RF			0.1493	<=20	11.8
Methyl tert-Butyl Ether	T	Average RF		0.100	1.057	<=20	2.2
Methylcyclohexane	T	Average RF		0.100	0.4551	<=20	4.7
Naphthalene	T	Average RF			1.198	<=20	5.6
Propionitrile	T	Average RF			0.03970	<=20	13.1
Styrene	T	Average RF		0.300	1.118	<=20	6.1
Tetrachloroethene (PCE)	T	Average RF		0.200	0.3104	<=20	7.1
Tetrahydrofuran (THF)	T	Average RF			0.09148	<=20	2.6
Toluene	T	Average RF		0.400	1.387	<=20	3.7
Trichloroethene (TCE)	T	Average RF		0.200	0.3466	<=20	6.6
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.6528	<=20	7.7
Vinyl Acetate	T	Average RF			0.06166	<=20	13.8
Vinyl Chloride	T	Average RF		0.100	0.6080	<=20	8.0
cis-1,2-Dichloroethene	T	Average RF		0.100	0.4801	<=20	5.5
cis-1,3-Dichloropropene	T	Average RF		0.200	0.4895	<=20	6.1
m,p-Xylenes	T	Average RF		0.100	0.6556	<=20	5.2
n-Butyl Acetate	T	Average RF			0.5143	<=20	8.5
n-Butylbenzene	T	Average RF			2.156	<=20	7.7
n-Heptane	T	Average RF			0.3618	<=20	10.5

99066

Initial Calibration - Summary Report

Calibration ID:	RC1400047	**Instrument ID:**	R-MS-10
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.392	<=20	5.1
o-Xylene	T	Average RF		0.300	0.6620	<=20	4.8
sec-Butylbenzene	T	Average RF			2.852	<=20	5.5
tert-Amyl Methyl Ether	T	Average RF			1.127	<=20	3.3
tert-Butylbenzene	T	Average RF			2.069	<=20	5.8
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4235	<=20	5.3
trans-1,3-Dichloropropene	T	Average RF		0.100	0.4006	<=20	7.5
trans-1,4-Dichloro-2-butene	T	Average RF			0.08602	<=20	14.8
1,2-Dichloroethane-d4	S	Average RF			0.2992	<=20	2.5
4-Bromofluorobenzene	S	Average RF			0.4541	<=20	0.8
Dibromofluoromethane	S	Average RF			0.2981	<=20	1.2
Toluene-d8	S	Average RF			1.149	<=20	1.0

00067

Initial Calibration Verification Summary Report

Calibration ID: RC1400047 **Instrument ID:** R-MS-10
Column Name: 1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
1,1,1,2-Tetrachloroethane	RC1400047-10	T	Average RF	50	47.90	ppm	-4.2	<=30
1,1,1-Trichloroethane (TCA)	RC1400047-10	T	Average RF	50	47.36	ppm	-5.3	<=30
1,1,2,2-Tetrachloroethane	RC1400047-10	T	Average RF	50	48.98	ppm	-2.0	<=30
1,1,2-Trichloroethane	RC1400047-10	T	Average RF	50	48.36	ppm	-3.3	<=30
1,1,2-Trichlorotrifluoroethane	RC1400047-10	T	Average RF	50	46.64	ppm	-6.7	<=30
1,1-Dichloroethane (1,1-DCA)	RC1400047-10	T	Average RF	50	47.98	ppm	-4.0	<=30
1,1-Dichloroethene (1,1-DCE)	RC1400047-10	T	Average RF	50	54.04	ppm	8.1	<=30
1,1-Dichloropropene	RC1400047-10	T	Average RF	50	48.79	ppm	-2.4	<=30
1,2,3-Trichlorobenzene	RC1400047-10	T	Average RF	50	50.14	ppm	0.3	<=30
1,2,3-Trichloropropane	RC1400047-10	T	Average RF	50	48.99	ppm	-2.0	<=30
1,2,4-Trichlorobenzene	RC1400047-10	T	Average RF	50	48.93	ppm	-2.1	<=30
1,2,4-Trimethylbenzene	RC1400047-10	T	Average RF	50	48.54	ppm	-2.9	<=30
1,2-Dibromo-3-chloropropane (DBCP)	RC1400047-10	T	Average RF	50	52.09	ppm	4.2	<=30
1,2-Dibromoethane	RC1400047-10	T	Average RF	50	50.12	ppm	0.2	<=30
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	RC1400047-10	T	Average RF	50	54.51	ppm	9.0	<=30
1,2-Dichlorobenzene	RC1400047-10	T	Average RF	50	48.58	ppm	-2.8	<=30
1,2-Dichloroethane	RC1400047-10	T	Average RF	50	49.63	ppm	-0.7	<=30
1,2-Dichloropropane	RC1400047-10	T	Average RF	50	48.42	ppm	-3.2	<=30
1,3,5-Trichlorobenzene	RC1400047-10	T	Average RF	50	49.21	ppm	-1.6	<=30
1,3,5-Trimethylbenzene	RC1400047-10	T	Average RF	50	47.84	ppm	-4.3	<=30
1,3-Dichlorobenzene	RC1400047-10	T	Average RF	50	48.43	ppm	-3.1	<=30
1,3-Dichloropropane	RC1400047-10	T	Average RF	50	48.50	ppm	-3.0	<=30
1,4-Dichlorobenzene	RC1400047-10	T	Average RF	50	48.51	ppm	-3.0	<=30
1,4-Dioxane	RC1400047-10	T	Average RF	1000	1084	ppm	8.4	<=30
1-Butanol	RC1400047-10	T	Quadratic	2500	2721	ppm	8.8	<=30
1-Chloro-4-(trifluoromethyl)benzene	RC1400047-10	T	Average RF	50	45.28	ppm	-9.4	<=30
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	RC1400047-10	T	Average RF	50	47.56	ppm	-4.9	<=30
2,2-Dichloropropane	RC1400047-10	T	Average RF	50	50.19	ppm	0.4	<=30
2,3,6-Trichlorotoluene	RC1400047-10	T	Average RF	50	51.36	ppm	2.7	<=30
2,4,5-Trichlorotoluene	RC1400047-10	T	Average RF	50	53.77	ppm	7.5	<=30
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	RC1400047-10	T	Average RF	150	150.7	ppm	0.5	<=30
2,4-Dichlorobenzotrifluoride	RC1400047-10	T	Average RF	50	47.48	ppm	-5.0	<=30
2,5-Dichlorobenzotrifluoride	RC1400047-10	T	Average RF	50	47.05	ppm	-5.9	<=30
2-Butanone (MEK)	RC1400047-10	T	Average RF	50	50.56	ppm	1.1	<=30
2-Chloro-1,3-butadiene	RC1400047-10	T	Average RF	50	42.63	ppm	-14.7	<=30
2-Chlorobenzotrifluoride	RC1400047-10	T	Average RF	50	46.00	ppm	-8.0	<=30
2-Chloroethyl Vinyl Ether	RC1400047-10	T	Average RF	50	46.75	ppm	-6.5	<=30
2-Chlorotoluene	RC1400047-10	T	Average RF	50	48.39	ppm	-3.2	<=30
2-Hexanone	RC1400047-10	T	Average RF	50	50.01	ppm	0.0	<=30
2-Methyl-1-propanol	RC1400047-10	T	Average RF	1000	975.0	ppm	-2.5	<=30
2-Methyl-2-propanol	RC1400047-10	T	Average RF	1000	1043	ppm	4.3	<=30
2-Nitropropane	RC1400047-10	T	Average RF	100	104.9	ppm	4.9	<=30
2-Propanol	RC1400047-10	T	Average RF	1000	1023	ppm	2.3	<=30
3,4- and 2,3-Dichlorotoluene Coelution	RC1400047-10	T	Average RF	100	101.4	ppm	1.4	<=30
3,4-Dichlorobenzotrifluoride	RC1400047-10	T	Average RF	50	47.17	ppm	-5.7	<=30
3-Chloro-1-propene	RC1400047-10	T	Average RF	50	45.18	ppm	-9.6	<=30
3-Chlorobenzotrifluoride	RC1400047-10	T	Average RF	50	46.38	ppm	-7.2	<=30
3-Chlorotoluene	RC1400047-10	T	Average RF	50	48.32	ppm	-3.4	<=30
4-Chlorotoluene	RC1400047-10	T	Average RF	50	48.08	ppm	-3.8	<=30
4-Isopropyltoluene	RC1400047-10	T	Average RF	50	48.57	ppm	-2.9	<=30
4-Methyl-2-pentanone	RC1400047-10	T	Average RF	50	50.68	ppm	1.4	<=30

00212

Initial Calibration Verification Summary Report

Calibration ID:	RC1400047	**Instrument ID:**	R-MS-10
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
Acetone	RC1400047-10	T	Average RF	50	49.65	ppm	-0.7	<=30
Acetonitrile	RC1400047-10	T	Average RF	250	253.4	ppm	1.4	<=30
Acrolein	RC1400047-10	T	Average RF	100	72.80	ppm	-27.2	<=30
Acrylonitrile	RC1400047-10	T	Average RF	250	244.9	ppm	-2.0	<=30
Benzene	RC1400047-10	T	Average RF	50	48.41	ppm	-3.2	<=30
Bromobenzene	RC1400047-10	T	Average RF	50	47.27	ppm	-5.5	<=30
Bromochloromethane	RC1400047-10	T	Average RF	50	49.76	ppm	-0.5	<=30
Bromodichloromethane	RC1400047-10	T	Average RF	50	51.34	ppm	2.7	<=30
Bromoform	RC1400047-10	T	Average RF	50	50.24	ppm	0.5	<=30
Bromomethane	RC1400047-10	T	Quadratic	50	43.73	ppm	-12.5	<=30
Carbon Disulfide	RC1400047-10	T	Average RF	50	39.56	ppm	-20.9	<=30
Carbon Tetrachloride	RC1400047-10	T	Average RF	50	48.84	ppm	-2.3	<=30
Chlorobenzene	RC1400047-10	T	Average RF	50	47.90	ppm	-4.2	<=30
Chloroethane	RC1400047-10	T	Average RF	50	45.73	ppm	-8.5	<=30
Chloroform	RC1400047-10	T	Average RF	50	48.42	ppm	-3.2	<=30
Chloromethane	RC1400047-10	T	Average RF	50	50.30	ppm	0.6	<=30
Cyclohexane	RC1400047-10	T	Average RF	50	44.18	ppm	-11.6	<=30
Cyclohexanone	RC1400047-10	T	Average RF	1000	916.8	ppm	-8.3	<=30
Dibromochloromethane	RC1400047-10	T	Average RF	50	51.35	ppm	2.7	<=30
Dibromomethane	RC1400047-10	T	Average RF	50	49.83	ppm	-0.3	<=30
Dichlorodifluoromethane (CFC 12)	RC1400047-10	T	Average RF	50	52.52	ppm	5.0	<=30
Dichlorofluoromethane (CFC 21)	RC1400047-10	T	Average RF	50	40.39	ppm	-19.2	<=30
Dichloromethane	RC1400047-10	T	Linear	50	51.16	ppm	2.3	<=30
Diethyl Ether	RC1400047-10	T	Average RF	50	48.19	ppm	-3.6	<=30
Diisopropyl Ether	RC1400047-10	T	Average RF	50	46.08	ppm	-7.8	<=30
Ethyl Methacrylate	RC1400047-10	T	Average RF	50	53.38	ppm	6.8	<=30
Ethyl tert-Butyl Ether	RC1400047-10	T	Average RF	50	45.70	ppm	-8.6	<=30
Ethylbenzene	RC1400047-10	T	Average RF	50	44.48	ppm	-11.0	<=30
Hexachlorobutadiene	RC1400047-10	T	Average RF	50	43.46	ppm	-13.1	<=30
Iodomethane	RC1400047-10	T	Quadratic	50	50.01	ppm	0.0	<=30
Isopropylbenzene (Cumene)	RC1400047-10	T	Average RF	50	48.79	ppm	-2.4	<=30
Methacrylonitrile	RC1400047-10	T	Average RF	50	49.69	ppm	-0.6	<=30
Methyl Acetate	RC1400047-10	T	Average RF	50	50.72	ppm	1.4	<=30
Methyl Methacrylate	RC1400047-10	T	Average RF	50	53.23	ppm	6.5	<=30
Methyl tert-Butyl Ether	RC1400047-10	T	Average RF	50	51.37	ppm	2.7	<=30
Methylcyclohexane	RC1400047-10	T	Average RF	50	44.53	ppm	-10.9	<=30
Naphthalene	RC1400047-10	T	Average RF	50	51.94	ppm	3.9	<=30
Propionitrile	RC1400047-10	T	Average RF	250	276.2	ppm	10.5	<=30
Styrene	RC1400047-10	T	Average RF	50	49.46	ppm	-1.1	<=30
Tetrachloroethene (PCE)	RC1400047-10	T	Average RF	50	48.46	ppm	-3.1	<=30
Tetrahydrofuran (THF)	RC1400047-10	T	Average RF	50	51.89	ppm	3.8	<=30
Toluene	RC1400047-10	T	Average RF	50	48.16	ppm	-3.7	<=30
Trichloroethene (TCE)	RC1400047-10	T	Average RF	50	49.44	ppm	-1.1	<=30
Trichlorofluoromethane (CFC 11)	RC1400047-10	T	Average RF	50	47.12	ppm	-5.8	<=30
Vinyl Acetate	RC1400047-10	T	Average RF	50	49.83	ppm	-0.3	<=30
Vinyl Chloride	RC1400047-10	T	Average RF	50	46.58	ppm	-6.8	<=30
cis-1,2-Dichloroethene	RC1400047-10	T	Average RF	50	48.28	ppm	-3.4	<=30
cis-1,3-Dichloropropene	RC1400047-10	T	Average RF	50	50.74	ppm	1.5	<=30
m,p-Xylenes	RC1400047-10	T	Average RF	100	97.21	ppm	-2.8	<=30
n-Butyl Acetate	RC1400047-10	T	Average RF	50	46.63	ppm	-6.7	<=30
n-Butylbenzene	RC1400047-10	T	Average RF	50	47.86	ppm	-4.3	<=30

00213

Initial Calibration Verification Summary Report

Calibration ID:	RC1400047	**Instrument ID:**	R-MS-10
		Column Name:	1

Analyte	Lab Code	Type	Curve Fit	True Value	Calc Conc	Units	Result	Criteria
n-Heptane	RC1400047-10	T	Average RF	50	46.80	ppm	-6.4	<=30
n-Propylbenzene	RC1400047-10	T	Average RF	50	48.46	ppm	-3.1	<=30
o-Xylene	RC1400047-10	T	Average RF	50	47.55	ppm	-4.9	<=30
sec-Butylbenzene	RC1400047-10	T	Average RF	50	47.94	ppm	-4.1	<=30
tert-Amyl Methyl Ether	RC1400047-10	T	Average RF	50	47.10	ppm	-5.8	<=30
tert-Butylbenzene	RC1400047-10	T	Average RF	50	47.21	ppm	-5.6	<=30
trans-1,2-Dichloroethene	RC1400047-10	T	Average RF	50	48.81	ppm	-2.4	<=30
trans-1,3-Dichloropropene	RC1400047-10	T	Average RF	50	53.06	ppm	6.1	<=30
trans-1,4-Dichloro-2-butene	RC1400047-10	T	Average RF	50	46.75	ppm	-6.5	<=30
1,2-Dichloroethane-d4	RC1400047-10	S	Average RF	50	50.27	ppm	0.5	<=30
4-Bromofluorobenzene	RC1400047-10	S	Average RF	50	50.64	ppm	1.3	<=30
Dibromofluoromethane	RC1400047-10	S	Average RF	50	50.32	ppm	0.6	<=30
Toluene-d8	RC1400047-10	S	Average RF	50	50.04	ppm	0.1	<=30

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/17/14 11:42

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa10\data\061714\F9557.D\
Instrument ID: R-MS-10

Analytical Method: 8260C
Analysis Lot: 397496

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	25.10	88667	Pass
75	95	30	60	45.64	161207	Pass
95	95	100	100	100.00	353237	Pass
96	95	5	9	6.73	23779	Pass
173	174	0	2	0.98	2833	Pass
174	95	50	120	82.16	290219	Pass
175	174	5	9	7.70	22340	Pass
176	174	95	101	95.66	277611	Pass
177	176	5	9	7.03	19519	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407004-05	I:\ACQUDATA\msvoa10\data\061714\F9558.D\	6/17/14 12:19	
Lab Control Sample	RQ1407004-02	I:\ACQUDATA\msvoa10\data\061714\F9559.D\	6/17/14 12:50	
Method Blank	RQ1407004-01	I:\ACQUDATA\msvoa10\data\061714\F9561.D\	6/17/14 13:52	
TB-060614	R1404412-005	I:\ACQUDATA\msvoa10\data\061714\F9562.D\	6/17/14 14:23	
MRC-MW-74A-060614	R1404412-001	I:\ACQUDATA\msvoa10\data\061714\F9563.D\	6/17/14 14:54	
MRC-MW-74B-060614	R1404412-002	I:\ACQUDATA\msvoa10\data\061714\F9564.D\	6/17/14 15:25	
MRC-MW-74B-060614DL	R1404412-002	I:\ACQUDATA\msvoa10\data\061714\F9565.D\	6/17/14 15:56	
MRC-MW-73B-060614	R1404412-003	I:\ACQUDATA\msvoa10\data\061714\F9566.D\	6/17/14 16:27	
Duplicate Lab Control Sample	RQ1407004-03	I:\ACQUDATA\msvoa10\data\061714\F9567.D\	6/17/14 16:59	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/17/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa10\data\061714\F9558.D\

Calibration Date: 6/11/14
Calibration ID: RC1400047
Analysis Lot: 397496
Units: µg/L

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	46.1	0.3774	0.3477	-7.9	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	44.2	0.6832	0.6037	-11.6	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	47.9	0.5752	0.5515	-4.1	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	46.9	0.3801	0.3569	-6.1	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	48.3	0.8705	0.8408	-3.4	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	44.0	0.3332	0.2932	-12.0	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	41.3	0.4044	0.3337	-17.5	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	55.7	0.5318	0.5927	11.5	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	46.5	0.1529	0.1421	-7.1	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	49.7	0.7820	0.7769	-0.7	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	44.9	2.519	2.261	-10.2	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	56.5	0.08846	0.1000	13.0	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	48.1	0.2683	0.2579	-3.9	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	47.9	1.410	1.352	-4.1	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	48.0	0.4235	0.4067	-4.0	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	45.8	0.3693	0.3379	-8.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	46.4	1.543	1.433	-7.2	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	46.0	0.4621	0.4252	-8.0	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	46.6	1.563	1.457	-6.8	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	45.1	0.6377	0.5755	-9.7	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	55.0	0.1537	0.1690	9.9	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	45.6	0.1702	0.1553	-8.8	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	45.0	2.084	1.877	-9.9	NA	± 20 %	Average RF
2-Hexanone	50.0	51.3	0.1956	0.2005	2.5	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1030	0.03076	0.03180	3.4	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	43.5	2.524	2.197	-13.0	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	46.1	2.495	2.300	-7.8	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	50.3	0.2465	0.2477	0.5	NA	± 20 %	Average RF
Acetone	50.0	55.7	0.1127	0.1256	11.4	NA	± 20 %	Average RF
Benzene	50.0	42.8	1.290	1.104	-14.5	NA	± 20 %	Average RF
Bromobenzene	50.0	45.7	0.8344	0.7626	-8.6	NA	± 20 %	Average RF
Bromochloromethane	50.0	50.4	0.2816	0.2840	0.8	NA	± 20 %	Average RF
Bromodichloromethane	50.0	44.6	0.4057	0.3617	-10.8	NA	± 20 %	Average RF
Bromoform	50.0	47.9	0.1979	0.1897	-4.1	NA	± 20 %	Average RF
Bromomethane	50.0	49.2	NA	NA	NA	-1.7	± 20 %	Quadratic
Carbon Disulfide	50.0	41.3	1.419	1.171	-17.4	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	44.6	0.1345	0.1199	-10.8	NA	± 20 %	Average RF
Chlorobenzene	50.0	44.5	1.037	0.9237	-10.9	NA	± 20 %	Average RF
Chloroethane	50.0	45.2	0.3307	0.2988	-9.6	NA	± 20 %	Average RF
Chloroform	50.0	46.5	0.7782	0.7240	-7.0	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/17/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa10\data\061714\F9558.D\

Calibration Date: 6/11/14
Calibration ID: RC1400047
Analysis Lot: 397496
Units: µg/L

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	53.7	0.5794	0.6221	7.4	NA	± 20 %	Average RF
Dibromochloromethane	50.0	49.6	0.3305	0.3277	-0.8	NA	± 20 %	Average RF
Dibromomethane	50.0	45.8	0.1690	0.1547	-8.4	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	45.2	0.4677	0.4226	-9.6	NA	± 20 %	Average RF
Methylene Chloride	50.0	48.9	NA	NA	NA	-2.3	± 20 %	Linear
Diisopropyl Ether	50.0	54.9	1.762	1.934	9.7	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	49.1	1.499	1.473	-1.7	NA	± 20 %	Average RF
Ethylbenzene	50.0	44.2	0.5354	0.4728	-11.7	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	40.9	0.3747	0.3066	-18.2	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	44.4	1.620	1.438	-11.3	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	46.2	1.057	0.9762	-7.7	NA	± 20 %	Average RF
Naphthalene	50.0	62.0	1.198	1.486	24.0 *	NA	± 20 %	Average RF
Styrene	50.0	45.3	1.118	1.013	-9.4	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	45.0	0.3104	0.2793	-10.0	NA	± 20 %	Average RF
Toluene	50.0	43.0	1.387	1.192	-14.0	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	44.4	0.3466	0.3079	-11.2	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	46.8	0.6528	0.6106	-6.5	NA	± 20 %	Average RF
Vinyl Acetate	50.0	48.5	0.06166	0.05975	-3.1	NA	± 20 %	Average RF
Vinyl Chloride	50.0	48.4	0.6080	0.5885	-3.2	NA	± 20 %	Average RF
Xylenes, Total	150	134	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	46.8	0.4801	0.4493	-6.4	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	43.0	0.4895	0.4210	-14.0	NA	± 20 %	Average RF
m,p-Xylenes	100	89.5	0.6556	0.5865	-10.5	NA	± 20 %	Average RF
n-Butylbenzene	50.0	44.6	2.156	1.925	-10.7	NA	± 20 %	Average RF
n-Propylbenzene	50.0	45.4	3.392	3.077	-9.3	NA	± 20 %	Average RF
o-Xylene	50.0	44.3	0.6620	0.5861	-11.5	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	44.3	2.852	2.530	-11.3	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	44.2	1.127	0.9967	-11.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	44.7	2.069	1.852	-10.5	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	46.4	0.4235	0.3930	-7.2	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	43.9	0.4006	0.3514	-12.3	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	48.1	0.4541	0.4368	-3.8	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	52.2	0.2981	0.3111	4.3	NA	± 20 %	Average RF
Toluene-d8	50.0	48.0	1.149	1.103	-4.0	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/17/14 12:19

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa10\data\061714\F9558.D\
Instrument ID: R-MS-10
Analytical Method: 8260C

Lab Code: RQ1407004-05
Analysis Lot: 397496
Signal ID:

		1,4-Dichlorobenzene-d4		1,4-Difluorobenzene		Chlorobenzene-d5	
		Area	RT	Area	RT	Area	RT
	Results ==>	617,206	10.84	1,291,947	5.61	1,129,287	8.84
	Upper Limit ==>	1,234,412	11.34	2,583,894	6.11	2,258,574	9.34
	Lower Limit ==>	308,603	10.34	645,974	5.11	564,644	8.34
	ICAL Result ==>	616,514	10.83	1,229,455	5.61	1,095,432	8.84
Associated Analyses							
Lab Control Sample	RQ1407004-02	606,794	10.83	1,270,872	5.61	1,117,484	8.84
Method Blank	RQ1407004-01	615,138	10.83	1,279,074	5.61	1,141,528	8.84
TB-060614	R1404412-005	589,750	10.83	1,253,543	5.61	1,131,399	8.84
MRC-MW-74A-060614	R1404412-001	594,664	10.83	1,267,424	5.61	1,123,037	8.84
MRC-MW-74B-060614	R1404412-002	589,358	10.83	1,281,476	5.61	1,137,835	8.84
MRC-MW-74B-060614	R1404412-002	601,596	10.83	1,300,931	5.61	1,149,144	8.84
MRC-MW-73B-060614	R1404412-003	597,663	10.83	1,299,994	5.61	1,136,118	8.84
Duplicate Lab Control Sample	RQ1407004-03	621,664	10.84	1,313,646	5.61	1,160,603	8.84

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/17/14 12:19

Internal Standard Area and RT Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa10\data\061714\F9558.D\
Instrument ID: R-MS-10
Analytical Method: 8260C

Lab Code: RQ1407004-05
Analysis Lot: 397496
Signal ID:

		Pentafluorobenzene	
		Area	**RT**
	Results ==>	882,903	4.41
	Upper Limit ==>	1,765,806	4.91
	Lower Limit ==>	441,452	3.91
	ICAL Result ==>	899,650	4.41
Associated Analyses			
Lab Control Sample	RQ1407004-02	871,482	4.41
Method Blank	RQ1407004-01	876,763	4.41
TB-060614	R1404412-005	867,199	4.41
MRC-MW-74A-060614	R1404412-001	869,368	4.41
MRC-MW-74B-060614	R1404412-002	872,424	4.41
MRC-MW-74B-060614	R1404412-002	901,676	4.41
MRC-MW-73B-060614	R1404412-003	890,762	4.41
Duplicate Lab Control Sample	RQ1407004-03	895,463	4.41

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground wATER 112ic06247	**Date Analyzed:**	6/17/14 13:52
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-10
Lab Code:	RQ1407004-01	**File ID:**	I:\ACQUDATA\msvoa10\data\061714\F9561.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407004-02	I:\ACQUDATA\msvoa10\data\061714\F9559.D\	6/17/14 12:50
TB-060614	R1404412-005	I:\ACQUDATA\msvoa10\data\061714\F9562.D\	6/17/14 14:23
MRC-MW-74A-060614	R1404412-001	I:\ACQUDATA\msvoa10\data\061714\F9563.D\	6/17/14 14:54
MRC-MW-74B-060614	R1404412-002	I:\ACQUDATA\msvoa10\data\061714\F9564.D\	6/17/14 15:25
MRC-MW-74B-060614DL	R1404412-002	I:\ACQUDATA\msvoa10\data\061714\F9565.D\	6/17/14 15:56
MRC-MW-73B-060614	R1404412-003	I:\ACQUDATA\msvoa10\data\061714\F9566.D\	6/17/14 16:27
Duplicate Lab Control Sample	RQ1407004-03	I:\ACQUDATA\msvoa10\data\061714\F9567.D\	6/17/14 16:59

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground Water 112IC06247
Sample Matrix: Water

Service Request: R1404412
Date Collected: NA
Date Received: NA
Date Analyzed: 6/17/14 13:52

Sample Name: Method Blank
Lab Code: RQ1407004-01

Units: µg/L
Basis: NA

Volatile Organic Compounds by GC/MS

Analytical Method: 8260C
Data File Name: I:\ACQUDATA\msvoa10\data\061714\F9561.D\

Analysis Lot: 397496
Instrument Name: R-MS-10
Dilution Factor: 1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/17/14 13:52
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407004-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9561.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/17/14 13:52
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407004-01	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	397496
Data File Name:	I:\ACQUDATA\msvoa10\data\061714\F9561.D\	**Instrument Name:**	R-MS-10
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	97	85-122	6/17/14 13:52	
Dibromofluoromethane	105	89-119	6/17/14 13:52	
Toluene-d8	97	87-121	6/17/14 13:52	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground Water 112IC06247
Sample Matrix: Water

Service Request: R1404412
Date Analyzed: 6/17/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397496

Analyte Name	Lab Control Sample RQ1407004-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1407004-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	17.8	20.0	89	17.9	20.0	89	79 - 119	<1	30
1,1,1-Trichloroethane (TCA)	17.9	20.0	89	17.8	20.0	89	71 - 123	<1	30
1,1,2,2-Tetrachloroethane	19.3	20.0	97	20.7	20.0	103	74 - 127	7	30
1,1,2-Trichlorotrifluoroethane	18.8	20.0	94	18.8	20.0	94	64 - 136	<1	30
1,1-Dichloroethane (1,1-DCA)	19.3	20.0	96	19.8	20.0	99	76 - 128	3	30
1,1-Dichloroethene (1,1-DCE)	20.7	20.0	104	21.4	20.0	107	74 - 135	3	30
1,1-Dichloropropene	17.1	20.0	85	17.1	20.0	86	74 - 136	<1	30
1,2,3-Trichlorobenzene	23.7	20.0	118	23.3	20.0	116	60 - 144	2	30
1,2,3-Trichloropropane	19.4	20.0	97	21.1	20.0	106	68 - 136	8	30
1,2,4-Trichlorobenzene	19.9	20.0	100	20.3	20.0	101	60 - 141	2	30
1,2,4-Trimethylbenzene	17.1	20.0	86	17.2	20.0	86	76 - 126	<1	30
1,2-Dibromo-3-chloropropane (DBCP)	21.6	20.0	108	23.6	20.0	118	69 - 135	8	30
1,2-Dibromoethane	18.7	20.0	94	20.2	20.0	101	81 - 123	8	30
1,2-Dichlorobenzene	18.6	20.0	93	18.9	20.0	94	80 - 119	1	30
1,2-Dichloroethane	19.5	20.0	97	20.2	20.0	101	72 - 130	3	30
1,2-Dichloropropane	18.9	20.0	95	18.6	20.0	93	80 - 119	2	30
1,3-Dichlorobenzene	18.0	20.0	90	18.2	20.0	91	79 - 121	1	30
1,3-Dichloropropane	18.0	20.0	90	18.5	20.0	92	82 - 116	3	30
1,4-Dichlorobenzene	18.3	20.0	91	18.3	20.0	92	79 - 119	<1	30
2,2-Dichloropropane	17.8	20.0	89	17.8	20.0	89	59 - 135	<1	30
2-Butanone (MEK)	22.0	20.0	110	24.0	20.0	120	66 - 129	9	30
2-Chloroethyl Vinyl Ether	15.3	20.0	77	15.8	20.0	79	58 - 139	3	30
2-Chlorotoluene	17.3	20.0	86	17.4	20.0	87	71 - 125	<1	30
2-Hexanone	19.3	20.0	96	22.3	20.0	112	61 - 131	15	30
tert-Butyl Alcohol	412	400	103	459	400	115	63 - 142	11	30
4-Chlorotoluene	17.4	20.0	87	17.7	20.0	88	73 - 127	1	30
4-Isopropyltoluene	17.6	20.0	88	17.4	20.0	87	74 - 130	<1	30
4-Methyl-2-pentanone	20.0	20.0	100	23.8	20.0	119	68 - 129	18	30
Acetone	23.4	20.0	117	20.8	20.0	104	51 - 146	12	30
Benzene	17.1	20.0	85	17.1	20.0	85	76 - 118	<1	30
Bromobenzene	18.4	20.0	92	17.9	20.0	89	79 - 121	3	30
Bromochloromethane	20.3	20.0	102	21.3	20.0	107	81 - 126	5	30
Bromodichloromethane	18.3	20.0	91	18.0	20.0	90	79 - 122	2	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground Water 112IC06247
Sample Matrix: Water

Service Request: R1404412
Date Analyzed: 6/17/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397496

Analyte Name	Lab Control Sample RQ1407004-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1407004-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
Bromoform	18.0	20.0	90	18.1	20.0	90	65 - 138	<1	30
Bromomethane	21.4	20.0	107	18.0	20.0	90	41 - 159	17	30
Carbon Disulfide	14.9	20.0	75	15.0	20.0	75	63 - 141	<1	30
Carbon Tetrachloride	16.8	20.0	84	17.4	20.0	87	66 - 128	3	30
Chlorobenzene	17.4	20.0	87	17.8	20.0	89	80 - 121	2	30
Chloroethane	18.2	20.0	91	18.4	20.0	92	71 - 128	1	30
Chloroform	18.6	20.0	93	18.8	20.0	94	76 - 120	1	30
Chloromethane	22.6	20.0	113	23.2	20.0	116	64 - 140	3	30
Dibromochloromethane	18.8	20.0	94	19.5	20.0	98	79 - 125	3	30
Dibromomethane	18.6	20.0	93	19.6	20.0	98	79 - 120	5	30
Dichlorodifluoromethane (CFC 12)	20.7	20.0	104	20.7	20.0	104	60 - 150	<1	30
Methylene Chloride	19.7	20.0	98	20.2	20.0	101	73 - 122	3	30
Diisopropyl Ether	17.1	20.0	86	20.1	20.0	101	76 - 131	16	30
Ethyl tert-Butyl Ether	15.7	20.0	78	18.6	20.0	93	77 - 126	17	30
Ethylbenzene	15.8	20.0	79	15.7	20.0	78	76 - 120	<1	30
Hexachlorobutadiene	17.1	20.0	85	15.0	20.0	75	57 - 147	13	30
Isopropylbenzene (Cumene)	17.0	20.0	85	17.0	20.0	85	76 - 126	<1	30
Methyl tert-Butyl Ether	18.7	20.0	94	20.0	20.0	100	73 - 131	7	30
Naphthalene	25.0	20.0	125	26.0	20.0	130	73 - 133	4	30
Styrene	17.2	20.0	86	17.3	20.0	87	81 - 122	<1	30
Tetrachloroethene (PCE)	18.1	20.0	91	17.8	20.0	89	69 - 124	2	30
Toluene	16.7	20.0	83	17.1	20.0	85	77 - 120	2	30
Trichloroethene (TCE)	18.5	20.0	93	18.4	20.0	92	76 - 123	<1	30
Trichlorofluoromethane (CFC 11)	18.8	20.0	94	18.4	20.0	92	69 - 130	2	30
Vinyl Acetate	17.0	20.0	85	20.6	20.0	103	43 - 165	19	30
Vinyl Chloride	19.5	20.0	97	19.7	20.0	98	69 - 136	1	30
Xylenes, Total	52.0	60.0	87	51.2	60.0	85	78 - 121	2	30
cis-1,2-Dichloroethene	18.5	20.0	93	19.3	20.0	96	80 - 121	4	30
cis-1,3-Dichloropropene	16.6	20.0	83	16.8	20.0	84	77 - 125	<1	30
m,p-Xylenes	34.9	40.0	87	34.3	40.0	86	78 - 123	2	30
n-Butylbenzene	17.3	20.0	87	16.9	20.0	84	69 - 135	3	30
n-Propylbenzene	17.2	20.0	86	17.5	20.0	87	76 - 125	2	30
o-Xylene	17.1	20.0	85	16.9	20.0	84	77 - 131	1	30

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ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground Water 112IC06247
Sample Matrix: Water

Service Request: R1404412
Date Analyzed: 6/17/14

Lab Control Sample Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

Units: µg/L
Basis: NA

Analysis Lot: 397496

Analyte Name	Lab Control Sample RQ1407004-02 Result	Spike Amount	% Rec	Duplicate Lab Control Sample RQ1407004-03 Result	Spike Amount	% Rec	% Rec Limits	RPD	RPD Limit
sec-Butylbenzene	17.0	20.0	85	17.2	20.0	86	72 - 130	<1	30
tert-Amyl Methyl Ether	14.7	20.0	73	17.2	20.0	86	76 - 123	16	30
tert-Butylbenzene	17.1	20.0	85	17.3	20.0	86	73 - 124	1	30
trans-1,2-Dichloroethene	19.2	20.0	96	19.1	20.0	96	78 - 124	<1	30
trans-1,3-Dichloropropene	16.8	20.0	84	17.8	20.0	89	72 - 123	6	30

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground wATER 112ic06247	**Date Analyzed:**	6/18/14
Sample Matrix:	Water	**Time Analyzed:**	16:19:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\061814\B0031494.D\		
		Extraction Lot:	211135

	RQ1406802-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	**0.0900**	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground wATER 112ic06247	**Date Analyzed:**	6/18/14
Sample Matrix:	Water	**Time Analyzed:**	22:21:00

Limit of Detection Verification

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Units:**	µg/L
Prep Method:	Method	**Basis:**	NA
File ID:	I:\ACQUDATA\HPLC02\DATA\061814\B0031521.D\		
		Extraction Lot:	211135

	RQ1406802-04			
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**
Perchlorate	0.0900	0.100	90	70 - 130

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground wATER 112ic06247

Service Request: R1404412
Date Analyzed: 6/18/14 15:52

Internal Standard Area and RT Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

File ID: I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D\
Instrument ID: R-HPLC-02
Analytical Method: 6850

Lab Code: RQ1406862-03
Analysis Lot: 397877
Signal ID:

		Sodium Perchlorate	
		Area	**RT**
	ICAL Average ==>	191,901	7.84
	Upper Limit ==>	287,852	17.84
	Lower Limit ==>	95,951	-2.16
Associated Analyses			
Continuing Calibration Verification	RQ1406862-03	182,894	7.94
Method Blank	RQ1406802-01	196,961	8.08
Limit of Detection Verification	RQ1406802-04	201,606	8.12
Lab Control Sample	RQ1406802-02	195,676	8.08
Duplicate Lab Control Sample	RQ1406802-03	199,780	8.12
Interference Check Standard	RQ1406802-05	210,824	7.21
Continuing Cal. Verification	RQ1406862-04	187,082	7.94
MRC-MW-74A-060614	R1404412-001	194,192	7.67
MRC-MW-74B-060614	R1404412-002	189,750	8.05
Continuing Cal. Verification	RQ1406862-05	186,397	7.91
Limit of Detection Verification	RQ1406802-04	209,084	8.05
Continuing Cal. Verification	RQ1406862-06	188,109	7.91

Results flagged with an asterisk (*) indicate values outside control criteria.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground wATER 112ic06247	**Date Analyzed:**	6/18/14 16:05
Sample Matrix:	Water	**Date Extracted:**	6/18/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1406802-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\061814\B0031493.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1406802-04	I:\ACQUDATA\HPLC02\DATA\061814\B0031494.D\	6/18/14 16:19
Lab Control Sample	RQ1406802-02	I:\ACQUDATA\HPLC02\DATA\061814\B0031495.D\	6/18/14 16:32
Duplicate Lab Control Sample	RQ1406802-03	I:\ACQUDATA\HPLC02\DATA\061814\B0031496.D\	6/18/14 16:46
Interference Check StandardICS	RQ1406802-05	I:\ACQUDATA\HPLC02\DATA\061814\B0031497.D\	6/18/14 16:59
MRC-MW-74A-060614	R1404412-001	I:\ACQUDATA\HPLC02\DATA\061814\B0031507.D\	6/18/14 19:13
MRC-MW-74B-060614	R1404412-002	I:\ACQUDATA\HPLC02\DATA\061814\B0031508.D\	6/18/14 19:27
Limit of Detection VerificationLODV	RQ1406802-04	I:\ACQUDATA\HPLC02\DATA\061814\B0031521.D\	6/18/14 22:21

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404412
Project:	Middle River- Lockheed Martin Corp/Ground Water 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/18/14
		Date Analyzed:	6/18/14 16:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406802-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	397877
Prep Method:	Method	**Extraction Lot:**	211135
Data File Name:	I:\ACQUDATA\HPLC02\DATA\061814\B0031493.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/Ground Water 112IC06247
Sample Matrix: Water

Service Request: R1404412
Date Analyzed: 6/18/14

Lab Control Sample Summary
Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method: 6850
Prep Method: Method

Units: µg/L
Basis: NA

Extraction Lot: 211135

	Lab Control Sample RQ1406802-02			Duplicate Lab Control Sample RQ1406802-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Perchlorate	0.180	0.200	90	0.180	0.200	90	80 - 120	<1	15

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analysis: DRO Analyst: MPINTO Run Method: Perc1dcdv

Date: 1/28/14 Instr. HPLC-02 Quant Method: PercD129

LIMS Run#:

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min

Mobile Phase: 60/40 MeCN/H2O 0.1 CH3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBIK			BD30524	—	
	↓			525	—	
	CCV Ion/MSS			526	Y	
	RBL			527	Y	
	.1 ppb	1ml / 10ml	660026	528	Y	
	.2 ppb	2ml / 10ml		529	Y	
	.5 ppb	5ml / 10ml		530	Y	
	.75 ppb	7.5ml / 10ml		531	Y	
	1.0 ppb	10ml / 10ml		532	Y	
	2.0 ppb	20ml / 10ml		533	Y	
	5.0 ppb	50ml / 10ml	↓	534	Y	
	ICV	10ml / 10ml	660005	535	YICV	exp 5/31/14
	CCV 1.0 ppb		660007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RQ1400131-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0 ppb		660007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RQ1400131-04			552	Y	
	CCV 1.0 ppb		660007	553	YC	
	RQ1400826-01			554	Y	
	04			555	Y	
	07			556	N	OUT †
	03			557	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 660007 exp: 4/30/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

00366

Response Factor Report Instrumen

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

00274

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

M 1/29

00309

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030535.D PERC0129.M Wed Jan 29 13:54:02 2014 Page 1

Analysis: 6850. Perc Analyst: BA Run Method: Percdodz
Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#:
Setup: Column: K' Prime #2011 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H2O/MECN 0.1cHz COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BULL			B0031481	—	
	ION/MASS CCV			82		
	PCV 1.00 PPB		70263	83	YC	
	R01406647-04	LOD		84	Y	
	R1404436-003	25.0		85	Y	
	R01406647-04	LOD		86	Y	
	R01406734-04	LOD		87	Y	
	R1404437-006	5.0		88		
	~~R01406734-04~~	~~LOD~~				
	-007	50.0		89	Y	
	-008	100.0		90	Y	
	R01406734-04	LOD		91	Y	
	CCV 1.00 PPB		70263	92	YC	
	R01406802.01			93	Y	
	-04			94	Y	
	-02			95	Y	
	-03			96	Y	
	-05			97	Y	
	R1404568-001			98	Y	
	-002			99	Y	
	-003			500	Y	
	4353-009			01	Y	
	~~R01406802-06~~ ~~CCV 1.00 PPB~~	MS		02	Y	
	CCV 1.00 PPB		70263	03	YC	
	-07	MSD		04	Y	
	4353-010			05	Y	
	-011			06	Y	
	4412-001			07	Y	
	-002			08	Y	
	4421-002			09	Y	
	4507-005			10	Y	
	4548-001			11	Y	
	4354-001			12	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

00367

Analysis: 6850.Perc Analyst: BA Run Method: Peradodz
Date: 6/18/14 Instr. HPLC-02 Quant Method: Perc0129
LIMS Run#:

Setup: Column: K' Prime # 2011 Col.Temp: 30 Flow: 0.5 ml/min
Mobile Phase: 50/50 H_2O/MECN 0.1 CH_3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	R1404354-002			B0031513	Y	
	CCU 1.00PPB		70263	14	YC	
	-003			15	Y	
	-004			16	Y	
	4565-003			17	Y	
	-008			18	Y	
	-010			19	Y	
	-013			20	Y	
	R01406802-04	LOD		21	Y	
	CCU 1.00PPB		70263	22	YC	
	$\bar{x}$ = 191901					
	High = 387852					
	Low = 95957					

BA 6/18/14

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:
Primary: _____ exp: Secondary: _____ exp:

Runlog HPLC02r1
1/10/13

00368

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031492.D Vial: 6
Acq On : 18 Jun 2014 3:52 pm Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.10
2	Perchlorate	1.085	1.104	-1.8	87	0.10
3	#2 perc ion	0.366	0.335	8.5	81	0.07

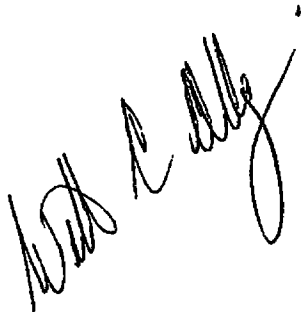
(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031492.D PERC0129.M Thu Jun 19 11:12:37 2014 90313 Page 1

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031503.D Vial: 6
Acq On : 18 Jun 2014 6:20 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.10
2	Perchlorate	1.085	1.108	-2.1	89	0.10
3	#2 perc ion	0.366	0.348	4.9	86	0.07



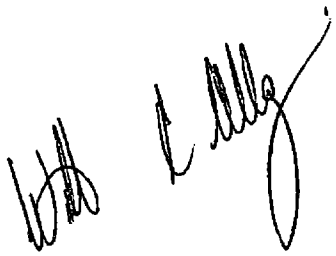
(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031503.D PERC0129.M Thu Jun 19 12:56:36 2014 Page 1

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031514.D Vial: 6
Acq On : 18 Jun 2014 8:47 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.07
2	Perchlorate	1.085	1.098	-1.2	88	0.10
3	#2 perc ion	0.366	0.341	6.8	84	0.07



(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031514.D PERC0129.M Thu Jun 19 13:03:34 2014 Page 1

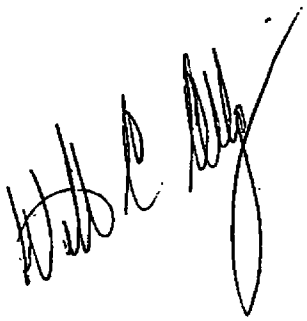
00321

Data File : I:\ACQUDATA\HPLC02\DATA\061814\B0031522.D Vial: 6
Acq On : 18 Jun 2014 10:35 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	93	0.07
2	Perchlorate	1.085	1.110	-2.3	90	0.07
3	#2 perc ion	0.366	0.340	7.1	85	0.04



(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031522.D PERC0129.M Thu Jun 19 13:07:43 2014

ALS Environmental

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1404412 SDG No.: MRC-MW-61A-

Lab Code: _____ Case No.: _____ SAS No.: _____

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-61A-060614	R1404412-004

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: _____ Name: _____

Date: 7/9/14 Title: Project Chemist

00370

METALS

-10-

DETECTION LIMITS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Barium	137		1.00	0.024	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Vanadium	51		2.00	0.358	MS
Zinc	66		5.00	1.190	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Mercury	253.70	BD	0.200	0.024	CV

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Iron	259.939		100.0	10.0	P
Manganese	257.610		10.0	0.4	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 Date: 3/20/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Silicon	252.851		1000.0	161.0	P

Comments: _____

METALS

-11A-

ICP INTERELEMENT CORRECTION FACTORS (ANNUALLY)

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 Date: 3/31/2014

Analyte	Wave-length (nm)	Interelement Correction Factors for: Al	Ca	Fe	Mg
Aluminum	308.215	0.0000000	0.0000000	0.0000000	0.0000000
Antimony	206.836	0.0954007	0.0000000	0.0000000	0.0000000
Arsenic	188.979	0.0099568	0.0000000	-0.0801871	0.0000000
Barium	233.527	0.0000000	0.0000000	0.0000000	0.0000000
Beryllium	313.107	0.0000000	0.0000000	0.0000000	0.0000000
Boron	249.772	0.0000000	0.0000000	4.4044499	0.0000000
Cadmium	226.502	-0.0035345	0.0000000	0.1333330	0.0000000
Calcium	227.546	-2.9304600	0.0000000	-53.8955002	0.0000000
Chromium	267.716	0.0031845	0.0000000	-0.0140317	-0.1262880
Cobalt	228.616	0.0000000	0.0000000	0.0000000	0.0000000
Copper	324.752	0.0000000	0.0000000	-0.1145200	0.0000000
Iron	259.939	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.1338530	0.0000000	0.0438866	0.0000000
Magnesium	279.077	0.0000000	0.0000000	0.0000000	0.0000000
Manganese	257.610	0.0000000	0.0000000	-0.1267620	0.0000000
Molybdenum	202.031	0.0000000	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000
Potassium	766.490	0.0000000	0.0000000	0.0000000	0.0000000
Selenium	196.026	-0.0281652	0.0000000	-0.2522740	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.2778280	0.0000000
Sodium	589.592	0.0000000	0.0000000	0.0000000	0.0000000
Strontium	421.552	0.0000000	0.0000000	0.0000000	0.0000000
Thallium	190.801	0.0764274	0.0099938	-0.0434154	0.0000000
Tin	189.927	0.0000000	0.0000000	0.0000000	0.0000000
Titanium	337.279	0.0000000	0.0000000	0.0000000	0.0000000
Vanadium	292.402	0.0000000	0.0000000	0.0437078	0.0000000
Zinc	206.200	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Iron	0.200	50000	P
Manganese	0.200	10000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 Date: 3/8/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Silicon	0.200	20000	P

Comments: _____

METALS
-12-
ICP LINEAR RANGES (QUARTERLY)

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: PE ICPMS Date: 5/9/2014

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	M
Antimony	0.100	200	MS
Arsenic	0.100	200	MS
Barium	0.100	200	MS
Beryllium	0.100	200	MS
Cadmium	0.100	200	MS
Chromium	0.100	200	MS
Cobalt	0.100	200	MS
Copper	0.100	200	MS
Lead	0.100	200	MS
Nickel	0.100	200	MS
Selenium	0.100	200	MS
Silver	0.100	100	MS
Thallium	0.100	200	MS
Vanadium	0.100	200	MS
Zinc	0.100	200	MS
Molybdenum	0.100	200	MS

Comments: _____

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	588	2075	0.691	
Be	9.012	9.028	2034	2070	0.682	
Mg	23.985	23.978	5662	2075	0.682	
Co	58.933	58.929	14178	2070	0.710	
Rh	102.905	102.928	24901	2110	0.706	
In	114.904	114.928	27826	2130	0.709	
Ba	137.905	137.929	33413	2145	0.681	
Ce	139.905	139.929	33911	2145	0.704	
Pb	207.977	207.979	50452	2200	0.696	
U	238.050	238.025	57776	2235	0.686	

00404

Instrument Tuning Report

File Name: epa.tun
File Path: c:\elandata\Tuning

Analyte	Exact Mass	Meas. Mass	Mass DAC	Res. DAC	Meas. Pk. Width	Custom Res.
He	3.016	3.025	585	2075	0.673	
Be	9.012	8.978	2049	2070	0.679	
Mg	23.985	23.979	5688	2075	0.684	
Co	58.933	58.929	14193	2070	0.725	
Rh	102.905	102.879	24878	2110	0.711	
In	114.904	114.878	27815	2130	0.720	
Ba	137.905	137.929	33414	2145	0.707	
Ce	139.905	139.928	33900	2145	0.713	
Pb	207.977	207.979	50464	2200	0.706	
U	238.050	238.028	57770	2235	0.687	

00405

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404412

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP-MS Instrument ID: PE ICPMS Start Date: 6/26/2014 End Date: 6/26/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	16:20	100		100		100		100		100			
Standard 1	Standard 1	16:27	98		100		97		95		97			
Standard 2	Standard 2	16:33	93		96		92		93		94			
Standard 3	Standard 3	16:39	91		93		91		90		93			
ICV1	ICV1	16:46	94		92		93		93		93			
ICB1	ICB1	16:52	90		93		92		91		94			
CRDL1	CRDL1	16:59	91		91		93		92		92			
ICS-A1	ICS-A1	17:05	91		93		95		90		90			
ICS-AB1	ICS-AB1	17:12	88		92		92		86		92			
CCV1	CCV1	17:18	92		93		95		94		98			
CCB1	CCB1	17:24	94		98		95		96		98			
PBW-210970	PBW	17:38	92		97		93		93		95			
LCSW-210970	LCSW	17:44	94		96		94		97		98			
CCV2	CCV2	18:11	97		100		98		99		97			
CCB2	CCB2	18:17	95		98		97		100		101			
CCV3	CCV3	18:57	100		101		99		101		100			
CCB3	CCB3	19:03	97		103		97		98		103			
CRDL2	CRDL2	19:30	99		104		98		101		103			
CCV4	CCV4	19:43	98		101		95		97		104			
CCB4	CCB4	19:50	95		102		94		94		101			
R1404412-00	MRC-MW-61A-06061	19:56	95		101		94		96		104			
R1404412-00	MRC-MW-61A-06061	20:03	99		106		98		99		109			
R1404412-00	MRC-MW-61A-06061	20:10	108		119		108		111		121			
R1404412-00	MRC-MW-61A-06061	20:16	100		105		99		99		107			
R1404412-00	MRC-MW-61A-06061	20:23	78		93		80		96		93			
R1404412-00	MRC-MW-61A-06061	20:30	93		106		92		96		105			
CRDL3	CRDL3	20:36	98		104		98		96		104			
CCV5	CCV5	20:42	103		106		98		96		104			
CCB5	CCB5	20:49	100		102		98		96		105			

METALS

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Lab Name: ALS Environmental Contract: R1404412

Lab Code: _____ Case No.: _____ NRAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP-MS Instrument ID: PE_ICPMS Start Date: 6/30/2014 End Date: 6/30/2014

Sample No.	Client ID	Time	Internal Standards %RI For:											
			Element In	Q	Element Ho	Q	Element Ge	Q	Element Sc	Q	Element Tb	Q	Element	Q
Blank	Blank	08:02	100		100		100		100		100			
Standard 1	Standard 1	08:08	103		98		105		103		107			
Standard 2	Standard 2	08:15	106		103		107		105		108			
Standard 3	Standard 3	08:21	109		104		109		108		107			
ICV1	ICV1	08:28	109		108		109		108		109			
ICB1	ICB1	08:34	108		106		109		106		109			
CRDL1	CRDL1	08:41	110		105		111		111		108			
ICS-A1	ICS-A1	08:47	102		103		109		107		111			
ICS-AB1	ICS-AB1	08:53	107		107		111		107		108			
CCV1	CCV1	09:00	108		110		110		112		118			
CCB1	CCB1	09:06	108		110		111		112		118			
QC Std 8	QC Std 8	09:13	111		112		112		113		114			
PBW-210970	PBW	09:19	106		104		109		114		111			
LCSW-210970	LCSW	09:26	108		110		108		109		113			
CCV2	CCV2	10:13	107		110		105		111		117			
CCB2	CCB2	10:19	107		111		106		112		112			
R1404412-00	MRC-MW-61A-06061	10:59	95		102		97		106		107			
R1404412-00	MRC-MW-61A-06061	11:06	102		108		103		109		115			
CRDL2	CRDL2	11:12	107		111		108		114		120			
HLCCV2	HLCCV2	11:19	110		115		109		113		115			
CCV3	CCV3	11:25	104		107		104		108		115			
CCB3	CCB3	11:32	107		111		105		109		111			

TETRA TECH NUS, INC.

PERSONAL LEAVE REQUEST

I, Allen, Michelle L 529863

Last Name *First Name* *Initial* *Employee #*

request permission to take my earned personal time of 4 days (32 hours).

DATE(S)	TIME OFF WITH PAY (TOWP)	LEAVE WITHOUT PAY*
Oct 1 - 6	32	

The above employee will have _____ TOWP hours accrued by the date requested if no other time off is taken before that date.

Employee's Signature _____

Date 9/22/14

*NOTE: Exempt employees must take Leave Without Pay in 8-hour increments.

APPROVAL

Approved ☐ **Disapproved** ☐

_____ _____

Supervisor *Date*

Remarks: _____

_____

_____

METALS

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PREPARATION LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-060614

Method: P

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/16/2014	50.0	50.0
PBW	6/16/2014	50.0	50.0
MRC-MW-61A-060614	6/16/2014	50.0	50.0

Comments:

METALS

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PREPARATION LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-060614

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/17/2014	50.0	50.0
PBW	6/17/2014	50.0	50.0
MRC-MW-61A-060614	6/17/2014	50.0	50.0

Comments:

METALS

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PREPARATION LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-060614

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/17/2014	25.0	25.0
PBW	6/17/2014	25.0	25.0
MRC-MW-61A-060614	6/17/2014	25.0	25.0

Comments:

METALS

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ICP SERIAL DILUTIONS

SAMPLE NO.

MRC-MW-61A-060614L

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Matrix (soil/water): WATER Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	M
Antimony	0.25	J	0.79	U	100.0		MS
Arsenic	1.32		1.13	J	14		MS
Barium	54.58		67.87		24	E	MS
Beryllium	32.20		37.08		15	E	MS
Cadmium	1.21		1.19	J	2		MS
Chromium	0.82	J	2.35	U	100.0		MS
Cobalt	103.83		131.91		27	E	MS
Copper	2.34		2.93	J	25		MS
Iron	174.00		173.00	J	1		P
Lead	3.27		3.70	J	13		MS
Manganese	1800.00		1820.00		1		P
Nickel	62.13		73.13		18	E	MS
Selenium	0.21	U	2.41	J	100.0		MS
Silver	0.08	J	0.08	U	100.0		MS
Thallium	0.07	J	0.15	U	100.0		MS
Vanadium	0.36	U	1.79	U			MS
Zinc	MDL = 1.19 68.78		84.48		23		MS
Silicon	5970.00		6200.00		4		P
Molybdenum	0.08	J	0.34	U	100.0		MS

Comments: _____

METALS
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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/26/2014 End Date: 6/26/2014

Sample ID.	D/F	Time	% R	Analytes																											
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
MRC-MW-61A-060614	20.00	19:56																													
MRC-MW-61A-060614L	100.00	20:03																													
MRC-MW-61A-060614	5.00	20:10					X					X							X							X				
MRC-MW-61A-060614L	25.00	20:16					X					X							X							X				
MRC-MW-61A-060614	1.00	20:23			X	X		X	X		X				X						X	X		X	X					*
MRC-MW-61A-060614L	5.00	20:30			X	X		X	X		X				X						X	X		X	X					*
CRDL3	1.00	20:36			X	X	X	X	X		X	X			X				X		X	X		X	X	X				*
CCV5	1.00	20:42			X	X	X	X	X		X	X			X				X		X	X		X	X	X				*
CCB5	1.00	20:49			X	X	X	X	X		X	X			X				X		X	X		X	X	X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/26/2014 End Date: 6/26/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	16:20					X																					
Standard 1	1.00	16:27					X																					
Standard 2	1.00	16:33					X																					
Standard 3	1.00	16:39					X																					
ICV1	1.00	16:46					X																					
ICB1	1.00	16:52					X																					
CRDL1	1.00	16:59					X																					
ICS-A1	1.00	17:05					X																					
ICS-AB1	1.00	17:12					X																					
CCV1	1.00	17:18					X																					
CCB1	1.00	17:24					X																					
ZZZZZZ	1.00	17:31																										
PBW	1.00	17:38					X																					
LCSW	1.00	17:44					X																					
ZZZZZZ	1.00	17:51																										
ZZZZZZ	1.00	17:58																										
ZZZZZZ	1.00	18:04																										
CCV2	1.00	18:11					X																					
CCB2	1.00	18:17					X																					
ZZZZZZ	1.00	18:24																										
ZZZZZZ	1.00	18:30																										
ZZZZZZ	5.00	18:37																										
ZZZZZZ	1.00	18:44																										
ZZZZZZ	1.00	18:51																										
CCV3	1.00	18:57					X																					
CCB3	1.00	19:03					X																					
ZZZZZZ	1.00	19:10																										
ZZZZZZ	1.00	19:17																										
ZZZZZZ	1.00	19:24																										
CRDL2	1.00	19:30					X																					
ZZZZZZ	1.00	19:37																										
CCV4	1.00	19:43					X																					
CCB4	1.00	19:50					X																					
MRC-MW-61A-060614	20.00	19:56																										

METALS

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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/26/2014 End Date: 6/26/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
MRC-MW-61A-060614L	100.00	20:03																									
MRC-MW-61A-060614	5.00	20:10																									
MRC-MW-61A-060614L	25.00	20:16																									
MRC-MW-61A-060614	1.00	20:23					X																				
MRC-MW-61A-060614L	5.00	20:30					X																				
CRDL3	1.00	20:36					X																				
CCV5	1.00	20:42					X																				
CCB5	1.00	20:49					X																				

METALS
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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/30/2014 End Date: 6/30/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	08:02											X														
Standard 1	1.00	08:08											X														
Standard 2	1.00	08:15											X														
Standard 3	1.00	08:21											X														
ICV1	1.00	08:28											X														
ICB1	1.00	08:34											X														
CRDL1	1.00	08:41											X														
ICS-A1	1.00	08:47											X														
ICS-AB1	1.00	08:53											X														
CCV1	1.00	09:00											X														
CCB1	1.00	09:06											X														
QC Std 8	1.00	09:13											X														
PBW	1.00	09:19											X														
LCSW	1.00	09:26											X														
ZZZZZZ	1.00	09:33																									
ZZZZZZ	1.00	09:39																									
ZZZZZZ	1.00	09:46																									
ZZZZZZ	1.00	09:53																									
ZZZZZZ	1.00	09:59																									
ZZZZZZ	1.00	10:06																									
CCV2	1.00	10:13											X														
CCB2	1.00	10:19											X														
ZZZZZZ	1.00	10:26																									
ZZZZZZ	1.00	10:32																									
ZZZZZZ	1.00	10:39																									
ZZZZZZ	1.00	10:46																									
ZZZZZZ	1.00	10:52																									
MRC-MW-61A-060614	7.00	10:59											X														
MRC-MW-61A-060614L	35.00	11:06											X														
CRDL2	1.00	11:12											X														
HLCCV2	1.00	11:19											X														
CCV3	1.00	11:25											X														
CCB3	1.00	11:32											X														

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	05:07																X									
0.2ppb std	1.00	05:08																X									
0.5ppb std	1.00	05:10																X									
1.0ppb std	1.00	05:11																X									
2.0ppb std	1.00	05:13																X									
5.0ppb std	1.00	05:15																X									
10.0ppb std	1.00	05:16																X									
ICV1	1.00	05:18																X									
ICB1	1.00	05:20																X									
CRDL1	1.00	05:21																X									
CCV1	1.00	05:23																X									
CCB1	1.00	05:24																X									
PBW	1.00	05:26																X									
LCSW	1.00	05:28																X									
ZZZZZZ	1.00	05:29																									
ZZZZZZ	1.00	05:31																									
ZZZZZZ	1.00	05:33																									
ZZZZZZ	1.00	05:34																									
ZZZZZZ	1.00	05:36																									
ZZZZZZ	1.00	05:38																									
CCV2	1.00	05:39																X									
CCB2	1.00	05:41																X									
ZZZZZZ	1.00	05:42																									
ZZZZZZ	1.00	05:44																									
ZZZZZZ	1.00	05:46																									
ZZZZZZ	1.00	05:47																									
ZZZZZZ	1.00	05:49																									
ZZZZZZ	1.00	05:51																									
ZZZZZZ	1.00	05:52																									
ZZZZZZ	1.00	05:54																									
CCV3	1.00	05:56																X									
CCB3	1.00	05:57																X									
ZZZZZZ	1.00	05:59																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/17/2014 End Date: 6/17/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	06:01																												
ZZZZZZ	1.00	06:02																												
ZZZZZZ	1.00	06:04																												
MRC-MW-61A-060614	1.00	06:06																X												
ZZZZZZ	1.00	06:07																												
ZZZZZZ	1.00	06:09																												
ZZZZZZ	1.00	06:10																												
CRDL2	1.00	06:12																X												
CCV4	1.00	06:14																X												
CCB4	1.00	06:15																X												

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METALS

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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/19/2014 End Date: 6/19/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
Calib Blank 1	1.00	09:00										X															
Calib Std 1	1.00	09:05										X															
Calib Std 2	1.00	09:09										X															
Calib Std 3	1.00	09:14										X															
ICV1	1.00	09:18										X															
ICB1	1.00	09:23										X															
CRDL1	1.00	09:28										X															
ICS-A1	1.00	09:32										X															
ICS-AB1	1.00	09:37										X															
CCV1	1.00	09:41										X															
CCB1	1.00	09:46										X															
ZZZZZZ	1.00	09:50																									
ZZZZZZ	1.00	09:55																									
ZZZZZZ	1.00	10:00																									
ZZZZZZ	1.00	10:04																									
ZZZZZZ	5.00	10:09																									
PBW	1.00	10:13										X															
LCSW	1.00	10:18										X															
ZZZZZZ	1.00	10:23																									
ZZZZZZ	1.00	10:27																									
ZZZZZZ	1.00	10:32																									
CCV2	1.00	10:36										X															
CCB2	1.00	10:41										X															
ZZZZZZ	1.00	10:45																									
ZZZZZZ	1.00	10:50																									
ZZZZZZ	1.00	10:55																									
ZZZZZZ	1.00	10:59																									
ZZZZZZ	5.00	11:04																									
MRC-MW-61A-060614	1.00	11:08										X															
MRC-MW-61A-060614L	5.00	11:13										X															
CCV3	1.00	11:17										X															
CCB3	1.00	11:22										X															
CRDL2	1.00	11:27										X															
ICS-A2	1.00	11:31										X															

METALS

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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/19/2014 End Date: 6/19/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
ICS-AB2	1.00	11:36										X															
ZZZZZZ	1.00	11:40																									
ZZZZZZ	1.00	11:45																									
CCV4	1.00	11:49										X															
CCB4	1.00	11:54										X															

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	13:14												X													
Calib Std 1	1.00	13:20																									
Calib Std 2	1.00	13:27																									
Calib Std 3	1.00	13:33												X													
Calib Std 4	1.00	13:39												X													
Calib Std 5	1.00	13:45												X													
ICV1	1.00	13:50												X													
ICB1	1.00	13:56												X													
CRDL1	1.00	14:02												X													
ICS-A1	1.00	14:07												X													
ICS-AB1	1.00	14:13												X													
CCV1	1.00	14:19												X													
CCB1	1.00	14:25												X													
ZZZZZZ	1.00	14:31																									
ZZZZZZ	1.00	14:37																									
ZZZZZZ	10.00	14:43																									
ZZZZZZ	10.00	14:49																									
ZZZZZZ	10.00	14:55																									
ZZZZZZ	1.00	15:01																									
ZZZZZZ	1.00	15:07																									
ZZZZZZ	1.00	15:12																									
ZZZZZZ	1.00	15:18																									
ZZZZZZ	1.00	15:24																									
CCV2	1.00	15:30												X													
CCB2	1.00	15:36												X													
ZZZZZZ	1.00	15:42																									
ZZZZZZ	1.00	15:48																									
ZZZZZZ	5.00	15:54																									
ZZZZZZ	1.00	16:00																									
CCV3	1.00	16:06												X													
CCB3	1.00	16:12												X													
CRDL2	1.00	16:18												X													
ICS-A2	1.00	16:24												X													

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METALS
-14-

ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ICS-AB2	1.00	16:30												X													
ZZZZZZ	1.00	16:36																									
ZZZZZZ	1.00	16:41																									
CCV4	1.00	16:45												X													
CCB4	1.00	16:52												X													
ZZZZZZ	1.00	16:57																									
ZZZZZZ	1.00	17:03																									
ZZZZZZ	1.00	17:09																									
ZZZZZZ	1.00	17:15																									
ZZZZZZ	1.00	17:21																									
ZZZZZZ	1.00	17:27																									
ZZZZZZ	1.00	17:33																									
ZZZZZZ	1.00	17:39																									
ZZZZZZ	1.00	17:45																									
ZZZZZZ	1.00	17:51																									
CCV5	1.00	17:57												X													
CCB5	1.00	18:04												X													
ZZZZZZ	1.00	18:09																									
ZZZZZZ	1.00	18:15																									
ZZZZZZ	1.00	18:21																									
ZZZZZZ	1.00	18:27																									
ZZZZZZ	1.00	18:33																									
ZZZZZZ	1.00	18:39																									
ZZZZZZ	1.00	18:45																									
ZZZZZZ	1.00	18:51																									
ZZZZZZ	5.00	18:58																									
ZZZZZZ	1.00	19:03																									
CCV6	1.00	19:10												X													
CCB6	1.00	19:16												X													
ZZZZZZ	1.00	19:21																									
ZZZZZZ	1.00	19:28																									
ZZZZZZ	1.00	19:34																									
ZZZZZZ	1.00	19:40																									

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METALS
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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	5.00	19:46												X													
ZZZZZZ	1.00	19:52																									
ZZZZZZ	1.00	19:58																									
ZZZZZZ	1.00	20:04																									
ZZZZZZ	1.00	20:10																									
CCV7	1.00	20:16												X													
CCB7	1.00	20:22												X													
CRDL3	1.00	20:28												X													
ICS-A3	1.00	20:34												X													
ICS-AB3	1.00	20:40												X													
CCV8	1.00	20:46												X													
CCB8	1.00	20:52												X													
PBW	1.00	20:58												X													
LCSW	1.00	21:04												X													
ZZZZZZ	1.00	21:10																									
ZZZZZZ	1.00	21:16																									
ZZZZZZ	1.00	21:22																									
ZZZZZZ	1.00	21:28																									
ZZZZZZ	1.00	21:35																									
ZZZZZZ	1.00	21:41																									
ZZZZZZ	1.00	21:48																									
ZZZZZZ	5.00	21:54																									
CCV9	1.00	22:00												X													
CCB9	1.00	22:06												X													
ZZZZZZ	1.00	22:12																									
ZZZZZZ	1.00	22:18																									
ZZZZZZ	1.00	22:24																									
ZZZZZZ	1.00	22:30																									
ZZZZZZ	1.00	22:36																									
ZZZZZZ	1.00	22:42																									
ZZZZZZ	1.00	22:48																									
ZZZZZZ	1.00	22:54																									
ZZZZZZ	5.00	23:00																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/20/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	23:06																												
CCV10	1.00	23:12												X																
CCB10	1.00	23:18												X																
ZZZZZZ	1.00	23:24																												
MRC-MW-61A-060614	1.00	23:30												X																
MRC-MW-61A-060614L	5.00	23:37												X																
CCV11	1.00	23:43												X																
CCB11	1.00	23:49												X																
CRDL4	1.00	23:55												X																
ICS-A4	1.00	00:01												X																
ICS-AB4	1.00	00:07												X																
CCV12	1.00	00:13												X																
CCB12	1.00	00:20												X																

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METALS
-14-

ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/21/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank 1	1.00	09:02															X													
Calib Std 1	1.00	09:08															X													
Calib Std 2	1.00	09:14																												
Calib Std 3	1.00	09:20																												
Calib Std 4	1.00	09:26															X													
Calib Std 5	1.00	09:32															X													
ICV1	1.00	09:38															X													
ICB1	1.00	09:44															X													
CRDL1	1.00	09:50															X													
ICS-A1	1.00	09:56															X													
ICS-AB1	1.00	10:02															X													
CCV1	1.00	10:08															X													
CCB1	1.00	10:14															X													
PBW	1.00	10:20															X													
LCSW	1.00	10:26															X													
ZZZZZZ	10.00	10:32																												
ZZZZZZ	10.00	10:38																												
ZZZZZZ	10.00	10:44																												
ZZZZZZ	1.00	10:50																												
ZZZZZZ	1.00	10:56																												
ZZZZZZ	1.00	11:02																												
ZZZZZZ	1.00	11:08																												
ZZZZZZ	1.00	11:14																												
CCV2	1.00	11:20															X													
CCB2	1.00	11:26															X													
ZZZZZZ	1.00	11:32																												
ZZZZZZ	1.00	11:38																												
ZZZZZZ	1.00	11:44																												
ZZZZZZ	5.00	11:50																												
ZZZZZZ	1.00	11:56																												
ZZZZZZ	1.00	12:02																												
MRC-MW-61A-060614	10.00	12:08															X													
MRC-MW-61A-060614L	50.00	12:14															X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/21/2014 End Date: 6/21/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ZZZZZZ	1.00	12:20																												
ZZZZZZ	1.00	12:26																												
CCV3	1.00	12:32															X													
CCB3	1.00	12:38															X													
ZZZZZZ	10.00	12:44																												
ZZZZZZ	20.00	12:50																												
ZZZZZZ	10.00	12:56																												
ZZZZZZ	10.00	13:02																												
ZZZZZZ	5.00	13:08																												
ZZZZZZ	10.00	13:14																												
CCV4	1.00	13:20															X													
CCB4	1.00	13:26															X													
CRDL2	1.00	13:31															X													
ICS-A2	1.00	13:37															X													
ICS-AB2	1.00	13:43															X													
ZZZZZZ	1.00	13:49																												
ZZZZZZ	1.00	13:54																												
CCV5	1.00	14:00															X													
CCB5	1.00	14:06															X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/26/2014 End Date: 6/26/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	16:20			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
Standard 1	1.00	16:27			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
Standard 2	1.00	16:33			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
Standard 3	1.00	16:39			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ICV1	1.00	16:46			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ICB1	1.00	16:52			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
CRDL1	1.00	16:59			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ICS-A1	1.00	17:05			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ICS-AB1	1.00	17:12			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
CCV1	1.00	17:18			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
CCB1	1.00	17:24			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ZZZZZZ	1.00	17:31																												
PBW	1.00	17:38			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
LCSW	1.00	17:44			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ZZZZZZ	1.00	17:51																												
ZZZZZZ	1.00	17:58																												
ZZZZZZ	1.00	18:04																												
CCV2	1.00	18:11			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
CCB2	1.00	18:17			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ZZZZZZ	1.00	18:24																												
ZZZZZZ	1.00	18:30																												
ZZZZZZ	5.00	18:37																												
ZZZZZZ	1.00	18:44																												
ZZZZZZ	1.00	18:51																												
CCV3	1.00	18:57			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
CCB3	1.00	19:03			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ZZZZZZ	1.00	19:10																												
ZZZZZZ	1.00	19:17																												
ZZZZZZ	1.00	19:24																												
CRDL2	1.00	19:30			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
ZZZZZZ	1.00	19:37																												
CCV4	1.00	19:43			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*
CCB4	1.00	19:50			X	X	X	X	X		X	X			X				X		X	X		X	X	X		*

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METALS

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LABORATORY CONTROL SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Solid LCS Source: _____

Aqueous LCS Source: ACCUSTANDARD

Analyte	Aqueous (ug/L			Solid (mg/K				
	True	Found	%R	True	Found	C	Limits	%R
Antimony	20	19.90	100					
Arsenic	20	18.10	90					
Barium	20	20.00	100					
Beryllium	20	18.70	94					
Cadmium	20	19.10	96					
Chromium	20	19.20	96					
Cobalt	20	21.70	108					
Copper	20	23.20	116					
Iron	1000	1010	101					
Lead	20	20.70	104					
Manganese	500	498	100					
Mercury	1.000	1.030	103					
Nickel	20	19.50	98					
Selenium	20	16.20	81					
Silver	20	21.60	108					
Thallium	20	21.20	106					
Vanadium	20	20.70	104					
Zinc	20	21.80	109					
Silicon	5000	4820	96					
Molybdenum	20	20.20	101					

Comments: _____

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	51	102	50	52	104	51	102	MS
Arsenic	50	50	100	50	51	102	51	102	MS
Barium	50	53	106	50	50	100	51	102	MS
Beryllium	50	50	100	50	51	102	49	98	MS
Cadmium	50	51	102	50	54	108	52	104	MS
Chromium	50	49	98	50	48	96	48	96	MS
Cobalt	50	52	104	50	51	102	51	102	MS
Copper	50	52	104	50	53	106	52	104	MS
Iron	5000	4810	96	5000	4700	94	4630	93	P
Lead	50	53	106	50	54	108	51	102	MS
Manganese	750	751	100	750	750	100	736	98	P
Mercury	3.00	3.10	103	3.00	3.06	102	3.07	102	CV
Nickel	50	49	98	50	50	100	49	98	MS
Selenium	50	48	96	50	49	98	50	100	MS
Silver	50	52	104	50	54	108	52	104	MS
Thallium	50	54	108	50	55	110	52	104	MS
Vanadium	50	51	102	50	52	104	51	102	MS
Zinc	50	50	100	50	49	98	50	100	MS
Silicon	5000	4970	99	5000	4910	98	5030	101	P
Molybdenum	50	51	102	50	54	108	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	50	100	50	100	MS
Arsenic				50	50	100	52	104	MS
Barium				50	51	102	48	96	MS
Beryllium				50	51	102	53	106	MS
Cadmium				50	52	104	54	108	MS
Chromium				50	48	96	48	96	MS
Cobalt				50	52	104	54	108	MS
Copper				50	53	106			MS
Iron				5000	4760	95	4780	96	P
Lead				50	52	104	54	108	MS
Manganese				750	740	99	735	98	P
Mercury				3.00	3.07	102	3.10	103	CV
Nickel				50	49	98	52	104	MS
Selenium				50	50	100	49	98	MS
Silver				50	53	106	54	108	MS
Thallium				50	54	108	55	110	MS
Vanadium				50	50	100	52	104	MS
Zinc				50	50	100	49	98	MS
Silicon				5000	4800	96	4860	97	P
Molybdenum				50	51	102	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Antimony				50	49	98			MS
Arsenic				50	51	102			MS
Barium				50	51	102			MS
Beryllium				50	54	108			MS
Cadmium				50	52	104			MS
Chromium				50	51	102			MS
Cobalt				50	53	106			MS
Iron				5000	4790	96	4690	94	P
Lead				50	54	108			MS
Manganese				750	750	100			P
Nickel				50	53	106			MS
Selenium				50	50	100			MS
Silver				50	53	106			MS
Thallium				50	55	110			MS
Vanadium				50	53	106			MS
Zinc				50	50	100			MS
Molybdenum				50	52	104			MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Iron				5000	4790	96	4910	98	P

Comments:

99375

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Iron				5000	4810	96	4880	98	P

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Iron				5000	4840	97	4880	98	P

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP Initial			CRDL Standard for ICP Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0	1.11	111	1.03	103
Arsenic				1.0	1.05	105	1.07	107
Barium				1.0	1.08	108	1.04	104
Beryllium				1.0	1.05	105	1.05	105
Cadmium				1.0	1.06	106	1.05	105
Chromium				2.0	2.03	102	1.90	95
Cobalt				1.0	1.13	113	1.08	108
Copper				1.0	1.00	100	1.21	121
Iron				100.0	105.02	105	107.22	107
Lead				1.0	1.07	107	1.08	108
Manganese				15.0	15.92	106	15.99	107
Mercury	0.200	0.196	98					
Nickel				1.0	1.00	100	1.01	101
Selenium				2.0	2.08	104	2.16	108
Silver				1.0	1.10	110	1.11	111
Thallium				1.0	1.10	110	1.09	109
Vanadium				2.0	2.25	112	2.25	112
Zinc				5.0	5.14	103	5.15	103
Silicon				1000.0	1052.10	105	989.63	99
Molybdenum				1.0	1.05	105	1.05	105

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Antimony				1.0			1.05	105
Arsenic				1.0			1.07	107
Barium				1.0			0.98	98
Beryllium				1.0			1.09	109
Cadmium				1.0			1.08	108
Chromium				2.0			2.10	105
Cobalt				1.0			1.11	111
Iron				100.0			107.06	107
Lead				1.0			1.10	110
Mercury	0.200	0.202	101					
Nickel				1.0			1.07	107
Selenium				2.0			2.17	108
Silver				1.0			1.11	111
Thallium				1.0			1.08	108
Vanadium				2.0			2.38	119
Zinc				5.0			5.11	102
Molybdenum				1.0			1.06	106

Comments:

METALS
-2B-
CRDL STANDARD FOR AA AND ICP

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-61A-0

AA CRDL Standard Source: ACCUSTANDARD

ICP CRDL Standard Source: INORGANIC VENTURES

Concentration Units: ug/L

Analyte	CRDL Standard for AA			CRDL Standard for ICP				
				Initial			Final	
	True	Found	%R	True	Found	%R	Found	%R
Iron				100.0			109.35	109

Comments:

METALS

-3-

BLANKS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony	0.157	U	0.157	U	0.157	U	0.163	J	0.157	U	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	0.211	U	MS
Barium	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	MS
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	MS
Cadmium	0.010	U	-0.009	J	-0.014	J	-0.010	J	0.008	U	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	0.470	U	MS
Cobalt	0.038	J	0.039	J	0.020	J	0.013	J	0.040	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.252	U	MS
Iron	9.97	U	9.97	U	9.97	U	9.97	U	9.970	U	P
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Manganese	0.68	J	0.44	J	1.36	J	0.86	J	0.353	U	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	0.213	U	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U	0.015	U	MS
Thallium	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U	MS
Vanadium	0.358	U	0.358	U	0.358	U	0.358	U	0.358	U	MS
Zinc	1.190	U	1.190	U	1.190	U	1.190	U	1.190	U	MS
Silicon	161.00	U	161.00	U	161.00	U	161.00	U	161.000	U	P
Molybdenum	0.068	U	0.085	J	0.068	U	0.068	U	0.091	J	MS

Comments:

METALS

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BLANKS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Antimony			0.207	J	0.167	J					MS
Arsenic			0.211	U	0.211	U					MS
Barium			0.024	U	0.024	U					MS
Beryllium			0.020	U	0.020	U					MS
Cadmium			0.008	U	0.008	U					MS
Chromium			0.470	U	0.470	U					MS
Cobalt			0.022	J	0.024	J					MS
Iron			9.97	U	9.97	U	9.97	U			P
Lead			0.061	U	0.061	U					MS
Manganese			0.64	J	1.54	J					P
Mercury			0.024	U							CV
Nickel			0.236	U	0.236	U					MS
Selenium			0.213	U	0.213	U					MS
Silver			0.015	U	0.015	U					MS
Thallium			0.031	U	0.031	U					MS
Vanadium			0.358	U	0.358	U					MS
Zinc			1.190	U	1.190	U					MS
Silicon			161.00	U							P
Molybdenum			0.068	U	0.068	U					MS

Comments:

METALS

-3-

BLANKS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron			9.97	U	9.97	U	9.97	U			P

Comments:

METALS

-3-

BLANKS

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Iron			9.97	U	9.97	U	9.97	U			P

Comments:

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000	93000.0	93000	93			
Manganese		500	-3.0	512	102	-2.8	511	102

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000				93700.0	93500	94

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000				94000.0	94700	95

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Iron	100000	100000				93600.0	93500	94

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: Optima ICP 3 ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Silicon			-194.0	221		-170.0	252	

METALS

-4-

ICP INTERFERENCE CHECK SAMPLE

Contract: R1404412

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-61A-0

ICP ID Number: PE ICPMS ICS Source: INORGANIC VENTURES

Concentration Units): ug/L

Analyte	True		Initial Found			Final Found		
	Sol.A	Sol.AB	Sol.A	Sol.AB	%R	Sol.A	Sol.AB	%R
Antimony	0.00	20.00	0.06	22.12	111			
Arsenic	0.00	20.00	0.07	19.98	100			
Barium	0.00	20.00	0.13	21.31	107			
Beryllium	0.00	20.00	0.02	19.44	97			
Cadmium	0.00	20.00	0.09	20.60	103			
Chromium	0.00	20.00	0.37	21.43	107			
Cobalt	0.00	20.00	0.14	19.98	100			
Copper	0.00	20.00	0.89	19.25	96			
Lead	0.00	20.00	0.05	21.15	106			
Nickel	0.00	20.00	0.91	19.69	98			
Selenium	0.00	20.00	-0.09	20.02	100			
Silver	0.00	20.00	0.05	20.57	103			
Thallium	0.00	20.00	0.03	20.94	105			
Vanadium	0.00	20.00	0.10	22.86	114			
Zinc	0.00	20.00	1.29	19.44	97			
Molybdenum	400.00	400.00	392.64	414.43	104			

TETRA TECH **INTERNAL CORRESPONDENCE**

TO:	**T. AVANAVAGE**	**DATE:**	**SEPTEMBER 23, 2014**
FROM:	**A. COGNETTI**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC AND INORGANIC DATA VALIDATION- VOC / METALS**
MIDDLE RIVER CENTER GROUNDWATER SAMPLING – FULL REVIEW
SAMPLE DELIVERY GROUP (SDG) R1404508

SAMPLES: 1/Aqueous/VOC

MRC-MW-92C-061114

3/Aqueous/Metals

MRC-MW-04A-060914 MRC-MW-81A-061114 MRC-MW-92C-061114

Overview

The sample set for Middle River Center Groundwater Sampling, SDG R1404508 consists of one (1) aqueous environmental samples analyzed for volatile organic compounds (VOCs). Three (3) aqueous environmental samples were analyzed metals. There are no field duplicate pairs included in this SDG.

The samples were collected on June 9 and 11, 2014 and analyzed by ALS Environmental. Volatile organic compound analyses were conducted in accordance to SW-846 Method 8260C.Metals analyses were conducted in accordance with SW-846 6020A, 6010C and mercury Method 7470A.

Summary

The data contained in this SDG were validated with regard to the following parameters: data completeness, system performance, holding times, GC/MS tuning, initial / continuing calibrations, laboratory method blank results, surrogate spike/internal standard recoveries, laboratory control sample results, matrix spike/matrix spike duplicate results, serial dilution, analyte identification, chromatographic resolution, analyte quantitation, and detection limits.

Areas of concern with respect to data quality are listed below.

Major Problems

- No issues were identified.

Minor Problems

- The continuing calibration percent differences (%Ds) for 2-butanone and acetone were greater than the 20% quality control limit on June 20, 2014 @ 10:57 on instrument R-MS-12. The nondetected 2-butanone and acetone results were qualified as estimated (UJ) in the affected sample.

- Contamination was detected in the laboratory method blank associated with batch 211499.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Antimony	0.188	0.94
Arsenic	0.887	4.44
Barium	0.046	0.23
Silver	0.015	0.075
Chromium	1.495	7.48
Copper	0.265	1.33

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Contamination was detected in the continuing calibration blank analyzed on July 6 and 7, 2014 on instrument PE ICPMS.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Antimony	0.284	1.42
Beryllium	0.024	0.12
Silver	0.029	0.15

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Contamination was detected in the continuing calibration blank analyzed on July 10, 2014 on instrument PE ICPMS.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Antimony	0.191	0.96
Cadmium	0.013	0.065

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

Notes

Contamination was detected in the laboratory method blank associated with batch RQ1406962-05 analyzed on June 20, 2014.

Contaminant	Maximum Concentration (ug/L)
1,2,4-trichlorobenzene	0.26
Bromomethane	0.31
Naphthalene	0.29

Sample MRC-MW-92C-061114 was re-analyzed due to a low surrogate recovery (85%) in the VOC fraction. The original sample results were used for reporting and validation purposes. No validation action was taken.

Contamination was detected in the laboratory method blanks for the following analytes.

Nondetected results were reported to the MDL.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Blank contamination was detected in the metals fraction. Continuing calibration noncompliances were found for acetone and 2-butanone.

Other Factors Affecting Data Quality: Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

The data for these analyses were reviewed with reference to the EPA National Functional Guidelines for Organic Data Validation (June 2008) and EPA National Functional Guidelines for Inorganic Data Validation (January 2010). The text of this report has been formulated to address only those problem areas affecting data quality.

Ann Cognetti

Tetra Tech
Ann Cognetti
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-04A-060914			MRC-MW-81A-061114			MRC-MW-92C-061114		
SDG: R1404508	LAB_ID	R1404508-004			R1404508-011			R1404508-013		
FRACTION: M	SAMP_DATE	6/9/2014			6/11/2014			6/11/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		1.6	U		0.157	U		0.261	U	A
ARSENIC		2.8	U	A	2.8	U	A	1.3	U	A
BARIUM		472			202			228		
BERYLLIUM		0.205	J	P	0.834	J	P	0.183	J	P
CADMIUM		0.08	U		0.008	U		0.008	U	
CHROMIUM		4.9	U	A	2.4	U	A	1.2	U	A
COBALT		7.7	J	P	44.3			35.5		
COPPER		83.1			4.2			1.7		
IRON		224			48600			16400		
LEAD		0.61	U		1.2			0.303	J	P
MANGANESE		159			4560			1190		
MERCURY		0.024	U		0.024	U		0.024	U	
MOLYBDENUM		2.2	J	P	0.154	J	P	2.7		
NICKEL		22.1			38.1			28.8		
SELENIUM		2.1	U		1	J	P	0.213	U	
SILVER		0.153	U		0.035	U	A	0.017	U	A
THALLIUM		0.307	U		0.031	U		0.031	U	
VANADIUM		3.6	U		3.2			0.358	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-92C-061114
SDG: R1404508	LAB_ID	R1404508-013
FRACTION: OV	SAMP_DATE	6/11/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U	
1,1-DICHLOROETHANE	0.2	U	
1,1-DICHLOROETHENE	0.57	U	
1,1-DICHLOROPROPENE	0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U	
1,2-DIBROMOETHANE	0.24	U	
1,2-DICHLOROBENZENE	0.21	U	
1,2-DICHLOROETHANE	0.36	U	
1,2-DICHLOROPROPANE	0.2	U	
1,3-DICHLOROBENZENE	0.2	U	
1,3-DICHLOROPROPANE	0.27	U	
1,4-DICHLOROBENZENE	0.2	U	
2,2-DICHLOROPROPANE	0.27	U	
2-BUTANONE	0.81	UJ	C
2-CHLOROETHYL VINYL ETHER	0.44	U	
2-CHLOROTOLUENE	0.2	U	
2-HEXANONE	1.7	U	
4-CHLOROTOLUENE	0.24	U	
4-ISOPROPYLTOLUENE	0.2	U	
4-METHYL-2-PENTANONE	0.67	U	
ACETONE	1.3	UJ	C
BENZENE	0.2	U	
BROMOBENZENE	0.28	U	
BROMOCHLOROMETHANE	0.32	U	
BROMODICHLOROMETHANE	0.32	U	
BROMOFORM	0.42	U	
BROMOMETHANE	0.29	U	
CARBON DISULFIDE	0.22	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-92C-061114
SDG: R1404508	LAB_ID	R1404508-013
FRACTION: OV	SAMP_DATE	6/11/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
CARBON TETRACHLORIDE	0.45	U	
CHLOROBENZENE	0.29	U	
CHLORODIBROMOMETHANE	0.31	U	
CHLOROETHANE	0.24	U	
CHLOROFORM	0.25	U	
CHLOROMETHANE	0.21	U	
CIS-1,2-DICHLOROETHENE	0.93	J	P
CIS-1,3-DICHLOROPROPENE	0.24	U	
DIBROMOMETHANE	0.32	U	
DICHLORODIFLUOROMETHANE	0.46	U	
DIISOPROPYL ETHER	0.2	U	
ETHYL TERT-BUTYL ETHER	0.2	U	
ETHYLBENZENE	0.2	U	
HEXACHLOROBUTADIENE	0.62	U	
ISOPROPYLBENZENE	0.2	U	
M+P-XYLENES	0.33	U	
METHYL TERT-BUTYL ETHER	0.29	U	
METHYLENE CHLORIDE	0.32	U	
NAPHTHALENE	0.2	U	
N-BUTYLBENZENE	0.21	U	
N-PROPYLBENZENE	0.2	U	
O-XYLENE	0.2	U	
SEC-BUTYLBENZENE	0.27	U	
STYRENE	0.2	U	
TERT-AMYL METHYL ETHER	0.2	U	
TERT-BUTYLBENZENE	0.2	U	
TERTIARY-BUTYL ALCOHOL	11	U	
TETRACHLOROETHENE	0.3	U	
TOLUENE	0.2	U	
TOTAL XYLENES	0.53	U	
TRANS-1,2-DICHLOROETHENE	0.33	U	
TRANS-1,3-DICHLOROPROPENE	0.2	U	
TRICHLOROETHENE	1.7		
TRICHLOROFLUOROMETHANE	0.2	U	
VINYL ACETATE	1.1	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-92C-061114		
SDG: R1404508	LAB_ID	R1404508-013		
FRACTION: OV	SAMP_DATE	6/11/2014		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
VINYL CHLORIDE		0.32	U	

Appendix B

Results as Reported by the Laboratory

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	6/11/14 1215
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/20/14 21:18
Sample Name:	MRC-MW-92C-061114	**Units:**	µg/L
Lab Code:	R1404508-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398151
Data File Name:	I:\ACQUDATA\msvoa12\Data\062014\M6746.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	6/11/14 1215
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/20/14 21:18
Sample Name:	MRC-MW-92C-061114	**Units:**	µg/L
Lab Code:	R1404508-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398151
Data File Name:	I:\ACQUDATA\msvoa12\Data\062014\M6746.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.7**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.91**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	6/11/14 1215
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/20/14 21:18
Sample Name:	MRC-MW-92C-061114	**Units:**	µg/L
Lab Code:	R1404508-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398151
Data File Name:	I:\ACQUDATA\msvoa12\Data\062014\M6746.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100		85-122	6/20/14 21:18	
Dibromofluoromethane	105		89-119	6/20/14 21:18	
Toluene-d8	85	*	87-121	6/20/14 21:18	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	6/11/14 1215
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 16:22
Sample Name:	MRC-MW-92C-061114	**Units:**	µg/L
Lab Code:	R1404508-013	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6781.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	6/11/14 1215
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 16:22
Sample Name:	MRC-MW-92C-061114	**Units:**	µg/L
Lab Code:	R1404508-013	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6781.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**1.6**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**0.93**	J	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	6/11/14 1215
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 16:22
Sample Name:	MRC-MW-92C-061114	**Units:**	µg/L
Lab Code:	R1404508-013	**Basis:**	NA
Run Type:	Reanalysis		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6781.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec		Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101		85-122	6/23/14 16:22	
Dibromofluoromethane	107		89-119	6/23/14 16:22	
Toluene-d8	84	*	87-121	6/23/14 16:22	

4LS Environmental

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-04A-060914

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Matrix (soil/water): WATER Lab Sample ID: R1404508-004

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	1.6	U		MS
7440-38-2	Arsenic	2.8	J		MS
7440-39-3	Barium	472			MS
7440-41-7	Beryllium	0.205	J		MS
7440-43-9	Cadmium	0.080	U		MS
7440-47-3	Chromium	4.9	J		MS
7440-48-4	Cobalt	7.7	J		MS
7440-50-8	Copper	83.1			MS
7439-89-6	Iron	224			P
7439-92-1	Lead	0.610	U		MS
7439-96-5	Manganese	159			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	22.1			MS
7782-49-2	Selenium	2.1	U		MS
7440-22-4	Silver	0.153	U		MS
7440-28-0	Thallium	0.307	U		MS
7440-62-2	Vanadium	3.6	U		MS
7439-98-7	Molybdenum	2.2	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-81A-061114

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Matrix (soil/water): WATER Lab Sample ID: R1404508-011

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	2.8			MS
7440-39-3	Barium	202			MS
7440-41-7	Beryllium	0.834	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.4			MS
7440-48-4	Cobalt	44.3			MS
7440-50-8	Copper	4.2			MS
7439-89-6	Iron	48600			P
7439-92-1	Lead	1.2			MS
7439-96-5	Manganese	4560			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	38.1			MS
7782-49-2	Selenium	1.0	J		MS
7440-22-4	Silver	0.035	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	3.2			MS
7439-98-7	Molybdenum	0.154	J		MS

Color Before: YELLOW Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-92C-061114

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Matrix (soil/water): WATER Lab Sample ID: R1404508-013

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.261	J		MS
7440-38-2	Arsenic	1.3			MS
7440-39-3	Barium	228			MS
7440-41-7	Beryllium	0.183	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	1.2	J		MS
7440-48-4	Cobalt	35.5			MS
7440-50-8	Copper	1.7			MS
7439-89-6	Iron	16400			P
7439-92-1	Lead	0.303	J		MS
7439-96-5	Manganese	1190			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	28.8			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.017	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	2.7			MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

Appendix C

Support Documentation

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15148

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: MRC GW - 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: Tetra Tech Inc, 20251 Century Blvd STE 200, Germantown, MD 20874	
Phone #: 301 528-3021	Email:
Sampler's Signature: Walt Pryor	Sampler's Printed Name: Walt Pryor

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 | 7 | 2

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP (VOCs)	GC/MS-SVOAs ○ 8270 ○ 625 (1,4 Dioxane)	GC VOAs ○ 8081 ○ 601/602 (Perchlorate)	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below) (6020A)	METALS, DISSOLVED (List in comments below)	RSK-175	Alk	TDS, NO3, M2, Cl, SO4, Spec	NH3	Silica + DOC			REMARKS/ ALTERNATE DESCRIPTION
TB-060914		6-9-14	—	GW	3	X														
MRC-MW-49A-060914		↓	1005	↓	6	X	X				X									
MRC-MW-90B-060914		↓	1121	↓	6	X	X	X												
MRC-MW-04A-060914		↓	1435	↓	1						X									
MRC-MW-02A-060914		↓	1549	↓	4	X					X									
MRC-MW-38A-061014		6-10-14	1530	↓	3	X														
MRC-MW-60A-061114		6-11-14	1004	↓	5	X		X			X									
MRC-MW-60B-061114		↓	1117	↓	12	X		X			X		X	X	X	X	X			
MRC-MW-76B-061114		↓	1245	↓	4	X					X									
MRC-MW-76A-061114		↓	1455	↓	4	X					X									

SPECIAL INSTRUCTIONS/COMMENTS

Metals

Doc taken out of unpreserved polys

R1404508 7

Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

____ 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

Standard

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION

PO #

BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pryor	Signature: [signature] ALS	Signature: [signature] ALS	Signature: [signature]	Signature: [signature]	Signature: SHSS.
Printed Name: Walt Pryor	Printed Name: Lawrence Lawson	Printed Name: Lawrence Lawson	Printed Name: SRB	Printed Name: SRB	Printed Name:
Firm: TT Inc	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS
Date/Time: 6-11-14 / 1550	Date/Time: 6/11/14 1550	Date/Time: 6/11/14 1640	Date/Time: 6-11-14 1855	Date/Time: 6-11-14 2100	Date/Time: 6-11-14 2100

Distribution: White - Lab Copy; Yellow - Return to Originator

Evan Neil ALS 6/12/14 1810

Chris Wright ALS 6/13/14 1020

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ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15157

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax)

Project Name: MRC Annual GW 2014	Project Number: 1T2IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mills

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 0 0 0 3 2 / 1

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP (VOCs)	GC/MS SVOAs ○ 8270 ○ 625 (8260C)	GC VOAs ○ 8021 ○ 601/602 (Alkalinity)	PESTICIDES ○ 8081 ○ 608 (TDS, NO3, NO2, Cl, SO4, OPO4)	PCBs ○ 8082 ○ 608 (Silica + DOC)	METALS, TOTAL (List in comments below) (NH3)	METALS, DISSOLVED (List in comments below) (6020A)	RSK-175	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-81A-061114		6/11/14	0950	Aq	1	—	—	—	—	—	1	—	—	
MRC-MW-81B-061114	✓✓		1045		11	3	1	1	1	1	1	—	3	
MRC-MW-92C-061114	✓		1215		4	3	—	—	—	—	1	—	—	
MRC-MW-48A-061114	✓✓		1415		11	3	1	1	1	1	1	—	3	

SPECIAL INSTRUCTIONS/COMMENTS

Metals

DOC to be taken out of unpreserved polys

Metals: Total Metals, Beryllium, Cobalt, Nickel

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
Standard
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with
Edata ____ Yes ____

INVOICE INFORMATION
PO #
BILL TO:

R1404508 7
Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature: Scott Boddel	Signature: SRB	Signature: SHSS
Printed Name: Pete Pryor	Printed Name: Lawrence Lawson	Printed Name: Lawrence Lawson	Printed Name: SRB	Printed Name: SRB	Printed Name: SHSS
Firm: TT Inc	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS
Date/Time: 6-11-14 / 1550	Date/Time: 6/11/14 1550	Date/Time: 6/11/14 1640	Date/Time: 6-11-14 1855	Date/Time: 6-11-14 2100	Date/Time: 6-11-14 2100

Distribution: White - Lab Copy; Yellow - Return to Originator

[signature] ALS 6/12/14 1810

Chris Wright - ALS 6/12/14 1020

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Client:	Tetra Tech	**Service Request No.:**	R1404508
Project:	Middle River	**Date Received:**	6/13/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at ALS-Environmental on 6/13/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received at 4.0°C within the 0-6°C temperature guidelines.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for 2-Butanone and Acetone on 6/20/14 and Acetone on 6/23/14. All detected concentrations for these compounds in samples associated with their relevant CCV should be considered as estimated.

The Method Blanks contained a low level hits of 1,2,4-Trichlorobenzene, Bromomethane and Naphthalene on 6/20/14 and 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 6/23/14. These have been flagged with a "J". All affected data has been "B" flagged appropriately.

2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Surrogate Toluene-d8 was outside of the control limits low on sample MRC-MW-92C-061114 (R1404508-013) and has been flagged with a "*". The sample was repeated for confirmation of matrix interference and both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 7/14/14

R1404508 7

Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-4508

Cooler received on _____ by: _____

COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were **Custody seals** on outside of cooler?	(Y) N		5a	**Perchlorate** samples have required headspace?	(Y) N NA	
2	**Custody papers** properly completed (ink, signed)?	(Y) N		5b	Did VOA vials, Alk, or Sulfide have sig* **bubbles**?	Y (N) NA	
3	Did all bottles arrive in good **condition** (unbroken)?	Y N		6	Where did the bottles originate?	ALS/ROC	CLIENT
4	Circle: **Wet Ice** **Dry Ice** **Gel packs** present?	(Y) N		7	Soil VOA received as:	Bulk Encore	5035set (NA)

8. Temperature Readings Date: 6/13/14 Time: 1055 ID: (IR#3) IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	4.0						
Correction Factor (°C)	—						
Corrected Temp (°C)	4.0						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by CW on 6/13/14 at 1110
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 6/17/14 Time: 1944 by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? (YES) NO
2. Did all bottle labels and tags agree with custody papers? (YES) NO
3. Were correct containers used for the tests indicated? (YES) NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated (N/A)

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BBB26135B	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	Client caveat					

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: 4-002-003 BBB26135I, 0826/3-20Aw

Other Comments:

VOA vials (2 vials)

522's were checked for pH + Residual chlorine. Passed both tests. JFS 6/13/14 1402

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/13/14 13:13

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061314\M6497.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.96	88496	Pass
75	95	30	60	46.42	228800	Pass
95	95	100	100	100.00	492843	Pass
96	95	5	9	6.24	30756	Pass
173	174	0	2	0.83	3219	Pass
174	95	50	120	78.43	386539	Pass
175	174	5	9	7.37	28496	Pass
176	174	95	101	96.13	371584	Pass
177	176	5	9	6.54	24288	Pass

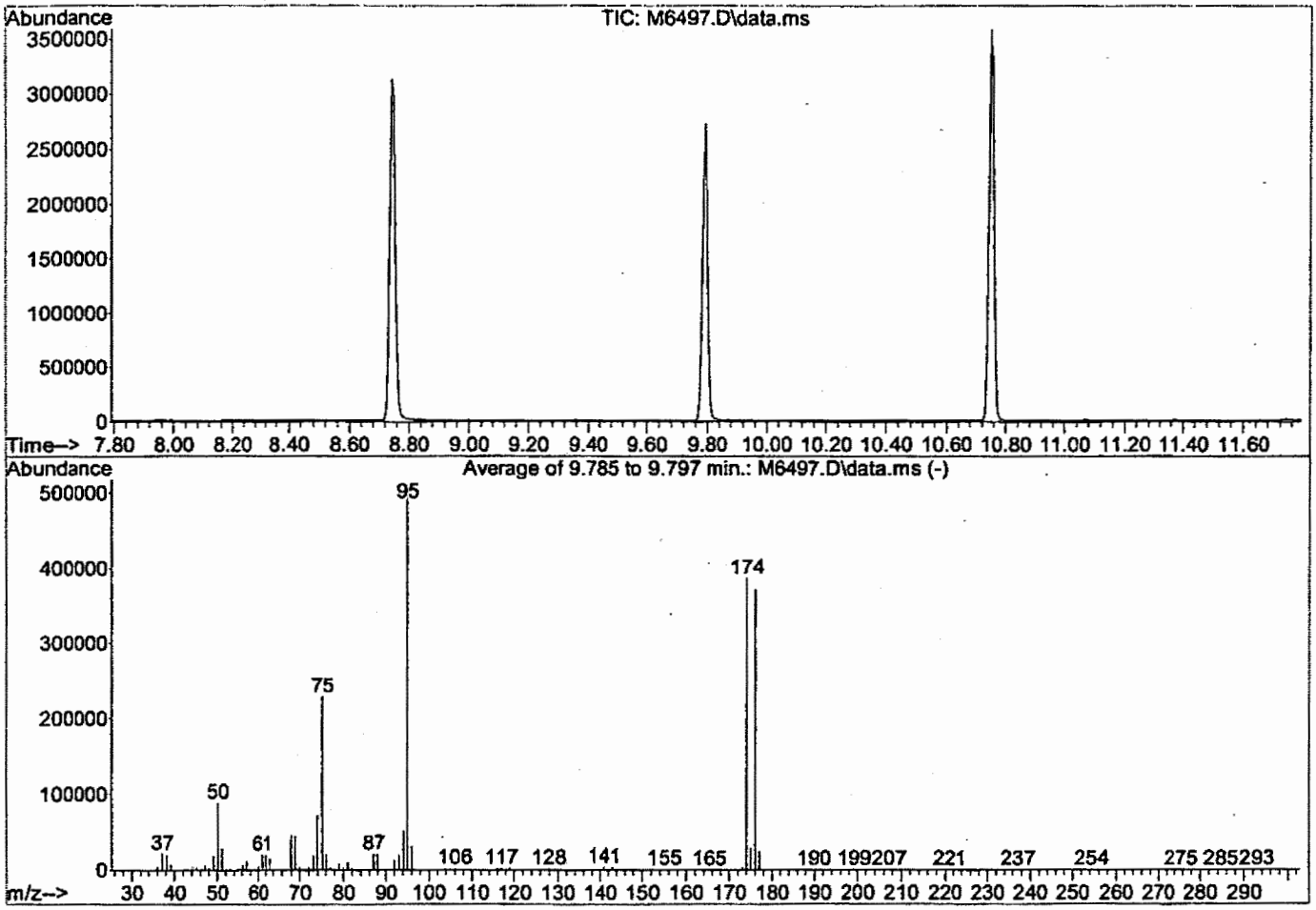
Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6499.D\	6/13/14 14:37	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6500.D\	6/13/14 15:09	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6501.D\	6/13/14 15:42	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6502.D\	6/13/14 16:14	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6503.D\	6/13/14 16:46	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6504.D\	6/13/14 17:19	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6505.D\	6/13/14 17:51	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6506.D\	6/13/14 18:23	

Data Path : I:\ACQUDATA\msvoa12\Data\061314\
Data File : M6497.D
Acq On : 13 Jun 2014 1:13 pm
Operator : K.Ruest
Sample : TUNE
Misc :
ALS Vial : 7 Sample Multiplier: 1

KR 6/13/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Mon May 19 11:05:50 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.0	88496	PASS
75	95	30	60	46.4	228800	PASS
95	95	100	100	100.0	492843	PASS
96	95	5	9	6.2	30756	PASS
173	174	0.00	2	0.8	3219	PASS
174	95	50	120	78.4	386539	PASS
175	174	5	9	7.4	28496	PASS
176	174	95	101	96.1	371584	PASS
177	176	5	9	6.5	24288	PASS

00025

KR 6/14/14

Initial Calibration - Summary Report

Calibration ID: RC1400048
8260 Waters - MS#12 - W061314

Instrument ID: R-MS-12
Column Name: 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3312	<=20	4.7
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7425	<=20	6.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5662	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2285	<=20	4.4
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.4199	<=20	1.7
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8965	<=20	3.6
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3927	<=20	11.3
1,1-Dichloropropene	T	Average RF			0.3962	<=20	1.6
1,2,3-Trichlorobenzene	T	Average RF			0.6167	<=20	10.9
1,2,3-Trichloropropane	T	Average RF			0.1619	<=20	8.3
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7261	<=20	4.9
1,2,4-Trimethylbenzene	T	Average RF			2.431	<=20	5.3
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.1025	<=20	3.4
1,2-Dibromoethane	T	Average RF		0.100	0.2437	<=20	7.0
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5809	<=20	1.5
1,2-Dichlorobenzene	T	Average RF		0.400	1.278	<=20	2.1
1,2-Dichloroethane	T	Average RF		0.100	0.3640	<=20	3.1
1,2-Dichloropropane	T	Average RF		0.100	0.3329	<=20	3.7
1,3,5-Trichlorobenzene	T	Average RF			0.8305	<=20	6.6
1,3,5-Trimethylbenzene	T	Average RF			2.418	<=20	5.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.364	<=20	3.1
1,3-Dichloropropane	T	Average RF			0.4524	<=20	1.6
1,4-Dichlorobenzene	T	Average RF		0.500	1.393	<=20	5.6
1,4-Dioxane	T	Average RF			0.002072	<=20	6.4
1-Butanol	T	Average RF			0.004952	<=20	9.4
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.4185	<=20	3.7
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6622	<=20	4.7
2,2-Dichloropropane	T	Average RF			0.7868	<=20	9.0
2,3,6-Trichlorotoluene	T	Average RF			0.3666	<=20	4.9
2,4,5-Trichlorotoluene	T	Average RF			0.3902	<=20	3.7
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			1.031	<=20	5.0
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5290	<=20	4.6
2,5-Dichlorobenzotrifluoride	T	Average RF			0.5736	<=20	3.0
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1412	<=20	9.2
2-Chloro-1,3-butadiene	T	Average RF			0.8140	<=20	4.2
2-Chlorobenzotrifluoride	T	Average RF			0.8449	<=20	2.9
2-Chloroethyl Vinyl Ether	T	Average RF			0.1598	<=20	3.4
2-Chlorotoluene	T	Average RF			2.021	<=20	3.9
2-Hexanone	T	Average RF		0.05	0.1585	<=20	4.9
2-Methyl-1-propanol	T	Average RF			0.008422	<=20	9.8
2-Methyl-2-propanol	T	Average RF			0.03095	<=20	4.8
2-Nitropropane	T	Average RF			0.05251	<=20	7.5
2-Propanol	T	Average RF			0.01880	<=20	5.4
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.106	<=20	8.8
3,4-Dichlorobenzotrifluoride	T	Average RF			0.5797	<=20	4.2
3-Chloro-1-propene	T	Average RF			0.2910	<=20	6.7
3-Chlorobenzotrifluoride	T	Average RF			0.4621	<=20	3.3
3-Chlorotoluene	T	Average RF			2.109	<=20	5.1
4-Chlorotoluene	T	Average RF			2.390	<=20	3.8
4-Isopropyltoluene	T	Average RF			2.384	<=20	5.6
4-Methyl-2-pentanone	T	Average RF		0.05	0.2123	<=20	5.0

00047

Initial Calibration - Summary Report

Calibration ID: RC1400048 **Instrument ID:** R-MS-12
Column Name: 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09881	<=20	1.1
Acetonitrile	T	Average RF			0.01689	<=20	4.1
Acrolein	T	Average RF			0.03774	<=20	12.9
Acrylonitrile	T	Average RF			0.1206	<=20	3.5
Benzene	T	Average RF		0.500	1.285	<=20	3.8
Bromobenzene	T	Average RF			0.7321	<=20	2.1
Bromochloromethane	T	Average RF			0.2794	<=20	3.9
Bromodichloromethane	T	Average RF		0.200	0.3973	<=20	3.1
Bromoform	T	Average RF		0.100	0.3115	<=20	4.3
Bromomethane	T	Average RF		0.100	0.2636	<=20	16.0
Carbon Disulfide	T	Average RF		0.100	1.516	<=20	9.7
Carbon Tetrachloride	T	Average RF		0.05	0.1243	<=20	11.9
Chlorobenzene	T	Average RF		0.500	0.9545	<=20	3.1
Chloroethane	T	Average RF		0.100	0.3700	<=20	7.9
Chloroform	T	Average RF		0.200	0.8431	<=20	6.5
Chloromethane	T	Average RF		0.100	0.5810	<=20	4.1
Cyclohexane	T	Average RF		0.100	0.3451	<=20	14.2
Cyclohexanone	T	Average RF			0.02767	<=20	9.4
Dibromochloromethane	T	Average RF		0.100	0.2867	<=20	5.7
Dibromomethane	T	Average RF			0.1473	<=20	3.3
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5045	<=20	8.3
Dichlorofluoromethane (CFC 21)	T	Average RF			0.8818	<=20	7.1
Dichloromethane	T	Average RF		0.100	0.5147	<=20	15.5
Diethyl Ether	T	Average RF			0.3887	<=20	6.0
Diisopropyl Ether	T	Average RF			1.752	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.3281	<=20	5.1
Ethyl tert-Butyl Ether	T	Average RF			1.490	<=20	3.9
Ethylbenzene	T	Average RF		0.100	0.5238	<=20	2.7
Hexachlorobutadiene	T	Average RF			0.3114	<=20	18.0
Iodomethane	T	Linear	1/X		0.4370	>=0.99	0.9981
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.886	<=20	6.2
Methacrylonitrile	T	Linear	1/X		0.1489	>=0.99	0.9994
Methyl Acetate	T	Average RF		0.100	0.2364	<=20	4.9
Methyl Methacrylate	T	Average RF			0.1654	<=20	6.8
Methyl tert-Butyl Ether	T	Average RF		0.100	1.152	<=20	3.7
Methylcyclohexane	T	Average RF		0.100	0.3992	<=20	9.7
Naphthalene	T	Average RF			1.392	<=20	7.3
Propionitrile	T	Average RF			0.04557	<=20	17.0
Styrene	T	Average RF		0.300	1.047	<=20	3.3
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2709	<=20	3.8
Tetrahydrofuran (THF)	T	Average RF			0.09777	<=20	8.2
Toluene	T	Average RF		0.400	1.361	<=20	3.9
Trichloroethene (TCE)	T	Average RF		0.200	0.3273	<=20	4.0
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7177	<=20	2.5
Vinyl Acetate	T	Average RF			0.07886	<=20	8.7
Vinyl Chloride	T	Average RF		0.100	0.6376	<=20	3.5
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5403	<=20	3.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.5023	<=20	3.7
m,p-Xylenes	T	Average RF		0.100	0.6427	<=20	3.6
n-Butyl Acetate	T	Average RF			0.4040	<=20	7.4
n-Butylbenzene	T	Average RF			2.114	<=20	4.3
n-Heptane	T	Average RF			0.3698	<=20	13.7

Initial Calibration - Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.379	<=20	8.8
o-Xylene	T	Average RF		0.300	0.6461	<=20	2.0
sec-Butylbenzene	T	Average RF			2.797	<=20	6.6
tert-Amyl Methyl Ether	T	Average RF			1.288	<=20	4.6
tert-Butylbenzene	T	Average RF			1.995	<=20	4.1
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4855	<=20	6.7
trans-1,3-Dichloropropene	T	Average RF		0.100	0.4146	<=20	3.4
trans-1,4-Dichloro-2-butene	T	Average RF			0.1778	<=20	17.1
1,2-Dichloroethane-d4	S	Average RF			0.3043	<=20	1.5
4-Bromofluorobenzene	S	Average RF			0.4652	<=20	1.4
Dibromofluoromethane	S	Average RF			0.2865	<=20	0.6
Toluene-d8	S	Average RF			1.241	<=20	0.6

00049

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/20/14 10:23

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\062014\M6726.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 398151

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.14	103856	Pass
75	95	30	60	51.31	264597	Pass
95	95	100	100	100.00	515712	Pass
96	95	5	9	6.83	35245	Pass
173	174	0	2	1.06	4048	Pass
174	95	50	120	74.26	382955	Pass
175	174	5	9	7.31	27981	Pass
176	174	95	101	98.69	377941	Pass
177	176	5	9	6.56	24784	Pass

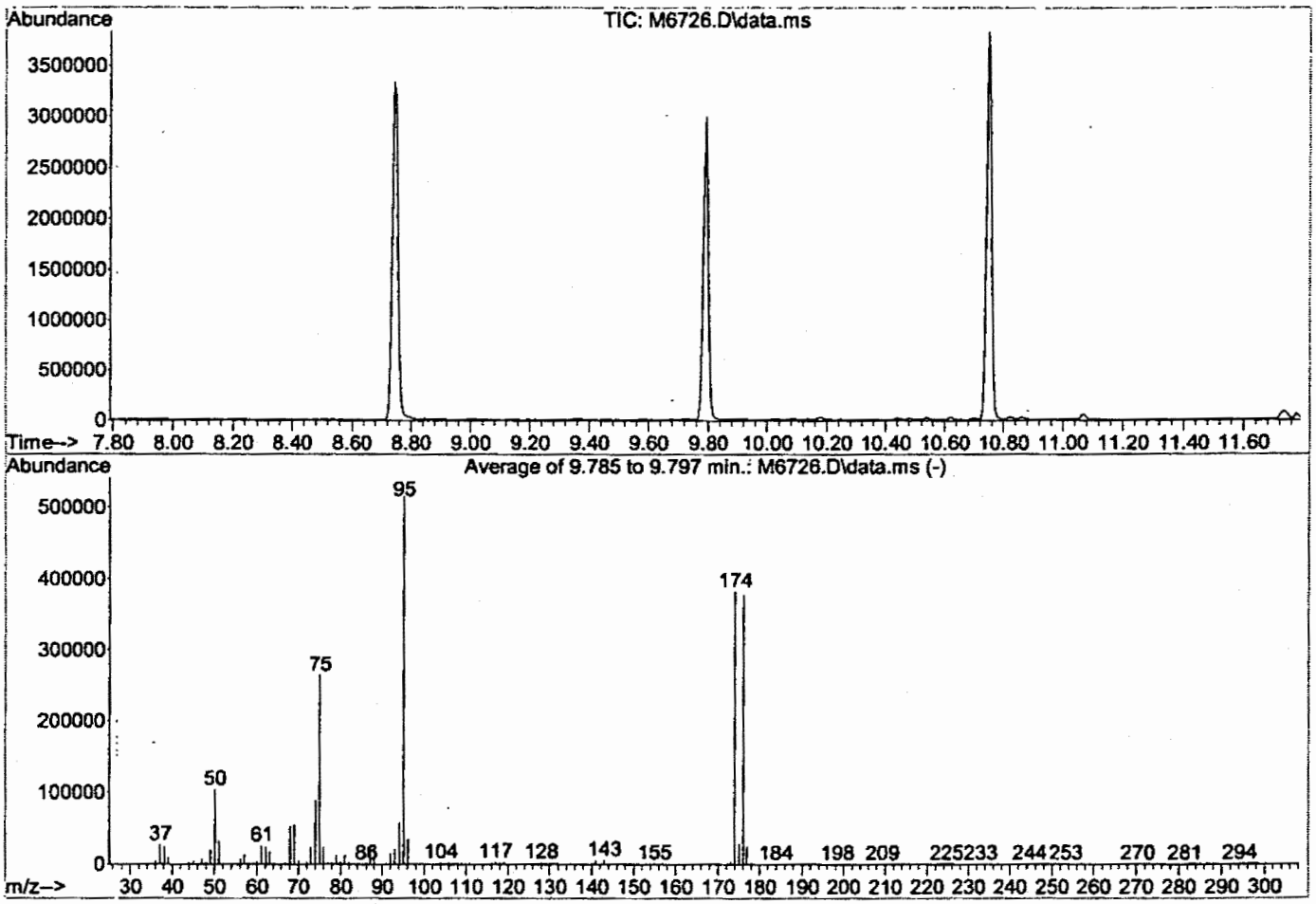
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1406962-02	I:\ACQUDATA\msvoa12\Data\062014\M6727.D\	6/20/14 10:57	
Lab Control Sample	RQ1406962-03	I:\ACQUDATA\msvoa12\Data\062014\M6728.D\	6/20/14 11:31	
Duplicate Lab Control Sample	RQ1406962-04	I:\ACQUDATA\msvoa12\Data\062014\M6729.D\	6/20/14 12:03	
Method Blank	RQ1406962-05	I:\ACQUDATA\msvoa12\Data\062014\M6731.D\	6/20/14 13:15	
MRC-MW-92C-061114	R1404508-013	I:\ACQUDATA\msvoa12\Data\062014\M6746.D\	6/20/14 21:18	

Data Path : I:\ACQUDATA\msvoa12\Data\062014\
Data File : M6726.D
Acq On : 20 Jun 2014 10:23 am
Operator : K.RUEST
Sample : TUNE RQ1406962-01
Misc :
ALS Vial : 3 Sample Multiplier: 1

KR 6/20/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Sat Jun 14 17:33:54 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.1	103856	PASS
75	95	30	60	51.3	264597	PASS
95	95	100	100	100.0	515712	PASS
96	95	5	9	6.8	35245	PASS
173	174	0.00	2	1.1	4048	PASS
174	95	50	120	74.3	382955	PASS
175	174	5	9	7.3	27981	PASS
176	174	95	101	98.7	377941	PASS
177	176	5	9	6.6	24784	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/20/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\062014\M6727.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398151
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	48.2	0.3312	0.3192	-3.6	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	48.3	0.7425	0.7176	-3.4	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	52.5	0.5662	0.5941	4.9	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	44.7	0.4199	0.3758	-10.5	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	50.6	0.8965	0.9077	1.2	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	44.3	0.3927	0.3483	-11.3	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	45.7	0.3962	0.3618	-8.7	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	49.5	0.6167	0.6100	-1.1	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	51.3	0.1619	0.1660	2.5	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.5	0.7261	0.7329	0.9	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	48.0	2.431	2.331	-4.1	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	47.2	0.1025	0.09666	-5.7	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	50.6	0.2437	0.2464	1.1	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	47.2	1.278	1.205	-5.6	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	54.6	0.3640	0.3977	9.3	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	49.3	0.3329	0.3284	-1.4	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	46.2	1.364	1.258	-7.7	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	53.7	0.4524	0.4855	7.3	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	46.3	1.393	1.288	-7.5	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	48.2	0.7868	0.7579	-3.7	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	61.1	0.1412	0.1725	22.1 *	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	50.1	0.1598	0.1599	0.1	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	48.9	2.021	1.976	-2.3	NA	± 20 %	Average RF
2-Hexanone	50.0	56.4	0.1585	0.1788	12.8	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1130	0.03095	0.03511	13.4	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	48.4	2.390	2.315	-3.2	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	45.9	2.384	2.187	-8.3	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	53.9	0.2123	0.2287	7.7	NA	± 20 %	Average RF
Acetone	50.0	63.6	0.09881	0.1257	27.2 *	NA	± 20 %	Average RF
Benzene	50.0	46.8	1.285	1.203	-6.4	NA	± 20 %	Average RF
Bromobenzene	50.0	46.2	0.7321	0.6771	-7.5	NA	± 20 %	Average RF
Bromochloromethane	50.0	49.5	0.2794	0.2765	-1.0	NA	± 20 %	Average RF
Bromodichloromethane	50.0	50.3	0.3973	0.3999	0.7	NA	± 20 %	Average RF
Bromoform	50.0	49.6	0.3115	0.3090	-0.8	NA	± 20 %	Average RF
Bromomethane	50.0	48.7	0.2636	0.2566	-2.7	NA	± 20 %	Average RF
Carbon Disulfide	50.0	49.6	1.516	1.503	-0.8	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	46.5	0.1243	0.1156	-7.0	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.6	0.9545	0.8893	-6.8	NA	± 20 %	Average RF
Chloroethane	50.0	40.2	0.3700	0.2972	-19.7	NA	± 20 %	Average RF
Chloroform	50.0	51.3	0.8431	0.8655	2.7	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/20/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\msvoa12\Data\062014\M6727.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398151
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	42.5	0.5810	0.4936	-15.0	NA	± 20 %	Average RF
Dibromochloromethane	50.0	51.0	0.2867	0.2925	2.0	NA	± 20 %	Average RF
Dibromomethane	50.0	52.2	0.1473	0.1538	4.4	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	47.8	0.5045	0.4825	-4.4	NA	± 20 %	Average RF
Methylene Chloride	50.0	47.7	0.5147	0.4905	-4.7	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	52.3	1.752	1.834	4.7	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	52.9	1.490	1.578	5.9	NA	± 20 %	Average RF
Ethylbenzene	50.0	44.9	0.5238	0.4700	-10.3	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	51.1	0.3114	0.3180	2.1	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	45.3	2.886	2.612	-9.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	56.2	1.152	1.294	12.4	NA	± 20 %	Average RF
Naphthalene	50.0	54.2	1.392	1.510	8.5	NA	± 20 %	Average RF
Styrene	50.0	47.5	1.047	0.9938	-5.1	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	42.2	0.2709	0.2286	-15.6	NA	± 20 %	Average RF
Toluene	50.0	45.8	1.361	1.247	-8.4	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	41.5	0.3273	0.2716	-17.0	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	49.6	0.7177	0.7122	-0.8	NA	± 20 %	Average RF
Vinyl Acetate	50.0	57.3	0.07886	0.09029	14.5	NA	± 20 %	Average RF
Vinyl Chloride	50.0	41.4	0.6376	0.5273	-17.3	NA	± 20 %	Average RF
Xylenes, Total	150	136	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	48.6	0.5403	0.5250	-2.8	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	49.6	0.5023	0.4982	-0.8	NA	± 20 %	Average RF
m,p-Xylenes	100	90.3	0.6427	0.5803	-9.7	NA	± 20 %	Average RF
n-Butylbenzene	50.0	48.8	2.114	2.064	-2.4	NA	± 20 %	Average RF
n-Propylbenzene	50.0	46.8	3.379	3.162	-6.4	NA	± 20 %	Average RF
o-Xylene	50.0	45.4	0.6461	0.5868	-9.2	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	45.8	2.797	2.562	-8.4	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	52.5	1.288	1.353	5.0	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	44.7	1.995	1.783	-10.6	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	46.2	0.4855	0.4484	-7.6	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	51.6	0.4146	0.4282	3.3	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	50.7	0.4652	0.4712	1.3	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	51.9	0.2865	0.2973	3.8	NA	± 20 %	Average RF
Toluene-d8	50.0	50.8	1.241	1.262	1.7	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062014\M6727.D
Misc :
Acq On : 20 Jun 2014 10:57 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 20 11:26:51 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

KR 6/20/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	97	0.00
2	P	Dichlorodifluoromethane	0.5045	0.4825	4.4	89	0.00
3	P	Chloromethane	0.5810	0.4936	15.0	83	0.00
4	P	Vinyl Chloride	0.6376	0.5273	17.3	79	0.00
5	P	Bromomethane	0.2636	0.2566	2.7	87	0.00
6	P	Chloroethane	0.3700	0.2972	19.7	82	0.00
7		Freon 21	0.8818	0.7569	14.2	87	0.00
8	P	Trichlorofluoromethane	0.7177	0.7122	0.8	97	0.00
9		Diethyl Ether	0.3887	0.4140	-6.5	105	0.00
10		Freon 123a	0.5809	0.5288	9.0	88	0.00
11		Freon 123	0.6622	0.5948	10.2	90	0.00
12		Acrolein	0.0377	0.0155	MT 58.9#	39#	0.00
13	P	1,1-Diclethene	0.3927	0.3483	11.3	92	0.00
14	P	Freon 113	0.4199	0.3758	10.5	86	0.00
15	P	Acetone	0.0988	0.1257	-27.2#	125	0.00 ⊗
16		2-Propanol	0.0188	0.0218	-16.0	109	0.00
17		Iodomethane	0.4370	0.5063	-15.9	99	0.00
18	P	Carbon Disulfide	1.5162	1.5033	0.9	105	0.00
19		Acetonitrile	0.0169	0.0211	MT -24.9#	129	0.00
20		Allyl Chloride	0.2910	0.2875	1.2	93	0.00
21	P	Methyl Acetate	0.2364	0.2662	-12.6	107	0.00
22	P	Methylene Chloride	0.5147	0.4905	4.7	102	0.00
23		TBA	0.0310	0.0351	-13.2	107	0.00
24		Acrylonitrile	0.1206	0.1397	-15.8	110	0.00
25	P	Methyl-t-Butyl Ether	1.1516	1.2939	-12.4	106	0.00
26	P	trans-1,2-Dichloroethene	0.4855	0.4484	7.6	92	0.00
27		Halothane	0.0000	0.0000	0.0	0#	-3.01#
28	P	1,1-Diclethane	0.8965	0.9077	-1.2	100	0.00
29		Vinyl Acetate	0.0789	0.0903	-14.4	106	0.00
30		DIPE	1.7522	1.8337	-4.7	103	0.00
31		2-Chloro-1,3-Butadiene	0.8140	0.8971	-10.2	114	0.00
32		ETBE	1.4904	1.5777	-5.9	101	0.00
33		2,2-Dichloropropane	0.7868	0.7579	3.7	99	0.00
34	P	cis-1,2-Dichloroethene	0.5403	0.5250	2.8	97	0.00
35	P	2-Butanone	0.1412	0.1725	-22.2#	116	0.00 ⊗
36		Propionitrile	0.0456	0.0484	-6.1	107	0.00
37		Bromochloromethane	0.2794	0.2765	1.0	96	0.00
38		Methacrylonitrile	0.1489	0.1549	-4.0	109	0.00
39		Tetrahydrofuran	0.0978	0.1040	-6.3	109	0.00
40	P	Chloroform	0.8431	0.8655	-2.7	104	0.00
41	P	1,1,1-Trichloroethane	0.7425	0.7176	3.4	97	0.00
42		TAME	1.2882	1.3532	-5.0	101	0.00
43	I	1,4-Difluorobenzene	1.0000	1.0000	0.0	102	0.00
44	P	Cyclohexane	0.3451	0.2788	19.2	90	0.00
45	s	surr4,Dibrflmethane	0.2865	0.2973	-3.8	106	0.00
46	P	Carbontetrachloride	0.1243	0.1156	7.0	96	0.00
47		1,1-Dichloropropene	0.3962	0.3618	8.7	94	0.00

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062014\M6727.D
Misc :
Acq On : 20 Jun 2014 10:57 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 20 11:26:51 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3043	0.3538	-16.3	117	0.00
49	P	Benzene	1.2852	1.2035	6.4	97	0.00
50	P	1,2-Dichloroethane	0.3640	0.3977	-9.3	115	0.00
51		Iso-Butyl Alcohol	0.0084	0.0099	-17.9	117	0.00
52		n-Heptane	0.3698	0.3374	8.8	96	0.00
53		1-Butanol	0.0050	0.0059	-18.0	111	0.00
54	P	Trichloroethene	0.3273	0.2716	17.0	86	0.00
55	P	Methylcyclohexane	0.3992	0.3404	14.7	91	0.00
56	P	1,2-Diclpropane	0.3329	0.3284	1.4	102	0.00
57		Dibromomethane	0.1473	0.1538	-4.4	108	0.00
58		1,4-Dioxane	0.0021	0.0022	-4.8	110	0.00
59		Methyl Methacrylate	0.1654	0.1661	-0.4	106	0.00
60	P	Bromodichloromethane	0.3973	0.3999	-0.7	104	0.00
61		2-Nitropropane	0.0525	0.0495	5.7	101	0.00
62		2-Chloroethylvinyl Ether	0.1598	0.1599	-0.1	101	0.00
63	P	cis-1,3-Dichloropropene	0.5023	0.4982	0.8	101	0.00
64	P	4-Methyl-2-pentanone	0.2123	0.2287	-7.7	112	0.00
65	s	SURR3,Toluene-d8	1.2410	1.2617	-1.7	104	0.00
66	P	Toluene	1.3610	1.2469	8.4	94	0.00
67	P	trans-1,3-Dichloropropene	0.4146	0.4282	-3.3	104	0.00
68		Ethyl Methacrylate	0.3281	0.3514	-7.1	106	0.00
69	P	1,1,2-Trichloroethane	0.2285	0.2224	2.7	99	0.00
70	s	SURR2,BFB	0.4652	0.4712	-1.3	102	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	99	0.00
72	P	Tetrachloroethene	0.2709	0.2286	15.6	85	0.00
73	P	2-Hexanone	0.1585	0.1788	-12.8	111	0.00
74		1,3-Dichloropropane	0.4524	0.4855	-7.3	105	0.00
75	P	Dibromochloromethane	0.2867	0.2925	-2.0	99	0.00
76		N-Butyl Acetate	0.4040	0.4439	-9.9	105	0.00
77	P	1,2-Dibromoethane	0.2437	0.2464	-1.1	100	0.00
78	P	Chlorobenzene	0.9545	0.8893	6.8	93	0.00
79		3-CBTF	0.4621	0.4333	6.2	94	0.00
80		4-CBTF	0.4185	0.3911	6.5	94	0.00
81		1,1,1,2-Tetrachloroethane	0.3312	0.3192	3.6	94	0.00
82	P	Ethylbenzene	0.5238	0.4700	10.3	89	0.00
83	P	(m+p)Xylene	0.6427	0.5803	9.7	89	0.00
84	P	o-Xylene	0.6461	0.5868	9.2	90	0.00
85	P	Styrene	1.0469	0.9938	5.1	92	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	97	0.00
87	P	Bromoform	0.3115	0.3090	0.8	98	0.00
88		2-CBTF	0.8449	0.8006	5.2	93	0.00
89	P	Isopropylbenzene	2.8859	2.6119	9.5	88	0.00
90		Cyclohexanone	0.0277	0.0395	-42.6#	145	0.00
91		trans-1,4-Dichloro-2-Butene	0.1778	0.1739	2.2	105	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5662	0.5941	-4.9	105	0.00
93		Bromobenzene	0.7321	0.6771	7.5	92	0.00

001852

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062014\M6727.D
Misc :
Acq On : 20 Jun 2014 10:57 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 20 11:26:51 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94		1,2,3-Trichloropropane	0.1619	0.1660	-2.5	104	0.00
95		n-Propylbenzene	3.3794	3.1620	6.4	91	0.00
96		2-Chlorotoluene	2.0215	1.9758	2.3	94	0.00
97		3-Chlorotoluene	2.1093	2.1734	-3.0	101	0.00
98		4-Chlorotoluene	2.3904	2.3150	3.2	94	0.00
99		1,3,5-Trimethylbenzene	2.4183	2.2161	8.4	89	0.00
100		tert-Butylbenzene	1.9946	1.7828	10.6	87	0.00
101		1,2,4-Trimethylbenzene	2.4307	2.3312	4.1	91	0.00
102		3,4-DCBTF	0.5797	0.5849	-0.9	99	0.00
103		sec-Butylbenzene	2.7969	2.5618	8.4	88	0.00
104		p-Isopropyltoluene	2.3839	2.1866	8.3	87	0.00
105	P	1,3-Dclbenz	1.3635	1.2584	7.7	90	0.00
106	P	1,4-Dclbenz	1.3925	1.2880	7.5	92	0.00
107		2,4-DCBTF	0.5290	0.5186	2.0	96	0.00
108		2,5-DCBTF	0.5736	0.6026	-5.1	104	0.00
109		n-Butylbenzene	2.1142	2.0642	2.4	92	0.00
110	P	1,2-Dclbenz	1.2776	1.2055	5.6	92	0.00
111	P	1,2-Dibromo-3-chloropropane	0.1025	0.0967	5.7	91	0.00
112		Trielution Dichlorotoluene	1.0306	1.0671	-3.5	100	0.00
113		1,3,5 Trichlorobenzene	0.8305	0.8272	0.4	97	0.00
114		Coelution Dichlorotoluene	1.1064	1.1653	-5.3	101	0.00
115	P	1,2,4-Tcbenzene	0.7261	0.7329	-0.9	97	0.00
116		Hexachlorobt	0.3114	0.3180	-2.1	106	0.00
117		Naphthalen	1.3921	1.5103	-8.5	98	0.00
118		1,2,3-Tclbenzene	0.6167	0.6100	1.1	97	0.00
119		2,4,5-Trichlorotolene	0.3902	0.4190	-7.4	101	0.00
120		2,3,6-Trichlorotoluene	0.3666	0.3912	-6.7	101	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

001185

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Analyzed:**	6/20/14 13:15
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1406962-05	**File ID:**	I:\ACQUDATA\msvoa12\Data\062014\M6731.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1406962-03	I:\ACQUDATA\msvoa12\Data\062014\M6728.D\	6/20/14 11:31
Duplicate Lab Control Sample	RQ1406962-04	I:\ACQUDATA\msvoa12\Data\062014\M6729.D\	6/20/14 12:03
MRC-MW-92C-061114	R1404508-013	I:\ACQUDATA\msvoa12\Data\062014\M6746.D\	6/20/14 21:18

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/20/14 13:15
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406962-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398151
Data File Name:	I:\ACQUDATA\msvoa12\Data\062014\M6731.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.26	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	0.31	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/20/14 13:15
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406962-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398151
Data File Name:	I:\ACQUDATA\msvoa12\Data\062014\M6731.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.29	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/20/14 13:15
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1406962-05	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398151
Data File Name:	I:\ACQUDATA\msvoa12\Data\062014\M6731.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/20/14 13:15	
Dibromofluoromethane	104	89-119	6/20/14 13:15	
Toluene-d8	101	87-121	6/20/14 13:15	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/23/14 11:45

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\062314\M6773.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 398443

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.07	113851	Pass
75	95	30	60	51.45	291883	Pass
95	95	100	100	100.00	567360	Pass
96	95	5	9	6.51	36957	Pass
173	174	0	2	1.04	4428	Pass
174	95	50	120	75.16	426411	Pass
175	174	5	9	7.30	31117	Pass
176	174	95	101	95.38	406699	Pass
177	176	5	9	6.80	27637	Pass

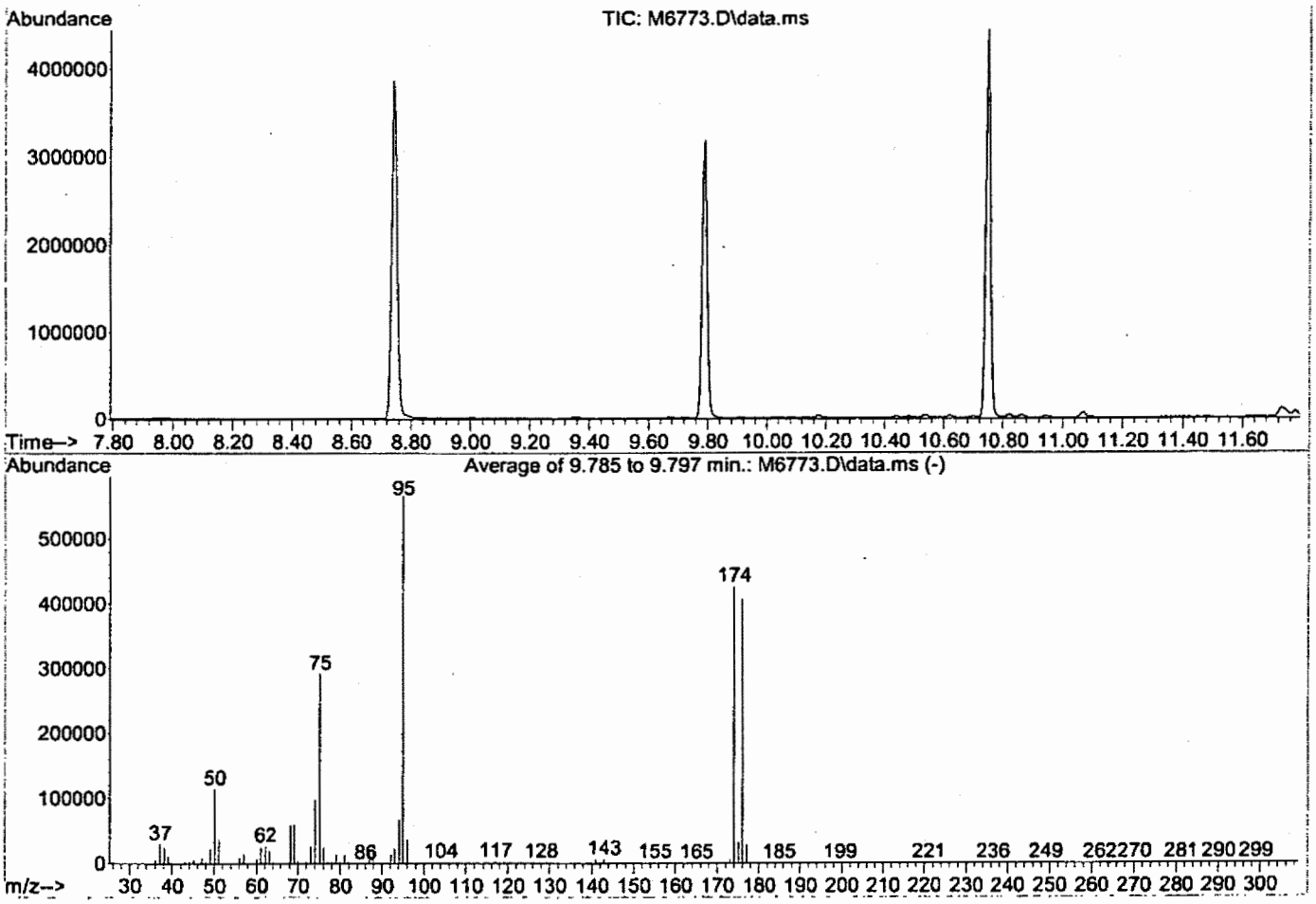
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407050-02	I:\ACQUDATA\MSVOA12\DATA\062314\M6774.D\	6/23/14 12:18	
Lab Control Sample	RQ1407050-03	I:\ACQUDATA\MSVOA12\DATA\062314\M6775.D\	6/23/14 12:57	
Method Blank	RQ1407050-04	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	6/23/14 14:00	
MRC-MW-92C-061114RE	R1404508-013	I:\ACQUDATA\MSVOA12\DATA\062314\M6781.D\	6/23/14 16:22	

Data Path : I:\ACQUDATA\msvoa12\Data\062314\
Data File : M6773.D
Acq On : 23 Jun 2014 11:45 am
Operator : K.RUEST
Sample : TUNE R1407050-01
Misc :
ALS Vial : 3 Sample Multiplier: 1

KR 6/23/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Sat Jun 14 17:33:54 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.1	113851	PASS
75	95	30	60	51.4	291883	PASS
95	95	100	100	100.0	567360	PASS
96	95	5	9	6.5	36957	PASS
173	174	0.00	2	1.0	4428	PASS
174	95	50	120	75.2	426411	PASS
175	174	5	9	7.3	31117	PASS
176	174	95	101	95.4	406699	PASS
177	176	5	9	6.8	27637	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/23/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062314\M6774.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398443
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	47.1	0.3312	0.3122	-5.7	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	52.8	0.7425	0.7837	5.5	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	51.7	0.5662	0.5856	3.4	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	49.7	0.4199	0.4170	-0.7	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	53.2	0.8965	0.9530	6.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.1	0.3927	0.3696	-5.9	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	50.8	0.3962	0.4029	1.7	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	48.5	0.6167	0.5977	-3.1	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	51.7	0.1619	0.1675	3.5	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.5	0.7261	0.7339	1.1	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	49.9	2.431	2.427	-0.1	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	47.3	0.1025	0.09692	-5.5	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	49.8	0.2437	0.2426	-0.4	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	48.2	1.278	1.233	-3.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	56.6	0.3640	0.4121	13.2	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	52.1	0.3329	0.3471	4.3	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	47.7	1.364	1.300	-4.7	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	52.5	0.4524	0.4745	4.9	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	47.0	1.393	1.309	-6.0	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	51.5	0.7868	0.8096	2.9	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	59.9	0.1412	0.1691	19.7	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	49.7	0.1598	0.1589	-0.5	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	51.2	2.021	2.070	2.4	NA	± 20 %	Average RF
2-Hexanone	50.0	55.0	0.1585	0.1744	10.0	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1190	0.03095	0.03674	18.7	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	52.1	2.390	2.489	4.1	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	48.8	2.384	2.329	-2.3	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	55.3	0.2123	0.2346	10.5	NA	± 20 %	Average RF
Acetone	50.0	61.3	0.09881	0.1211	22.5 *	NA	± 20 %	Average RF
Benzene	50.0	50.2	1.285	1.289	0.3	NA	± 20 %	Average RF
Bromobenzene	50.0	47.2	0.7321	0.6904	-5.7	NA	± 20 %	Average RF
Bromochloromethane	50.0	48.9	0.2794	0.2732	-2.2	NA	± 20 %	Average RF
Bromodichloromethane	50.0	51.5	0.3973	0.4090	2.9	NA	± 20 %	Average RF
Bromoform	50.0	47.8	0.3115	0.2980	-4.3	NA	± 20 %	Average RF
Bromomethane	50.0	42.6	0.2636	0.2245	-14.8	NA	± 20 %	Average RF
Carbon Disulfide	50.0	49.5	1.516	1.500	-1.1	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	49.8	0.1243	0.1237	-0.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.7	0.9545	0.8919	-6.6	NA	± 20 %	Average RF
Chloroethane	50.0	42.8	0.3700	0.3170	-14.3	NA	± 20 %	Average RF
Chloroform	50.0	53.7	0.8431	0.9048	7.3	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp/GW 112IC06247

Service Request: R1404508
Date Analyzed: 6/23/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062314\M6774.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398443
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Chloromethane	50.0	44.4	0.5810	0.5159	-11.2	NA	± 20 %	Average RF
Dibromochloromethane	50.0	49.3	0.2867	0.2826	-1.4	NA	± 20 %	Average RF
Dibromomethane	50.0	53.5	0.1473	0.1577	7.0	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	49.0	0.5045	0.4944	-2.0	NA	± 20 %	Average RF
Methylene Chloride	50.0	48.2	0.5147	0.4962	-3.6	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	53.0	1.752	1.859	6.1	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	52.8	1.490	1.573	5.6	NA	± 20 %	Average RF
Ethylbenzene	50.0	46.6	0.5238	0.4884	-6.8	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	48.9	0.3114	0.3046	-2.2	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	48.8	2.886	2.814	-2.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	55.8	1.152	1.284	11.5	NA	± 20 %	Average RF
Naphthalene	50.0	52.6	1.392	1.463	5.1	NA	± 20 %	Average RF
Styrene	50.0	48.0	1.047	1.005	-4.0	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	43.6	0.2709	0.2360	-12.9	NA	± 20 %	Average RF
Toluene	50.0	49.8	1.361	1.354	-0.5	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	44.5	0.3273	0.2914	-11.0	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	53.1	0.7177	0.7624	6.2	NA	± 20 %	Average RF
Vinyl Acetate	50.0	55.6	0.07886	0.08771	11.2	NA	± 20 %	Average RF
Vinyl Chloride	50.0	45.0	0.6376	0.5734	-10.1	NA	± 20 %	Average RF
Xylenes, Total	150	139	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	49.3	0.5403	0.5330	-1.4	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	51.5	0.5023	0.5170	2.9	NA	± 20 %	Average RF
m,p-Xylenes	100	93.7	0.6427	0.6023	-6.3	NA	± 20 %	Average RF
n-Butylbenzene	50.0	51.8	2.114	2.190	3.6	NA	± 20 %	Average RF
n-Propylbenzene	50.0	50.1	3.379	3.386	0.2	NA	± 20 %	Average RF
o-Xylene	50.0	45.7	0.6461	0.5910	-8.5	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	48.9	2.797	2.733	-2.3	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	53.3	1.288	1.373	6.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	47.6	1.995	1.898	-4.9	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	48.5	0.4855	0.4708	-3.0	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	52.9	0.4146	0.4389	5.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.0	0.4652	0.4927	5.9	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	52.9	0.2865	0.3028	5.7	NA	± 20 %	Average RF
Toluene-d8	50.0	51.8	1.241	1.286	3.6	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062314\M6774.D
Misc :
Acq On : 23 Jun 2014 12:18 pm
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 23 12:44:56 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

kf 6/23/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	107	0.00
2	P	Dichlorodifluoromethane	0.5045	0.4944	2.0	100	0.00
3	P	Chloromethane	0.5810	0.5159	11.2	95	0.00
4	P	Vinyl Chloride	0.6376	0.5734	10.1	94	0.00
5	P	Bromomethane	0.2636	0.2245	14.8	84	0.00
6	P	Chloroethane	0.3700	0.3170	14.3	96	0.00
7		Freon 21	0.8818	0.8527	3.3	109	0.00
8	P	Trichlorofluoromethane	0.7177	0.7624	-6.2	115	0.00
9		Diethyl Ether	0.3887	0.4200	-8.1	117	0.00
10		Freon 123a	0.5809	0.6055	-4.2	111	0.00
11		Freon 123	0.6622	0.6631	-0.1	111	0.00
12		Acrolein	0.0377	0.0126	MT 66.6#	35#	0.00
13	P	1,1-Diclethene	0.3927	0.3696	5.9	107	0.00
14	P	Freon 113	0.4199	0.4170	0.7	105	0.00
15	P	Acetone	0.0988	0.1211	-22.6#	133	0.00
16		2-Propanol	0.0188	0.0224	-19.1	123	0.00
17		Iodomethane	0.4370	0.5071	4.5 ~~-16.0~~	110	0.00
18	P	Carbon Disulfide	1.5162	1.4998	1.1	115	0.00
19		Acetonitrile	0.0169	0.0193	-14.2	130	0.00
20		Allyl Chloride	0.2910	0.3077	-5.7	110	0.00
21	P	Methyl Acetate	0.2364	0.2614	-10.6	116	0.00
22	P	Methylene Chloride	0.5147	0.4962	3.6	113	0.00
23		TBA	0.0310	0.0367	-18.4	123	0.00
24		Acrylonitrile	0.1206	0.1411	-17.0	123	0.00
25	P	Methyl-t-Butyl Ether	1.1516	1.2841	-11.5	116	0.00
26	P	trans-1,2-Dichloroethene	0.4855	0.4708	3.0	106	0.00
27		Halothane	0.0000	0.0000	0.0	0#	-3.01#
28	P	1,1-Diclethane	0.8965	0.9530	-6.3	115	0.00
29		Vinyl Acetate	0.0789	0.0877	-11.2	113	0.00
30		DIPE	1.7522	1.8586	-6.1	115	0.00
31		2-Chloro-1,3-Butadiene	0.8140	0.8923	-9.6	125	0.00
32		ETBE	1.4904	1.5732	-5.6	111	0.00
33		2,2-Dichloropropane	0.7868	0.8096	-2.9	117	0.00
34	P	cis-1,2-Dichloroethene	0.5403	0.5330	1.4	108	0.00
35	P	2-Butanone	0.1412	0.1691	-19.8	125	0.00
36		Propionitrile	0.0456	0.0498	-9.2	121	0.00
37		Bromochloromethane	0.2794	0.2732	2.2	105	0.00
38		Methacrylonitrile	0.1489	0.1481	9.1 ~~-9.5~~	115	0.00
39		Tetrahydrofuran	0.0978	0.1089	-11.3	126	0.00
40	P	Chloroform	0.8431	0.9048	-7.3	120	0.00
41	P	1,1,1-Trichloroethane	0.7425	0.7837	-5.5	117	0.00
42		TAME	1.2882	1.3730	-6.6	113	0.00
43	I	1,4-Difluorobenzene	1.0000	1.0000	0.0	110	0.00
44	P	Cyclohexane	0.3451	0.3285	4.8	114	0.00
45	s	surr4,Dibrflmethane	0.2865	0.3028	-5.7	116	0.00
46	P	Carbontetrachloride	0.1243	0.1237	0.5	110	0.00
47		1,1-Dichloropropene	0.3962	0.4029	-1.7	113	0.00

00152

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062314\M6774.D
Misc :
Acq On : 23 Jun 2014 12:18 pm
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 23 12:44:56 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3043	0.3624	-19.1	129	0.00
49	P	Benzene	1.2852	1.2893	-0.3	112	0.00
50	P	1,2-Dichloroethane	0.3640	0.4121	-13.2	128	0.00
51		Iso-Butyl Alcohol	0.0084	0.0103	-22.6#	131	0.00
52		n-Heptane	0.3698	0.3729	-0.8	114	0.00
53		1-Butanol	0.0050	0.0065	-30.0#	131	0.00
54	P	Trichloroethene	0.3273	0.2914	11.0	100	0.00
55	P	Methylcyclohexane	0.3992	0.3939	1.3	114	0.00
56	P	1,2-Diclpropane	0.3329	0.3471	-4.3	116	0.00
57		Dibromomethane	0.1473	0.1577	-7.1	119	0.00
58		1,4-Dioxane	0.0021	0.0024	-14.3	126	0.00
59		Methyl Methacrylate	0.1654	0.1704	-3.0	117	0.00
60	P	Bromodichloromethane	0.3973	0.4090	-2.9	115	0.00
61		2-Nitropropane	0.0525	0.0526	-0.2	116	0.00
62		2-Chloroethylvinyl Ether	0.1598	0.1589	0.6	108	0.00
63	P	cis-1,3-Dichloropropene	0.5023	0.5170	-2.9	113	0.00
64	P	4-Methyl-2-pentanone	0.2123	0.2346	-10.5	124	0.00
65	s	SURR3,Toluene-d8	1.2410	1.2861	-3.6	114	0.00
66	P	Toluene	1.3610	1.3544	0.5	110	0.00
67	P	trans-1,3-Dichloropropene	0.4146	0.4389	-5.9	115	0.00
68		Ethyl Methacrylate	0.3281	0.3561	-8.5	116	0.00
69	P	1,1,2-Trichloroethane	0.2285	0.2305	-0.9	111	0.00
70	s	SURR2,BFB	0.4652	0.4927	-5.9	115	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	112	0.00
72	P	Tetrachloroethene	0.2709	0.2360	12.9	99	0.00
73	P	2-Hexanone	0.1585	0.1744	-10.0	123	0.00
74		1,3-Dichloropropane	0.4524	0.4745	-4.9	117	0.00
75	P	Dibromochloromethane	0.2867	0.2826	1.4	108	0.00
76		N-Butyl Acetate	0.4040	0.4398	-8.9	118	0.00
77	P	1,2-Dibromoethane	0.2437	0.2426	0.5	112	0.00
78	P	Chlorobenzene	0.9545	0.8919	6.6	106	0.00
79		3-CBTF	0.4621	0.4131	10.6	102	0.00
80		4-CBTF	0.4185	0.3743	10.6	101	0.00
81		1,1,1,2-Tetrachloroethane	0.3312	0.3122	5.7	104	0.00
82	P	Ethylbenzene	0.5238	0.4884	6.8	105	0.00
83	P	(m+p)Xylene	0.6427	0.6023	6.3	105	0.00
84	P	o-Xylene	0.6461	0.5910	8.5	103	0.00
85	P	Styrene	1.0469	1.0050	4.0	105	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	108	0.00
87	P	Bromoform	0.3115	0.2980	4.3	104	0.00
88		2-CBTF	0.8449	0.7690	9.0	100	0.00
89	P	Isopropylbenzene	2.8859	2.8136	2.5	105	0.00
90		Cyclohexanone	0.0277	0.0279	-0.7	114	0.00
91		trans-1,4-Dichloro-2-Butene	0.1778	0.1701	4.3	114	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5662	0.5856	-3.4	115	0.00
93		Bromobenzene	0.7321	0.6904	5.7	105	0.00

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062314\M6774.D
Misc :
Acq On : 23 Jun 2014 12:18 pm
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 23 12:44:56 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94		1,2,3-Trichloropropane	0.1619	0.1675	-3.5	117	0.00
95		n-Propylbenzene	3.3794	3.3856	-0.2	108	0.00
96		2-Chlorotoluene	2.0215	2.0701	-2.4	110	0.00
97		3-Chlorotoluene	2.1093	2.0611	2.3	106	0.00
98		4-Chlorotoluene	2.3904	2.4890	-4.1	112	0.00
99		1,3,5-Trimethylbenzene	2.4183	2.3697	2.0	106	0.00
100		tert-Butylbenzene	1.9946	1.8978	4.9	103	0.00
101		1,2,4-Trimethylbenzene	2.4307	2.4271	0.1	105	0.00
102		3,4-DCBTF	0.5797	0.5779	0.3	109	0.00
103		sec-Butylbenzene	2.7969	2.7329	2.3	104	0.00
104		p-Isopropyltoluene	2.3839	2.3285	2.3	103	0.00
105	P	1,3-Dclbenz	1.3635	1.2999	4.7	103	0.00
106	P	1,4-Dclbenz	1.3925	1.3095	6.0	104	0.00
107		2,4-DCBTF	0.5290	0.5089	3.8	104	0.00
108		2,5-DCBTF	0.5736	0.5824	-1.5	111	0.00
109		n-Butylbenzene	2.1142	2.1895	-3.6	109	0.00
110	P	1,2-Dclbenz	1.2776	1.2326	3.5	104	0.00
111	P	1,2-Dibromo-3-chloropropane	0.1025	0.0969	5.5	102	0.00
112		Trielution Dichlorotoluene	1.0306	1.0387	-0.8	108	0.00
113		1,3,5 Trichlorobenzene	0.8305	0.8092	2.6	105	0.00
114		Coelution Dichlorotoluene	1.1064	1.1131	-0.6	107	0.00
115	P	1,2,4-Tcbenzene	0.7261	0.7339	-1.1	108	0.00
116		Hexachlorobt	0.3114	0.3046	2.2	112	0.00
117		Naphthalen	1.3921	1.4631	-5.1	105	0.00
118		1,2,3-Tclbenzene	0.6167	0.5977	3.1	106	0.00
119		2,4,5-Trichlorotolene	0.3902	0.3973	-1.8	106	0.02
120		2,3,6-Trichlorotoluene	0.3666	0.3704	-1.0	106	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Analyzed:**	6/23/14 14:00
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1407050-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407050-03	I:\ACQUDATA\MSVOA12\DATA\062314\M6775.D\	6/23/14 12:57
MRC-MW-92C-061114RE	R1404508-013	I:\ACQUDATA\MSVOA12\DATA\062314\M6781.D\	6/23/14 16:22

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 14:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407050-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.34**	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 14:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407050-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.75	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.28	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404508
Project:	Middle River- Lockheed Martin Corp/GW 112IC06247	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 14:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407050-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/23/14 14:00	
Dibromofluoromethane	106	89-119	6/23/14 14:00	
Toluene-d8	103	87-121	6/23/14 14:00	

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1404508 SDG No.: MRC-MW-04A-

Lab Code: Case No.: SAS No.:

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-04A-060914	R1404508-004
MRC-MW-81A-061114	R1404508-011
MRC-MW-92C-061114	R1404508-013

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: Name: Deb Roth

Date: 7/14/14 Title: Project Chemist

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/3/2014 End Date: 7/3/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	07:59											X														
Standard 1	1.00	08:06											X														
Standard 2	1.00	08:12											X														
Standard 3	1.00	08:19											X														
ICV2	1.00	08:25											X														
ICB2	1.00	08:32											X														
CRDL1	1.00	08:38											X														
ICS-A1	1.00	08:45											X														
ICS-AB1	1.00	08:51											X														
CCV1	1.00	08:57											X														
CCB1	1.00	09:04											X														
ZZZZZZ	1.00	09:10																									
PBW	1.00	09:17																									
LCSW	1.00	09:24																									
ZZZZZZ	1.00	09:30																									
ZZZZZZ	1.00	09:37																									
ZZZZZZ	1.00	09:44																									
ZZZZZZ	1.00	09:50																									
ZZZZZZ	1.00	09:57																									
ZZZZZZ	1.00	10:04																									
ZZZZZZ	1.00	10:11																									
CCV2	1.00	10:17											X														
CCB2	1.00	10:23											X														
ZZZZZZ	1.00	10:30																									
ZZZZZZ	1.00	10:37																									
ZZZZZZ	1.00	10:43																									
ZZZZZZ	1.00	10:50																									
ZZZZZZ	1.00	10:57																									
ZZZZZZ	1.00	11:04																									
ZZZZZZ	1.00	11:10																									
ZZZZZZ	1.00	11:17																									
ZZZZZZ	1.00	11:24																									
ZZZZZZ	1.00	11:30																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/3/2014 End Date: 7/3/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
CCV3	1.00	11:37											X																	
CCB3	1.00	11:43											X																	
ZZZZZZ	1.00	11:50																												
ZZZZZZ	1.00	11:57																												
ZZZZZZ	1.00	12:03																												
ZZZZZZ	1.00	12:10																												
ZZZZZZ	1.00	12:17																												
ZZZZZZ	1.00	12:23																												
CRDL2	1.00	12:30											X																	
ZZZZZZ	1.00	12:36																												
CCV4	1.00	12:43											X																	
CCB4	1.00	12:49											X																	
MRC-MW-81A-061114	2.00	12:59											X																	
ZZZZZZ	1.00	13:06																												
ZZZZZZ	1.00	13:12																												
ZZZZZZ	1.00	13:19																												
ZZZZZZ	1.00	13:26																												
ZZZZZZ	1.00	13:32																												
CCV5	1.00	13:39											X																	
CCB5	1.00	13:45											X																	
ZZZZZZ	5.00	13:52																												
ZZZZZZ	1.00	13:59																												
ZZZZZZ	1.00	14:05																												
ZZZZZZ	1.00	14:12																												
ZZZZZZ	1.00	14:18																												
ZZZZZZ	1.00	14:25																												
CRDL3	1.00	14:32											X																	
CCV6	1.00	14:38											X																	
CCB6	1.00	14:44											X																	
MRC-MW-92C-061114	1.00	14:52											X																	
CRDL4	1.00	14:58											X																	
CCV7	1.00	15:05											X																	
CCB7	1.00	15:11											X																	

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony				50	48	96			MS
Arsenic				50	49	98			MS
Beryllium				50	52	104			MS
Cadmium				50	51	102			MS
Cobalt				50	50	100			MS
Copper				50	47	94	47	94	MS
Lead				50	48	96			MS
Nickel				50	50	100			MS
Silver				50	51	102			MS
Thallium				50	52	104			MS
Vanadium				50	47	94			MS
Molybdenum				50	50	100			MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Copper				50	47	94	49	98	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	M
Copper				50	49	98			MS

Comments:

00269

METALS

-3-

BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Copper			0.252	U	0.252	U	0.252	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank	C	M
Copper			0.252	U							MS

Comments:

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	21:13												X			X										
Calib Std 1	1.00	21:19															X										
Calib Std 2	1.00	21:25																									
Calib Std 3	1.00	21:31												X													
Calib Std 4	1.00	21:37												X			X										
Calib Std 5	1.00	21:43												X			X										
ICV1	1.00	21:49												X			X										
ICB1	1.00	21:55												X			X										
CRDL1	1.00	22:01												X			X										
ICS-A1	1.00	22:07												X			X										
ICS-AB1	1.00	22:13												X			X										
CCV1	1.00	22:19												X			X										
CCB1	1.00	22:25												X			X										
ZZZZZZ	1.00	22:31																									
ZZZZZZ	1.00	22:37																									
ZZZZZZ	1.00	22:43																									
ZZZZZZ	1.00	22:49																									
ZZZZZZ	1.00	22:56																									
ZZZZZZ	100.00	23:02																									
ZZZZZZ	100.00	23:08																									
ZZZZZZ	1.00	23:14																									
ZZZZZZ	1.00	23:20																									
ZZZZZZ	1.00	23:26																									
CCV2	1.00	23:32												X			X										
CCB2	1.00	23:38												X			X										
ZZZZZZ	1.00	23:44																									
ZZZZZZ	5.00	23:50																									
ZZZZZZ	1.00	23:56																									
ZZZZZZ	10.00	00:03																									
CCV3	1.00	00:09												X			X										
CCB3	1.00	00:15												X			X										
CRDL2	1.00	00:21												X			X										
ICS-A2	1.00	00:27												X			X										

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METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ICS-AB2	1.00	00:33												X			X													
ZZZZZZ	1.00	00:39																												
ZZZZZZ	1.00	00:45																												
CCV4	1.00	00:51												X			X													
CCB4	1.00	00:57												X			X													
PBW	1.00	01:03												X			X													
LCSW	1.00	01:09												X			X													
MRC-MW-04A-060914	1.00	01:15												X			X													
MRC-MW-81A-061114	1.00	01:22												X			X													
MRC-MW-92C-061114	1.00	01:28												X			X													
MRC-MW-92C-061114L	5.00	01:34												X			X													
ZZZZZZ	1.00	01:40																												
ZZZZZZ	1.00	01:46																												
ZZZZZZ	1.00	01:52																												
ZZZZZZ	1.00	01:59																												
CCV5	1.00	02:05												X			X													
CCB5	1.00	02:11												X			X													
ZZZZZZ	1.00	02:17																												
ZZZZZZ	5.00	02:23																												
ZZZZZZ	1.00	02:29																												
ZZZZZZ	1.00	02:35																												
ZZZZZZ	1.00	02:41																												
ZZZZZZ	1.00	02:48																												
ZZZZZZ	1.00	02:54																												
ZZZZZZ	1.00	03:00																												
ZZZZZZ	1.00	03:06																												
CCV6	1.00	03:12												X			X													
CCB6	1.00	03:18												X			X													
CRDL3	1.00	03:24												X			X													
ICS-A3	1.00	03:30												X			X													
ICS-AB3	1.00	03:36												X			X													
CCV7	1.00	03:42												X			X													
CCB7	1.00	03:48												X			X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/30/2014 End Date: 6/30/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Blank	1.00	14:51					X																							
Standard 1	1.00	14:57					X																							
Standard 2	1.00	15:03					X																							
Standard 3	1.00	15:10					X																							
ICV1	1.00	15:16					X																							
ICB1	1.00	15:23					X																							
CRDL1	1.00	15:29					X																							
ICS-A1	1.00	15:35					X																							
ICS-AB1	1.00	15:42					X																							
CCV1	1.00	15:48					X																							
CCB1	1.00	15:55					X																							
ZZZZZZ	1.00	16:01																												
ZZZZZZ	1.00	16:08																												
ZZZZZZ	1.00	16:14																												
ZZZZZZ	1.00	16:21																												
ZZZZZZ	1.00	16:28																												
ZZZZZZ	1.00	16:34																												
ZZZZZZ	1.00	16:41																												
CCV2	1.00	16:47					X																							
CCB2	1.00	16:54					X																							
ZZZZZZ	1.00	17:01																												
ZZZZZZ	5.00	17:08																												
ZZZZZZ	1.00	17:14																												
ZZZZZZ	1.00	17:21																												
ZZZZZZ	1.00	17:28																												
ZZZZZZ	1.00	17:34																												
CRDL2	1.00	17:41					X																							
ZZZZZZ	1.00	17:47																												
CCV3	1.00	17:54					X																							
CCB3	1.00	18:00					X																							
PBW	1.00	18:22					X																							
LCSW	1.00	18:29					X																							
MRC-MW-04A-060914	10.00	18:35					X																							

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

00309

METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/30/2014 End Date: 6/30/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-81A-061114	10.00	18:42					X																				
MRC-MW-92C-061114	10.00	18:49					X																				
MRC-MW-92C-061114L	50.00	18:55					X																				
ZZZZZZ	1.00	19:02																									
ZZZZZZ	1.00	19:09																									
ZZZZZZ	1.00	19:16																									
CCV4	1.00	19:22					X																				
CCB4	1.00	19:28					X																				
ZZZZZZ	1.00	19:35																									
ZZZZZZ	1.00	19:42																									
ZZZZZZ	1.00	19:49																									
ZZZZZZ	1.00	19:55																									
ZZZZZZ	1.00	20:02																									
ZZZZZZ	1.00	20:08																									
ZZZZZZ	1.00	20:15																									
ZZZZZZ	1.00	20:22																									
ZZZZZZ	1.00	20:28																									
CCV5	1.00	20:35					X																				
CCB5	1.00	20:41					X																				
ZZZZZZ	1.00	20:48																									
ZZZZZZ	1.00	20:55																									
ZZZZZZ	1.00	21:01																									
ZZZZZZ	1.00	21:08																									
ZZZZZZ	1.00	21:15																									
ZZZZZZ	1.00	21:21																									
ZZZZZZ	1.00	21:28																									
ZZZZZZ	1.00	21:35																									
CRDL3	1.00	21:42					X																				
CCV6	1.00	21:48					X																			^	
CCB6	1.00	21:54					X																				

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
-14-

ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	14:35			X	X		X	X			X	X								X	X			X		
Standard 1	1.00	14:42			X	X		X	X			X	X								X	X			X		
Standard 2	1.00	14:48			X	X		X	X			X	X								X	X			X		
Standard 3	1.00	14:54			X	X		X	X			X	X								X	X			X		
ICV1	1.00	15:01			X	X		X	X			X	X								X	X			X		
ICB1	1.00	15:07			X	X		X	X			X	X								X	X			X		
CRDL1	1.00	15:14			X	X		X	X			X	X								X	X			X		
ICS-A1	1.00	15:20			X	X		X	X			X	X								X	X			X		
ICS-AB1	1.00	15:27			X	X		X	X			X	X								X	X			X		
CCV1	1.00	15:33			X	X		X	X			X	X								X	X			X		
CCB1	1.00	15:40			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	15:46																										
ZZZZZZ	1.00	15:53																										
ZZZZZZ	1.00	15:59																										
ZZZZZZ	1.00	16:06																										
ZZZZZZ	1.00	16:13																										
ZZZZZZ	1.00	16:19																										
ZZZZZZ	1.00	16:26																										
ZZZZZZ	5.00	16:33																										
ZZZZZZ	1.00	16:39																										
ZZZZZZ	1.00	16:46																										
CCV2	1.00	16:53			X	X		X	X			X	X								X	X			X		
CCB2	1.00	16:59			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	17:06																										
ZZZZZZ	1.00	17:12																										
ZZZZZZ	1.00	17:19																										
ZZZZZZ	1.00	17:26																										
ZZZZZZ	1.00	17:32																										
ZZZZZZ	1.00	17:39																										
ZZZZZZ	1.00	17:46																										
ZZZZZZ	1.00	17:53																										
ZZZZZZ	1.00	17:59																										
ZZZZZZ	1.00	18:06																										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV3	1.00	18:13			X	X		X	X			X	X								X	X			X		
CCB3	1.00	18:19			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	18:26																										
ZZZZZZ	1.00	18:32																										
ZZZZZZ	1.00	18:39																										
ZZZZZZ	1.00	18:46																										
ZZZZZZ	5.00	18:52																										
ZZZZZZ	1.00	18:59																										
ZZZZZZ	1.00	19:06																										
ZZZZZZ	1.00	19:13																										
CRDL2	1.00	19:19			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	19:26																										
CCV4	1.00	19:32			X	X		X	X			X	X								X	X			X		
CCB4	1.00	19:39			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	19:45																										
ZZZZZZ	1.00	19:52																										
ZZZZZZ	1.00	19:59																										
ZZZZZZ	1.00	20:05																										
ZZZZZZ	1.00	20:12																										
ZZZZZZ	1.00	20:19																										
ZZZZZZ	1.00	20:25																										
ZZZZZZ	5.00	20:32																										
CRDL3	1.00	20:38			X	X		X	X			X	X								X	X			X		
CCV5	1.00	20:45			X	X		X	X			X	X								X	X			X		
CCB5	1.00	20:51			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	20:58																										
ZZZZZZ	1.00	21:05																										
ZZZZZZ	1.00	21:11																										
ZZZZZZ	1.00	21:18																										
ZZZZZZ	1.00	21:25																										
ZZZZZZ	1.00	21:31																										
ZZZZZZ	1.00	21:38																										
ZZZZZZ	1.00	21:45																										

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METALS
-14-

ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV6	1.00	21:51			X	X		X	X			X	X								X	X			X		
CCB6	1.00	21:58			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	22:04																									
ZZZZZZ	1.00	22:11																									
ZZZZZZ	1.00	22:18																									
ZZZZZZ	1.00	22:24																									
ZZZZZZ	5.00	22:31																									
ZZZZZZ	1.00	22:38																									
ZZZZZZ	1.00	22:44																									
CRDL4	1.00	22:51			X	X		X	X			X	X								X	X			X		
CCV7	1.00	22:58			X	X		X	X			X	X								X	X			X		
CCB7	1.00	23:04			X	X		X	X			X	X								X	X			X		
PBW	1.00	23:11			X	X		X	X			X	X								X	X			X		
LCSW	1.00	23:17			X	X		X	X			X	X								X	X			X		
MRC-MW-04A-060914	20.00	23:24											X														
MRC-MW-04A-060914L	100.00	23:31											X														
ZZZZZZ	20.00	23:38																									
ZZZZZZ	20.00	23:44																									
ZZZZZZ	20.00	23:51																									
ZZZZZZ	20.00	23:58																									
CRDL5	1.00	00:04			X	X		X	X			X	X								X	X			X		
CCV8	1.00	00:10			X	X		X	X			X	X								X	X			X		
CCB8	1.00	00:17			X	X		X	X			X	X								X	X			X		
MRC-MW-04A-060914	1.00	00:24																									
MRC-MW-81A-061114	1.00	00:30			X	X		X	X			X									X	X					
MRC-MW-92C-061114	1.00	00:37			X	X		X	X			X									X	X			X		
MRC-MW-92C-061114L	5.00	00:43			X	X		X	X			X									X	X			X		
ZZZZZZ	1.00	00:50																									
ZZZZZZ	1.00	00:57																									
ZZZZZZ	1.00	01:04																									
ZZZZZZ	1.00	01:11																									
ZZZZZZ	5.00	01:17																									
ZZZZZZ	1.00	01:24																									

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METALS
-14-

ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV9	1.00	01:31			X	X		X	X			X	X								X	X			X		
CCB9	1.00	01:37			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	01:44																										
ZZZZZZ	1.00	01:50																										
ZZZZZZ	1.00	01:57																										
ZZZZZZ	1.00	02:04																										
ZZZZZZ	1.00	02:11																										
ZZZZZZ	5.00	02:17																										
ZZZZZZ	1.00	02:24																										
ZZZZZZ	1.00	02:31																										
ZZZZZZ	1.00	02:37																										
ZZZZZZ	1.00	02:44																										
CCV10	1.00	02:51			X	X		X	X			X	X								X	X			X		
CCB10	1.00	02:57			X	X		X	X			X	X								X	X			X		
ZZZZZZ	1.00	03:04																										
ZZZZZZ	1.00	03:10																										
ZZZZZZ	1.00	03:17																										
ZZZZZZ	1.00	03:24																										
CRDL6	1.00	03:30			X	X		X	X			X	X								X	X			X		
CCV11	1.00	03:37			X	X		X	X			X	X								X	X			X		
CCB11	1.00	03:43			X	X		X	X			X	X								X	X			X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/10/2014 End Date: 7/10/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	18:24			X	X		X	X			X			X				X			X		X	X			*
Standard 1	1.00	18:31			X	X		X	X			X			X				X			X		X	X			*
Standard 2	1.00	18:37			X	X		X	X			X			X				X			X		X	X			*
Standard 3	1.00	18:44			X	X		X	X			X			X				X			X		X	X			*
ICV2	1.00	18:50			X	X		X	X			X			X				X			X		X	X			*
ICB2	1.00	18:56			X	X		X	X			X			X				X			X		X	X			*
CRDL1	1.00	19:03			X	X		X	X			X			X				X			X		X	X			*
ICS-A1	1.00	19:09			X	X		X	X			X			X				X			X		X	X			*
ICS-AB1	1.00	19:16			X	X		X	X			X			X				X			X		X	X			*
CCV1	1.00	19:22			X	X		X	X			X			X				X			X		X	X			*
CCB1	1.00	19:29			X	X		X	X			X			X				X			X		X	X			*
ZZZZZZ	1.00	19:35																												
PBW	1.00	19:41			X										X				X					X				*
LCSW	1.00	19:48			X										X				X					X				*
ZZZZZZ	1.00	19:54																												
ZZZZZZ	1.00	20:01																												
ZZZZZZ	1.00	20:07																												
ZZZZZZ	1.00	20:14																												
ZZZZZZ	5.00	20:20																												
CRDL2	1.00	20:26			X	X		X	X			X			X				X			X		X	X			*
ZZZZZZ	1.00	20:33																												
CCV2	1.00	20:39			X	X		X	X			X			X				X			X		X	X			*
CCB2	1.00	20:46			X	X		X	X			X			X				X			X		X	X			*
MRC-MW-04A-060914	10.00	20:52			X	X		X	X			X			X				X		X	X		X	X			*
MRC-MW-81A-061114	1.00	20:59													X				X					X	X			*
MRC-MW-92C-061114	1.00	21:05													X				X					X				*
MRC-MW-92C-061114L	5.00	21:11													X				X					X				*
CRDL3	1.00	21:18			X	X		X	X			X			X				X			X		X	X			*
CCV3	1.00	21:24			X	X		X	X			X			X				X			X		X	X			*
CCB3	1.00	21:31			X	X		X	X			X			X				X			X		X	X			*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/10/2014 End Date: 7/10/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
Blank	1.00	18:24					X																				
Standard 1	1.00	18:31					X																				
Standard 2	1.00	18:37					X																				
Standard 3	1.00	18:44					X																				
ICV2	1.00	18:50					X																				
ICB2	1.00	18:56					X																				
CRDL1	1.00	19:03					X																				
ICS-A1	1.00	19:09					X																				
ICS-AB1	1.00	19:16					X																				
CCV1	1.00	19:22					X																				
CCB1	1.00	19:29					X																				
ZZZZZZ	1.00	19:35																									
PBW	1.00	19:41					X																				
LCSW	1.00	19:48					X																				
ZZZZZZ	1.00	19:54																									
ZZZZZZ	1.00	20:01																									
ZZZZZZ	1.00	20:07																									
ZZZZZZ	1.00	20:14																									
ZZZZZZ	5.00	20:20																									
CRDL2	1.00	20:26					X																				
ZZZZZZ	1.00	20:33																									
CCV2	1.00	20:39					X																				
CCB2	1.00	20:46					X																				
MRC-MW-04A-060914	10.00	20:52					X																				
MRC-MW-81A-061114	1.00	20:59					X																				
MRC-MW-92C-061114	1.00	21:05					X																				
MRC-MW-92C-061114L	5.00	21:11					X																				
CRDL3	1.00	21:18					X																				
CCV3	1.00	21:24					X																				
CCB3	1.00	21:31					X																				

METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/11/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	08:17									X																
Standard 1	1.00	08:23									X																
Standard 2	1.00	08:29									X																
Standard 3	1.00	08:36									X																
ICV1	1.00	08:42									X																
ICB1	1.00	08:49									X																
CRDL1	1.00	08:55									X																
ICS-A1	1.00	09:01									X																
ICS-AB1	1.00	09:08									X																
CCV1	1.00	09:14									X																
CCB1	1.00	09:21									X																
ZZZZZZ	1.00	09:27																									
PBW-211499	1.00	09:33									X																
LCSW-211499	1.00	09:40									X																
MRC-MW-04A-060914	10.00	09:46									X																
MRC-MW-81A-061114	1.00	09:53									X																
MRC-MW-92C-061114	1.00	09:59									X																
MRC-MW-92C-061114L	5.00	10:06									X																
CRDL2	1.00	10:12									X																
ZZZZZZ	1.00	10:19																									
CCV2	1.00	10:25									X																
CCB2	1.00	10:32									X																

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/23/2014 End Date: 6/23/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank	1.00	06:46																X												
0.2ppb std	1.00	06:47																X												
0.5ppb std	1.00	06:49																X												
1.0ppb std	1.00	06:51																X												
2.0ppb std	1.00	06:52																X												
5.0ppb std	1.00	06:54																X												
10.0ppb std	1.00	06:56																X												
ICV1	1.00	06:57																X												
ICB1	1.00	06:59																X												
CRDL1	1.00	07:01																X												
CCV1	1.00	07:02																X												
CCB1	1.00	07:04																X												
PBW	1.00	07:05																X												
LCSW	1.00	07:07																X												
MRC-MW-04A-060914	1.00	07:09																X												
MRC-MW-81A-061114	1.00	07:10																X												
MRC-MW-92C-061114	1.00	07:12																X												
ZZZZZZ	1.00	07:14																												
ZZZZZZ	1.00	07:15																												
ZZZZZZ	1.00	07:17																												
CCV2	1.00	07:19																X												
CCB2	1.00	07:20																X												
ZZZZZZ	1.00	07:22																												
ZZZZZZ	1.00	07:23																												
ZZZZZZ	1.00	07:25																												
ZZZZZZ	1.00	07:27																												
ZZZZZZ	1.00	07:28																												
ZZZZZZ	1.00	07:30																												
ZZZZZZ	1.00	07:32																												
ZZZZZZ	1.00	07:33																												
ZZZZZZ	1.00	07:35																												
CCV3	1.00	07:37																X												
CCB3	1.00	07:38																X												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-04A-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/23/2014 End Date: 6/23/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	07:40																										
ZZZZZZ	1.00	07:42																										
ZZZZZZ	1.00	07:43																										
ZZZZZZ	1.00	07:45																										
ZZZZZZ	1.00	07:47																										
ZZZZZZ	1.00	07:48																										
ZZZZZZ	1.00	07:50																										
CRDL2	1.00	07:51																X										
CCV4	1.00	07:53																X										
CCB4	1.00	07:55																X										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

00321

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration #1 Fe, Mn, Hg, Ba, Cr, Ag, As Be & Cu Co Se Sb			Continuing Calibration CCV 1			CCV2		M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	51	102	50	51	102	53	106	MS
Arsenic	50	51	102	50	51	102	51	102	MS
Barium	50	48	96	50	50	100	49	98	MS
Beryllium	50	49	98	50	48	96	48	96	MS
Cadmium	50	51	102	50	51	102	53	106	MS
Chromium	50	48	96	50	47	94	49	98	MS
Cobalt	50	51	102	50	51	102	52	104	MS
Copper	50	52	104	50	51	102	52	104	MS
Iron	5000	5080	102	5000	5130	103	4980	100	P
Manganese	750	768	102	750	772	103	755	101	P
Mercury	3.00	3.12	104	3.00	3.10	103	3.16	105	CV
Selenium	50	51	102	50	50	100	49	98	MS
Silver	50	52	104	50	52	104	54	108	MS
Vanadium	50	52	104	50	52	104	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found (CCV3)	%R(1)	Found (CCV4)	%R(1)	
Antimony				50	53	106	52	104	MS
Arsenic				50	51	102	51	102	MS
Barium				50	50	100	50	100	MS
Beryllium				50	48	96	48	96	MS
Cadmium				50	53	106	51	102	MS
Cobalt				50	52	104	51	102	MS
Copper				50	52	104	52	104	MS
Iron				5000	4760	95	5040	101	P
Manganese				750	720	96	762	102	P
Mercury				3.00	3.17	106	3.15	105	CV
Selenium				50	49	98	49	98	MS
Silver				50	54	108	52	104	MS
Vanadium				50	51	102	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV5)	%R(1)	Found (CCV6)	%R(1)	M
Antimony				50	52	104	53	106	MS
Arsenic				50	51	102	51	102	MS
Barium				50	52	104	53	106	MS
Beryllium				50	48	96	47	94	MS
Cadmium				50	52	104	52	104	MS
Cobalt				50	51	102	52	104	MS
Copper				50	51	102	53	106	MS
Iron				5000	4970	99	4910	98	P
Manganese				750	751	100	744	99	P
Selenium				50	49	98	50	100	MS
Silver				50	53	106	53	106	MS
Vanadium				50	52	104	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV1)	%R(1)	Found (CCV8)	%R(1)	M
Antimony				50	52	104	52	104	MS
Arsenic				50	51	102	51	102	MS
Beryllium				50	49	98	47	94	MS
Cadmium				50	52	104	51	102	MS
Cobalt				50	52	104	52	104	MS
Copper				50	52	104	52	104	MS
Iron				5000	4980	100			P
Manganese				750	749	100			P
Selenium				50	49	98	50	100	MS
Silver				50	53	106	52	104	MS
Vanadium				50	52	104	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found	%R(1)	True	Found (CCV 9)	%R(1)	Found (CCV 10)	%R(1)	
Antimony				50	53	106	52	104	MS
Arsenic				50	51	102	48	96	MS
Beryllium				50	49	98	47	94	MS
Cadmium				50	53	106	53	106	MS
Cobalt				50	50	100	50	100	MS
Copper				50	53	106	52	104	MS
Selenium				50	47	94	49	98	MS
Silver				50	53	106	53	106	MS
Vanadium				50	51	102	50	100	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV II)	%R(1)	Found	%R(1)	M
Antimony				50	53	106			MS
Arsenic				50	50	100			MS
Beryllium				50	45	90			MS
Cadmium				50	51	102			MS
Cobalt				50	49	98			MS
Copper				50	51	102			MS
Selenium				50	47	94			MS
Silver				50	53	106			MS
Vanadium				50	49	98			MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration ICV2			Continuing Calibration CCV1			CCV2		M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	49	98	50	49	98	48	96	MS
Arsenic	50	50	100	50	49	98	50	100	MS
Beryllium	50	51	102	50	46	92	48	96	MS
Cadmium	50	51	102	50	51	102	50	100	MS
Cobalt	50	49	98	50	47	94	48	96	MS
Copper	50	50	100	50	50	100	50	100	MS
Lead	50	50	100	50	50	100	50	100	MS
Nickel	50	52	104	50	50	100	52	104	MS
Silver	50	49	98	50	50	100	49	98	MS
Thallium	50	51	102	50	50	100	50	100	MS
Vanadium	50	50	100	50	46	92	49	98	MS
Molybdenum	50	52	104	50	53	106	51	102	MS

Comments:

METALS

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BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L) ICB1	C	Continuing Calibration Blank (ug/L) 1 CCB1	C	2 CCB2	C	3 CCB3	C	Preparation Blank	C	M
Antimony	0.228	J	0.198	J	0.208	J	0.200	J	0.188	J	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	0.887	J	MS
Barium	0.024	U	0.024	U	0.024	U	0.024	U	0.046	J	MS
Beryllium	0.028	J	0.022	J	0.025	J	0.024	J	0.020	U	MS
Cadmium	0.008	U	-0.015	J	-0.012	J	-0.014	J	-0.020	J	MS
Chromium	0.470	U	0.470	U	0.470	U			1.495	J	MS
Cobalt	0.008	U	0.008	U	-0.022	J	-0.041	J	-0.112	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.265	J	MS
Iron	9.97	U	12.69	J	9.97	U	9.97	U	-18.489	J	P
Manganese	-1.41	J	-2.19	J	-2.86	J	-2.97	J	-4.032	J	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	-0.247	J	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U	0.015	J	MS
Vanadium	0.358	U	0.358	U	0.358	U	0.358	U	-0.942	J	MS

Comments:

METALS

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BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 (CCB4)	C	2 (CCB5)	C	3 (CCB6)	C	Preparation Blank	C	M
Antimony			0.250	J	0.194	J	0.249	J			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			0.024	U	0.024	U	0.033	J			MS
Beryllium			0.020	U	0.020	U	0.034	J			MS
Cadmium			-0.010	J	-0.011	J	-0.019	J			MS
Cobalt			-0.021	J	-0.021	J	-0.059	J			MS
Copper			0.252	U	0.252	U	0.365	J			MS
Iron			-11.44	J	-13.90	J	-16.21	J			P
Manganese			-3.71	J	-3.58	J	-3.97	J			P
Mercury			0.024	U							CV
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.015	U	0.015	U	0.023	J			MS
Vanadium			0.358	U	0.358	U	0.358	U			MS

Comments:

METALS

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BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 (CCB7)	C	2 (CCB8)	C	3 (CCB9)	C	Preparation Blank	C	M
Antimony			0.254	J	0.259	J	0.284	J			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Beryllium			0.031	J	0.020	U	0.024	J			MS
Cadmium			0.008	U	-0.016	J	-0.022	J			MS
Cobalt			-0.043	J	-0.016	J	-0.052	J			MS
Copper			0.252	U	0.252	U	2.277				MS
Iron			9.97	U							P
Manganese			-4.18	J							P
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.023	J	0.027	J	0.029	J			MS
Vanadium			0.358	U	0.358	U	0.358	U			MS

Comments:

METALS

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BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 (CCB10)	C	2 (CCB11)	C	3	C	Preparation Blank	C	M
Antimony			0.915	J	0.877	J					MS
Arsenic			0.211	U	0.211	U					MS
Beryllium			0.054	J	0.039	J					MS
Cadmium			0.008	U	-0.012	J					MS
Cobalt			-0.033	J	-0.045	J					MS
Copper			2.184		0.992	J					MS
Selenium			0.213	U	0.213	U					MS
Silver			0.090	J	0.071	J					MS
Vanadium			0.358	U	0.358	U					MS

Comments:

METALS

-3-

BLANKS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L) ICB1	C	Continuing Calibration Blank (ug/L) 1 CCB1	C	2 CCB2	C	3 CCB3	C	Preparation Blank	C	M
Antimony	0.157	U	0.157	U	0.191	J	0.157	U	0.196	J	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U			MS
Beryllium	0.020	U	0.020	U	0.020	U	0.020	U			MS
Cadmium	0.010	J	0.008	U	0.008	U	0.013	J			MS
Cobalt	-0.024	J	-0.023	J	-0.030	J	-0.033	J			MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U			MS
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U			MS
Thallium	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U	MS
Vanadium	0.358	U	0.358	U	0.358	U	0.358	U			MS
Molybdenum	0.068	U	0.068	U	0.068	U	0.068	U	0.068	U	MS

Comments:

METALS

-10-

DETECTION LIMITS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

ICP ID Number: Optima ICP 3 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Iron	259.939		100.0	10.0	P
Manganese	257.610		10.0	0.4	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Barium	137		1.00	0.024	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Vanadium	51		2.00	0.358	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-0

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Mercury	253.70	BD	0.200	0.024	CV

Comments: _____

METALS

-13-

PREPARATION LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-060914

Method: P

Sample ID	Preparation Date	Initial Volume	Final Volume (mL)
LCSW	6/23/2014	50.0	50.0
PBW	6/23/2014	50.0	50.0
MRC-MW-04A-060914	6/23/2014	50.0	50.0
MRC-MW-81A-061114	6/23/2014	50.0	50.0
MRC-MW-92C-061114	6/23/2014	50.0	50.0

Comments:

METALS

-13-

PREPARATION LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-060914

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/24/2014	50.0	50.0
PBW	6/24/2014	50.0	50.0
MRC-MW-04A-060914	6/24/2014	50.0	50.0
MRC-MW-81A-061114	6/24/2014	50.0	50.0
MRC-MW-92C-061114	6/24/2014	50.0	50.0

Comments:

METALS

-13-

PREPARATION LOG

Contract: R1404508

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-04A-060914

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/23/2014	25.0	25.0
PBW	6/23/2014	25.0	25.0
MRC-MW-04A-060914	6/23/2014	25.0	25.0
MRC-MW-81A-061114	6/23/2014	25.0	25.0
MRC-MW-92C-061114	6/23/2014	25.0	25.0

Comments:

TETRA TECH **INTERNAL CORRESPONDENCE**

TO: **T. AVANAVAGE** **DATE:** **SEPTEMBER 23, 2014**

FROM: **A. COGNETTI** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC AND INORGANIC DATA VALIDATION- VOC / 1,4-DIOXANE / OVG / METALS / PERCHLORATE/MISC**
MIDDLE RIVER CENTER GROUNDWATER SAMPLING
SAMPLE DELIVERY GROUP (SDG) R1404658

SAMPLES: 12/Aqueous/VOC

MRC-MW-02A-061814	MRC-MW-19A-061814	MRC-MW-37A-061314
MRC-MW-38A-061814	MRC-MW-48A-061114	MRC-MW-60A-061814
MRC-MW-60B-061814	MRC-MW-76A-061814	MRC-MW-76B-061814
MRC-MW-81B-061114	MRC-MW-90B-061814	TB-061814

2/Aqueous/1,4-Dioxane

MRC-MW-19A-061814	MRC-MW-90B-061814

4/Aqueous/OVG

MRC-MW-37A-061314	MRC-MW-48A-061114	MRC-MW-60B-061814
MRC-MW-81B-061114		

9/Aqueous/Metals

MRC-MW-02A-060914	MRC-MW-19A-060914	MRC-MW-37A-061314
MRC-MW-48A-061114	MRC-MW-60A-061114	MRC-MW-60B-061114
MRC-MW-76A-061114	MRC-MW-76B-061114	MRC-MW-81B-061114

4/Aqueous/ TSS/ Sulfate/ Orthophosphate/ Nitrite/ Nitrate/ Dissolved organic carbon/ chloride/ alkalinity/ ammonia

MRC-MW-37A-061814	MRC-MW-48A-061814	MRC-MW-60B-061814
MRC-MW-81B-061814		

3/Aqueous/Perchlorate

MRC-MW-60A-061114	MRC-MW-60B-061114	MRC-MW-90B-060914

Overview

The sample set for Middle River Center Groundwater Sampling, SDG R1404658 consists of eleven (11) aqueous environmental samples and one trip blank analyzed for volatile organic compounds (VOCs). Two (2) aqueous samples were analyzed for 1,4-dioxane. Four (4) aqueous samples were analyzed for organic volatile gases. Three (3) aqueous samples were analyzed for perchlorate. Four aqueous samples were analyzed for miscellaneous (MISC) parameters (alkalinity, total suspended solids (TSS), chloride, nitrite, nitrate, sulfate and orthophosphate, ammonia and dissolved organic carbon). There are no field duplicate pairs included in this SDG.

The samples were collected on June 9, 10, 11, 13, and 18, 2014 and analyzed by ALS Environmental. Volatile organic compound analyses were conducted in accordance to SW-846 Method 8260C. The analyses for 1,4-dioxane followed EPA Method 522. OVG analyses followed method RSK-175. Metals analyses were conducted in accordance with SW-846 6020, 6010C, mercury Method 7470A, and silica USGS I-2700-85. Perchlorate analyses followed SW-846 Method 6850. TSS analyses followed Standard Method 2540C, ammonia 350.1, anions, method 300.0, alkalinity 2320B, dissolved organic carbon method 5310B/C and orthophosphate 365.1.

Summary

The data contained in this SDG were validated with regard to the following parameters: data completeness, system performance, holding times, GC/MS tuning, initial / continuing calibrations, laboratory method blank results, analyte identification, chromatographic resolution, analyte quantitation, and detection limits.

Areas of concern with respect to data quality are listed below.

Major Problems

- No issues were identified.

Minor Problems

- The continuing calibration percent differences (%D) for acetone was greater than the 20% quality control limit on June 23, 2014 @ 12:18 on instrument R-MS-12. The detected and nondetected acetone results were qualified as estimated (J) and (UJ), respectively in the affected samples.

- Contamination was detected in the laboratory method blank associated with batch 39443 analyzed on June 23, 2014.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
1,2,4-trichlorobenzene	0.34	1.7
Hexachlorobutadiene	0.75	3.75
Naphthalene	0.28	1.4

  An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- The continuing calibration %Ds for several target analytes were greater than 20% quality control limit on June 24, 2014 @ 10:45 on instrument R-MS-12. The analytes were 1,2-dichloroethane, 2-butanone, 2-hexanone, 4-methyl-2-pentanone, methyl tert-butyl ether and vinyl acetate. The nondetected ,2-dichloroethane, 2-butanone, 2-hexanone, 4-methyl-2-pentanone, methyl tert-butyl ether and vinyl acetate were qualified as estimated (UJ) in the affected samples. The percent drift for tert-butyl alcohol was greater than the 20% quality control limit. The nondetected tert-butyl alcohol results were qualified as estimated (UJ).

- The continuing calibration %Ds for several target analytes were greater than the 20% quality control limit on June 26, 2014 @ 9:43 on instrument R-MS-12. The analytes were 2-butanone, tert-butyl alcohol, acetone, and chloroethane.. The detected and nondetected results of the aforementioned analytes were qualified as estimated (J) and (UJ), respectively.

- Contamination was detected in the laboratory method blank associated with batch 399037 analyzed on June 26, 2014.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
1,2,4-trichlorobenzene	0.23	1.15
Bromomethane	0.62	3.1
Naphthalene	0.27	1.35

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Trip blank contained contaminants.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Acetone	1.9	19.0
Bromomethane	0.5	2.5
Carbon disulfide	0.31	1.55

An action level of 10X the maximum concentration of common laboratory contaminant, acetone, and 5X the maximum concentration of other contaminants was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Orthophosphate was detected in the continuing calibration blank analyzed on June 19, 2014.

Contaminant	Maximum Concentration (mg/L)	Action Level (mg/L)
Orthophosphate	0.008	0.04

An action level of 5X the maximum concentration of contaminant was established in order to evaluate samples for blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Contamination was detected in the method blanks associated with general chemistry parameters.

Contaminant	Maximum Concentration (mg/L)	Action Level (mg/L)
Alkalinity [1,2]	1.2	6
Ammonia [3]	0.008	0.04

(1, 2) Maximum concentration detected in method blanks associated with batches 398680 and 398681.
(3) Maximum concentration detected in method blank associated with batch 399753.

An action level of 5X the maximum concentration of contaminant was established in order to evaluate samples for blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Contamination was detected in the preparation blank associated with batch 211499.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Antimony	0.188	0.94
Arsenic	0.887	4.44
Barium	0.056	0.28
Chromium	1.495	7.48
Copper	0.265	1.33
Silver	0.015	0.075

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Contamination was detected in the continuing calibration blank analyzed on July 7, 2014 on instrument PE ICPMS.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Antimony	0.915	4.58
Barium	0.032	0.16
Beryllium	0.054	0.27
Silver	0.090	0.45

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Positive results less than the action level were qualified (U) as a result of blank contamination. Sample aliquot and dilution factors were taken into account in validation of data.

- Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

Notes

Contamination was detected in the laboratory method blank associated with batch 398649 analyzed on June 24, 2014.

Contaminant	Maximum Concentration (ug/L)
1,2,4-trichlorobenzene	0.33
Bromomethane	0.36
Naphthalene	0.24

No action was taken on the nondetected results in the affected samples.

Methane was detected in the laboratory method blank associated with batch 398405 analyzed on June 23, 2014.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Methane	0.68	3.4

An action level of 5X the maximum concentration of contaminant was established in order to evaluate samples for blank contamination. Sample aliquot and dilution factors were taken into account in validation of data. . No action was taken on the detected results greater than the action level in the affected samples.

Chloride was detected in the continuing calibration blank analyzed on June 20, 2014 @ 1:13.

Contaminant	Maximum Concentration (mg/L)	Action Level (mg/L)
Chloride	0.1	0.5

An action level of 5X the maximum concentration of contaminant was established in order to evaluate samples for blank contamination. Sample aliquot and dilution factors were taken into account in validation of data. No action was taken on the detected results greater than the action level in the affected samples.

Contamination was detected in the continuing calibration blank analyzed on June 30, 2014 on instrument PE ICPMS.

Contaminant	Maximum Concentration (ug/L)	Action Level (ug/L)
Barium	0.033	0.165
Cobalt	0.033	0.165

An action level of 5X the maximum concentration of contaminant was used to evaluate samples due to blank contamination. Sample aliquot and dilution factors were taken into account in validation of data. No action was taken on the detected results greater than the action level in the affected samples.

Nondetected results were reported to the MDL.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Blank contamination was detected in the VOC, OVG, MISC and metals fractions. Continuing calibration noncompliances were found for several analytes in the VOC fraction.

Other Factors Affecting Data Quality: Trip blank contained contaminants. Positive results reported below the reporting limit (RL) but above the method detection limit (MDL) for the organic analyses were qualified as estimated, (J).

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (June 2008) and EPA Functional Guidelines for Inorganic Data Validation (January 2010). The text of this report has been formulated to address only those problem areas affecting data quality.

Tetra Tech
Ann Cognetti
Chemist/Data Validator

Tetra Tech
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate

PROJ_NO: 06247	NSAMPLE	MRC-MW-02A-061814			MRC-MW-19A-061814			MRC-MW-37A-061314			MRC-MW-38A-061814		
SDG: R1404658	LAB_ID	R1404658-010			R1404658-007			R1404658-021			R1404658-011		
FRACTION: OV	SAMP_DATE	6/18/2014			6/18/2014			6/13/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U		0.22	U		0.22	U		0.22	U	
1,1,1-TRICHLOROETHANE	0.36	U		0.36	U		0.36	U		0.36	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U		0.25	U		0.25	U		0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U		0.31	U		0.31	U		0.31	U	
1,1-DICHLOROETHANE	0.2	U		3			0.2	U		0.2	U	
1,1-DICHLOROETHENE	0.57	U		0.57	U		0.57	U		0.57	U	
1,1-DICHLOROPROPENE	0.29	U		0.29	U		0.29	U		0.29	U	
1,2,3-TRICHLOROBENZENE	0.82	U		0.82	U		0.82	U		0.82	U	
1,2,3-TRICHLOROPROPANE	0.7	U		0.7	U		0.7	U		0.7	U	
1,2,4-TRICHLOROBENZENE	0.23	U		0.23	U		0.23	U		0.23	U	
1,2,4-TRIMETHYLBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U		0.74	U		0.74	U		0.74	U	
1,2-DIBROMOETHANE	0.24	U		0.24	U		0.24	U		0.24	U	
1,2-DICHLOROBENZENE	0.21	U		0.21	U		0.21	U		0.21	U	
1,2-DICHLOROETHANE	0.36	U		0.36	U		0.36	UJ	C	0.36	U	
1,2-DICHLOROPROPANE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
1,3-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
1,4-DICHLOROBENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
2,2-DICHLOROPROPANE	0.27	U		0.27	U		0.27	U		0.27	U	
2-BUTANONE	0.81	UJ	C	0.81	UJ	C	0.81	UJ	C	0.81	UJ	C
2-CHLOROETHYL VINYL ETHER	0.44	U		0.44	U		0.44	U		0.44	U	
2-CHLOROTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
2-HEXANONE	1.7	U		1.7	U		1.7	UJ	C	1.7	U	
4-CHLOROTOLUENE	0.24	U		0.24	U		0.24	U		0.24	U	
4-ISOPROPYLTOLUENE	0.2	U		0.2	U		0.2	U		0.2	U	
4-METHYL-2-PENTANONE	0.67	U		0.67	U		0.67	UJ	C	0.67	U	
ACETONE	1.3	UJ	C	1.3	UJ	C	2.7	J	P	1.3	UJ	C
BENZENE	0.2	U		0.2	U		0.2	U		0.2	U	
BROMOBENZENE	0.28	U		0.28	U		0.28	U		0.28	U	
BROMOCHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMODICHLOROMETHANE	0.32	U		0.32	U		0.32	U		0.32	U	
BROMOFORM	0.42	U		0.42	U		0.42	U		0.42	U	
BROMOMETHANE	0.29	U		0.29	U		0.29	U		0.31	U	A
CARBON DISULFIDE	0.22	U		0.22	U		0.22	U		0.22	U	
CARBON TETRACHLORIDE	0.45	U		0.45	U		0.45	U		0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-48A-061114			MRC-MW-48A-061114-DL			MRC-MW-60A-061814			MRC-MW-60B-061814		
SDG: R1404658	LAB_ID	R1404658-014			R1404658-014			R1404658-003			R1404658-004		
FRACTION: OV	SAMP_DATE	6/11/2014			6/11/2014			6/18/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE	0.22	U					1.1	U		5.5	U	
1,1,1-TRICHLOROETHANE	0.36	U					1.8	U		9	U	
1,1,2,2-TETRACHLOROETHANE	0.25	U					1.3	U		6.3	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31	U					1.6	U		7.8	U	
1,1-DICHLOROETHANE	1.4						1	U		5	U	
1,1-DICHLOROETHENE	2.5						2.9	J	P	15	U	
1,1-DICHLOROPROPENE	0.29	U					1.5	U		7.3	U	
1,2,3-TRICHLOROBENZENE	0.82	U					4.1	U		21	U	
1,2,3-TRICHLOROPROPANE	0.7	U					3.5	U		18	U	
1,2,4-TRICHLOROBENZENE	0.23	U					1.2	U		5.8	U	
1,2,4-TRIMETHYLBENZENE	0.69	J	P				1	U		5	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.74	U					3.7	U		19	U	
1,2-DIBROMOETHANE	0.24	U					1.2	U		6	U	
1,2-DICHLOROBENZENE	0.21	U					1.1	U		5.3	U	
1,2-DICHLOROETHANE	0.36	U					1.8	U		9	UJ	C
1,2-DICHLOROPROPANE	0.2	U					1	U		5	U	
1,3-DICHLOROBENZENE	0.2	U					1	U		5	U	
1,3-DICHLOROPROPANE	0.27	U					1.4	U		6.8	U	
1,4-DICHLOROBENZENE	0.2	U					1	U		5	U	
2,2-DICHLOROPROPANE	0.27	U					1.4	U		6.8	U	
2-BUTANONE	3.3	J	P				4.1	U		21	UJ	C
2-CHLOROETHYL VINYL ETHER	0.44	U					2.2	U		11	U	
2-CHLOROTOLUENE	0.2	U					1	U		5	U	
2-HEXANONE	1.7	U					8.3	U		42	UJ	C
4-CHLOROTOLUENE	0.24	U					1.2	U		6	U	
4-ISOPROPYLTOLUENE	0.2	U					1	U		5	U	
4-METHYL-2-PENTANONE	0.67	U					3.4	U		17	UJ	C
ACETONE	5.1	J	C				17	U	B	31	UJ	C
BENZENE	0.27	J	P				1	U		5	U	
BROMOBENZENE	0.28	U					1.5	U		7.1	U	
BROMOCHLOROMETHANE	0.32	U					1.6	U		8	U	
BROMODICHLOROMETHANE	0.32	U					1.6	U		8	U	
BROMOFORM	0.42	U					2.1	U		11	U	
BROMOMETHANE	0.29	U					1.5	U		7.3	U	
CARBON DISULFIDE	0.22	U					1.1	U		5.5	U	
CARBON TETRACHLORIDE	0.45	U					2.3	U		12	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-60B-061814-DL			MRC-MW-76A-061814			MRC-MW-76B-061814			MRC-MW-81B-061114		
SDG: R1404658	LAB_ID	R1404658-004			R1404658-005			R1404658-006			R1404658-013		
FRACTION: OV	SAMP_DATE	6/18/2014			6/18/2014			6/18/2014			6/11/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE				0.22	U		0.22	U		11	U	
1,1,1-TRICHLOROETHANE				0.36	U		0.36	U		18	U	
1,1,2,2-TETRACHLOROETHANE				0.25	U		0.25	U		13	U	
1,1,2-TRICHLOROTRIFLUOROETHANE				0.31	U		0.31	U		16	U	
1,1-DICHLOROETHANE				0.2	U		1.5			110		
1,1-DICHLOROETHENE				0.57	U		0.98	J	P	370		
1,1-DICHLOROPROPENE				0.29	U		0.29	U		15	U	
1,2,3-TRICHLOROBENZENE				0.82	U		0.82	U		41	U	
1,2,3-TRICHLOROPROPANE				0.7	U		0.7	U		35	U	
1,2,4-TRICHLOROBENZENE				0.23	U		0.23	U		12	U	
1,2,4-TRIMETHYLBENZENE				0.2	U		0.2	U		10	U	
1,2-DIBROMO-3-CHLOROPROPANE				0.74	U		0.74	U		37	U	
1,2-DIBROMOETHANE				0.24	U		0.24	U		12	U	
1,2-DICHLOROBENZENE				0.21	U		0.21	U		11	U	
1,2-DICHLOROETHANE				0.36	U		0.36	U		18	U	
1,2-DICHLOROPROPANE				0.2	U		0.2	U		10	U	
1,3-DICHLOROBENZENE				0.2	U		0.2	U		10	U	
1,3-DICHLOROPROPANE				0.27	U		0.27	U		14	U	
1,4-DICHLOROBENZENE				0.2	U		0.2	U		10	U	
2,2-DICHLOROPROPANE				0.27	U		0.27	U		14	U	
2-BUTANONE				0.81	UJ	C	0.81	UJ	C	41	U	
2-CHLOROETHYL VINYL ETHER				0.44	U		0.44	U		22	U	
2-CHLOROTOLUENE				0.2	U		0.2	U		10	U	
2-HEXANONE				1.7	U		1.7	U		83	U	
4-CHLOROTOLUENE				0.24	U		0.24	U		12	U	
4-ISOPROPYLTOLUENE				0.2	U		0.2	U		10	U	
4-METHYL-2-PENTANONE				0.67	U		0.67	U		34	U	
ACETONE				3	U	B	1.3	UJ	C	62	UJ	C
BENZENE				0.2	U		0.2	U		10	U	
BROMOBENZENE				0.28	U		0.28	U		15	U	
BROMOCHLOROMETHANE				0.32	U		0.32	U		16	U	
BROMODICHLOROMETHANE				0.32	U		0.32	U		16	U	
BROMOFORM				0.42	U		0.42	U		21	U	
BROMOMETHANE				0.29	U		0.29	U		15	U	
CARBON DISULFIDE				0.22	U		0.22	U		11	U	
CARBON TETRACHLORIDE				0.45	U		0.45	U		23	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-90B-061814			MRC-MW-90B-061814-DL			TB-061814		
SDG: R1404658	LAB_ID	R1404658-008			R1404658-008			R1404658-012		
FRACTION: OV	SAMP_DATE	6/18/2014			6/18/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1,2-TETRACHLOROETHANE		0.22	U					0.22	U	
1,1,1-TRICHLOROETHANE		0.36	U					0.36	U	
1,1,2,2-TETRACHLOROETHANE		0.25	U					0.25	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.31	U					0.31	U	
1,1-DICHLOROETHANE		0.61	J	P				0.2	U	
1,1-DICHLOROETHENE		52						0.57	U	
1,1-DICHLOROPROPENE		0.29	U					0.29	U	
1,2,3-TRICHLOROBENZENE		0.82	U					0.82	U	
1,2,3-TRICHLOROPROPANE		0.7	U					0.7	U	
1,2,4-TRICHLOROBENZENE		0.23	U					0.23	U	
1,2,4-TRIMETHYLBENZENE		0.2	U					0.2	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.74	U					0.74	U	
1,2-DIBROMOETHANE		0.24	U					0.24	U	
1,2-DICHLOROBENZENE		0.21	U					0.21	U	
1,2-DICHLOROETHANE		0.36	U					0.36	U	
1,2-DICHLOROPROPANE		0.2	U					0.2	U	
1,3-DICHLOROBENZENE		0.2	U					0.2	U	
1,3-DICHLOROPROPANE		0.27	U					0.27	U	
1,4-DICHLOROBENZENE		0.2	U					0.2	U	
2,2-DICHLOROPROPANE		0.27	U					0.27	U	
2-BUTANONE		0.81	UJ	C				0.81	UJ	C
2-CHLOROETHYL VINYL ETHER		0.44	U					0.44	U	
2-CHLOROTOLUENE		0.2	U					0.2	U	
2-HEXANONE		1.7	U					1.7	U	
4-CHLOROTOLUENE		0.24	U					0.24	U	
4-ISOPROPYLTOLUENE		0.2	U					0.2	U	
4-METHYL-2-PENTANONE		0.67	U					0.67	U	
ACETONE		1.3	UJ	C				1.9	J	CP
BENZENE		0.2	U					0.2	U	
BROMOBENZENE		0.28	U					0.28	U	
BROMOCHLOROMETHANE		0.32	U					0.32	U	
BROMODICHLOROMETHANE		0.32	U					0.32	U	
BROMOFORM		0.42	U					0.42	U	
BROMOMETHANE		0.41	U	A				0.5	J	P
CARBON DISULFIDE		0.67	U	B				0.31	J	P
CARBON TETRACHLORIDE		0.45	U					0.45	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-02A-061814			MRC-MW-19A-061814			MRC-MW-37A-061314			MRC-MW-38A-061814		
SDG: R1404658	LAB_ID	R1404658-010			R1404658-007			R1404658-021			R1404658-011		
FRACTION: OV	SAMP_DATE	6/18/2014			6/18/2014			6/13/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U		0.29	U		0.29	U		0.29	U	
CHLORODIBROMOMETHANE		0.31	U		0.31	U		0.31	U		0.31	U	
CHLOROETHANE		0.24	UJ	C	0.24	UJ	C	0.24	U		0.24	UJ	C
CHLOROFORM		0.25	U		0.75	J	P	0.25	U		7		
CHLOROMETHANE		0.21	U		0.21	U		0.21	U		0.21	U	
CIS-1,2-DICHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U		0.24	U		0.24	U		0.24	U	
DIBROMOMETHANE		0.32	U		0.32	U		0.32	U		0.32	U	
DICHLORODIFLUOROMETHANE		1.6			0.46	U		0.46	U		0.46	U	
DIISOPROPYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
ETHYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
HEXACHLOROBUTADIENE		0.62	U		0.62	U		0.62	U		0.62	U	
ISOPROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
M+P-XYLENES		0.33	U		0.33	U		0.33	U		0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U		0.29	U		0.29	UJ	C	0.29	U	
METHYLENE CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	
NAPHTHALENE		0.2	U		0.2	U		0.2	U		0.2	U	
N-BUTYLBENZENE		0.21	U		0.21	U		0.21	U		0.21	U	
N-PROPYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
O-XYLENE		0.2	U		0.2	U		0.2	U		0.2	U	
SEC-BUTYLBENZENE		0.27	U		0.27	U		0.27	U		0.27	U	
STYRENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-AMYL METHYL ETHER		0.2	U		0.2	U		0.2	U		0.2	U	
TERT-BUTYLBENZENE		0.2	U		0.2	U		0.2	U		0.2	U	
TERTIARY-BUTYL ALCOHOL		11	UJ	C	11	UJ	C	11	UJ	C	11	UJ	C
TETRACHLOROETHENE		0.3	U		0.3	U		0.3	U		0.3	U	
TOLUENE		0.2	U		0.2	U		0.2	U		0.2	U	
TOTAL XYLENES		0.53	U		0.53	U		0.53	U		0.53	U	
TRANS-1,2-DICHLOROETHENE		0.33	U		0.33	U		0.33	U		0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U		0.2	U		0.2	U		0.2	U	
TRICHLOROETHENE		0.22	U		0.22	U		0.35	J	P	0.22	U	
TRICHLOROFLUOROMETHANE		5.4			1			0.2	U		0.2	U	
VINYL ACETATE		1.1	U		1.1	U		1.1	UJ	C	1.1	U	
VINYL CHLORIDE		0.32	U		0.32	U		0.32	U		0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-48A-061114			MRC-MW-48A-061114-DL			MRC-MW-60A-061814			MRC-MW-60B-061814		
SDG: R1404658	LAB_ID	R1404658-014			R1404658-014			R1404658-003			R1404658-004		
FRACTION: OV	SAMP_DATE	6/11/2014			6/11/2014			6/18/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U					1.5	U		7.3	U	
CHLORODIBROMOMETHANE		0.31	U					1.6	U		7.8	U	
CHLOROETHANE		0.67	J	P				1.2	U		6	UJ	C
CHLOROFORM		0.36	J	P				1.8	J	P	6.3	U	
CHLOROMETHANE		0.21	U					1.1	U		5.3	U	
CIS-1,2-DICHLOROETHENE					400			670			180		
CIS-1,3-DICHLOROPROPENE		0.24	U					1.2	U		6	U	
DIBROMOMETHANE		0.32	U					1.6	U		8	U	
DICHLORODIFLUOROMETHANE		0.46	U					2.4	U		12	U	
DIISOPROPYL ETHER		0.2	U					1	U		5	U	
ETHYL TERT-BUTYL ETHER		0.2	U					1	U		5	U	
ETHYLBENZENE		0.2	U					1	U		5	U	
HEXACHLOROBUTADIENE		0.62	U					3.1	U		16	U	
ISOPROPYLBENZENE		0.82	J	P				1.1	J	P	5	U	
M+P-XYLENES		0.33	U					1.7	U		8.3	U	
METHYL TERT-BUTYL ETHER		0.29	U					1.5	U		7.3	UJ	C
METHYLENE CHLORIDE		0.58	J	P				3.9	J	P	8	U	
NAPHTHALENE		1.3	U	A				1	U		5	U	
N-BUTYLBENZENE		0.21	U					1.1	U		5.3	U	
N-PROPYLBENZENE		0.2	U					1	U		5	U	
O-XYLENE		1.3						1	U		5	U	
SEC-BUTYLBENZENE		0.35	J	P				1.4	U		6.8	U	
STYRENE		0.2	U					1	U		5	U	
TERT-AMYL METHYL ETHER		0.2	U					1	U		5	U	
TERT-BUTYLBENZENE		0.28	J	P				1	U		5	U	
TERTIARY-BUTYL ALCOHOL		11	U					54	U		270	UJ	C
TETRACHLOROETHENE		2.3						3.5	J	P	7.5	U	
TOLUENE		0.62	J	P				1	U		5	U	
TOTAL XYLENES		1.3	J	P				2.7	U		14	U	
TRANS-1,2-DICHLOROETHENE		5.4						4.1	J	P	8.3	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U					1	U		5	U	
TRICHLOROETHENE					260			450					
TRICHLOROFLUOROMETHANE		0.2	U					1	U		5	U	
VINYL ACETATE		1.1	U					5.1	U		26	UJ	C
VINYL CHLORIDE		56						49			8	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-60B-061814-DL			MRC-MW-76A-061814			MRC-MW-76B-061814			MRC-MW-81B-061114		
SDG: R1404658	LAB_ID	R1404658-004			R1404658-005			R1404658-006			R1404658-013		
FRACTION: OV	SAMP_DATE	6/18/2014			6/18/2014			6/18/2014			6/11/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE					0.29	U		0.29	U		15	U	
CHLORODIBROMOMETHANE					0.31	U		0.31	U		16	U	
CHLOROETHANE					0.24	UJ	C	0.24	UJ	C	12	U	
CHLOROFORM					0.25	U		0.25	U		13	U	
CHLOROMETHANE					0.21	U		0.21	U		11	U	
CIS-1,2-DICHLOROETHENE					0.3	U		1.3			3400		
CIS-1,3-DICHLOROPROPENE					0.24	U		0.24	U		12	U	
DIBROMOMETHANE					0.32	U		0.32	U		16	U	
DICHLORODIFLUOROMETHANE					0.46	U		0.46	U		23	U	
DIISOPROPYL ETHER					0.2	U		0.2	U		10	U	
ETHYL TERT-BUTYL ETHER					0.2	U		0.2	U		10	U	
ETHYLBENZENE					0.2	U		0.2	U		10	U	
HEXACHLOROBUTADIENE					0.62	U		0.62	U		31	U	
ISOPROPYLBENZENE					0.2	U		0.2	U		10	U	
M+P-XYLENES					0.33	U		0.33	U		17	U	
METHYL TERT-BUTYL ETHER					0.29	U		0.29	U		15	U	
METHYLENE CHLORIDE					0.32	U		0.32	U		16	U	
NAPHTHALENE					0.2	U		0.2	U		10	U	
N-BUTYLBENZENE					0.21	U		0.21	U		11	U	
N-PROPYLBENZENE					0.2	U		0.2	U		10	U	
O-XYLENE					0.2	U		0.2	U		10	U	
SEC-BUTYLBENZENE					0.27	U		0.27	U		14	U	
STYRENE					0.2	U		0.2	U		10	U	
TERT-AMYL METHYL ETHER					0.2	U		0.2	U		10	U	
TERT-BUTYLBENZENE					0.2	U		0.2	U		10	U	
TERTIARY-BUTYL ALCOHOL					11	UJ	C	11	UJ	C	540	U	
TETRACHLOROETHENE					0.3	U		0.3	U		15	U	
TOLUENE					0.2	U		0.2	U		10	U	
TOTAL XYLENES					0.53	U		0.53	U		27	U	
TRANS-1,2-DICHLOROETHENE					0.33	U		0.33	U		27	J	P
TRANS-1,3-DICHLOROPROPENE					0.2	U		0.2	U		10	U	
TRICHLOROETHENE		5600			0.22	U		9.5			7800		
TRICHLOROFLUOROMETHANE					0.2	U		0.2	U		10	U	
VINYL ACETATE					1.1	U		1.1	U		51	U	
VINYL CHLORIDE					0.32	U		0.32	U		89		

PROJ_NO: 06247	NSAMPLE	MRC-MW-90B-061814			MRC-MW-90B-061814-DL			TB-061814		
SDG: R1404658	LAB_ID	R1404658-008			R1404658-008			R1404658-012		
FRACTION: OV	SAMP_DATE	6/18/2014			6/18/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			TB		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHLOROBENZENE		0.29	U					0.29	U	
CHLORODIBROMOMETHANE		0.31	U					0.31	U	
CHLOROETHANE		0.24	UJ	C				0.24	UJ	C
CHLOROFORM		1						0.25	U	
CHLOROMETHANE		0.55	J	P				0.21	U	
CIS-1,2-DICHLOROETHENE		9.2						0.3	U	
CIS-1,3-DICHLOROPROPENE		0.24	U					0.24	U	
DIBROMOMETHANE		0.32	U					0.32	U	
DICHLORODIFLUOROMETHANE		0.46	U					0.46	U	
DIISOPROPYL ETHER		0.2	U					0.2	U	
ETHYL TERT-BUTYL ETHER		0.2	U					0.2	U	
ETHYLBENZENE		0.2	U					0.2	U	
HEXACHLOROBUTADIENE		0.62	U					0.62	U	
ISOPROPYLBENZENE		0.2	U					0.2	U	
M+P-XYLENES		0.33	U					0.33	U	
METHYL TERT-BUTYL ETHER		0.29	U					0.29	U	
METHYLENE CHLORIDE		0.32	U					0.32	U	
NAPHTHALENE		0.2	U					0.2	U	
N-BUTYLBENZENE		0.21	U					0.21	U	
N-PROPYLBENZENE		0.2	U					0.2	U	
O-XYLENE		0.2	U					0.2	U	
SEC-BUTYLBENZENE		0.27	U					0.27	U	
STYRENE		0.2	U					0.2	U	
TERT-AMYL METHYL ETHER		0.2	U					0.2	U	
TERT-BUTYLBENZENE		0.2	U					0.2	U	
TERTIARY-BUTYL ALCOHOL		11	UJ	C				11	UJ	C
TETRACHLOROETHENE		0.3	U					0.3	U	
TOLUENE		0.2	U					0.2	U	
TOTAL XYLENES		0.53	U					0.53	U	
TRANS-1,2-DICHLOROETHENE		0.41	J	P				0.33	U	
TRANS-1,3-DICHLOROPROPENE		0.2	U					0.2	U	
TRICHLOROETHENE					280			0.22	U	
TRICHLOROFLUOROMETHANE		0.2	U					0.2	U	
VINYL ACETATE		1.1	U					1.1	U	
VINYL CHLORIDE		0.32	U					0.32	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-19A-060914			MRC-MW-90B-060914		
SDG: R1404658	LAB_ID	R1404658-020			R1404658-019		
FRACTION: OS	SAMP_DATE	6/9/2014			6/9/2014		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,4-DIOXANE		8.06			19.4		

PROJ_NO: 06247	NSAMPLE	MRC-MW-37A-061314			MRC-MW-48A-061114			MRC-MW-48A-061114-DL			MRC-MW-60B-061814		
SDG: R1404658	LAB_ID	R1404658-021			R1404658-014			R1404658-014			R1404658-004		
FRACTION: OVG	SAMP_DATE	6/13/2014			6/11/2014			6/11/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE		0.2	U		77						0.2	U	
ETHENE		0.11	U		75						0.2	J	P
METHANE		0.21	U					6300					

PROJ_NO: 06247	NSAMPLE	MRC-MW-60B-061814-DL			MRC-MW-81B-061114			MRC-MW-81B-061114-DL		
SDG: R1404658	LAB_ID	R1404658-004			R1404658-013			R1404658-013		
FRACTION: OVG	SAMP_DATE	6/18/2014			6/11/2014			6/11/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ETHANE					0.63	J	P			
ETHENE					7					
METHANE		110						780		

PROJ_NO: 06247	NSAMPLE	MRC-MW-02A-060914			MRC-MW-19A-060914			MRC-MW-37A-061314					
SDG: R1404658	LAB_ID	R1404658-022			R1404658-020			R1404658-021					
FRACTION: M	SAMP_DATE	6/9/2014			6/9/2014			6/13/2014					
MEDIA: WATER	QC_TYPE	NM			NM			NM					
	UNITS	UG/L			UG/L			MG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.196	U	A				0.288	U	A
ARSENIC		0.211	U		2	U	A				1.7	U	A
BARIUM		144			42.8						59.6		
BERYLLIUM		5.6			2.2						0.571	J	P
CADMIUM		0.152	J	P	1.8						0.289	J	P
CHROMIUM		2	U	A	6.3	U	A				6	U	A
COBALT		108			880						5		
COPPER		119			228						5.6		
IRON		271			3520						5600		
LEAD		0.354	J	P	1.6						4.5		
MANGANESE		43.8			2090						57.8		
MERCURY		0.024	U		0.024	U					0.024	U	
MOLYBDENUM		0.479	J	P	0.153	J	P				0.169	J	P
NICKEL		150			2550						6.2		
SELENIUM		0.745	J	P	1.8	J	P				1.4	J	P
SILICA								3.25					
SILVER		0.015	U		0.045	U	A				0.038	U	A
THALLIUM		0.031	U		0.185	J	P				0.057	J	P
VANADIUM		0.457	J	P	2.1						10		

PROJ_NO: 06247	NSAMPLE	MRC-MW-48A-061114						MRC-MW-60A-061114			MRC-MW-60B-061114		
SDG: R1404658	LAB_ID	R1404658-014						R1404658-015			R1404658-016		
FRACTION: M	SAMP_DATE	6/11/2014						6/11/2014			6/11/2014		
MEDIA: WATER	QC_TYPE	NM						NM			NM		
	UNITS	MG/L			UG/L			UG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY					0.157	U		0.157	U				
ARSENIC					49.4			0.896	U	A			
BARIUM					599			52.7					
BERYLLIUM					7.7			0.676	J	P			
CADMIUM					0.008	U		0.008	U				
CHROMIUM					3.1	U	A	2.6	U	A			
COBALT					104			41.4					
COPPER					1.1	U	A	2.2					
IRON					31400			15200					
LEAD					0.355	J	P	0.137	J	P			
MANGANESE					7800			2700					
MERCURY					0.024	U		0.024	U				
MOLYBDENUM					0.086	J	P	0.407	J	P			
NICKEL					129			40.2					
SELENIUM					193			2.3					
SILICA		19.2									11.5		
SILVER					0.026	U	A	0.021	U	A			
THALLIUM					0.031	U		0.031	U				
VANADIUM					0.358	U		0.358	U				

PROJ_NO: 06247	NSAMPLE	MRC-MW-60B-061114			MRC-MW-76A-061114			MRC-MW-76B-061114			MRC-MW-81B-061114		
SDG: R1404658	LAB_ID	R1404658-016			R1404658-017			R1404658-018			R1404658-013		
FRACTION: M	SAMP_DATE	6/11/2014			6/11/2014			6/11/2014			6/11/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ANTIMONY		0.157	U		0.157	U		0.365	U	A			
ARSENIC		0.211	U		3.1	U	A	0.99	U	A			
BARIUM		62.3			93.2			147					
BERYLLIUM		0.171	U	A	8.3			0.635	J	P			
CADMIUM		0.008	U		0.024	J	P	0.008	U				
CHROMIUM		3.5	U	A	2	U	A	4	U	A			
COBALT		45.6			437			198					
COPPER		0.509	U	A	2.1			1.2	U	A			
IRON		11300			26600			16100					
LEAD		0.061	U		0.102	J	P	0.259	J	P			
MANGANESE		2240			17500			7560					
MERCURY		0.024	U		0.024	U		0.024	U				
MOLYBDENUM		0.068	U		0.068	U		0.068	U				
NICKEL		76.6			366			254					
SELENIUM		0.739	J	P	2.5			0.213	U				
SILICA											12.5		
SILVER		0.015	U		0.032	U	A	0.06	U	A			
THALLIUM		0.031	J	P	0.031	U		0.047	J	P			
VANADIUM		0.358	U		0.358	U		0.358	U				

PROJ_NO: 06247	NSAMPLE	MRC-MW-81B-061114
SDG: R1404658	LAB_ID	R1404658-013
FRACTION: M	SAMP_DATE	6/11/2014
MEDIA: WATER	QC_TYPE	NM
	UNITS	UG/L
	PCT_SOLIDS	0.0
	DUP_OF	

PARAMETER	RESULT	VQL	QLCD
ANTIMONY	0.157	U	
ARSENIC	8.1		
BARIUM	484		
BERYLLIUM	0.151	U	A
CADMIUM	0.008	U	
CHROMIUM	2.8	U	A
COBALT	58.1		
COPPER	1.5		
IRON	36100		
LEAD	0.245	J	P
MANGANESE	3170		
MERCURY	0.024	U	
MOLYBDENUM	0.211	J	P
NICKEL	88.9		
SELENIUM	30.3		
SILICA			
SILVER	0.02	U	A
THALLIUM	0.031	U	
VANADIUM	0.358	U	

PROJ_NO: 06247	NSAMPLE	MRC-MW-37A-061314			MRC-MW-37A-061814			MRC-MW-48A-061114			MRC-MW-48A-061814		
SDG: R1404658	LAB_ID	R1404658-021			R1404658-009			R1404658-014			R1404658-002		
FRACTION: MISC	SAMP_DATE	6/13/2014			6/18/2014			6/11/2014			6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/L			MG/L			MG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.046	J	P				0.021	U	A			
CARBONATE ALKALINITY		60.6						44.4					
CHLORIDE					38.7						115		
DISSOLVED ORGANIC CARBON		3.9						1.6					
NITRATE					9.6						0.2	U	
NITRITE					0.3	U					0.3	U	
ORTHOPHOSPHATE-P					0.062						0.009	U	A
PERCHLORATE													
SULFATE					185						3.5		
TOTAL DISSOLVED SOLIDS					422						322		

PROJ_NO: 06247	NSAMPLE	MRC-MW-60A-061114			MRC-MW-60B-061114						MRC-MW-60B-061814		
SDG: R1404658	LAB_ID	R1404658-015			R1404658-016						R1404658-004		
FRACTION: MISC	SAMP_DATE	6/11/2014			6/11/2014						6/18/2014		
MEDIA: WATER	QC_TYPE	NM			NM						NM		
	UNITS	UG/L			MG/L			UG/L			MG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N					0.007	U	A						
CARBONATE ALKALINITY					50.7								
CHLORIDE											19		
DISSOLVED ORGANIC CARBON					0.6	J	P						
NITRATE											0.2	U	
NITRITE											0.3	U	
ORTHOPHOSPHATE-P											0.013	U	A
PERCHLORATE		0.026	U					0.026	U				
SULFATE											2.9		
TOTAL DISSOLVED SOLIDS											79		

PROJ_NO: 06247	NSAMPLE	MRC-MW-81B-061114			MRC-MW-81B-061814			MRC-MW-90B-060914		
SDG: R1404658	LAB_ID	R1404658-013			R1404658-001			R1404658-019		
FRACTION: MISC	SAMP_DATE	6/11/2014			6/18/2014			6/9/2014		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	MG/L			MG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
AMMONIA-N		0.159								
CARBONATE ALKALINITY		195								
CHLORIDE					155					
DISSOLVED ORGANIC CARBON		2.3								
NITRATE					0.2	U				
NITRITE					0.3	U				
ORTHOPHOSPHATE-P					0.055					
PERCHLORATE								1.4		
SULFATE					3.8					
TOTAL DISSOLVED SOLIDS					517					

Appendix B

Results as Reported by the Laboratory

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1054
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 18:20
Sample Name:	MRC-MW-02A-061814	**Units:**	µg/L
Lab Code:	R1404658-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6905.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1054
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 18:20
Sample Name:	MRC-MW-02A-061814	**Units:**	µg/L
Lab Code:	R1404658-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6905.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	**1.6**		1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	**5.4**		1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1054
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 18:20
Sample Name:	MRC-MW-02A-061814	**Units:**	µg/L
Lab Code:	R1404658-010	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6905.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/26/14 18:20	
Dibromofluoromethane	107	89-119	6/26/14 18:20	
Toluene-d8	102	87-121	6/26/14 18:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0831
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 17:48
Sample Name:	MRC-MW-19A-061814	**Units:**	µg/L
Lab Code:	R1404658-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6904.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**3.0**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0831
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 17:48
Sample Name:	MRC-MW-19A-061814	**Units:**	µg/L
Lab Code:	R1404658-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6904.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**0.75**	J	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	**1.0**		1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0831
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 17:48
Sample Name:	MRC-MW-19A-061814	**Units:**	µg/L
Lab Code:	R1404658-007	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6904.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/26/14 17:48	
Dibromofluoromethane	104	89-119	6/26/14 17:48	
Toluene-d8	101	87-121	6/26/14 17:48	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/13/14 1400
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Analyzed:	6/24/14 18:18
Sample Name:	MRC-MW-37A-061314	**Units:**	µg/L
Lab Code:	R1404658-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6829.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	2.7	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/13/14 1400
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Analyzed:	6/24/14 18:18
Sample Name:	MRC-MW-37A-061314	**Units:**	µg/L
Lab Code:	R1404658-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6829.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**0.35**	J	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/13/14 1400
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Analyzed:	6/24/14 18:18
Sample Name:	MRC-MW-37A-061314	**Units:**	µg/L
Lab Code:	R1404658-021	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6829.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	106	85-122	6/24/14 18:18	
Dibromofluoromethane	107	89-119	6/24/14 18:18	
Toluene-d8	103	87-121	6/24/14 18:18	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1414
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 18:52
Sample Name:	MRC-MW-38A-061814	**Units:**	µg/L
Lab Code:	R1404658-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6906.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.31**	BJ	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1414
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 18:52
Sample Name:	MRC-MW-38A-061814	**Units:**	µg/L
Lab Code:	R1404658-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6906.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**7.0**		1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1414
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 18:52
Sample Name:	MRC-MW-38A-061814	**Units:**	µg/L
Lab Code:	R1404658-011	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6906.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/26/14 18:52	
Dibromofluoromethane	106	89-119	6/26/14 18:52	
Toluene-d8	102	87-121	6/26/14 18:52	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 20:39
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6789.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**1.4**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**2.5**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	**0.69**	J	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	**3.3**	J	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**5.1**		5.0	1.3	
71-43-2	Benzene	**0.27**	J	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 20:39
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6789.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	**0.67**	J	1.0	0.24	
67-66-3	Chloroform	**0.36**	J	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	**0.58**	J	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	**0.82**	J	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**1.3**	B	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	**2.3**		1.0	0.30	
108-88-3	Toluene	**0.62**	J	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**270**	E	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	**56**		1.0	0.32	
1330-20-7	Xylenes, Total	**1.3**	J	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**410**	E	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	**1.3**		1.0	0.20	
135-98-8	sec-Butylbenzene	**0.35**	J	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	**0.28**	J	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**5.4**		1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 20:39
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6789.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/23/14 20:39	
Dibromofluoromethane	105	89-119	6/23/14 20:39	
Toluene-d8	102	87-121	6/23/14 20:39	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/24/14 19:55
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6832.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	4.0	U	4.0	0.88	
71-55-6	1,1,1-Trichloroethane (TCA)	4.0	U	4.0	1.5	
79-34-5	1,1,2,2-Tetrachloroethane	4.0	U	4.0	1.0	
76-13-1	1,1,2-Trichlorotrifluoroethane	4.0	U	4.0	1.3	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**1.6**	DJ	4.0	0.80	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**2.9**	DJ	4.0	2.3	
563-58-6	1,1-Dichloropropene	4.0	U	4.0	1.2	
87-61-6	1,2,3-Trichlorobenzene	4.0	U	4.0	3.3	
96-18-4	1,2,3-Trichloropropane	4.0	U	4.0	2.8	
120-82-1	1,2,4-Trichlorobenzene	4.0	U	4.0	0.92	
95-63-6	1,2,4-Trimethylbenzene	4.0	U	4.0	0.80	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	8.0	U	8.0	3.0	
106-93-4	1,2-Dibromoethane	4.0	U	4.0	0.96	
95-50-1	1,2-Dichlorobenzene	4.0	U	4.0	0.84	
107-06-2	1,2-Dichloroethane	4.0	U	4.0	1.5	
78-87-5	1,2-Dichloropropane	4.0	U	4.0	0.80	
541-73-1	1,3-Dichlorobenzene	4.0	U	4.0	0.80	
142-28-9	1,3-Dichloropropane	4.0	U	4.0	1.1	
106-46-7	1,4-Dichlorobenzene	4.0	U	4.0	0.80	
594-20-7	2,2-Dichloropropane	4.0	U	4.0	1.1	
78-93-3	2-Butanone (MEK)	20	U	20	3.3	
110-75-8	2-Chloroethyl Vinyl Ether	4.0	U	4.0	1.8	
95-49-8	2-Chlorotoluene	4.0	U	4.0	0.80	
591-78-6	2-Hexanone	20	U	20	6.7	
75-65-0	tert-Butyl Alcohol	160	U	160	43	
106-43-4	4-Chlorotoluene	4.0	U	4.0	0.96	
99-87-6	4-Isopropyltoluene	4.0	U	4.0	0.80	
108-10-1	4-Methyl-2-pentanone	20	U	20	2.7	
67-64-1	Acetone	**7.2**	DJ	20	5.0	
71-43-2	Benzene	4.0	U	4.0	0.80	
108-86-1	Bromobenzene	4.0	U	4.0	1.2	
74-97-5	Bromochloromethane	4.0	U	4.0	1.3	
75-27-4	Bromodichloromethane	4.0	U	4.0	1.3	
75-25-2	Bromoform	4.0	U	4.0	1.7	
74-83-9	Bromomethane	**1.3**	BDJ	4.0	1.2	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/24/14 19:55
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6832.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	4.0	U	4.0	0.88	
56-23-5	Carbon Tetrachloride	4.0	U	4.0	1.8	
108-90-7	Chlorobenzene	4.0	U	4.0	1.2	
75-00-3	Chloroethane	4.0	U	4.0	0.96	
67-66-3	Chloroform	**2.2**	DJ	4.0	1.0	
74-87-3	Chloromethane	4.0	U	4.0	0.84	
124-48-1	Dibromochloromethane	4.0	U	4.0	1.3	
74-95-3	Dibromomethane	4.0	U	4.0	1.3	
75-71-8	Dichlorodifluoromethane (CFC 12)	4.0	U	4.0	1.9	
75-09-2	Methylene Chloride	4.0	U	4.0	1.3	
108-20-3	Diisopropyl Ether	4.0	U	4.0	0.80	
637-92-3	Ethyl tert-Butyl Ether	4.0	U	4.0	0.80	
100-41-4	Ethylbenzene	4.0	U	4.0	0.80	
87-68-3	Hexachlorobutadiene	8.0	U	8.0	2.5	
98-82-8	Isopropylbenzene (Cumene)	**0.84**	DJ	4.0	0.80	
1634-04-4	Methyl tert-Butyl Ether	4.0	U	4.0	1.2	
91-20-3	Naphthalene	**1.2**	DJ	4.0	0.80	
100-42-5	Styrene	4.0	U	4.0	0.80	
127-18-4	Tetrachloroethene (PCE)	**2.2**	DJ	4.0	1.2	
108-88-3	Toluene	4.0	U	4.0	0.80	
79-01-6	Trichloroethene (TCE)	**260**	D	4.0	0.88	
75-69-4	Trichlorofluoromethane (CFC 11)	4.0	U	4.0	0.80	
108-05-4	Vinyl Acetate	8.0	U	8.0	4.1	
75-01-4	Vinyl Chloride	**56**	D	4.0	1.3	
1330-20-7	Xylenes, Total	12	U	12	2.2	
156-59-2	cis-1,2-Dichloroethene	**400**	D	4.0	1.2	
10061-01-5	cis-1,3-Dichloropropene	4.0	U	4.0	0.96	
179601-23-1	m,p-Xylenes	8.0	U	8.0	1.4	
104-51-8	n-Butylbenzene	4.0	U	4.0	0.84	
103-65-1	n-Propylbenzene	4.0	U	4.0	0.80	
95-47-6	o-Xylene	**1.1**	DJ	4.0	0.80	
135-98-8	sec-Butylbenzene	4.0	U	4.0	1.1	
994-05-8	tert-Amyl Methyl Ether	4.0	U	4.0	0.80	
98-06-6	tert-Butylbenzene	4.0	U	4.0	0.80	
156-60-5	trans-1,2-Dichloroethene	**12**	D	4.0	1.4	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/24/14 19:55
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6832.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	4

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	4.0	U	4.0	0.80	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	6/24/14 19:55	
Dibromofluoromethane	107	89-119	6/24/14 19:55	
Toluene-d8	104	87-121	6/24/14 19:55	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1000
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14 21:43
Sample Name:	MRC-MW-60A-061814	**Units:**	µg/L
Lab Code:	R1404658-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6791.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	5.0	U	5.0	1.1	
71-55-6	1,1,1-Trichloroethane (TCA)	5.0	U	5.0	1.8	
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U	5.0	1.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	5.0	U	5.0	1.6	
75-34-3	1,1-Dichloroethane (1,1-DCA)	5.0	U	5.0	1.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**2.9**	J	5.0	2.9	
563-58-6	1,1-Dichloropropene	5.0	U	5.0	1.5	
87-61-6	1,2,3-Trichlorobenzene	5.0	U	5.0	4.1	
96-18-4	1,2,3-Trichloropropane	5.0	U	5.0	3.5	
120-82-1	1,2,4-Trichlorobenzene	5.0	U	5.0	1.2	
95-63-6	1,2,4-Trimethylbenzene	5.0	U	5.0	1.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	10	U	10	3.7	
106-93-4	1,2-Dibromoethane	5.0	U	5.0	1.2	
95-50-1	1,2-Dichlorobenzene	5.0	U	5.0	1.1	
107-06-2	1,2-Dichloroethane	5.0	U	5.0	1.8	
78-87-5	1,2-Dichloropropane	5.0	U	5.0	1.0	
541-73-1	1,3-Dichlorobenzene	5.0	U	5.0	1.0	
142-28-9	1,3-Dichloropropane	5.0	U	5.0	1.4	
106-46-7	1,4-Dichlorobenzene	5.0	U	5.0	1.0	
594-20-7	2,2-Dichloropropane	5.0	U	5.0	1.4	
78-93-3	2-Butanone (MEK)	25	U	25	4.1	
110-75-8	2-Chloroethyl Vinyl Ether	5.0	U	5.0	2.2	
95-49-8	2-Chlorotoluene	5.0	U	5.0	1.0	
591-78-6	2-Hexanone	25	U	25	8.3	
75-65-0	tert-Butyl Alcohol	200	U	200	54	
106-43-4	4-Chlorotoluene	5.0	U	5.0	1.2	
99-87-6	4-Isopropyltoluene	5.0	U	5.0	1.0	
108-10-1	4-Methyl-2-pentanone	25	U	25	3.4	
67-64-1	Acetone	**17**	J	25	6.2	
71-43-2	Benzene	5.0	U	5.0	1.0	
108-86-1	Bromobenzene	5.0	U	5.0	1.5	
74-97-5	Bromochloromethane	5.0	U	5.0	1.6	
75-27-4	Bromodichloromethane	5.0	U	5.0	1.6	
75-25-2	Bromoform	5.0	U	5.0	2.1	
74-83-9	Bromomethane	5.0	U	5.0	1.5	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1000
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14 21:43
Sample Name:	MRC-MW-60A-061814	**Units:**	µg/L
Lab Code:	R1404658-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6791.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	5.0	U	5.0	1.1	
56-23-5	Carbon Tetrachloride	5.0	U	5.0	2.3	
108-90-7	Chlorobenzene	5.0	U	5.0	1.5	
75-00-3	Chloroethane	5.0	U	5.0	1.2	
67-66-3	Chloroform	**1.8**	J	5.0	1.3	
74-87-3	Chloromethane	5.0	U	5.0	1.1	
124-48-1	Dibromochloromethane	5.0	U	5.0	1.6	
74-95-3	Dibromomethane	5.0	U	5.0	1.6	
75-71-8	Dichlorodifluoromethane (CFC 12)	5.0	U	5.0	2.4	
75-09-2	Methylene Chloride	**3.9**	J	5.0	1.6	
108-20-3	Diisopropyl Ether	5.0	U	5.0	1.0	
637-92-3	Ethyl tert-Butyl Ether	5.0	U	5.0	1.0	
100-41-4	Ethylbenzene	5.0	U	5.0	1.0	
87-68-3	Hexachlorobutadiene	10	U	10	3.1	
98-82-8	Isopropylbenzene (Cumene)	**1.1**	J	5.0	1.0	
1634-04-4	Methyl tert-Butyl Ether	5.0	U	5.0	1.5	
91-20-3	Naphthalene	5.0	U	5.0	1.0	
100-42-5	Styrene	5.0	U	5.0	1.0	
127-18-4	Tetrachloroethene (PCE)	**3.5**	J	5.0	1.5	
108-88-3	Toluene	5.0	U	5.0	1.0	
79-01-6	Trichloroethene (TCE)	**450**		5.0	1.1	
75-69-4	Trichlorofluoromethane (CFC 11)	5.0	U	5.0	1.0	
108-05-4	Vinyl Acetate	10	U	10	5.1	
75-01-4	Vinyl Chloride	**49**		5.0	1.6	
1330-20-7	Xylenes, Total	15	U	15	2.7	
156-59-2	cis-1,2-Dichloroethene	**670**		5.0	1.5	
10061-01-5	cis-1,3-Dichloropropene	5.0	U	5.0	1.2	
179601-23-1	m,p-Xylenes	10	U	10	1.7	
104-51-8	n-Butylbenzene	5.0	U	5.0	1.1	
103-65-1	n-Propylbenzene	5.0	U	5.0	1.0	
95-47-6	o-Xylene	5.0	U	5.0	1.0	
135-98-8	sec-Butylbenzene	5.0	U	5.0	1.4	
994-05-8	tert-Amyl Methyl Ether	5.0	U	5.0	1.0	
98-06-6	tert-Butylbenzene	5.0	U	5.0	1.0	
156-60-5	trans-1,2-Dichloroethene	**4.1**	J	5.0	1.7	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1000
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14 21:43
Sample Name:	MRC-MW-60A-061814	**Units:**	µg/L
Lab Code:	R1404658-003	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6791.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	5

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	5.0	U	5.0	1.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/23/14 21:43	
Dibromofluoromethane	105	89-119	6/23/14 21:43	
Toluene-d8	99	87-121	6/23/14 21:43	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 20:27
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6833.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	25	U	25	5.5	
71-55-6	1,1,1-Trichloroethane (TCA)	25	U	25	9.0	
79-34-5	1,1,2,2-Tetrachloroethane	25	U	25	6.3	
76-13-1	1,1,2-Trichlorotrifluoroethane	25	U	25	7.8	
75-34-3	1,1-Dichloroethane (1,1-DCA)	25	U	25	5.0	
75-35-4	1,1-Dichloroethene (1,1-DCE)	25	U	25	15	
563-58-6	1,1-Dichloropropene	25	U	25	7.3	
87-61-6	1,2,3-Trichlorobenzene	25	U	25	21	
96-18-4	1,2,3-Trichloropropane	25	U	25	18	
120-82-1	1,2,4-Trichlorobenzene	25	U	25	5.8	
95-63-6	1,2,4-Trimethylbenzene	25	U	25	5.0	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	50	U	50	19	
106-93-4	1,2-Dibromoethane	25	U	25	6.0	
95-50-1	1,2-Dichlorobenzene	25	U	25	5.3	
107-06-2	1,2-Dichloroethane	25	U	25	9.0	
78-87-5	1,2-Dichloropropane	25	U	25	5.0	
541-73-1	1,3-Dichlorobenzene	25	U	25	5.0	
142-28-9	1,3-Dichloropropane	25	U	25	6.8	
106-46-7	1,4-Dichlorobenzene	25	U	25	5.0	
594-20-7	2,2-Dichloropropane	25	U	25	6.8	
78-93-3	2-Butanone (MEK)	130	U	130	21	
110-75-8	2-Chloroethyl Vinyl Ether	25	U	25	11	
95-49-8	2-Chlorotoluene	25	U	25	5.0	
591-78-6	2-Hexanone	130	U	130	42	
75-65-0	tert-Butyl Alcohol	1000	U	1000	270	
106-43-4	4-Chlorotoluene	25	U	25	6.0	
99-87-6	4-Isopropyltoluene	25	U	25	5.0	
108-10-1	4-Methyl-2-pentanone	130	U	130	17	
67-64-1	Acetone	130	U	130	31	
71-43-2	Benzene	25	U	25	5.0	
108-86-1	Bromobenzene	25	U	25	7.1	
74-97-5	Bromochloromethane	25	U	25	8.0	
75-27-4	Bromodichloromethane	25	U	25	8.0	
75-25-2	Bromoform	25	U	25	11	
74-83-9	Bromomethane	25	U	25	7.3	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 20:27
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6833.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	25	U	25	5.5	
56-23-5	Carbon Tetrachloride	25	U	25	12	
108-90-7	Chlorobenzene	25	U	25	7.3	
75-00-3	Chloroethane	25	U	25	6.0	
67-66-3	Chloroform	25	U	25	6.3	
74-87-3	Chloromethane	25	U	25	5.3	
124-48-1	Dibromochloromethane	25	U	25	7.8	
74-95-3	Dibromomethane	25	U	25	8.0	
75-71-8	Dichlorodifluoromethane (CFC 12)	25	U	25	12	
75-09-2	Methylene Chloride	25	U	25	8.0	
108-20-3	Diisopropyl Ether	25	U	25	5.0	
637-92-3	Ethyl tert-Butyl Ether	25	U	25	5.0	
100-41-4	Ethylbenzene	25	U	25	5.0	
87-68-3	Hexachlorobutadiene	50	U	50	16	
98-82-8	Isopropylbenzene (Cumene)	25	U	25	5.0	
1634-04-4	Methyl tert-Butyl Ether	25	U	25	7.3	
91-20-3	Naphthalene	25	U	25	5.0	
100-42-5	Styrene	25	U	25	5.0	
127-18-4	Tetrachloroethene (PCE)	25	U	25	7.5	
108-88-3	Toluene	25	U	25	5.0	
79-01-6	Trichloroethene (TCE)	**5100**	E	25	5.5	
75-69-4	Trichlorofluoromethane (CFC 11)	25	U	25	5.0	
108-05-4	Vinyl Acetate	50	U	50	26	
75-01-4	Vinyl Chloride	25	U	25	8.0	
1330-20-7	Xylenes, Total	75	U	75	14	
156-59-2	cis-1,2-Dichloroethene	**180**		25	7.5	
10061-01-5	cis-1,3-Dichloropropene	25	U	25	6.0	
179601-23-1	m,p-Xylenes	50	U	50	8.3	
104-51-8	n-Butylbenzene	25	U	25	5.3	
103-65-1	n-Propylbenzene	25	U	25	5.0	
95-47-6	o-Xylene	25	U	25	5.0	
135-98-8	sec-Butylbenzene	25	U	25	6.8	
994-05-8	tert-Amyl Methyl Ether	25	U	25	5.0	
98-06-6	tert-Butylbenzene	25	U	25	5.0	
156-60-5	trans-1,2-Dichloroethene	25	U	25	8.3	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/24/14 20:27
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6833.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	25

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	25	U	25	5.0	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/24/14 20:27	
Dibromofluoromethane	103	89-119	6/24/14 20:27	
Toluene-d8	103	87-121	6/24/14 20:27	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 19:56
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6908.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	50	U	50	11	
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	18	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	13	
76-13-1	1,1,2-Trichlorotrifluoroethane	50	U	50	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	50	U	50	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	50	U	50	29	
563-58-6	1,1-Dichloropropene	50	U	50	15	
87-61-6	1,2,3-Trichlorobenzene	50	U	50	41	
96-18-4	1,2,3-Trichloropropane	50	U	50	35	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	12	
95-63-6	1,2,4-Trimethylbenzene	50	U	50	10	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	37	
106-93-4	1,2-Dibromoethane	50	U	50	12	
95-50-1	1,2-Dichlorobenzene	50	U	50	11	
107-06-2	1,2-Dichloroethane	50	U	50	18	
78-87-5	1,2-Dichloropropane	50	U	50	10	
541-73-1	1,3-Dichlorobenzene	50	U	50	10	
142-28-9	1,3-Dichloropropane	50	U	50	14	
106-46-7	1,4-Dichlorobenzene	50	U	50	10	
594-20-7	2,2-Dichloropropane	50	U	50	14	
78-93-3	2-Butanone (MEK)	250	U	250	41	
110-75-8	2-Chloroethyl Vinyl Ether	50	U	50	22	
95-49-8	2-Chlorotoluene	50	U	50	10	
591-78-6	2-Hexanone	250	U	250	83	
75-65-0	tert-Butyl Alcohol	2000	U	2000	540	
106-43-4	4-Chlorotoluene	50	U	50	12	
99-87-6	4-Isopropyltoluene	50	U	50	10	
108-10-1	4-Methyl-2-pentanone	250	U	250	34	
67-64-1	Acetone	250	U	250	62	
71-43-2	Benzene	50	U	50	10	
108-86-1	Bromobenzene	50	U	50	15	
74-97-5	Bromochloromethane	50	U	50	16	
75-27-4	Bromodichloromethane	50	U	50	16	
75-25-2	Bromoform	50	U	50	21	
74-83-9	Bromomethane	50	U	50	15	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 19:56
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6908.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	50	U	50	11	
56-23-5	Carbon Tetrachloride	50	U	50	23	
108-90-7	Chlorobenzene	50	U	50	15	
75-00-3	Chloroethane	50	U	50	12	
67-66-3	Chloroform	**21**	DJ	50	13	
74-87-3	Chloromethane	50	U	50	11	
124-48-1	Dibromochloromethane	50	U	50	16	
74-95-3	Dibromomethane	50	U	50	16	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	23	
75-09-2	Methylene Chloride	50	U	50	16	
108-20-3	Diisopropyl Ether	50	U	50	10	
637-92-3	Ethyl tert-Butyl Ether	50	U	50	10	
100-41-4	Ethylbenzene	50	U	50	10	
87-68-3	Hexachlorobutadiene	100	U	100	31	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	10	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	15	
91-20-3	Naphthalene	50	U	50	10	
100-42-5	Styrene	50	U	50	10	
127-18-4	Tetrachloroethene (PCE)	50	U	50	15	
108-88-3	Toluene	50	U	50	10	
79-01-6	Trichloroethene (TCE)	**5600**	D	50	11	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	10	
108-05-4	Vinyl Acetate	100	U	100	51	
75-01-4	Vinyl Chloride	50	U	50	16	
1330-20-7	Xylenes, Total	150	U	150	27	
156-59-2	cis-1,2-Dichloroethene	**190**	D	50	15	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	12	
179601-23-1	m,p-Xylenes	100	U	100	17	
104-51-8	n-Butylbenzene	50	U	50	11	
103-65-1	n-Propylbenzene	50	U	50	10	
95-47-6	o-Xylene	50	U	50	10	
135-98-8	sec-Butylbenzene	50	U	50	14	
994-05-8	tert-Amyl Methyl Ether	50	U	50	10	
98-06-6	tert-Butylbenzene	50	U	50	10	
156-60-5	trans-1,2-Dichloroethene	50	U	50	17	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 19:56
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6908.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	50	U	50	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/26/14 19:56	
Dibromofluoromethane	107	89-119	6/26/14 19:56	
Toluene-d8	103	87-121	6/26/14 19:56	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1300
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 16:43
Sample Name:	MRC-MW-76A-061814	**Units:**	µg/L
Lab Code:	R1404658-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6902.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**3.0**	**J**	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1300
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 16:43
Sample Name:	MRC-MW-76A-061814	**Units:**	µg/L
Lab Code:	R1404658-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6902.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1300
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 16:43
Sample Name:	MRC-MW-76A-061814	**Units:**	µg/L
Lab Code:	R1404658-005	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6902.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/26/14 16:43	
Dibromofluoromethane	105	89-119	6/26/14 16:43	
Toluene-d8	102	87-121	6/26/14 16:43	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1400
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 17:16
Sample Name:	MRC-MW-76B-061814	**Units:**	µg/L
Lab Code:	R1404658-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6903.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**1.5**		1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**0.98**	J	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1400
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 17:16
Sample Name:	MRC-MW-76B-061814	**Units:**	µg/L
Lab Code:	R1404658-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6903.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**9.5**		1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**1.3**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1400
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 17:16
Sample Name:	MRC-MW-76B-061814	**Units:**	µg/L
Lab Code:	R1404658-006	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6903.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/26/14 17:16	
Dibromofluoromethane	106	89-119	6/26/14 17:16	
Toluene-d8	96	87-121	6/26/14 17:16	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 22:16
Sample Name:	MRC-MW-81B-061114	**Units:**	µg/L
Lab Code:	R1404658-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6792.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	50	U	50	11	
71-55-6	1,1,1-Trichloroethane (TCA)	50	U	50	18	
79-34-5	1,1,2,2-Tetrachloroethane	50	U	50	13	
76-13-1	1,1,2-Trichlorotrifluoroethane	50	U	50	16	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**110**		50	10	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**370**		50	29	
563-58-6	1,1-Dichloropropene	50	U	50	15	
87-61-6	1,2,3-Trichlorobenzene	50	U	50	41	
96-18-4	1,2,3-Trichloropropane	50	U	50	35	
120-82-1	1,2,4-Trichlorobenzene	50	U	50	12	
95-63-6	1,2,4-Trimethylbenzene	50	U	50	10	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	100	U	100	37	
106-93-4	1,2-Dibromoethane	50	U	50	12	
95-50-1	1,2-Dichlorobenzene	50	U	50	11	
107-06-2	1,2-Dichloroethane	50	U	50	18	
78-87-5	1,2-Dichloropropane	50	U	50	10	
541-73-1	1,3-Dichlorobenzene	50	U	50	10	
142-28-9	1,3-Dichloropropane	50	U	50	14	
106-46-7	1,4-Dichlorobenzene	50	U	50	10	
594-20-7	2,2-Dichloropropane	50	U	50	14	
78-93-3	2-Butanone (MEK)	250	U	250	41	
110-75-8	2-Chloroethyl Vinyl Ether	50	U	50	22	
95-49-8	2-Chlorotoluene	50	U	50	10	
591-78-6	2-Hexanone	250	U	250	83	
75-65-0	tert-Butyl Alcohol	2000	U	2000	540	
106-43-4	4-Chlorotoluene	50	U	50	12	
99-87-6	4-Isopropyltoluene	50	U	50	10	
108-10-1	4-Methyl-2-pentanone	250	U	250	34	
67-64-1	Acetone	250	U	250	62	
71-43-2	Benzene	50	U	50	10	
108-86-1	Bromobenzene	50	U	50	15	
74-97-5	Bromochloromethane	50	U	50	16	
75-27-4	Bromodichloromethane	50	U	50	16	
75-25-2	Bromoform	50	U	50	21	
74-83-9	Bromomethane	50	U	50	15	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 22:16
Sample Name:	MRC-MW-81B-061114	**Units:**	µg/L
Lab Code:	R1404658-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6792.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	50	U	50	11	
56-23-5	Carbon Tetrachloride	50	U	50	23	
108-90-7	Chlorobenzene	50	U	50	15	
75-00-3	Chloroethane	50	U	50	12	
67-66-3	Chloroform	50	U	50	13	
74-87-3	Chloromethane	50	U	50	11	
124-48-1	Dibromochloromethane	50	U	50	16	
74-95-3	Dibromomethane	50	U	50	16	
75-71-8	Dichlorodifluoromethane (CFC 12)	50	U	50	23	
75-09-2	Methylene Chloride	50	U	50	16	
108-20-3	Diisopropyl Ether	50	U	50	10	
637-92-3	Ethyl tert-Butyl Ether	50	U	50	10	
100-41-4	Ethylbenzene	50	U	50	10	
87-68-3	Hexachlorobutadiene	100	U	100	31	
98-82-8	Isopropylbenzene (Cumene)	50	U	50	10	
1634-04-4	Methyl tert-Butyl Ether	50	U	50	15	
91-20-3	Naphthalene	50	U	50	10	
100-42-5	Styrene	50	U	50	10	
127-18-4	Tetrachloroethene (PCE)	50	U	50	15	
108-88-3	Toluene	50	U	50	10	
79-01-6	Trichloroethene (TCE)	**7800**		50	11	
75-69-4	Trichlorofluoromethane (CFC 11)	50	U	50	10	
108-05-4	Vinyl Acetate	100	U	100	51	
75-01-4	Vinyl Chloride	**89**		50	16	
1330-20-7	Xylenes, Total	150	U	150	27	
156-59-2	cis-1,2-Dichloroethene	**3400**		50	15	
10061-01-5	cis-1,3-Dichloropropene	50	U	50	12	
179601-23-1	m,p-Xylenes	100	U	100	17	
104-51-8	n-Butylbenzene	50	U	50	11	
103-65-1	n-Propylbenzene	50	U	50	10	
95-47-6	o-Xylene	50	U	50	10	
135-98-8	sec-Butylbenzene	50	U	50	14	
994-05-8	tert-Amyl Methyl Ether	50	U	50	10	
98-06-6	tert-Butylbenzene	50	U	50	10	
156-60-5	trans-1,2-Dichloroethene	**27**	J	50	17	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 22:16
Sample Name:	MRC-MW-81B-061114	**Units:**	µg/L
Lab Code:	R1404658-013	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6792.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	50

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	50	U	50	10	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	105	85-122	6/23/14 22:16	
Dibromofluoromethane	105	89-119	6/23/14 22:16	
Toluene-d8	103	87-121	6/23/14 22:16	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0939
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 19:24
Sample Name:	MRC-MW-90B-061814	**Units:**	µg/L
Lab Code:	R1404658-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6907.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.61**	J	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**52**		1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.41**	BJ	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0939
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 19:24
Sample Name:	MRC-MW-90B-061814	**Units:**	µg/L
Lab Code:	R1404658-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6907.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**0.67**	J	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	**1.0**		1.0	0.25	
74-87-3	Chloromethane	**0.55**	J	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	**300**	E	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	**9.2**		1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	**0.41**	J	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0939
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 19:24
Sample Name:	MRC-MW-90B-061814	**Units:**	µg/L
Lab Code:	R1404658-008	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6907.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	103	85-122	6/26/14 19:24	
Dibromofluoromethane	108	89-119	6/26/14 19:24	
Toluene-d8	103	87-121	6/26/14 19:24	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0939
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/27/14 11:39
Sample Name:	MRC-MW-90B-061814	**Units:**	µg/L
Lab Code:	R1404658-008	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399131
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062714\M6936.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	2.0	U	2.0	0.44	
71-55-6	1,1,1-Trichloroethane (TCA)	2.0	U	2.0	0.72	
79-34-5	1,1,2,2-Tetrachloroethane	2.0	U	2.0	0.50	
76-13-1	1,1,2-Trichlorotrifluoroethane	2.0	U	2.0	0.62	
75-34-3	1,1-Dichloroethane (1,1-DCA)	**0.60**	DJ	2.0	0.40	
75-35-4	1,1-Dichloroethene (1,1-DCE)	**48**	D	2.0	1.2	
563-58-6	1,1-Dichloropropene	2.0	U	2.0	0.58	
87-61-6	1,2,3-Trichlorobenzene	2.0	U	2.0	1.7	
96-18-4	1,2,3-Trichloropropane	2.0	U	2.0	1.4	
120-82-1	1,2,4-Trichlorobenzene	2.0	U	2.0	0.46	
95-63-6	1,2,4-Trimethylbenzene	2.0	U	2.0	0.40	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	4.0	U	4.0	1.5	
106-93-4	1,2-Dibromoethane	2.0	U	2.0	0.48	
95-50-1	1,2-Dichlorobenzene	2.0	U	2.0	0.42	
107-06-2	1,2-Dichloroethane	2.0	U	2.0	0.72	
78-87-5	1,2-Dichloropropane	2.0	U	2.0	0.40	
541-73-1	1,3-Dichlorobenzene	2.0	U	2.0	0.40	
142-28-9	1,3-Dichloropropane	2.0	U	2.0	0.54	
106-46-7	1,4-Dichlorobenzene	2.0	U	2.0	0.40	
594-20-7	2,2-Dichloropropane	2.0	U	2.0	0.54	
78-93-3	2-Butanone (MEK)	10	U	10	1.7	
110-75-8	2-Chloroethyl Vinyl Ether	2.0	U	2.0	0.88	
95-49-8	2-Chlorotoluene	2.0	U	2.0	0.40	
591-78-6	2-Hexanone	10	U	10	3.4	
75-65-0	tert-Butyl Alcohol	80	U	80	22	
106-43-4	4-Chlorotoluene	2.0	U	2.0	0.48	
99-87-6	4-Isopropyltoluene	2.0	U	2.0	0.40	
108-10-1	4-Methyl-2-pentanone	10	U	10	1.4	
67-64-1	Acetone	**2.5**	DJ	10	2.5	
71-43-2	Benzene	2.0	U	2.0	0.40	
108-86-1	Bromobenzene	2.0	U	2.0	0.56	
74-97-5	Bromochloromethane	2.0	U	2.0	0.64	
75-27-4	Bromodichloromethane	2.0	U	2.0	0.64	
75-25-2	Bromoform	2.0	U	2.0	0.84	
74-83-9	Bromomethane	**0.88**	BDJ	2.0	0.58	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0939
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/27/14 11:39
Sample Name:	MRC-MW-90B-061814	**Units:**	µg/L
Lab Code:	R1404658-008	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399131
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062714\M6936.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**1.1**	DJ	2.0	0.44	
56-23-5	Carbon Tetrachloride	2.0	U	2.0	0.90	
108-90-7	Chlorobenzene	2.0	U	2.0	0.58	
75-00-3	Chloroethane	2.0	U	2.0	0.48	
67-66-3	Chloroform	**1.8**	DJ	2.0	0.50	
74-87-3	Chloromethane	**0.56**	DJ	2.0	0.42	
124-48-1	Dibromochloromethane	2.0	U	2.0	0.62	
74-95-3	Dibromomethane	2.0	U	2.0	0.64	
75-71-8	Dichlorodifluoromethane (CFC 12)	2.0	U	2.0	0.92	
75-09-2	Methylene Chloride	**0.66**	DJ	2.0	0.64	
108-20-3	Diisopropyl Ether	2.0	U	2.0	0.40	
637-92-3	Ethyl tert-Butyl Ether	2.0	U	2.0	0.40	
100-41-4	Ethylbenzene	2.0	U	2.0	0.40	
87-68-3	Hexachlorobutadiene	4.0	U	4.0	1.3	
98-82-8	Isopropylbenzene (Cumene)	2.0	U	2.0	0.40	
1634-04-4	Methyl tert-Butyl Ether	2.0	U	2.0	0.58	
91-20-3	Naphthalene	2.0	U	2.0	0.40	
100-42-5	Styrene	2.0	U	2.0	0.40	
127-18-4	Tetrachloroethene (PCE)	2.0	U	2.0	0.60	
108-88-3	Toluene	2.0	U	2.0	0.40	
79-01-6	Trichloroethene (TCE)	**280**	D	2.0	0.44	
75-69-4	Trichlorofluoromethane (CFC 11)	2.0	U	2.0	0.40	
108-05-4	Vinyl Acetate	4.0	U	4.0	2.1	
75-01-4	Vinyl Chloride	2.0	U	2.0	0.64	
1330-20-7	Xylenes, Total	6.0	U	6.0	1.1	
156-59-2	cis-1,2-Dichloroethene	**8.7**	D	2.0	0.60	
10061-01-5	cis-1,3-Dichloropropene	2.0	U	2.0	0.48	
179601-23-1	m,p-Xylenes	4.0	U	4.0	0.66	
104-51-8	n-Butylbenzene	2.0	U	2.0	0.42	
103-65-1	n-Propylbenzene	2.0	U	2.0	0.40	
95-47-6	o-Xylene	2.0	U	2.0	0.40	
135-98-8	sec-Butylbenzene	2.0	U	2.0	0.54	
994-05-8	tert-Amyl Methyl Ether	2.0	U	2.0	0.40	
98-06-6	tert-Butylbenzene	2.0	U	2.0	0.40	
156-60-5	trans-1,2-Dichloroethene	2.0	U	2.0	0.66	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0939
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/27/14 11:39
Sample Name:	MRC-MW-90B-061814	**Units:**	µg/L
Lab Code:	R1404658-008	**Basis:**	NA
Run Type:	Dilution		

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399131
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062714\M6936.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	2.0	U	2.0	0.40	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/27/14 11:39	
Dibromofluoromethane	107	89-119	6/27/14 11:39	
Toluene-d8	100	87-121	6/27/14 11:39	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 11:52
Sample Name:	TB-061814	**Units:**	µg/L
Lab Code:	R1404658-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6893.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	**1.9**	J	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.50**	BJ	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 11:52
Sample Name:	TB-061814	**Units:**	µg/L
Lab Code:	R1404658-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6893.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	**0.31**	J	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	1.0	U	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/26/14 11:52
Sample Name:	TB-061814	**Units:**	µg/L
Lab Code:	R1404658-012	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6893.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	100	85-122	6/26/14 11:52	
Dibromofluoromethane	106	89-119	6/26/14 11:52	
Toluene-d8	97	87-121	6/26/14 11:52	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 9/14 1005
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Extracted:	6/25/14
		Date Analyzed:	6/27/14 14:41
Sample Name:	MRC-MW-19A-060914	**Units:**	µg/L
Lab Code:	R1404658-020	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	399324
Prep Method:	Method	**Extraction Lot:**	211375
Data File Name:	I:\ACQUDATA\5975E\data\062714\AG108.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**8.06**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	82	70-130	6/27/14 14:41	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 9/14 1121
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Extracted:	6/25/14
		Date Analyzed:	6/27/14 14:23
Sample Name:	MRC-MW-90B-060914	**Units:**	µg/L
Lab Code:	R1404658-019	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	399324
Prep Method:	Method	**Extraction Lot:**	211375
Data File Name:	I:\ACQUDATA\5975E\data\062714\AG107.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	**19.4**		0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	89	70-130	6/27/14 14:23	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/13/14 1400
Sample Matrix:	Water	**Date Received:**	6/17/14
		Date Analyzed:	6/23/14 14:18
Sample Name:	MRC-MW-37A-061314	**Units:**	µg/L
Lab Code:	R1404658-021	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1019.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	1.0	U	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 13:57
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1017.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**77**		1.0	0.20	
74-85-1	Ethene	**75**		1.0	0.11	
74-82-8	Methane	**670**	E	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 14:28
Sample Name:	MRC-MW-48A-061114	**Units:**	µg/L
Lab Code:	R1404658-014	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1020.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	100

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**48**	J	100	20	
74-85-1	Ethene	**44**	J	100	11	
74-82-8	Methane	**6300**	D	100	21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14 13:16
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1013.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	**0.20**	J	1.0	0.11	
74-82-8	Methane	**110**	E	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
		Date Analyzed:	6/23/14 13:27
Sample Name:	MRC-MW-60B-061814	**Units:**	µg/L
Lab Code:	R1404658-004	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1014.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	2

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	2.0	U	2.0	0.40	
74-85-1	Ethene	2.0	U	2.0	0.22	
74-82-8	Methane	**110**	D	2.0	0.41	

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Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 13:37
Sample Name:	MRC-MW-81B-061114	**Units:**	µg/L
Lab Code:	R1404658-013	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1015.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	**0.63**	J	1.0	0.20	
74-85-1	Ethene	**7.0**		1.0	0.11	
74-82-8	Methane	**380**	E	1.0	0.21	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Analyzed:	6/23/14 13:47
Sample Name:	MRC-MW-81B-061114	**Units:**	µg/L
Lab Code:	R1404658-013	**Basis:**	NA
Run Type:	Dilution		

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1016.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	10

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	10	U	10	2.0	
74-85-1	Ethene	7.4	J	10	1.1	
74-82-8	Methane	780	D	10	2.1	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1004
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 10:00
Sample Name:	MRC-MW-60A-061114	**Units:**	µg/L
Lab Code:	R1404658-015	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031531.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1117
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 10:13
Sample Name:	MRC-MW-60B-061114	**Units:**	µg/L
Lab Code:	R1404658-016	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031532.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/ 9/14 1121
Sample Matrix:	Water	**Date Received:**	6/13/14
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 10:27
Sample Name:	MRC-MW-90B-060914	**Units:**	µg/L
Lab Code:	R1404658-019	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031533.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	**1.4**		0.20	0.026	

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-02A-060914

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-022

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	144			MS
7440-41-7	Beryllium	5.6			MS
7440-43-9	Cadmium	0.152	J		MS
7440-47-3	Chromium	2.0	J		MS
7440-48-4	Cobalt	108			MS
7440-50-8	Copper	119			MS
7439-89-6	Iron	271			P
7439-92-1	Lead	0.354	J		MS
7439-96-5	Manganese	43.8			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	150			MS
7782-49-2	Selenium	0.745	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.457	J		MS
7439-98-7	Molybdenum	0.479	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-19A-060914

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-020

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.196	J		MS
7440-38-2	Arsenic	2.0			MS
7440-39-3	Barium	42.8			MS
7440-41-7	Beryllium	2.2			MS
7440-43-9	Cadmium	1.8			MS
7440-47-3	Chromium	6.3			MS
7440-48-4	Cobalt	880			MS
7440-50-8	Copper	228			MS
7439-89-6	Iron	3520			P
7439-92-1	Lead	1.6			MS
7439-96-5	Manganese	2090			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	2550			MS
7782-49-2	Selenium	1.8	J		MS
7440-22-4	Silver	0.045	J		MS
7440-28-0	Thallium	0.185	J		MS
7440-62-2	Vanadium	2.1			MS
7439-98-7	Molybdenum	0.153	J		MS

Color Before: YELLOW Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-37A-061314

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-021

Level (low/med): LOW Date Received: 6/17/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.288	J		MS
7440-38-2	Arsenic	1.7			MS
7440-39-3	Barium	59.6			MS
7440-41-7	Beryllium	0.571	J		MS
7440-43-9	Cadmium	0.289	J		MS
7440-47-3	Chromium	6.0			MS
7440-48-4	Cobalt	5.0			MS
7440-50-8	Copper	5.6			MS
7439-89-6	Iron	5600			P
7439-92-1	Lead	4.5			MS
7439-96-5	Manganese	57.8			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	6.2			MS
7782-49-2	Selenium	1.4	J		MS
7440-22-4	Silver	0.038	J		MS
7440-28-0	Thallium	0.057	J		MS
7440-62-2	Vanadium	10.0			MS
7439-98-7	Molybdenum	0.169	J		MS

Color Before: YELLOW Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-48A-061114

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-014

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	49.4			MS
7440-39-3	Barium	599			MS
7440-41-7	Beryllium	7.7			MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	3.1			MS
7440-48-4	Cobalt	104			MS
7440-50-8	Copper	1.1			MS
7439-89-6	Iron	31400			P
7439-92-1	Lead	0.355	J		MS
7439-96-5	Manganese	7800			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	129			MS
7782-49-2	Selenium	193			MS
7440-22-4	Silver	0.026	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	0.086	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-60A-061114

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-015

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.896	J		MS
7440-39-3	Barium	52.7			MS
7440-41-7	Beryllium	0.676	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.6			MS
7440-48-4	Cobalt	41.4			MS
7440-50-8	Copper	2.2			MS
7439-89-6	Iron	15200			P
7439-92-1	Lead	0.137	J		MS
7439-96-5	Manganese	2700			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	40.2			MS
7782-49-2	Selenium	2.3			MS
7440-22-4	Silver	0.021	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	0.407	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-60B-061114

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-016

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	0.211	U		MS
7440-39-3	Barium	62.3			MS
7440-41-7	Beryllium	0.171	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	3.5			MS
7440-48-4	Cobalt	45.6			MS
7440-50-8	Copper	0.509	J		MS
7439-89-6	Iron	11300			P
7439-92-1	Lead	0.061	U		MS
7439-96-5	Manganese	2240			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	76.6			MS
7782-49-2	Selenium	0.739	J		MS
7440-22-4	Silver	0.015	U		MS
7440-28-0	Thallium	0.031	J		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Environmental

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INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-76A-061114

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-017

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	3.1			MS
7440-39-3	Barium	93.2			MS
7440-41-7	Beryllium	8.3			MS
7440-43-9	Cadmium	0.024	J		MS
7440-47-3	Chromium	2.0	J		MS
7440-48-4	Cobalt	437			MS
7440-50-8	Copper	2.1			MS
7439-89-6	Iron	26600			P
7439-92-1	Lead	0.102	J		MS
7439-96-5	Manganese	17500			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	366			MS
7782-49-2	Selenium	2.5			MS
7440-22-4	Silver	0.032	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

90114

METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-76B-061114

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-018

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.365	J		MS
7440-38-2	Arsenic	0.990	J		MS
7440-39-3	Barium	147			MS
7440-41-7	Beryllium	0.635	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	4.0			MS
7440-48-4	Cobalt	198			MS
7440-50-8	Copper	1.2			MS
7439-89-6	Iron	16100			P
7439-92-1	Lead	0.259	J		MS
7439-96-5	Manganese	7560			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	254			MS
7782-49-2	Selenium	0.213	U		MS
7440-22-4	Silver	0.060	J		MS
7440-28-0	Thallium	0.047	J		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	0.068	U		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

MRC-MW-81B-061114

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Matrix (soil/water): WATER Lab Sample ID: R1404658-013

Level (low/med): LOW Date Received: 6/13/2014

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-36-0	Antimony	0.157	U		MS
7440-38-2	Arsenic	8.1			MS
7440-39-3	Barium	484			MS
7440-41-7	Beryllium	0.151	J		MS
7440-43-9	Cadmium	0.008	U		MS
7440-47-3	Chromium	2.8			MS
7440-48-4	Cobalt	58.1			MS
7440-50-8	Copper	1.5			MS
7439-89-6	Iron	36100			P
7439-92-1	Lead	0.245	J		MS
7439-96-5	Manganese	3170			P
7439-97-6	Mercury	0.024	U		CV
7440-02-0	Nickel	88.9			MS
7782-49-2	Selenium	30.3			MS
7440-22-4	Silver	0.020	J		MS
7440-28-0	Thallium	0.031	U		MS
7440-62-2	Vanadium	0.358	U		MS
7439-98-7	Molybdenum	0.211	J		MS

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/13/14 1400
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	MRC-MW-37A-061314		
Lab Code:	R1404658-021	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**60.6**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.046**	BJ	mg/L	0.050	0.004	1	NA	6/30/14 17:28	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**3.9**		mg/L	1.0	0.4	1	NA	7/1/14 21:39	
Silica, Dissolved as SiO2	USGS I-2700-85	**3.25**		mg/L	0.050	0.015	5	NA	7/3/14 13:14	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	MRC-MW-48A-061114		
Lab Code:	R1404658-014	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**44.4**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.021**	BJ	mg/L	0.050	0.004	1	NA	6/30/14 17:26	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**1.6**		mg/L	1.0	0.4	1	NA	7/1/14 20:57	
Silica, Dissolved as SiO2	USGS I-2700-85	**19.2**		mg/L	0.20	0.06	20	NA	7/3/14 13:11	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1117
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	MRC-MW-60B-061114		
Lab Code:	R1404658-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**50.7**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.007**	BJ	mg/L	0.050	0.004	1	NA	6/30/14 17:27	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**0.6**	J	mg/L	1.0	0.4	1	NA	7/1/14 21:18	
Silica, Dissolved as SiO2	USGS I-2700-85	**11.5**		mg/L	0.20	0.06	20	NA	7/3/14 13:13	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	MRC-MW-81B-061114		
Lab Code:	R1404658-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**195**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.159**		mg/L	0.050	0.004	1	NA	6/30/14 17:25	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**2.3**		mg/L	1.0	0.4	1	NA	7/1/14 20:36	
Silica, Dissolved as SiO2	USGS I-2700-85	**12.5**		mg/L	0.20	0.06	20	NA	7/3/14 13:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1207
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-37A-061814		
Lab Code:	R1404658-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**38.7**		mg/L	2.0	0.3	10	NA	6/19/14 17:22	
Nitrate as Nitrogen	300.0	**9.6**		mg/L	1.0	0.2	10	NA	6/19/14 17:22	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 17:22	
Orthophosphate as Phosphorus	365.1	**0.062**		mg/L	0.010	0.002	1	NA	6/19/14 11:44	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**422**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**185**		mg/L	8.0	7.6	40	NA	6/24/14 19:42	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0905
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-48A-061814		
Lab Code:	R1404658-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**115**		mg/L	4.0	0.6	20	NA	6/21/14 19:42	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/19/14 16:20	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 16:20	
Orthophosphate as Phosphorus	365.1	**0.009**	BJ	mg/L	0.010	0.002	1	NA	6/19/14 11:43	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**322**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**3.5**		mg/L	2.0	1.9	10	NA	6/19/14 16:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-60B-061814		
Lab Code:	R1404658-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**19.0**		mg/L	2.0	0.3	10	NA	6/19/14 17:10	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/19/14 17:10	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 17:10	
Orthophosphate as Phosphorus	365.1	**0.013**	B	mg/L	0.010	0.002	1	NA	6/19/14 11:43	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**79**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**2.9**		mg/L	2.0	1.9	10	NA	6/19/14 17:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0820
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-81B-061814		
Lab Code:	R1404658-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**155**		mg/L	8.0	1.2	40	NA	6/21/14 19:30	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/19/14 16:08	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 16:08	
Orthophosphate as Phosphorus	365.1	**0.055**	B	mg/L	0.010	0.002	1	NA	6/19/14 11:40	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**517**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**3.8**		mg/L	2.0	1.9	10	NA	6/19/14 16:08	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1207
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-37A-061814		
Lab Code:	R1404658-009	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**38.7**		mg/L	2.0	0.3	10	NA	6/19/14 17:22	
Nitrate as Nitrogen	300.0	**9.6**		mg/L	1.0	0.2	10	NA	6/19/14 17:22	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 17:22	
Orthophosphate as Phosphorus	365.1	**0.062**		mg/L	0.010	0.002	1	NA	6/19/14 11:44	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**422**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**185**		mg/L	8.0	7.6	40	NA	6/24/14 19:42	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0905
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-48A-061814		
Lab Code:	R1404658-002	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**115**		mg/L	4.0	0.6	20	NA	6/21/14 19:42	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/19/14 16:20	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 16:20	
Orthophosphate as Phosphorus	365.1	0.009	BJ	mg/L	0.010	0.002	1	NA	6/19/14 11:43	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**322**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**3.5**		mg/L	2.0	1.9	10	NA	6/19/14 16:20	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 1055
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-60B-061814		
Lab Code:	R1404658-004	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**19.0**		mg/L	2.0	0.3	10	NA	6/19/14 17:10	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/19/14 17:10	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 17:10	
Orthophosphate as Phosphorus	365.1	**0.013**	B	mg/L	0.010	0.002	1	NA	6/19/14 11:43	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**79**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**2.9**		mg/L	2.0	1.9	10	NA	6/19/14 17:10	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/18/14 0820
Sample Matrix:	Water	**Date Received:**	6/19/14
Sample Name:	MRC-MW-81B-061814		
Lab Code:	R1404658-001	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Chloride	300.0	**155**		mg/L	8.0	1.2	40	NA	6/21/14 19:30	
Nitrate as Nitrogen	300.0	1.0	U	mg/L	1.0	0.2	10	NA	6/19/14 16:08	
Nitrite as Nitrogen	300.0	1.0	U	mg/L	1.0	0.3	10	NA	6/19/14 16:08	
Orthophosphate as Phosphorus	365.1	**0.055**	B	mg/L	0.010	0.002	1	NA	6/19/14 11:40	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	**517**		mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	**3.8**		mg/L	2.0	1.9	10	NA	6/19/14 16:08	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/13/14 1400
Sample Matrix:	Water	**Date Received:**	6/17/14
Sample Name:	MRC-MW-37A-061314		
Lab Code:	R1404658-021	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**60.6**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.046**	BJ	mg/L	0.050	0.004	1	NA	6/30/14 17:28	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**3.9**		mg/L	1.0	0.4	1	NA	7/1/14 21:39	
Silica, Dissolved as SiO2	USGS I-2700-85	**3.25**		mg/L	0.050	0.015	5	NA	7/3/14 13:14	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1415
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	MRC-MW-48A-061114		
Lab Code:	R1404658-014	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**44.4**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.021**	BJ	mg/L	0.050	0.004	1	NA	6/30/14 17:26	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**1.6**		mg/L	1.0	0.4	1	NA	7/1/14 20:57	
Silica, Dissolved as SiO2	USGS I-2700-85	**19.2**		mg/L	0.20	0.06	20	NA	7/3/14 13:11	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1117
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	MRC-MW-60B-061114		
Lab Code:	R1404658-016	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**50.7**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.007**	BJ	mg/L	0.050	0.004	1	NA	6/30/14 17:27	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**0.6**	J	mg/L	1.0	0.4	1	NA	7/1/14 21:18	
Silica, Dissolved as SiO2	USGS I-2700-85	**11.5**		mg/L	0.20	0.06	20	NA	7/3/14 13:13	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	6/11/14 1045
Sample Matrix:	Water	**Date Received:**	6/13/14
Sample Name:	MRC-MW-81B-061114		
Lab Code:	R1404658-013	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**195**		mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.159**		mg/L	0.050	0.004	1	NA	6/30/14 17:25	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	**2.3**		mg/L	1.0	0.4	1	NA	7/1/14 20:36	
Silica, Dissolved as SiO2	USGS I-2700-85	**12.5**		mg/L	0.20	0.06	20	NA	7/3/14 13:10	

Appendix C

Support Documentation

Client:	Tetra Tech	**Service Request No.:**	R1404658
Project:	Middle River	**Date Received:**	6/13-6/19/14
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS. This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results and Laboratory Control Samples (LCS) recoveries have been reported with each analytical test.

Sample Receipt

Twenty-two water samples were received for analysis at ALS-Environmental between 6/13-6/19/14. The samples were received in good condition consistent with the accompanying chain of custody form enclosed. The samples were received between 3.1-4.0°C within the 0-6°C temperature guidelines.

Wet Chemistry

The Method Blank for Alkalinity, Ammonia and Orthophosphate (R1404658-MB1) and Alkalinity (R1404658-MB2) contained low level hits and have been flagged with a "J". All affected data has been "B" flagged appropriately.

Site QC was not requested but was analyzed on several samples for various parameters. All exceedences have been flagged with a "*".

The Continuing Calibration Blanks for Ammonia (CCB1 to CCB6), Chloride (CCB5), Orthophosphate (CCB1, CCB2) and Silica (CCB2, CCB3) contained low level hits and have been flagged with a "J". No data was affected.

No other analytical or quality control problems were encountered during analysis.

Metals

The Method Blanks contained low level hits and have been flagged with a "J".

Site QC was not requested but was analyzed on samples MRC-MW-48A-061114 (R1404658-014) and MRC-MW-02A-060914 (R1404658-022). The Matrix Spike was not applicable for Iron and Manganese on sample MRC-MW-48A-061114 (R1404658-014) as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-8260

The Continuing Calibration Verification (CCV) standard exceeded 20% difference for Acetone on 6/23/14, 1,2-Dichloroethane, 2-Butanone, 2-Hexanone, tert-Butyl Alcohol, 4-Methyl-2-pentanone, Methyl tert-Butyl Ether and Vinyl Acetate on 6/24/14, 2-Butanone, tert-Butyl Alcohol, Acetone and Chloroethane on 6/26/14 and 2-Butanone, Bromomethane and Chloroethane on 6/27/14. All detected concentrations for this compound in samples associated with this CCV should be considered as estimated.

The Method Blank contained a low level hit of 1,2,4-Trichlorobenzene, Hexachlorobutadiene and Naphthalene on 6/23/14, 1,2,4-Trichlorobenzene, Bromomethane and Naphthalene on 6/24/14 and 6/26/14 and 1,2,4-Trichlorobenzene, Bromomethane Hexachlorobutadiene and Naphthalene on 6/27/14. All affected data has been "B" flagged appropriately.

The Laboratory Control Sample from 6/27/14 was outside of the control limits high for Chloroform and has been flagged with a "*". This high bias allows for appropriate sensitivity of detection and no data was affected.

Site QC was not requested but was analyzed on samples MRC-MW-60B-061814 (R1404658-004) and MRC-MW-81B-061114 (R1404658-013). All exceedences have been flagged with a "*". The Matrix Spike and Duplicate

Approved by _____ **Date** 7/15/14

Matrix Spike for Trichloroethene on MRC-MW-60B-061814 (R1404658-004) was not applicable as the amount present in the sample was greater than four times the added spike preventing accurate evaluation of the spike recovery. These have been flagged with a "#".
2-Chloroethyl Vinyl Ether does not recover in preserved vials.

Compounds that exceed the calibration range of the instrument have been flagged with an "E". Samples are repeated at a dilution and have been flagged with a "D". Both sets of data have been reported.

No other analytical or quality control problems were encountered during analysis.

Volatile Organics-RSK

The Method Blank contained a low level hit of Methane and has been flagged with a "J". No data was affected as hits in the samples were greater than 10 times the hit in the method blank or not detected.

No other analytical or quality control problems were encountered during analysis.

Extractable Organics- 522

No analytical or quality control problems were encountered during analysis.

Extractable Organics -6850

No analytical or quality control problems were encountered during analysis.

Approved by _____ **Date** 7/15/14

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15148

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 2

Project Name: MRC GW - 2014
Project Number: 112IC06247
Project Manager: Tony Apanavage
Report CC:
Company/Address: Tetra Tech Inc
20251 Century Blvd STE 200
Germantown, MD 20874
Phone #: 301 528-3021
Email:
Sampler's Signature: Walt Pryor
Sampler's Printed Name: Walt Pryor

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1, 7, 2

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs (8260 • 624 • CLP) VOCs	GC/MS SVOAs (8270 • 625) 1,4 Dioxane	GC VOAs (8021 • 601/602) Perchlorate	PESTICIDES (8081 • 608)	PCBs (8082 • 608)	METALS, TOTAL (List in comments below) 6020A	METALS, DISSOLVED (List in comments below)	RSK-175	Alk	TDS, NO3, M2, Cl, SO4, gpm	NH3	Silica + DOC			REMARKS/ ALTERNATE DESCRIPTION
TB-060914		6-9-14	—	GW	3	X														
MRC-MW-19A-060914	-020		1005		6	X	X				X									
MRC-MW-90B-060914	-019		1121		6	X	X	X												
MRC-MW-04A-060914			1435		1						X									
MRC-MW-02A-060914	-022		1549		4	X					X									
MRC-MW-38A-061014		6-10-14	1530		3	X														
MRC-MW-60A-061114	-015	6-11-14	1004		5	X		X			X									
MRC-MW-60B-061114	-016		1117		12	X		X			X		X	X	X	X	X			
MRC-MW-76B-061114	-018		1245		4	X					X									
MRC-MW-76A-061114	-017		1455		4	X					X									

SPECIAL INSTRUCTIONS/COMMENTS
Metals
Doc taken out of unpreserved polys

R1404508 7
Tetra Tech NUS,Inc.
Middle River- Lockheed Martin Corp

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: Maryland

TURNAROUND REQUIREMENTS
____ RUSH (SURCHARGES APPLY)
____ 1 day ____ 2 day ____ 3 day
____ 4 day ____ 5 day
Standard
REQUESTED REPORT DATE

REPORT REQUIREMENTS
____ I. Results Only
____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
Edata ____ Yes ____ No

INVOICE INFORMATION
PO #
BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pryor	Signature: [signature] ALS	Signature: [signature] ALS	Signature: [signature]	Signature: [signature]	Signature: SHSS
Printed Name: Walt Pryor	Printed Name: Lawrence Lawson	Printed Name: Lawrence Lawson	Printed Name: SRB	Printed Name: SRB	Printed Name:
Firm: TT Inc	Firm: ALS	Firm: ALS	Firm: ALS	Firm: AD	Firm: ALS
Date/Time: 6-11-14 / 1550	Date/Time: 6/11/14 1550	Date/Time: 6/11/14 1640	Date/Time: 6-11-14 1855	Date/Time: 6-11-14 2100	Date/Time: 6-11-14 2100

Distribution: White - Lab Copy; Yellow - Return to Originator

Fran Neil ALS 6/12/14 1810

Chris Wright ALS 6/13/14 1020

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ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

15157

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 2 OF 2

Project Name: MRC Annual GW 2014	Project Number: 1727C06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mills

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs (8260 • 624 • CLP) VOCs (8260C)	GC/MS SVOAs (8270 • 625) Alkalinity	GC VOAs (8021 • 601/602) TDS, NO3, NO2, Cl, SO4, OPO4	PESTICIDES (8081 • 608) Silica + DOC	PCBs (8082 • 608) NH3	METALS, TOTAL (List in comments below) (6020A)	METALS, DISSOLVED (List in comments below)	RSK-175							REMARKS/ ALTERNATE DESCRIPTION
					PRESERVATIVE	1	0	0	0	3	2	/	1							
MRC-MW-81A-061114	[redacted]	6/11/14	0950	Aq	1	—	—	—	—	—	1	—	—							
MRC-MW-81B-061114	[redacted]		1045		11	3	1	1	1	1	1	—	3							
MRC-MW-92C-061114	[redacted]		1215		4	3	—	—	—	—	1	—	—							
MRC-MW-48A-061114	[redacted]		1415		11	3	1	1	1	1	1	—	3							

Preservative Key
0. NONE
1. HCL
2. HNO_3
3. H_2SO_4
4. NaOH
5. Zn. Acetate
6. MeOH
7. $NaHSO_4$
8. Other _____

SPECIAL INSTRUCTIONS/COMMENTS

Metals

DOC to be taken out of unpreserved polys

Metals: Total Metals, Beryllium, Cobalt, Nickel.

See QAPP ☐

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

____ 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

Standard

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with

Edata ____ Yes ____

INVOICE INFORMATION

PO #

BILL TO:

R1404508 7

Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature]	Signature: [signature]	Signature: Scott Boeckel	Signature: SRB	Signature: SHSS
Printed Name: Vera Pryor	Printed Name: Lawrence Lawson	Printed Name: Lawrence Lawson	Printed Name: SRB	Printed Name: SRB	Printed Name: SHSS
Firm: TT Inc	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS
Date/Time: 6-11-14 / 1550	Date/Time: 6/11/14 1550	Date/Time: 6/11/14 1640	Date/Time: 6-11-14 1855	Date/Time: 6-11-14 2100	Date/Time: 6-11-14 2100

Distribution: White - Lab Copy; Yellow - Return to Originator

Chris Wright - ALS

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R1404508 7
Tetra Tech NUS,Inc.
Middle River-Lockheed Martin Corp

Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-4508

Cooler received on _____ by: _____ COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk, or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 6/13/14 Time: 1055 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	4.0						
Correction Factor (°C)	—						
Corrected Temp (°C)	4.0						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by CW on 6/13/14 at 1110
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 6/17/14 Time: 1944 by: [signature]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB26135B	4/15				
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-						
	ZnAcetate	-	-						
	HCl	**	**	Client covered					

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: 4-002-003, BDB26135I, 082613-2AAW

Other Comments:

522's were checked for ph + Residual chlorine. Passed both tests. JFS 6/13/14 1402

VOA vials (2 vials)

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

P:\INTRANET\QAQC\Forms Controlled\Cooler Receipt r7.doc 5/6/14

00010

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 14714

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD 20874	
Phone #: 301-528-3000	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 7 / 1 0 2 3 0 0

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ◦ 8260 ◦ 624 ◦ CLP VOCs	GC/MS SVOAs ◦ 8270 ◦ 625 1-4 dioxane (522)	OC VOAs ◦ 8021 ◦ 601/602 Perchlorate (6850)	PESTICIDES ◦ 8081 ◦ 608 RSK-175	PCBs ◦ 8082 ◦ 608 Silica + DOC	METALS, TOTAL (List in comments below) (6020A)	METALS, DISSOLVED (List in comments below) NH3	TDS, NO3, NO2, PO4, SO4, Cl	Alkalinity					REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-100A-061214		6/12/14	1005	Aq	5	3	2	—	—	—	—	—	—	—					
MRC-MW-100B-061214		↓	1100	↓	6	3	2	—	—	—	1	—	—	—					
MRC-MW-08B-061214		↓	1345	↓	6	3	2	1	—	—	—	—	—	—					
TB-061214		↓	—	↓	2	2	—	—	—	—	—	—	—	—					
MRC-MW-80A-061214		↓	1048	↓	3	1	2	—	—	—	1	—	—	—					
MRC-MW-80B-061214		↓	1210	↓	5	3	2	—	—	—	—	—	—	—					
MRC-MW-57A-061214		↓	1422	↓	4	3	—	—	—	—	1	—	—	—					
MRC-MW-41A-061314		6/13/14	0825	Aq	7	3	2	1	—	—	1	—	—	—					
MRC-MW-42A-061314		↓	0945	↓	2	—	—	—	—	—	1	—	—	—			13		DUP-05-061314
MRC-MW-01A-061314		↓	1125	↓	2	—	—	2	—	—	—	—	—	—			13		DUP-06-061314
MRC-MW-37A-061314		↓	1400	↓	11	3	—	—	3	1	1	1	1	1					

SPECIAL INSTRUCTIONS/COMMENTS

Metals: Total Metals, Beryllium, Cobalt, Nickel (6020A)

* 42A has DUP-05

* 01A has DUP-06

See QAPP ☐

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

____ 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

STANDARD

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Re

Edata ____ Yes ____ No

INVOICE INFORMATION

PO #

R1404565 7

Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: [signature]	Signature: [signature] ALS	Signature: [signature] ALS	Signature: [signature]	Signature: [signature]	Signature: [signature]
Printed Name: Walt Payne	Printed Name: GEORGE GRABOSKI	Printed Name: GEORGE GRABOSKI	Printed Name: [signature]	Printed Name: [signature]	Printed Name: RYAN M. KLICK
Firm: JF INC	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS	Firm: ALS
Date/Time: 6-13-14 / 1500	Date/Time: 6/13/14 1530	Date/Time: 6/13/14	Date/Time: 6-13-14 1540	Date/Time: 6-13-14 2035	Date/Time: 6/13 2035

Distribution: White - Lab Copy; Yellow - Return to Originator

Chris Wright - ALS 6/17/14 0920

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number R14-4565

Cooler received on 6/17/14 by: CW

COURIER: ALS UPS (FEDEX) VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y (N)	5a	Perchlorate samples have required headspace?	(Y) N NA
2	Custody papers properly completed (ink, signed)?	(Y) N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y (N) NA
3	Did all bottles arrive in good condition (unbroken)?	(Y) N	6	Where did the bottles originate?	(ALS/ROC) CLIENT
4	Circle: (Wet Ice) Dry Ice Gel packs present?	(Y) N	7	Soil VOA received as: Bulk Encore 5035set	(NA)

8. Temperature Readings Date: 6/17/14 Time: 0950 ID: (IR#3) IR#4 From: (Temp Blank) Sample Bottle

Observed Temp (°C)	3.2						
Correction Factor (°C)	0.2						
Corrected Temp (°C)	3.4						
Within 0-6°C?	(Y) N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by CW on 6/17/14 at 1000
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: _____

Cooler Breakdown: Date: 6/17/14 Time: 1575 by: _____

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? ~~YES~~ NO
2. Did all bottle labels and tags agree with custody papers? ~~YES~~ NO
3. Were correct containers used for the tests indicated? ~~YES~~ NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated ~~N/A~~

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		client label					
≤2	H_2SO_4								
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-	client label					
	ZnAcetate	-	-						
	HCl	**	**						

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

Bottle lot numbers: client label

Other Comments:

Perchlorate MRC-MW-01A-061314 - Headspace

PC Secondary Review: _____

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Environmental

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM 14712

1565 Jefferson Road, Building 300, Suite 360 • Rochester, NY 14623 | +1 585 288 5380 +1 585 288 8475 (fax) PAGE 1 OF 1

Project Name: MRC Annual GW 2014	Project Number: 112IC06247
Project Manager: Tony Apanavage	Report CC:
Company/Address: 20251 Century Blvd. Ste. 200, Germantown, MD 20874	
Phone #: 301-528-700	Email: tony.apanavage@tetratech.com
Sampler's Signature: [signature]	Sampler's Printed Name: Josh Mullis

ANALYSIS REQUESTED (Include Method Number and Container Preservative)

PRESERVATIVE: 1 1 0

Preservative Key: 0. NONE 1. HCL 2. HNO_3 3. H_2SO_4 4. NaOH 5. Zn. Acetate 6. MeOH 7. $NaHSO_4$ 8. Other ____

CLIENT SAMPLE ID	FOR OFFICE USE ONLY LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	NUMBER OF CONTAINERS	GC/MS VOAs ○ 8260 ○ 624 ○ CLP VOCs	GC/MS SVOAs ○ 8270 ○ 625 RSK-175	GC VOAs ○ 8021 ○ 601/602 NO3, NO2, OPO4	PESTICIDES ○ 8081 ○ 608	PCBs ○ 8082 ○ 608	METALS, TOTAL (List in comments below)	METALS, DISSOLVED (List in comments below)	REMARKS/ ALTERNATE DESCRIPTION
MRC-MW-81B-061814	-001	6/18/14	0820	Aq	1	—		1	—	—	—	—	-
MRC-MW-48A-061814	-002		0905		1	—		1	—	—	—	—	
MRC-MW-60A-061814	-003		1000		3	3	—	—	—	—	—	—	
MRC-MW-60B-061814	-004		1055		7	3	3	1	—	—	—	—	
MRC-MW-76A-061814	-005		1300		3	3	—	—	—	—	—	—	
MRC-MW-76B-061814	-006		1400		3	3	—	—	—	—	—	—	
MRC-MW-19A-061814	-007		0831		3	3							
MRC-MW-90B-061814	-008		0939		3	3							
MRC-MW-37A-061814	-009		1207		1			1					
MRC-MW-02A-061814	-010		1054		3	3							
MRC-MW-38A-061814			1414		3	3							

SPECIAL INSTRUCTIONS/COMMENTS

Metals

☆ 48 HOUR HOLD TIME FOR NO_3, NO_2, OPO_4

☆ TB-061814 INCLUDED

See QAPP ☐

STATE WHERE SAMPLES WERE COLLECTED: MARYLAND

TURNAROUND REQUIREMENTS

____ RUSH (SURCHARGES APPLY)

____ 1 day ____ 2 day ____ 3 day

____ 4 day ____ 5 day

STANDARD

REQUESTED REPORT DATE

REPORT REQUIREMENTS

____ I. Results Only

____ II. Results + QC Summaries (LCS, DUP, MS/MSD as required)

____ III. Results + QC and Calibration Summaries

____ IV. Data Validation Report with Raw Data

Edata ____ Yes ____ No

INVOICE INFORMATION

PO #

BILL TO:

RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY	RELINQUISHED BY	RECEIVED BY
Signature: Walt Pr	Signature: [signature]	Signature	Signature	Signature	
Printed Name: Walt Pryor	Printed Name: Greg Lafon	Printed Name	Printed Name	Printed Name	
Firm: TT Inc	Firm: ALS	Firm	Firm	Firm	
Date/Time: 6-18-14 / 1530	Date/Time: 6/29/14 0935	Date/Time	Date/Time	Date/Time	

R1404658 7

Tetra Tech NUS, Inc.
Middle River- Lockheed Martin Corp

Distribution: White - Lab Copy; Yellow - Return to Originator

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Cooler Receipt and Preservation Check Form

Project/Client Tetra Tech Folder Number A14-4658

Cooler received on 6/19/14 by: [signature] COURIER: ALS UPS FEDEX VELOCITY CLIENT

1	Were Custody seals on outside of cooler?	Y N	5a	Perchlorate samples have required headspace?	Y N NA
2	Custody papers properly completed (ink, signed)?	Y N	5b	Did VOA vials, Alk,or Sulfide have sig* bubbles?	Y N NA
3	Did all bottles arrive in good condition (unbroken)?	Y N	6	Where did the bottles originate?	ALS/ROC CLIENT
4	Circle: Wet Ice Dry Ice Gel packs present?	Y N	7	Soil VOA received as: Bulk Encore 5035set	NA

8. Temperature Readings Date: 6/19/14 Time: 1020 ID: IR#3 IR#4 From: Temp Blank Sample Bottle

Observed Temp (°C)	3.0						
Correction Factor (°C)	+0.1						
Corrected Temp (°C)	3.1°						
Within 0-6°C?	Y N	Y N	Y N	Y N	Y N	Y N	Y N

If out of Temperature, note packing/ice condition: _____ Ice melted Poorly Packed Same Day Rule

&Client Approval to Run Samples: _____ Standing Approval Client aware at drop-off Client notified by: _____

All samples held in storage location: R-002 by [signature] on 6/19/14 at 1021
5035 samples placed in storage location: _____ by _____ on _____ at _____

PC Secondary Review: [signature]

Cooler Breakdown: Date: 6/20/14 Time: 1413 by: [signature]

1. Were all bottle labels complete (*i.e.* analysis, preservation, etc.)? YES NO
2. Did all bottle labels and tags agree with custody papers? YES NO
3. Were correct containers used for the tests indicated? YES NO
4. Air Samples: Cassettes / Tubes Intact Canisters Pressurized Tedlar® Bags Inflated N/A

Explain any discrepancies:

pH	Reagent	Yes	No	Lot Received	Exp	Sample ID	Vol. Added	Lot Added	Final pH
≥12	NaOH								
≤2	HNO_3	✓		BDB261358	4/5				
≤2	H_2SO_4	✓		WC126 1015	↓				
<4	$NaHSO_4$								
Residual Chlorine (-)	For CN Phenol and 522	✓		If +, contact PM to add $Na_2S_2O_3$ (CN), ascorbic (phenol).					
	$Na_2S_2O_3$	-	-	BDB261234	4/5				
	ZnAcetate	-	-						
	HCl	**	**						

Yes=All samples OK

No=Samples were preserved at The lab as listed

PM OK to Adjust: _____

**Not to be tested before analysis – pH tested and recorded by VOAs on a separate worksheet

Bottle lot numbers: client label, client, 112612-2W, 021014-1BMC

Other Comments:

PC Secondary Review: [signature]

*significant air bubbles: VOA > 5-6 mm : WC >1 in. diameter

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/13/14 13:13

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\061314\M6497.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 215801

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	17.96	88496	Pass
75	95	30	60	46.42	228800	Pass
95	95	100	100	100.00	492843	Pass
96	95	5	9	6.24	30756	Pass
173	174	0	2	0.83	3219	Pass
174	95	50	120	78.43	386539	Pass
175	174	5	9	7.37	28496	Pass
176	174	95	101	96.13	371584	Pass
177	176	5	9	6.54	24288	Pass

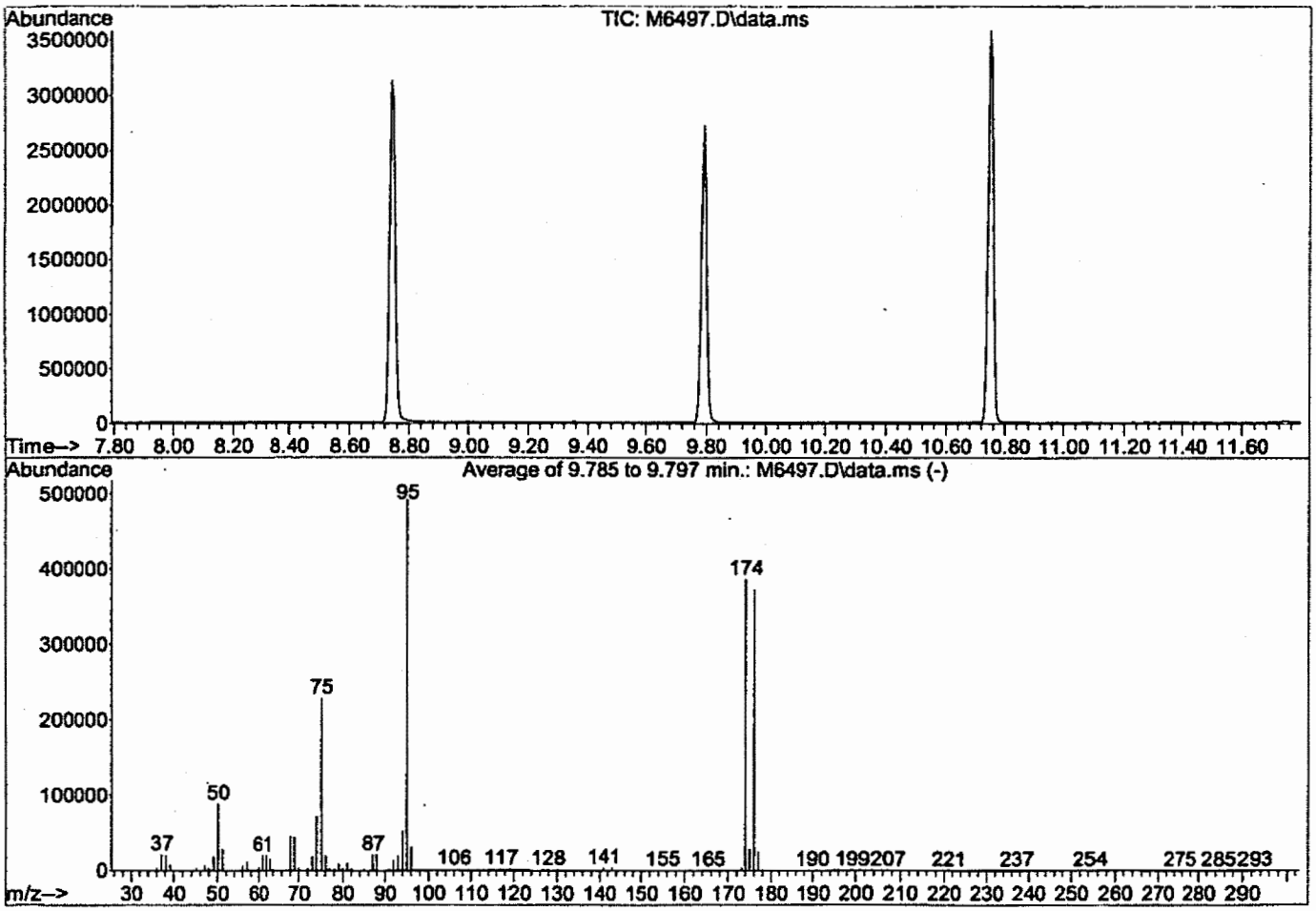
Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	0.5 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6499.D\	6/13/14 14:37	
Initial CalibrationICAL	1.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6500.D\	6/13/14 15:09	
Initial CalibrationICAL	2.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6501.D\	6/13/14 15:42	
Initial CalibrationICAL	5.0 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6502.D\	6/13/14 16:14	
Initial CalibrationICAL	20 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6503.D\	6/13/14 16:46	
Initial CalibrationICAL	50 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6504.D\	6/13/14 17:19	
Initial CalibrationICAL	100 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6505.D\	6/13/14 17:51	
Initial CalibrationICAL	200 ppb	I:\ACQUDATA\msvoa12\Data\061314\M6506.D\	6/13/14 18:23	

Data Path : I:\ACQUDATA\msvoa12\Data\061314\
Data File : M6497.D
Acq On : 13 Jun 2014 1:13 pm
Operator : K.Ruest
Sample : TUNE
Misc :
ALS Vial : 7 Sample Multiplier: 1

KR 6/13/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Mon May 19 11:05:50 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	18.0	88496	PASS
75	95	30	60	46.4	228800	PASS
95	95	100	100	100.0	492843	PASS
96	95	5	9	6.2	30756	PASS
173	174	0.00	2	0.8	3219	PASS
174	95	50	120	78.4	386539	PASS
175	174	5	9	7.4	28496	PASS
176	174	95	101	96.1	371584	PASS
177	176	5	9	6.5	24288	PASS

KR 6/14/14

Initial Calibration - Summary Report

Calibration ID: RC1400048 **Instrument ID:** R-MS-12
8260 Waters - MS#2 - W061314 **Column Name:** 1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
1,1,1,2-Tetrachloroethane	T	Average RF			0.3312	<=20	4.7
1,1,1-Trichloroethane (TCA)	T	Average RF		0.100	0.7425	<=20	6.2
1,1,2,2-Tetrachloroethane	T	Average RF		0.300	0.5662	<=20	5.4
1,1,2-Trichloroethane	T	Average RF		0.100	0.2285	<=20	4.4
1,1,2-Trichlorotrifluoroethane	T	Average RF		0.100	0.4199	<=20	1.7
1,1-Dichloroethane (1,1-DCA)	T	Average RF		0.200	0.8965	<=20	3.6
1,1-Dichloroethene (1,1-DCE)	T	Average RF		0.100	0.3927	<=20	11.3
1,1-Dichloropropene	T	Average RF			0.3962	<=20	1.6
1,2,3-Trichlorobenzene	T	Average RF			0.6167	<=20	10.9
1,2,3-Trichloropropane	T	Average RF			0.1619	<=20	8.3
1,2,4-Trichlorobenzene	T	Average RF		0.200	0.7261	<=20	4.9
1,2,4-Trimethylbenzene	T	Average RF			2.431	<=20	5.3
1,2-Dibromo-3-chloropropane (DBCP)	T	Average RF		0.050	0.1025	<=20	3.4
1,2-Dibromoethane	T	Average RF		0.100	0.2437	<=20	7.0
1,2-Dichloro-1,1,2-trifluoroethane (CFC 123	T	Average RF			0.5809	<=20	1.5
1,2-Dichlorobenzene	T	Average RF		0.400	1.278	<=20	2.1
1,2-Dichloroethane	T	Average RF		0.100	0.3640	<=20	3.1
1,2-Dichloropropane	T	Average RF		0.100	0.3329	<=20	3.7
1,3,5-Trichlorobenzene	T	Average RF			0.8305	<=20	6.6
1,3,5-Trimethylbenzene	T	Average RF			2.418	<=20	5.0
1,3-Dichlorobenzene	T	Average RF		0.600	1.364	<=20	3.1
1,3-Dichloropropane	T	Average RF			0.4524	<=20	1.6
1,4-Dichlorobenzene	T	Average RF		0.500	1.393	<=20	5.6
1,4-Dioxane	T	Average RF			0.002072	<=20	6.4
1-Butanol	T	Average RF			0.004952	<=20	9.4
1-Chloro-4-(trifluoromethyl)benzene	T	Average RF			0.4185	<=20	3.7
2,2-Dichloro-1,1,1-trifluoroethane (CFC 123	T	Average RF			0.6622	<=20	4.7
2,2-Dichloropropane	T	Average RF			0.7868	<=20	9.0
2,3,6-Trichlorotoluene	T	Average RF			0.3666	<=20	4.9
2,4,5-Trichlorotoluene	T	Average RF			0.3902	<=20	3.7
2,4-, 2,5-, and 2,6-Dichlorotoluene Coelution	T	Average RF			1.031	<=20	5.0
2,4-Dichlorobenzotrifluoride	T	Average RF			0.5290	<=20	4.6
2,5-Dichlorobenzotrifluoride	T	Average RF			0.5736	<=20	3.0
2-Bromo-2-chloro-1,1,1-trifluoroethane	T	Average RF				<=20	
2-Butanone (MEK)	T	Average RF		0.05	0.1412	<=20	9.2
2-Chloro-1,3-butadiene	T	Average RF			0.8140	<=20	4.2
2-Chlorobenzotrifluoride	T	Average RF			0.8449	<=20	2.9
2-Chloroethyl Vinyl Ether	T	Average RF			0.1598	<=20	3.4
2-Chlorotoluene	T	Average RF			2.021	<=20	3.9
2-Hexanone	T	Average RF		0.05	0.1585	<=20	4.9
2-Methyl-1-propanol	T	Average RF			0.008422	<=20	9.8
2-Methyl-2-propanol	T	Average RF			0.03095	<=20	4.8
2-Nitropropane	T	Average RF			0.05251	<=20	7.5
2-Propanol	T	Average RF			0.01880	<=20	5.4
3,4- and 2,3-Dichlorotoluene Coelution	T	Average RF			1.106	<=20	8.8
3,4-Dichlorobenzotrifluoride	T	Average RF			0.5797	<=20	4.2
3-Chloro-1-propene	T	Average RF			0.2910	<=20	6.7
3-Chlorobenzotrifluoride	T	Average RF			0.4621	<=20	3.3
3-Chlorotoluene	T	Average RF			2.109	<=20	5.1
4-Chlorotoluene	T	Average RF			2.390	<=20	3.8
4-Isopropyltoluene	T	Average RF			2.384	<=20	5.6
4-Methyl-2-pentanone	T	Average RF		0.05	0.2123	<=20	5.0

00221

Initial Calibration - Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
Acetone	T	Average RF		0.05	0.09881	<=20	1.1
Acetonitrile	T	Average RF			0.01689	<=20	4.1
Acrolein	T	Average RF			0.03774	<=20	12.9
Acrylonitrile	T	Average RF			0.1206	<=20	3.5
Benzene	T	Average RF		0.500	1.285	<=20	3.8
Bromobenzene	T	Average RF			0.7321	<=20	2.1
Bromochloromethane	T	Average RF			0.2794	<=20	3.9
Bromodichloromethane	T	Average RF		0.200	0.3973	<=20	3.1
Bromoform	T	Average RF		0.100	0.3115	<=20	4.3
Bromomethane	T	Average RF		0.100	0.2636	<=20	16.0
Carbon Disulfide	T	Average RF		0.100	1.516	<=20	9.7
Carbon Tetrachloride	T	Average RF		0.05	0.1243	<=20	11.9
Chlorobenzene	T	Average RF		0.500	0.9545	<=20	3.1
Chloroethane	T	Average RF		0.100	0.3700	<=20	7.9
Chloroform	T	Average RF		0.200	0.8431	<=20	6.5
Chloromethane	T	Average RF		0.100	0.5810	<=20	4.1
Cyclohexane	T	Average RF		0.100	0.3451	<=20	14.2
Cyclohexanone	T	Average RF			0.02767	<=20	9.4
Dibromochloromethane	T	Average RF		0.100	0.2867	<=20	5.7
Dibromomethane	T	Average RF			0.1473	<=20	3.3
Dichlorodifluoromethane (CFC 12)	T	Average RF		0.100	0.5045	<=20	8.3
Dichlorofluoromethane (CFC 21)	T	Average RF			0.8818	<=20	7.1
Dichloromethane	T	Average RF		0.100	0.5147	<=20	15.5
Diethyl Ether	T	Average RF			0.3887	<=20	6.0
Diisopropyl Ether	T	Average RF			1.752	<=20	5.1
Ethyl Methacrylate	T	Average RF			0.3281	<=20	5.1
Ethyl tert-Butyl Ether	T	Average RF			1.490	<=20	3.9
Ethylbenzene	T	Average RF		0.100	0.5238	<=20	2.7
Hexachlorobutadiene	T	Average RF			0.3114	<=20	18.0
Iodomethane	T	Linear	1/X		0.4370	>=0.99	0.9981
Isopropylbenzene (Cumene)	T	Average RF		0.100	2.886	<=20	6.2
Methacrylonitrile	T	Linear	1/X		0.1489	>=0.99	0.9994
Methyl Acetate	T	Average RF		0.100	0.2364	<=20	4.9
Methyl Methacrylate	T	Average RF			0.1654	<=20	6.8
Methyl tert-Butyl Ether	T	Average RF		0.100	1.152	<=20	3.7
Methylcyclohexane	T	Average RF		0.100	0.3992	<=20	9.7
Naphthalene	T	Average RF			1.392	<=20	7.3
Propionitrile	T	Average RF			0.04557	<=20	17.0
Styrene	T	Average RF		0.300	1.047	<=20	3.3
Tetrachloroethene (PCE)	T	Average RF		0.200	0.2709	<=20	3.8
Tetrahydrofuran (THF)	T	Average RF			0.09777	<=20	8.2
Toluene	T	Average RF		0.400	1.361	<=20	3.9
Trichloroethene (TCE)	T	Average RF		0.200	0.3273	<=20	4.0
Trichlorofluoromethane (CFC 11)	T	Average RF		0.100	0.7177	<=20	2.5
Vinyl Acetate	T	Average RF			0.07886	<=20	8.7
Vinyl Chloride	T	Average RF		0.100	0.6376	<=20	3.5
cis-1,2-Dichloroethene	T	Average RF		0.100	0.5403	<=20	3.9
cis-1,3-Dichloropropene	T	Average RF		0.200	0.5023	<=20	3.7
m,p-Xylenes	T	Average RF		0.100	0.6427	<=20	3.6
n-Butyl Acetate	T	Average RF			0.4040	<=20	7.4
n-Butylbenzene	T	Average RF			2.114	<=20	4.3
n-Heptane	T	Average RF			0.3698	<=20	13.7

00222.

Initial Calibration - Summary Report

Calibration ID:	RC1400048	**Instrument ID:**	R-MS-12
		Column Name:	1

Analyte	Type	Curve Fit	Weighting	Min RF	Mean RF	Criteria	Result
n-Propylbenzene	T	Average RF			3.379	<=20	8.8
o-Xylene	T	Average RF		0.300	0.6461	<=20	2.0
sec-Butylbenzene	T	Average RF			2.797	<=20	6.6
tert-Amyl Methyl Ether	T	Average RF			1.288	<=20	4.6
tert-Butylbenzene	T	Average RF			1.995	<=20	4.1
trans-1,2-Dichloroethene	T	Average RF		0.100	0.4855	<=20	6.7
trans-1,3-Dichloropropene	T	Average RF		0.100	0.4146	<=20	3.4
trans-1,4-Dichloro-2-butene	T	Average RF			0.1778	<=20	17.1
1,2-Dichloroethane-d4	S	Average RF			0.3043	<=20	1.5
4-Bromofluorobenzene	S	Average RF			0.4652	<=20	1.4
Dibromofluoromethane	S	Average RF			0.2865	<=20	0.6
Toluene-d8	S	Average RF			1.241	<=20	0.6

00223

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/23/14 11:45

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\MSVOA12\DATA\062314\M6773.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 398443

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.07	113851	Pass
75	95	30	60	51.45	291883	Pass
95	95	100	100	100.00	567360	Pass
96	95	5	9	6.51	36957	Pass
173	174	0	2	1.04	4428	Pass
174	95	50	120	75.16	426411	Pass
175	174	5	9	7.30	31117	Pass
176	174	95	101	95.38	406699	Pass
177	176	5	9	6.80	27637	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407050-02	I:\ACQUDATA\MSVOA12\DATA\062314\M6774.D\	6/23/14 12:18	
Lab Control Sample	RQ1407050-03	I:\ACQUDATA\MSVOA12\DATA\062314\M6775.D\	6/23/14 12:57	
Method Blank	RQ1407050-04	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	6/23/14 14:00	
MRC-MW-48A-061114	R1404658-014	I:\ACQUDATA\MSVOA12\DATA\062314\M6789.D\	6/23/14 20:39	
MRC-MW-60A-061814	R1404658-003	I:\ACQUDATA\MSVOA12\DATA\062314\M6791.D\	6/23/14 21:43	
MRC-MW-81B-061114	R1404658-013	I:\ACQUDATA\MSVOA12\DATA\062314\M6792.D\	6/23/14 22:16	
MRC-MW-81B-061114MS	RQ1407050-05	I:\ACQUDATA\MSVOA12\DATA\062314\M6793.D\	6/23/14 22:48	
MRC-MW-81B-061114DMS	RQ1407050-06	I:\ACQUDATA\MSVOA12\DATA\062314\M6794.D\	6/23/14 23:20	

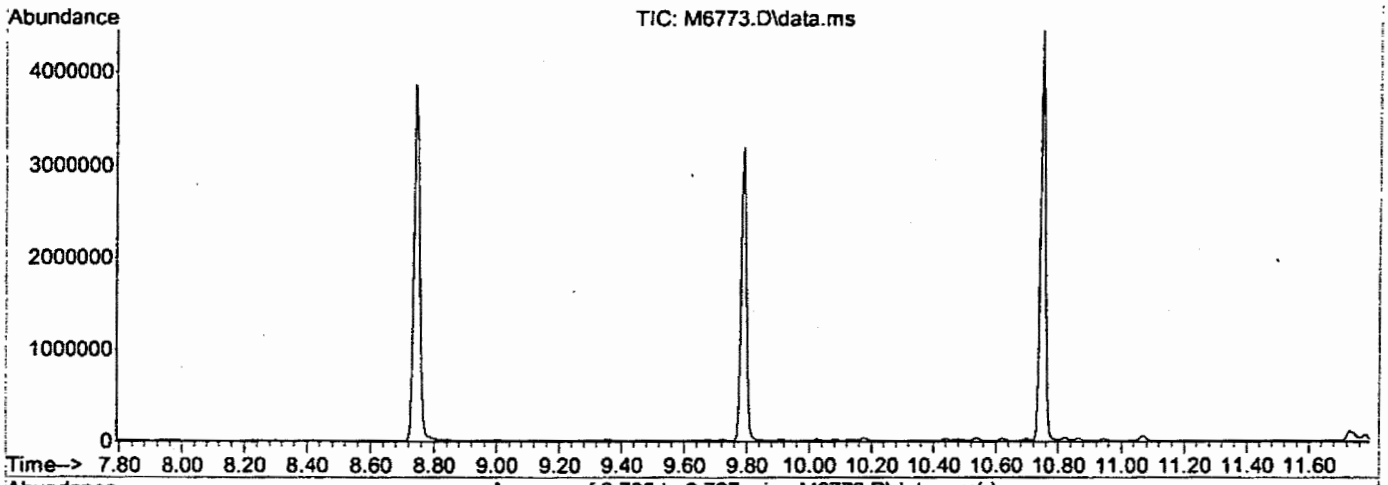
BFB

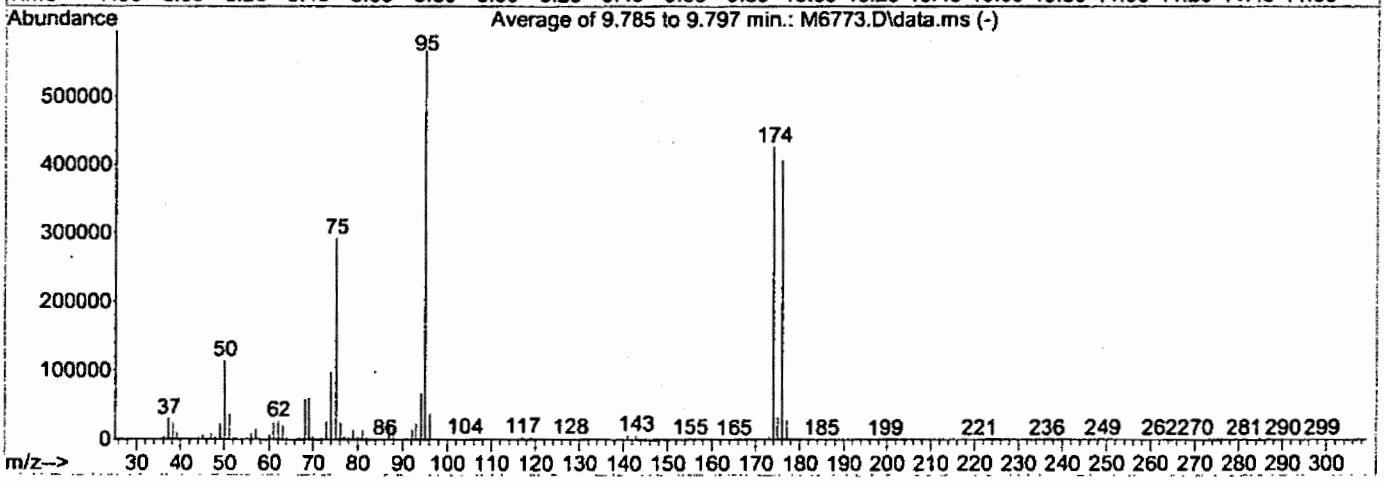
Data Path : I:\ACQUDATA\msvoa12\Data\062314\
Data File : M6773.D
Acq On : 23 Jun 2014 11:45 am
Operator : K.RUEST
Sample : TUNE RQ1407050-01
Misc :
ALS Vial : 3 Sample Multiplier: 1

KR 6/23/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Sat Jun 14 17:33:54 2014





AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.1	113851	PASS
75	95	30	60	51.4	291883	PASS
95	95	100	100	100.0	567360	PASS
96	95	5	9	6.5	36957	PASS
173	174	0.00	2	1.0	4428	PASS
174	95	50	120	75.2	426411	PASS
175	174	5	9	7.3	31117	PASS
176	174	95	101	95.4	406699	PASS
177	176	5	9	6.8	27637	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/23/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062314\M6774.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398443
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	47.1	0.3312	0.3122	-5.7	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	52.8	0.7425	0.7837	5.5	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	51.7	0.5662	0.5856	3.4	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	49.7	0.4199	0.4170	-0.7	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	53.2	0.8965	0.9530	6.3	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	47.1	0.3927	0.3696	-5.9	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	50.8	0.3962	0.4029	1.7	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	48.5	0.6167	0.5977	-3.1	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	51.7	0.1619	0.1675	3.5	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.5	0.7261	0.7339	1.1	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	49.9	2.431	2.427	-0.1	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	47.3	0.1025	0.09692	-5.5	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	49.8	0.2437	0.2426	-0.4	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	48.2	1.278	1.233	-3.5	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	56.6	0.3640	0.4121	13.2	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	52.1	0.3329	0.3471	4.3	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	47.7	1.364	1.300	-4.7	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	52.5	0.4524	0.4745	4.9	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	47.0	1.393	1.309	-6.0	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	51.5	0.7868	0.8096	2.9	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	59.9	0.1412	0.1691	19.7	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	49.7	0.1598	0.1589	-0.5	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	51.2	2.021	2.070	2.4	NA	± 20 %	Average RF
2-Hexanone	50.0	55.0	0.1585	0.1744	10.0	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1190	0.03095	0.03674	18.7	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	52.1	2.390	2.489	4.1	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	48.8	2.384	2.329	-2.3	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	55.3	0.2123	0.2346	10.5	NA	± 20 %	Average RF
Acetone	50.0	61.3	0.09881	0.1211	22.5 *	NA	± 20 %	Average RF
Benzene	50.0	50.2	1.285	1.289	0.3	NA	± 20 %	Average RF
Bromobenzene	50.0	47.2	0.7321	0.6904	-5.7	NA	± 20 %	Average RF
Bromochloromethane	50.0	48.9	0.2794	0.2732	-2.2	NA	± 20 %	Average RF
Bromodichloromethane	50.0	51.5	0.3973	0.4090	2.9	NA	± 20 %	Average RF
Bromoform	50.0	47.8	0.3115	0.2980	-4.3	NA	± 20 %	Average RF
Bromomethane	50.0	42.6	0.2636	0.2245	-14.8	NA	± 20 %	Average RF
Carbon Disulfide	50.0	49.5	1.516	1.500	-1.1	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	49.8	0.1243	0.1237	-0.5	NA	± 20 %	Average RF
Chlorobenzene	50.0	46.7	0.9545	0.8919	-6.6	NA	± 20 %	Average RF
Chloroethane	50.0	42.8	0.3700	0.3170	-14.3	NA	± 20 %	Average RF
Chloroform	50.0	53.7	0.8431	0.9048	7.3	NA	± 20 %	Average RF
Chloromethane	50.0	44.4	0.5810	0.5159	-11.2	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/23/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062314\M6774.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398443
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	49.3	0.2867	0.2826	-1.4	NA	± 20 %	Average RF
Dibromomethane	50.0	53.5	0.1473	0.1577	7.0	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	49.0	0.5045	0.4944	-2.0	NA	± 20 %	Average RF
Methylene Chloride	50.0	48.2	0.5147	0.4962	-3.6	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	53.0	1.752	1.859	6.1	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	52.8	1.490	1.573	5.6	NA	± 20 %	Average RF
Ethylbenzene	50.0	46.6	0.5238	0.4884	-6.8	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	48.9	0.3114	0.3046	-2.2	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	48.8	2.886	2.814	-2.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	55.8	1.152	1.284	11.5	NA	± 20 %	Average RF
Naphthalene	50.0	52.6	1.392	1.463	5.1	NA	± 20 %	Average RF
Styrene	50.0	48.0	1.047	1.005	-4.0	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	43.6	0.2709	0.2360	-12.9	NA	± 20 %	Average RF
Toluene	50.0	49.8	1.361	1.354	-0.5	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	44.5	0.3273	0.2914	-11.0	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	53.1	0.7177	0.7624	6.2	NA	± 20 %	Average RF
Vinyl Acetate	50.0	55.6	0.07886	0.08771	11.2	NA	± 20 %	Average RF
Vinyl Chloride	50.0	45.0	0.6376	0.5734	-10.1	NA	± 20 %	Average RF
Xylenes, Total	150	139	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	49.3	0.5403	0.5330	-1.4	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	51.5	0.5023	0.5170	2.9	NA	± 20 %	Average RF
m,p-Xylenes	100	93.7	0.6427	0.6023	-6.3	NA	± 20 %	Average RF
n-Butylbenzene	50.0	51.8	2.114	2.190	3.6	NA	± 20 %	Average RF
n-Propylbenzene	50.0	50.1	3.379	3.386	0.2	NA	± 20 %	Average RF
o-Xylene	50.0	45.7	0.6461	0.5910	-8.5	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	48.9	2.797	2.733	-2.3	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	53.3	1.288	1.373	6.6	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	47.6	1.995	1.898	-4.9	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	48.5	0.4855	0.4708	-3.0	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	52.9	0.4146	0.4389	5.9	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.0	0.4652	0.4927	5.9	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	52.9	0.2865	0.3028	5.7	NA	± 20 %	Average RF
Toluene-d8	50.0	51.8	1.241	1.286	3.6	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062314\M6774.D
Misc :
Acq On : 23 Jun 2014 12:18 pm
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 23 12:44:56 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

KF 6/23/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	107	0.00
2	P	Dichlorodifluoromethane	0.5045	0.4944	2.0	100	0.00
3	P	Chloromethane	0.5810	0.5159	11.2	95	0.00
4	P	Vinyl Chloride	0.6376	0.5734	10.1	94	0.00
5	P	Bromomethane	0.2636	0.2245	14.8	84	0.00
6	P	Chloroethane	0.3700	0.3170	14.3	96	0.00
7		Freon 21	0.8818	0.8527	3.3	109	0.00
8	P	Trichlorofluoromethane	0.7177	0.7624	-6.2	115	0.00
9		Diethyl Ether	0.3887	0.4200	-8.1	117	0.00
10		Freon 123a	0.5809	0.6055	-4.2	111	0.00
11		Freon 123	0.6622	0.6631	-0.1	111	0.00
12		Acrolein	0.0377	0.0126	MT 66.6#	35#	0.00
13	P	1,1-Diclethene	0.3927	0.3696	5.9	107	0.00
14	P	Freon 113	0.4199	0.4170	0.7	105	0.00
15	P	Acetone	0.0988	0.1211	-22.6#	133	0.00 ⊗
16		2-Propanol	0.0188	0.0224	-19.1	123	0.00
17		Iodomethane	0.4370	0.5071	4.5 ~~-16.0~~	110	0.00
18	P	Carbon Disulfide	1.5162	1.4998	1.1	115	0.00
19		Acetonitrile	0.0169	0.0193	-14.2	130	0.00
20		Allyl Chloride	0.2910	0.3077	-5.7	110	0.00
21	P	Methyl Acetate	0.2364	0.2614	-10.6	116	0.00
22	P	Methylene Chloride	0.5147	0.4962	3.6	113	0.00
23		TBA	0.0310	0.0367	-18.4	123	0.00
24		Acrylonitrile	0.1206	0.1411	-17.0	123	0.00
25	P	Methyl-t-Butyl Ether	1.1516	1.2841	-11.5	116	0.00
26	P	trans-1,2-Dichloroethene	0.4855	0.4708	3.0	106	0.00
27		Halothane	0.0000	0.0000	0.0	0#	-3.01#
28	P	1,1-Diclethane	0.8965	0.9530	-6.3	115	0.00
29		Vinyl Acetate	0.0789	0.0877	-11.2	113	0.00
30		DIPE	1.7522	1.8586	-6.1	115	0.00
31		2-Chloro-1,3-Butadiene	0.8140	0.8923	-9.6	125	0.00
32		ETBE	1.4904	1.5732	-5.6	111	0.00
33		2,2-Dichloropropane	0.7868	0.8096	-2.9	117	0.00
34	P	cis-1,2-Dichloroethene	0.5403	0.5330	1.4	108	0.00
35	P	2-Butanone	0.1412	0.1691	-19.8	125	0.00
36		Propionitrile	0.0456	0.0498	-9.2	121	0.00
37		Bromochloromethane	0.2794	0.2732	2.2	105	0.00
38		Methacrylonitrile	0.1489	0.1481	9.1 ~~0.5~~	115	0.00
39		Tetrahydrofuran	0.0978	0.1089	-11.3	126	0.00
40	P	Chloroform	0.8431	0.9048	-7.3	120	0.00
41	P	1,1,1-Trichloroethane	0.7425	0.7837	-5.5	117	0.00
42		TAME	1.2882	1.3730	-6.6	113	0.00
43	I	1,4-Difluorobenzene	1.0000	1.0000	0.0	110	0.00
44	P	Cyclohexane	0.3451	0.3285	4.8	114	0.00
45	s	surr4,Dibrflmethane	0.2865	0.3028	-5.7	116	0.00
46	P	Carbontetrachloride	0.1243	0.1237	0.5	110	0.00
47		1,1-Dichloropropene	0.3962	0.4029	-1.7	113	0.00

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062314\M6774.D
Misc :
Acq On : 23 Jun 2014 12:18 pm
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 23 12:44:56 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3043	0.3624	-19.1	129	0.00
49	P	Benzene	1.2852	1.2893	-0.3	112	0.00
50	P	1,2-Dichloroethane	0.3640	0.4121	-13.2	128	0.00
51		Iso-Butyl Alcohol	0.0084	0.0103	-22.6#	131	0.00
52		n-Heptane	0.3698	0.3729	-0.8	114	0.00
53		1-Butanol	0.0050	0.0065	-30.0#	131	0.00
54	P	Trichloroethene	0.3273	0.2914	11.0	100	0.00
55	P	Methylcyclohexane	0.3992	0.3939	1.3	114	0.00
56	P	1,2-Diclpropane	0.3329	0.3471	-4.3	116	0.00
57		Dibromomethane	0.1473	0.1577	-7.1	119	0.00
58		1,4-Dioxane	0.0021	0.0024	-14.3	126	0.00
59		Methyl Methacrylate	0.1654	0.1704	-3.0	117	0.00
60	P	Bromodichloromethane	0.3973	0.4090	-2.9	115	0.00
61		2-Nitropropane	0.0525	0.0526	-0.2	116	0.00
62		2-Chloroethylvinyl Ether	0.1598	0.1589	0.6	108	0.00
63	P	cis-1,3-Dichloropropene	0.5023	0.5170	-2.9	113	0.00
64	P	4-Methyl-2-pentanone	0.2123	0.2346	-10.5	124	0.00
65	s	SURR3,Toluene-d8	1.2410	1.2861	-3.6	114	0.00
66	P	Toluene	1.3610	1.3544	0.5	110	0.00
67	P	trans-1,3-Dichloropropene	0.4146	0.4389	-5.9	115	0.00
68		Ethyl Methacrylate	0.3281	0.3561	-8.5	116	0.00
69	P	1,1,2-Trichloroethane	0.2285	0.2305	-0.9	111	0.00
70	s	SURR2,BFB	0.4652	0.4927	-5.9	115	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	112	0.00
72	P	Tetrachloroethene	0.2709	0.2360	12.9	99	0.00
73	P	2-Hexanone	0.1585	0.1744	-10.0	123	0.00
74		1,3-Dichloropropane	0.4524	0.4745	-4.9	117	0.00
75	P	Dibromochloromethane	0.2867	0.2826	1.4	108	0.00
76		N-Butyl Acetate	0.4040	0.4398	-8.9	118	0.00
77	P	1,2-Dibromoethane	0.2437	0.2426	0.5	112	0.00
78	P	Chlorobenzene	0.9545	0.8919	6.6	106	0.00
79		3-CBTF	0.4621	0.4131	10.6	102	0.00
80		4-CBTF	0.4185	0.3743	10.6	101	0.00
81		1,1,1,2-Tetrachloroethane	0.3312	0.3122	5.7	104	0.00
82	P	Ethylbenzene	0.5238	0.4884	6.8	105	0.00
83	P	(m+p)Xylene	0.6427	0.6023	6.3	105	0.00
84	P	o-Xylene	0.6461	0.5910	8.5	103	0.00
85	P	Styrene	1.0469	1.0050	4.0	105	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	108	0.00
87	P	Bromoform	0.3115	0.2980	4.3	104	0.00
88		2-CBTF	0.8449	0.7690	9.0	100	0.00
89	P	Isopropylbenzene	2.8859	2.8136	2.5	105	0.00
90		Cyclohexanone	0.0277	0.0279	-0.7	114	0.00
91		trans-1,4-Dichloro-2-Butene	0.1778	0.1701	4.3	114	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5662	0.5856	-3.4	115	0.00
93		Bromobenzene	0.7321	0.6904	5.7	105	0.00

00356

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062314\M6774.D
Misc :
Acq On : 23 Jun 2014 12:18 pm
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 23 12:44:56 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94		1,2,3-Trichloropropane	0.1619	0.1675	-3.5	117	0.00
95		n-Propylbenzene	3.3794	3.3856	-0.2	108	0.00
96		2-Chlorotoluene	2.0215	2.0701	-2.4	110	0.00
97		3-Chlorotoluene	2.1093	2.0611	2.3	106	0.00
98		4-Chlorotoluene	2.3904	2.4890	-4.1	112	0.00
99		1,3,5-Trimethylbenzene	2.4183	2.3697	2.0	106	0.00
100		tert-Butylbenzene	1.9946	1.8978	4.9	103	0.00
101		1,2,4-Trimethylbenzene	2.4307	2.4271	0.1	105	0.00
102		3,4-DCBTF	0.5797	0.5779	0.3	109	0.00
103		sec-Butylbenzene	2.7969	2.7329	2.3	104	0.00
104		p-Isopropyltoluene	2.3839	2.3285	2.3	103	0.00
105	P	1,3-Dclbenz	1.3635	1.2999	4.7	103	0.00
106	P	1,4-Dclbenz	1.3925	1.3095	6.0	104	0.00
107		2,4-DCBTF	0.5290	0.5089	3.8	104	0.00
108		2,5-DCBTF	0.5736	0.5824	-1.5	111	0.00
109		n-Butylbenzene	2.1142	2.1895	-3.6	109	0.00
110	P	1,2-Dclbenz	1.2776	1.2326	3.5	104	0.00
111	P	1,2-Dibromo-3-chloropropane	0.1025	0.0969	5.5	102	0.00
112		Trielution Dichlorotoluene	1.0306	1.0387	-0.8	108	0.00
113		1,3,5 Trichlorobenzene	0.8305	0.8092	2.6	105	0.00
114		Coelution Dichlorotoluene	1.1064	1.1131	-0.6	107	0.00
115	P	1,2,4-Tcbenzene	0.7261	0.7339	-1.1	108	0.00
116		Hexachlorobt	0.3114	0.3046	2.2	112	0.00
117		Naphthalen	1.3921	1.4631	-5.1	105	0.00
118		1,2,3-Tclbenzene	0.6167	0.5977	3.1	106	0.00
119		2,4,5-Trichlorotolene	0.3902	0.3973	-1.8	106	0.02
120		2,3,6-Trichlorotoluene	0.3666	0.3704	-1.0	106	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00357

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/23/14 14:00
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1407050-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407050-03	I:\ACQUDATA\MSVOA12\DATA\062314\M6775.D\	6/23/14 12:57
MRC-MW-48A-061114	R1404658-014	I:\ACQUDATA\MSVOA12\DATA\062314\M6789.D\	6/23/14 20:39
MRC-MW-60A-061814	R1404658-003	I:\ACQUDATA\MSVOA12\DATA\062314\M6791.D\	6/23/14 21:43
MRC-MW-81B-061114	R1404658-013	I:\ACQUDATA\MSVOA12\DATA\062314\M6792.D\	6/23/14 22:16
MRC-MW-81B-061114MS	RQ1407050-05	I:\ACQUDATA\MSVOA12\DATA\062314\M6793.D\	6/23/14 22:48
MRC-MW-81B-061114DMS	RQ1407050-06	I:\ACQUDATA\MSVOA12\DATA\062314\M6794.D\	6/23/14 23:20

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 14:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407050-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.34	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	1.0	U	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 14:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407050-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	0.75	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.28	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 14:00
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407050-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398443
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062314\M6777.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/23/14 14:00	
Dibromofluoromethane	106	89-119	6/23/14 14:00	
Toluene-d8	103	87-121	6/23/14 14:00	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/24/14 10:13

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\062414\M6814.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 398649

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.83	107309	Pass
75	95	30	60	52.75	271787	Pass
95	95	100	100	100.00	515264	Pass
96	95	5	9	6.54	33675	Pass
173	174	0	2	1.25	4471	Pass
174	95	50	120	69.51	358165	Pass
175	174	5	9	7.52	26928	Pass
176	174	95	101	98.50	352789	Pass
177	176	5	9	6.02	21237	Pass

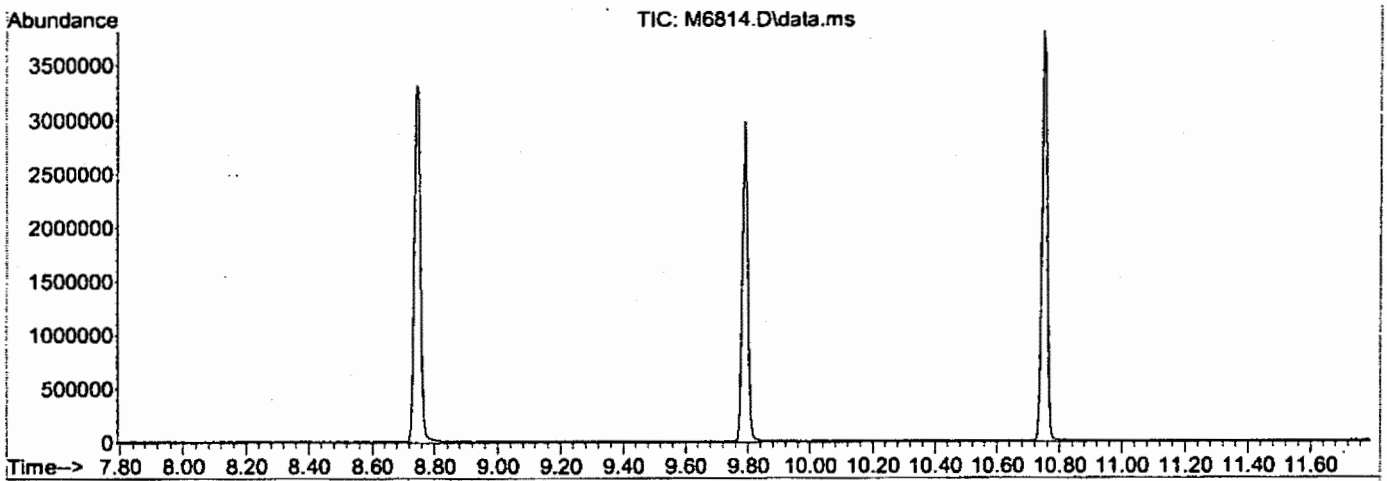
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407127-02	I:\ACQUDATA\MSVOA12\DATA\062414\M6815.D\	6/24/14 10:45	
Lab Control Sample	RQ1407127-03	I:\ACQUDATA\MSVOA12\DATA\062414\M6816.D\	6/24/14 11:16	
Method Blank	RQ1407127-04	I:\ACQUDATA\MSVOA12\DATA\062414\M6818.D\	6/24/14 12:21	
MRC-MW-37A-061314	R1404658-021	I:\ACQUDATA\MSVOA12\DATA\062414\M6829.D\	6/24/14 18:18	
MRC-MW-48A-061114DL	R1404658-014	I:\ACQUDATA\MSVOA12\DATA\062414\M6832.D\	6/24/14 19:55	
MRC-MW-60B-061814DL	R1404658-004	I:\ACQUDATA\MSVOA12\DATA\062414\M6833.D\	6/24/14 20:27	
MRC-MW-60B-061814MS	RQ1407127-05	I:\ACQUDATA\MSVOA12\DATA\062414\M6834.D\	6/24/14 21:00	
MRC-MW-60B-061814DMS	RQ1407127-06	I:\ACQUDATA\MSVOA12\DATA\062414\M6835.D\	6/24/14 21:32	

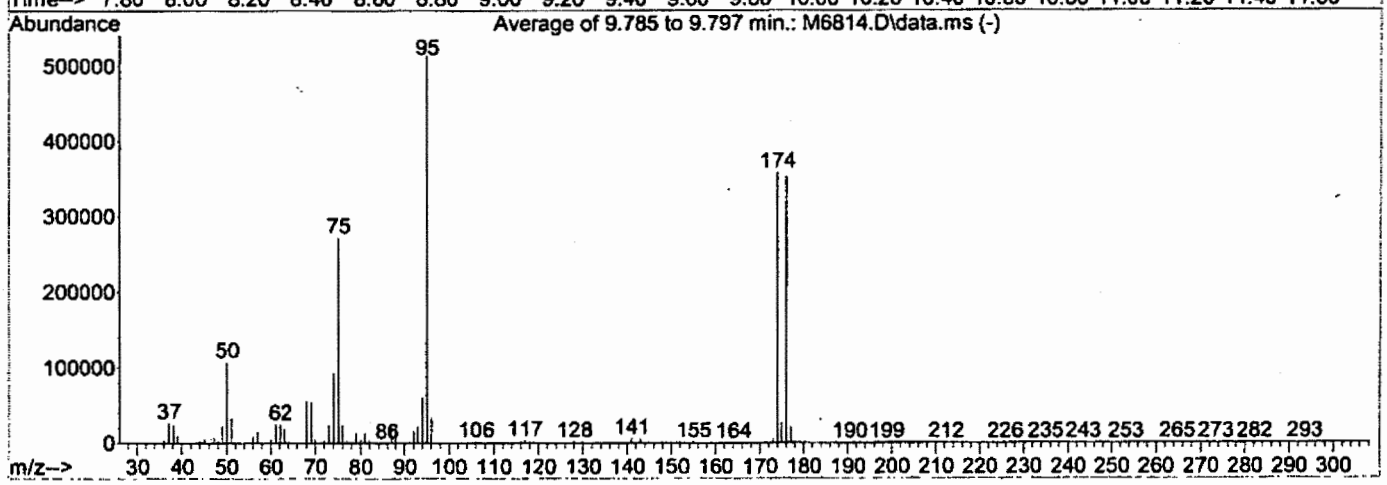
Data Path : I:\ACQUDATA\msvoa12\Data\062414\
Data File : M6814.D
Acq On : 24 Jun 2014 10:13 am
Operator : K.RUEST
Sample : TUNE IQ1407111-01, 7127-01
Misc :
ALS Vial : 2 Sample Multiplier: 1

Integration File: INTP60.P

KR 6/24/14

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Sat Jun 14 17:33:54 2014





AutoFind:. Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.8	107309	PASS
75	95	30	60	52.7	271787	PASS
95	95	100	100	100.0	515264	PASS
96	95	5	9	6.5	33675	PASS
173	174	0.00	2	1.2	4471	PASS
174	95	50	120	69.5	358165	PASS
175	174	5	9	7.5	26928	PASS
176	174	95	101	98.5	352789	PASS
177	176	5	9	6.0	21237	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/24/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062414\M6815.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398649
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	49.0	0.3312	0.3248	-1.9	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	57.2	0.7425	0.8498	14.4	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	54.7	0.5662	0.6191	9.4	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	53.4	0.4199	0.4487	6.8	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	58.5	0.8965	1.048	16.9	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	49.9	0.3927	0.3922	-0.1	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	54.1	0.3962	0.4290	8.3	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	50.1	0.6167	0.6183	0.3	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	53.8	0.1619	0.1743	7.6	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.2	0.7261	0.7285	0.3	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	51.1	2.431	2.485	2.2	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	48.4	0.1025	0.09926	-3.2	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	51.3	0.2437	0.2501	2.6	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	47.5	1.278	1.214	-5.0	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	60.7	0.3640	0.4418	21.4 *	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	54.5	0.3329	0.3627	9.0	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	47.5	1.364	1.296	-4.9	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	54.8	0.4524	0.4955	9.5	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	46.9	1.393	1.305	-6.3	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	57.4	0.7868	0.9035	14.8	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	69.1	0.1412	0.1953	38.2 *	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	50.9	0.1598	0.1627	1.8	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	52.2	2.021	2.111	4.4	NA	± 20 %	Average RF
2-Hexanone	50.0	60.6	0.1585	0.1919	21.1 *	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1350	0.03095	0.04184	35.2 *	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	53.3	2.390	2.550	6.7	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	49.9	2.384	2.379	-0.2	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	60.8	0.2123	0.2579	21.5 *	NA	± 20 %	Average RF
Acetone	50.0	58.7	0.09881	0.1159	17.3	NA	± 20 %	Average RF
Benzene	50.0	52.8	1.285	1.356	5.5	NA	± 20 %	Average RF
Bromobenzene	50.0	45.4	0.7321	0.6653	-9.1	NA	± 20 %	Average RF
Bromochloromethane	50.0	52.0	0.2794	0.2903	3.9	NA	± 20 %	Average RF
Bromodichloromethane	50.0	53.3	0.3973	0.4231	6.5	NA	± 20 %	Average RF
Bromoform	50.0	45.2	0.3115	0.2814	-9.7	NA	± 20 %	Average RF
Bromomethane	50.0	58.3	0.2636	0.3075	16.6	NA	± 20 %	Average RF
Carbon Disulfide	50.0	52.6	1.516	1.595	5.2	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	53.1	0.1243	0.1320	6.2	NA	± 20 %	Average RF
Chlorobenzene	50.0	48.0	0.9545	0.9159	-4.0	NA	± 20 %	Average RF
Chloroethane	50.0	44.2	0.3700	0.3268	-11.7	NA	± 20 %	Average RF
Chloroform	50.0	57.9	0.8431	0.9760	15.8	NA	± 20 %	Average RF
Chloromethane	50.0	51.8	0.5810	0.6024	3.7	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/24/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: 1:\ACQUDATA\MSVOA12\DATA\062414\M6815.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 398649
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	49.7	0.2867	0.2851	-0.5	NA	± 20 %	Average RF
Dibromomethane	50.0	56.3	0.1473	0.1660	12.7	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	53.8	0.5045	0.5424	7.5	NA	± 20 %	Average RF
Methylene Chloride	50.0	50.9	0.5147	0.5240	1.8	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	56.4	1.752	1.978	12.9	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	56.7	1.490	1.689	13.3	NA	± 20 %	Average RF
Ethylbenzene	50.0	49.0	0.5238	0.5138	-1.9	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	53.9	0.3114	0.3355	7.7	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	50.0	2.886	2.888	0.1	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	61.6	1.152	1.418	23.1 *	NA	± 20 %	Average RF
Naphthalene	50.0	55.2	1.392	1.536	10.3	NA	± 20 %	Average RF
Styrene	50.0	48.4	1.047	1.012	-3.3	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	45.8	0.2709	0.2483	-8.3	NA	± 20 %	Average RF
Toluene	50.0	50.5	1.361	1.373	0.9	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	46.0	0.3273	0.3009	-8.1	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	59.4	0.7177	0.8523	18.8	NA	± 20 %	Average RF
Vinyl Acetate	50.0	62.1	0.07886	0.09798	24.3 *	NA	± 20 %	Average RF
Vinyl Chloride	50.0	48.5	0.6376	0.6187	-3.0	NA	± 20 %	Average RF
Xylenes, Total	150	145	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	53.1	0.5403	0.5734	6.1	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	53.3	0.5023	0.5354	6.6	NA	± 20 %	Average RF
m,p-Xylenes	100	97.4	0.6427	0.6258	-2.6	NA	± 20 %	Average RF
n-Butylbenzene	50.0	54.0	2.114	2.284	8.1	NA	± 20 %	Average RF
n-Propylbenzene	50.0	51.5	3.379	3.480	3.0	NA	± 20 %	Average RF
o-Xylene	50.0	47.2	0.6461	0.6104	-5.5	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	50.4	2.797	2.819	0.8	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	55.9	1.288	1.440	11.8	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	48.5	1.995	1.935	-3.0	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	52.2	0.4855	0.5073	4.5	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	54.8	0.4146	0.4545	9.6	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	53.9	0.4652	0.5010	7.7	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	53.9	0.2865	0.3087	7.8	NA	± 20 %	Average RF
Toluene-d8	50.0	51.9	1.241	1.288	3.8	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062414\M6815.D
Misc :
Acq On : 24 Jun 2014 10:45 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 24 11:17:00 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	91	0.00
2	P	Dichlorodifluoromethane	0.5045	0.5424	-7.5	94	0.00
3	P	Chloromethane	0.5810	0.6024	-3.7	95	0.00
4	P	Vinyl Chloride	0.6376	0.6187	3.0	87	0.00
5	P	Bromomethane	0.2636	0.3075	-16.7	98	0.00
6	P	Chloroethane	0.3700	0.3268	11.7	84	0.00
7		Freon 21	0.8818	0.9713	-10.1	105	0.00
8	P	Trichlorofluoromethane	0.7177	0.8523	-18.8	110	0.00
9		Diethyl Ether	0.3887	0.4602	-18.4	109	0.00
10		Freon 123a	0.5809	0.7230	-24.5#	113	0.00
11		Freon 123	0.6622	0.7433	-12.2	106	0.00
12		Acrolein	0.0377	0.0405	-7.4	94	0.00
13	P	1,1-Diclethene	0.3927	0.3922	0.1	97	0.00
14	P	Freon 113	0.4199	0.4487	-6.9	96	0.00
15	P	Acetone	0.0988	0.1159	-17.3	108	0.00
16		2-Propanol	0.0188	0.0268	-42.6#	126	0.00
17		Iodomethane	0.4370	0.4031	23.5 ~~7.8~~	74	0.00
18	P	Carbon Disulfide	1.5162	1.5952	-5.2	104	0.00
19		Acetonitrile	0.0169	0.0221	-30.8#	127	0.00
20		Allyl Chloride	0.2910	0.3108	-6.8	94	0.00
21	P	Methyl Acetate	0.2364	0.3130	-32.4#	118	0.00
22	P	Methylene Chloride	0.5147	0.5240	-1.8	102	0.00
23		TBA	0.0310	0.0418	-34.8#	119	0.00
24		Acrylonitrile	0.1206	0.1560	-29.4#	115	0.00
25	P	Methyl-t-Butyl Ether	1.1516	1.4177	-23.1#	109	0.00
26	P	trans-1,2-Dichloroethene	0.4855	0.5073	-4.5	97	0.00
27		Halothane	0.0000	0.0000	0.0	0#	0.06
28	P	1,1-Diclethane	0.8965	1.0480	-16.9	108	0.00
29		Vinyl Acetate	0.0789	0.0980	-24.2#	108	0.00
30		DIPE	1.7522	1.9779	-12.9	104	0.00
31		2-Chloro-1,3-Butadiene	0.8140	0.9739	-19.6	117	0.00
32		ETBE	1.4904	1.6887	-13.3	102	0.00
33		2,2-Dichloropropane	0.7868	0.9035	-14.8	111	0.00
34	P	cis-1,2-Dichloroethene	0.5403	0.5734	-6.1	99	0.00
35	P	2-Butanone	0.1412	0.1953	-38.3#	123	0.00
36		Propionitrile	0.0456	0.0542	-18.9	113	0.00
37		Bromochloromethane	0.2794	0.2903	-3.9	95	0.00
38		Methacrylonitrile	0.1489	0.1697	-25.4 ~~-14.0~~	112	0.00
39		Tetrahydrofuran	0.0978	0.1215	-24.2#	119	0.01
40	P	Chloroform	0.8431	0.9760	-15.8	111	0.00
41	P	1,1,1-Trichloroethane	0.7425	0.8498	-14.5	108	0.00
42		TAME	1.2882	1.4400	-11.8	101	0.00
43	I	1,4-Difluorobenzene	1.0000	1.0000	0.0	97	0.00
44	P	Cyclohexane	0.3451	0.3858	-11.8	118	0.00
45	s	surr4,Dibrflmethane	0.2865	0.3087	-7.7	104	0.00
46	P	Carbontetrachloride	0.1243	0.1320	-6.2	103	0.00
47		1,1-Dichloropropene	0.3962	0.4290	-8.3	106	0.00

KP 6/24/14

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062414\M6815.D
Misc :
Acq On : 24 Jun 2014 10:45 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 24 11:17:00 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3043	0.3846	-26.4#	120	0.00
49	P	Benzene	1.2852	1.3562	-5.5	103	0.00
50	P	1,2-Dichloroethane	0.3640	0.4418	-21.4#	121	0.00
51		Iso-Butyl Alcohol	0.0084	0.0114	-35.7#	128	0.00
52		n-Heptane	0.3698	0.4091	-10.6	110	0.00
53		1-Butanol	0.0050	0.0070	-40.0#	124	0.00
54	P	Trichloroethene	0.3273	0.3009	8.1	91	0.00
55	P	Methylcyclohexane	0.3992	0.4417	-10.6	112	0.00
56	P	1,2-Diclpropane	0.3329	0.3627	-9.0	106	0.00
57		Dibromomethane	0.1473	0.1660	-12.7	110	0.00
58		1,4-Dioxane	0.0021	0.0025	-19.0	115	0.00
59		Methyl Methacrylate	0.1654	0.1786	-8.0	108	0.00
60	P	Bromodichloromethane	0.3973	0.4231	-6.5	104	0.00
61		2-Nitropropane	0.0525	0.0527	-0.4	102	0.00
62		2-Chloroethylvinyl Ether	0.1598	0.1627	-1.8	97	0.00
63	P	cis-1,3-Dichloropropene	0.5023	0.5354	-6.6	103	0.00
64	P	4-Methyl-2-pentanone	0.2123	0.2579	-21.5#	120	0.00
65	s	SURR3,Toluene-d8	1.2410	1.2881	-3.8	100	0.00
66	P	Toluene	1.3610	1.3732	-0.9	98	0.00
67	P	trans-1,3-Dichloropropene	0.4146	0.4545	-9.6	105	0.00
68		Ethyl Methacrylate	0.3281	0.3804	-15.9	109	0.00
69	P	1,1,2-Trichloroethane	0.2285	0.2326	-1.8	98	0.00
70	s	SURR2,BFB	0.4652	0.5010	-7.7	103	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	97	0.00
72	P	Tetrachloroethene	0.2709	0.2483	8.3	90	0.00
73	P	2-Hexanone	0.1585	0.1919	-21.1#	117	0.00
74		1,3-Dichloropropane	0.4524	0.4955	-9.5	105	0.00
75	P	Dibromochloromethane	0.2867	0.2851	0.6	94	0.00
76		N-Butyl Acetate	0.4040	0.5041	-24.8#	117	0.00
77	P	1,2-Dibromoethane	0.2437	0.2501	-2.6	99	0.00
78	P	Chlorobenzene	0.9545	0.9159	4.0	94	0.00
79		3-CBTF	0.4621	0.4339	6.1	92	0.00
80		4-CBTF	0.4185	0.3826	8.6	90	0.00
81		1,1,1,2-Tetrachloroethane	0.3312	0.3248	1.9	94	0.00
82	P	Ethylbenzene	0.5238	0.5138	1.9	95	0.00
83	P	(m+p)Xylene	0.6427	0.6258	2.6	94	0.00
84	P	o-Xylene	0.6461	0.6104	5.5	92	0.00
85	P	Styrene	1.0469	1.0122	3.3	91	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	96	0.00
87	P	Bromoform	0.3115	0.2814	9.7	88	0.00
88		2-CBTF	0.8449	0.7870	6.9	90	0.00
89	P	Isopropylbenzene	2.8859	2.8884	-0.1	96	0.00
90		Cyclohexanone	0.0277	0.0315	-13.7	114	0.00
91		trans-1,4-Dichloro-2-Butene	0.1778	0.1705	4.1	101	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5662	0.6191	-9.3	107	0.00
93		Bromobenzene	0.7321	0.6653	9.1	89	0.00

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062414\M6815.D
Misc :
Acq On : 24 Jun 2014 10:45 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 24 11:17:00 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94		1,2,3-Trichloropropane	0.1619	0.1743	-7.7	108	0.00
95		n-Propylbenzene	3.3794	3.4798	-3.0	98	0.00
96		2-Chlorotoluene	2.0215	2.1106	-4.4	99	0.00
97		3-Chlorotoluene	2.1093	2.1358	-1.3	98	0.00
98		4-Chlorotoluene	2.3904	2.5502	-6.7	102	0.00
99		1,3,5-Trimethylbenzene	2.4183	2.4200	-0.1	96	0.00
100		tert-Butylbenzene	1.9946	1.9352	3.0	93	0.00
101		1,2,4-Trimethylbenzene	2.4307	2.4846	-2.2	95	0.00
102		3,4-DCBTF	0.5797	0.5761	0.6	96	0.00
103		sec-Butylbenzene	2.7969	2.8189	-0.8	95	0.00
104		p-Isopropyltoluene	2.3839	2.3786	0.2	94	0.00
105	P	1,3-Dclbenz	1.3635	1.2961	4.9	91	0.00
106	P	1,4-Dclbenz	1.3925	1.3050	6.3	92	0.00
107		2,4-DCBTF	0.5290	0.5162	2.4	94	0.00
108		2,5-DCBTF	0.5736	0.5735	0.0	97	0.00
109		n-Butylbenzene	2.1142	2.2845	-8.1	100	0.00
110	P	1,2-Dclbenz	1.2776	1.2138	5.0	91	0.00
111	P	1,2-Dibromo-3-chloropropane	0.1025	0.0993	3.1	93	0.00
112		Trielution Dichlorotoluene	1.0306	1.0643	-3.3	98	0.00
113		1,3,5 Trichlorobenzene	0.8305	0.8065	2.9	93	0.00
114		Coelution Dichlorotoluene	1.1064	1.1414	-3.2	97	0.00
115	P	1,2,4-Tcbenzene	0.7261	0.7285	-0.3	95	0.00
116		Hexachlorobt	0.3114	0.3355	-7.7	110	0.00
117		Naphthalen	1.3921	1.5357	-10.3	98	0.00
118		1,2,3-Tclbenzene	0.6167	0.6183	-0.3	97	0.00
119		2,4,5-Trichlorotolene	0.3902	0.4025	-3.2	95	0.01
120		2,3,6-Trichlorotoluene	0.3666	0.3637	0.8	93	0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/24/14 12:21
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1407127-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\062414\M6818.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407127-03	I:\ACQUDATA\MSVOA12\DATA\062414\M6816.D\	6/24/14 11:16
MRC-MW-37A-061314	R1404658-021	I:\ACQUDATA\MSVOA12\DATA\062414\M6829.D\	6/24/14 18:18
MRC-MW-48A-061114DL	R1404658-014	I:\ACQUDATA\MSVOA12\DATA\062414\M6832.D\	6/24/14 19:55
MRC-MW-60B-061814DL	R1404658-004	I:\ACQUDATA\MSVOA12\DATA\062414\M6833.D\	6/24/14 20:27
MRC-MW-60B-061814MS	RQ1407127-05	I:\ACQUDATA\MSVOA12\DATA\062414\M6834.D\	6/24/14 21:00
MRC-MW-60B-061814DMS	RQ1407127-06	I:\ACQUDATA\MSVOA12\DATA\062414\M6835.D\	6/24/14 21:32

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/24/14 12:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407127-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6818.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	0.33	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	0.36	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/24/14 12:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407127-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6818.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.24**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/24/14 12:21
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407127-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	398649
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062414\M6818.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	104	85-122	6/24/14 12:21	
Dibromofluoromethane	104	89-119	6/24/14 12:21	
Toluene-d8	103	87-121	6/24/14 12:21	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/26/14 09:07

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\062614\M6888.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 399037

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	20.62	105216	Pass
75	95	30	60	51.35	262043	Pass
95	95	100	100	100.00	510293	Pass
96	95	5	9	6.58	33595	Pass
173	174	0	2	1.19	4394	Pass
174	95	50	120	72.50	369941	Pass
175	174	5	9	7.46	27607	Pass
176	174	95	101	95.30	352572	Pass
177	176	5	9	6.63	23381	Pass

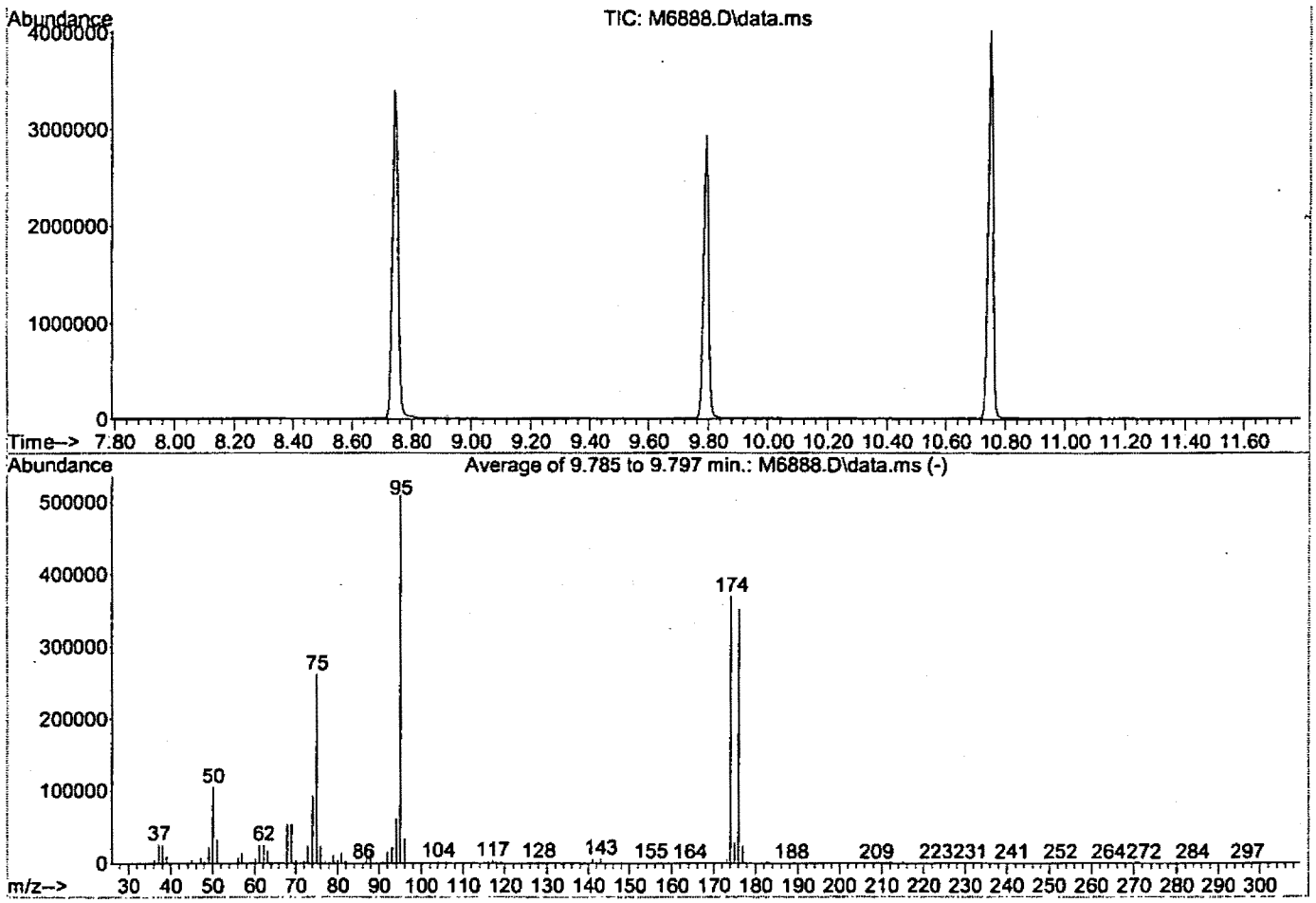
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407266-02	I:\ACQUDATA\MSVOA12\DATA\062614\M6889.D\	6/26/14 09:43	
Lab Control Sample	RQ1407266-03	I:\ACQUDATA\MSVOA12\DATA\062614\M6890.D\	6/26/14 10:17	
Method Blank	RQ1407266-04	I:\ACQUDATA\MSVOA12\DATA\062614\M6892.D\	6/26/14 11:20	
TB-061814	R1404658-012	I:\ACQUDATA\MSVOA12\DATA\062614\M6893.D\	6/26/14 11:52	
MRC-MW-76A-061814	R1404658-005	I:\ACQUDATA\MSVOA12\DATA\062614\M6902.D\	6/26/14 16:43	
MRC-MW-76B-061814	R1404658-006	I:\ACQUDATA\MSVOA12\DATA\062614\M6903.D\	6/26/14 17:16	
MRC-MW-19A-061814	R1404658-007	I:\ACQUDATA\MSVOA12\DATA\062614\M6904.D\	6/26/14 17:48	
MRC-MW-02A-061814	R1404658-010	I:\ACQUDATA\MSVOA12\DATA\062614\M6905.D\	6/26/14 18:20	
MRC-MW-38A-061814	R1404658-011	I:\ACQUDATA\MSVOA12\DATA\062614\M6906.D\	6/26/14 18:52	
MRC-MW-90B-061814	R1404658-008	I:\ACQUDATA\MSVOA12\DATA\062614\M6907.D\	6/26/14 19:24	
MRC-MW-60B-061814	R1404658-004	I:\ACQUDATA\MSVOA12\DATA\062614\M6908.D\	6/26/14 19:56	

Data Path : I:\ACQUDATA\msvoa12\Data\062614\
Data File : M6888.D
Acq On : 26 Jun 2014 9:07 am
Operator : K.RUEST
Sample : TUNE
Misc : LQ1407266-01
ALS Vial : 2 Sample Multiplier: 1

KR 6/26/14

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Sat Jun 14 17:33:54 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	20.6	105216	PASS
75	95	30	60	51.4	262043	PASS
95	95	100	100	100.0	510293	PASS
96	95	5	9	6.6	33595	PASS
173	174	0.00	2	1.2	4394	PASS
174	95	50	120	72.5	369941	PASS
175	174	5	9	7.5	27607	PASS
176	174	95	101	95.3	352572	PASS
177	176	5	9	6.6	23381	PASS

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/26/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062614\M6889.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 399037
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	45.2	0.3312	0.2994	-9.6	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	51.8	0.7425	0.7692	3.6	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	52.9	0.5662	0.5994	5.9	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	47.8	0.4199	0.4013	-4.4	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	52.4	0.8965	0.9396	4.8	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	44.5	0.3927	0.3493	-11.1	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	48.9	0.3962	0.3876	-2.2	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	49.3	0.6167	0.6074	-1.5	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	51.5	0.1619	0.1667	2.9	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	50.1	0.7261	0.7281	0.3	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	48.9	2.431	2.378	-2.2	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	45.7	0.1025	0.09364	-8.7	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	49.1	0.2437	0.2394	-1.8	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	47.6	1.278	1.215	-4.9	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	57.3	0.3640	0.4168	14.5	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	50.2	0.3329	0.3344	0.5	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	46.2	1.364	1.260	-7.6	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	52.5	0.4524	0.4749	5.0	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	45.5	1.393	1.267	-9.0	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	50.4	0.7868	0.7927	0.8	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	68.6	0.1412	0.1937	37.1 *	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	48.2	0.1598	0.1539	-3.6	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	50.1	2.021	2.027	0.3	NA	± 20 %	Average RF
2-Hexanone	50.0	57.6	0.1585	0.1825	15.2	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1240	0.03095	0.03847	24.3 *	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	49.9	2.390	2.385	-0.2	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	47.6	2.384	2.271	-4.8	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	56.6	0.2123	0.2402	13.2	NA	± 20 %	Average RF
Acetone	50.0	66.7	0.09881	0.1319	33.5 *	NA	± 20 %	Average RF
Benzene	50.0	48.2	1.285	1.238	-3.7	NA	± 20 %	Average RF
Bromobenzene	50.0	45.6	0.7321	0.6683	-8.7	NA	± 20 %	Average RF
Bromochloromethane	50.0	47.7	0.2794	0.2666	-4.6	NA	± 20 %	Average RF
Bromodichloromethane	50.0	50.4	0.3973	0.4004	0.8	NA	± 20 %	Average RF
Bromoform	50.0	45.9	0.3115	0.2856	-8.3	NA	± 20 %	Average RF
Bromomethane	50.0	54.1	0.2636	0.2850	8.1	NA	± 20 %	Average RF
Carbon Disulfide	50.0	49.8	1.516	1.511	-0.3	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	48.2	0.1243	0.1198	-3.6	NA	± 20 %	Average RF
Chlorobenzene	50.0	44.4	0.9545	0.8482	-11.1	NA	± 20 %	Average RF
Chloroethane	50.0	39.3	0.3700	0.2906	-21.5 *	NA	± 20 %	Average RF
Chloroform	50.0	52.6	0.8431	0.8863	5.1	NA	± 20 %	Average RF
Chloromethane	50.0	42.2	0.5810	0.4908	-15.5	NA	± 20 %	Average RF

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/26/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062614\M6889.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 399037
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	48.2	0.2867	0.2766	-3.5	NA	± 20 %	Average RF
Dibromomethane	50.0	53.7	0.1473	0.1582	7.4	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	45.6	0.5045	0.4599	-8.8	NA	± 20 %	Average RF
Methylene Chloride	50.0	46.6	0.5147	0.4791	-6.9	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	53.0	1.752	1.856	5.9	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	53.6	1.490	1.597	7.2	NA	± 20 %	Average RF
Ethylbenzene	50.0	44.7	0.5238	0.4684	-10.6	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	54.2	0.3114	0.3373	8.3	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	47.4	2.886	2.736	-5.2	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	57.4	1.152	1.321	14.7	NA	± 20 %	Average RF
Naphthalene	50.0	54.4	1.392	1.514	8.7	NA	± 20 %	Average RF
Styrene	50.0	46.0	1.047	0.9634	-8.0	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	41.9	0.2709	0.2268	-16.3	NA	± 20 %	Average RF
Toluene	50.0	47.0	1.361	1.279	-6.0	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	42.6	0.3273	0.2787	-14.8	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	52.7	0.7177	0.7561	5.3	NA	± 20 %	Average RF
Vinyl Acetate	50.0	57.7	0.07886	0.09101	15.4	NA	± 20 %	Average RF
Vinyl Chloride	50.0	41.4	0.6376	0.5276	-17.3	NA	± 20 %	Average RF
Xylenes, Total	150	132	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	48.3	0.5403	0.5214	-3.5	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	49.9	0.5023	0.5011	-0.2	NA	± 20 %	Average RF
m,p-Xylenes	100	88.5	0.6427	0.5687	-11.5	NA	± 20 %	Average RF
n-Butylbenzene	50.0	51.6	2.114	2.182	3.2	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.0	3.379	3.309	-2.1	NA	± 20 %	Average RF
o-Xylene	50.0	43.5	0.6461	0.5619	-13.0	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	48.1	2.797	2.693	-3.7	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	54.2	1.288	1.395	8.3	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	46.3	1.995	1.848	-7.3	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	47.4	0.4855	0.4601	-5.2	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	50.0	0.4146	0.4147	0.0	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	52.7	0.4652	0.4903	5.4	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	54.7	0.2865	0.3133	9.4	NA	± 20 %	Average RF
Toluene-d8	50.0	51.6	1.241	1.281	3.2	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062614\M6889.D
Misc :
Acq On : 26 Jun 2014 9:43 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 26 10:07:03 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	94	0.00
2	P	Dichlorodifluoromethane	0.5045	0.4599	8.8	83	0.00
3	P	Chloromethane	0.5810	0.4908	15.5	80	0.00
4	P	Vinyl Chloride	0.6376	0.5276	17.3	77	0.00
5	P	Bromomethane	0.2636	0.2850	-8.1	95	0.00
6	P	Chloroethane	0.3700	0.2906	21.5#	78	0.00
7		Freon 21	0.8818	0.8506	3.5	96	0.00
8	P	Trichlorofluoromethane	0.7177	0.7561	-5.4	101	0.00
9		Diethyl Ether	0.3887	0.4175	-7.4	103	0.00
10		Freon 123a	0.5809	0.6081	-4.7	99	0.00
11		Freon 123	0.6622	0.6796	-2.6	101	0.00
12		Acrolein	0.0377	0.0157	MT 58.4#	38#	0.00
13	P	1,1-Diclethene	0.3927	0.3493	11.1	90	0.00
14	P	Freon 113	0.4199	0.4013	4.4	90	0.00
15	P	Acetone	0.0988	0.1319	-33.5#	128	0.00
16		2-Propanol	0.0188	0.0243	MT -29.3#	119	0.00
17		Iodomethane	0.4370	0.3806	17.6 ~~12.9~~	73	0.00
18	P	Carbon Disulfide	1.5162	1.5111	MT 0.3	103	0.00
19		Acetonitrile	0.0169	0.0204	MT -20.7#	122	0.00
20		Allyl Chloride	0.2910	0.2986	-2.6	94	0.00
21	P	Methyl Acetate	0.2364	0.2902	MT -22.8#	114	0.00
22	P	Methylene Chloride	0.5147	0.4791	6.9	97	0.00
23		TBA	0.0310	0.0385	-24.2#	114	0.00
24		Acrylonitrile	0.1206	0.1456	MT -20.7#	112	0.00
25	P	Methyl-t-Butyl Ether	1.1516	1.3210	-14.7	106	0.00
26	P	trans-1,2-Dichloroethene	0.4855	0.4601	5.2	92	0.00
27		Halothane	0.0000	0.0000	0.0	0#	-3.01#
28	P	1,1-Diclethane	0.8965	0.9396	-4.8	100	0.00
29		Vinyl Acetate	0.0789	0.0910	-15.3	104	0.00
30		DIPE	1.7522	1.8560	-5.9	101	0.00
31		2-Chloro-1,3-Butadiene	0.8140	0.9154	-12.5	114	0.00
32		ETBE	1.4904	1.5973	-7.2	100	0.00
33		2,2-Dichloropropane	0.7868	0.7927	-0.7	101	0.00
34	P	cis-1,2-Dichloroethene	0.5403	0.5214	3.5	93	0.00
35	P	2-Butanone	0.1412	0.1937	-37.2#	127	0.00
36		Propionitrile	0.0456	0.0521	-14.3	112	0.00
37		Bromochloromethane	0.2794	0.2666	4.6	91	0.00
38		Methacrylonitrile	0.1489	0.1532	-12.9 ~~-2.9~~	105	0.00
39		Tetrahydrofuran	0.0978	0.1140	-16.6	116	0.00
40	P	Chloroform	0.8431	0.8863	-5.1	104	0.00
41	P	1,1,1-Trichloroethane	0.7425	0.7692	-3.6	102	0.00
42		TAME	1.2882	1.3953	-8.3	101	0.00
43	I	1,4-Difluorobenzene	1.0000	1.0000	0.0	98	0.00
44	P	Cyclohexane	0.3451	0.3317	3.9	103	0.00
45	s	surr4,Dibrflmethane	0.2865	0.3133	-9.4	107	0.00
46	P	Carbontetrachloride	0.1243	0.1198	3.6	95	0.00
47		1,1-Dichloropropene	0.3962	0.3876	2.2	97	0.00

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062614\M6889.D
Misc :
Acq On : 26 Jun 2014 9:43 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 26 10:07:03 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3043	0.3799	-24.8#	121	0.00
49	P	Benzene	1.2852	1.2378	3.7	96	0.00
50	P	1,2-Dichloroethane	0.3640	0.4168	-14.5	116	0.00
51		Iso-Butyl Alcohol	0.0084	0.0111	-32.1#	126	0.00
52		n-Heptane	0.3698	0.3812	-3.1	104	0.00
53		1-Butanol	0.0050	0.0068	-36.0#	123	0.00
54	P	Trichloroethene	0.3273	0.2787	14.8	85	0.00
55	P	Methylcyclohexane	0.3992	0.3919	1.8	101	0.00
56	P	1,2-Diclpropane	0.3329	0.3344	-0.5	100	0.00
57		Dibromomethane	0.1473	0.1582	-7.4	107	0.00
58		1,4-Dioxane	0.0021	0.0024	-14.3	113	0.01
59		Methyl Methacrylate	0.1654	0.1670	-1.0	102	0.00
60	P	Bromodichloromethane	0.3973	0.4004	-0.8	100	0.00
61		2-Nitropropane	0.0525	0.0521	0.8	103	0.00
62		2-Chloroethylvinyl Ether	0.1598	0.1539	3.7	93	0.00
63	P	cis-1,3-Dichloropropene	0.5023	0.5011	0.2	98	0.00
64	P	4-Methyl-2-pentanone	0.2123	0.2402	-13.1	113	0.00
65	s	SURR3,Toluene-d8	1.2410	1.2809	-3.2	101	0.00
66	P	Toluene	1.3610	1.2791	6.0	93	0.00
67	P	trans-1,3-Dichloropropene	0.4146	0.4147	-0.0	97	0.00
68		Ethyl Methacrylate	0.3281	0.3559	-8.5	104	0.00
69	P	1,1,2-Trichloroethane	0.2285	0.2234	2.2	96	0.00
70	s	SURR2,BFB	0.4652	0.4903	-5.4	102	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	98	0.00
72	P	Tetrachloroethene	0.2709	0.2268	16.3	84	0.00
73	P	2-Hexanone	0.1585	0.1825	-15.1	113	0.00
74		1,3-Dichloropropane	0.4524	0.4749	-5.0	102	0.00
75	P	Dibromochloromethane	0.2867	0.2766	3.5	93	0.00
76		N-Butyl Acetate	0.4040	0.4682	-15.9	110	0.00
77	P	1,2-Dibromoethane	0.2437	0.2394	1.8	97	0.00
78	P	Chlorobenzene	0.9545	0.8482	11.1	88	0.00
79		3-CBTF	0.4621	0.3784	18.1	82	0.00
80		4-CBTF	0.4185	0.3469	17.1	83	0.00
81		1,1,1,2-Tetrachloroethane	0.3312	0.2994	9.6	88	0.00
82	P	Ethylbenzene	0.5238	0.4684	10.6	88	0.00
83	P	(m+p)Xylene	0.6427	0.5687	11.5	87	0.00
84	P	o-Xylene	0.6461	0.5619	13.0	86	0.00
85	P	Styrene	1.0469	0.9634	8.0	88	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	94	0.00
87	P	Bromoform	0.3115	0.2856	8.3	87	0.00
88		2-CBTF	0.8449	0.7460	11.7	84	0.00
89	P	Isopropylbenzene	2.8859	2.7355	5.2	89	0.00
90		Cyclohexanone	0.0277	0.0440	-58.8#	157	0.00
91		trans-1,4-Dichloro-2-Butene	0.1778	0.1607	9.6	94	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5662	0.5994	-5.9	102	0.00
93		Bromobenzene	0.7321	0.6683	8.7	88	0.00

00380

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062614\M6889.D
Misc :
Acq On : 26 Jun 2014 9:43 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 26 10:07:03 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94		1,2,3-Trichloropropane	0.1619	0.1667	-3.0	101	0.00
95		n-Propylbenzene	3.3794	3.3093	2.1	92	0.00
96		2-Chlorotoluene	2.0215	2.0268	-0.3	94	0.00
97		3-Chlorotoluene	2.1093	2.0458	3.0	92	0.00
98		4-Chlorotoluene	2.3904	2.3846	0.2	94	0.00
99		1,3,5-Trimethylbenzene	2.4183	2.2951	5.1	90	0.00
100		tert-Butylbenzene	1.9946	1.8480	7.3	88	0.00
101		1,2,4-Trimethylbenzene	2.4307	2.3778	2.2	90	0.00
102		3,4-DCBTF	0.5797	0.5432	6.3	89	0.00
103		sec-Butylbenzene	2.7969	2.6930	3.7	89	0.00
104		p-Isopropyltoluene	2.3839	2.2706	4.8	88	0.00
105	P	1,3-Dclbenz	1.3635	1.2596	7.6	87	0.00
106	P	1,4-Dclbenz	1.3925	1.2670	9.0	87	0.00
107		2,4-DCBTF	0.5290	0.4877	7.8	87	0.00
108		2,5-DCBTF	0.5736	0.5607	2.2	93	0.00
109		n-Butylbenzene	2.1142	2.1822	-3.2	94	0.00
110	P	1,2-Dclbenz	1.2776	1.2149	4.9	89	0.00
111	P	1,2-Dibromo-3-chloropropane	0.1025	0.0936	8.7	86	0.00
112		Trielution Dichlorotoluene	1.0306	1.0223	0.8	92	0.00
113		1,3,5 Trichlorobenzene	0.8305	0.7862	5.3	89	0.00
114		Coelution Dichlorotoluene	1.1064	1.1112	-0.4	93	0.00
115	P	1,2,4-Tcbenzene	0.7261	0.7281	-0.3	93	0.00
116		Hexachlorobt	0.3114	0.3373	-8.3	109	0.00
117		Naphthalen	1.3921	1.5138	-8.7	95	0.00
118		1,2,3-Tclbenzene	0.6167	0.6074	1.5	94	0.00
119		2,4,5-Trichlorotolene	0.3902	0.3997	-2.4	93	0.00
120		2,3,6-Trichlorotoluene	0.3666	0.3609	1.6	90	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00381

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/26/14 11:20
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1407266-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\062614\M6892.D\
Analytical Method:	8260C		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407266-03	I:\ACQUDATA\MSVOA12\DATA\062614\M6890.D\	6/26/14 10:17
TB-061814	R1404658-012	I:\ACQUDATA\MSVOA12\DATA\062614\M6893.D\	6/26/14 11:52
MRC-MW-76A-061814	R1404658-005	I:\ACQUDATA\MSVOA12\DATA\062614\M6902.D\	6/26/14 16:43
MRC-MW-76B-061814	R1404658-006	I:\ACQUDATA\MSVOA12\DATA\062614\M6903.D\	6/26/14 17:16
MRC-MW-19A-061814	R1404658-007	I:\ACQUDATA\MSVOA12\DATA\062614\M6904.D\	6/26/14 17:48
MRC-MW-02A-061814	R1404658-010	I:\ACQUDATA\MSVOA12\DATA\062614\M6905.D\	6/26/14 18:20
MRC-MW-38A-061814	R1404658-011	I:\ACQUDATA\MSVOA12\DATA\062614\M6906.D\	6/26/14 18:52
MRC-MW-90B-061814	R1404658-008	I:\ACQUDATA\MSVOA12\DATA\062614\M6907.D\	6/26/14 19:24
MRC-MW-60B-061814	R1404658-004	I:\ACQUDATA\MSVOA12\DATA\062614\M6908.D\	6/26/14 19:56

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/26/14 11:20
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407266-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6892.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.23**	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.62**	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/26/14 11:20
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407266-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6892.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	2.0	U	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	0.27	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/26/14 11:20
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407266-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399037
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062614\M6892.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	102	85-122	6/26/14 11:20	
Dibromofluoromethane	105	89-119	6/26/14 11:20	
Toluene-d8	102	87-121	6/26/14 11:20	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/27/14 08:49

Tune Summary
Volatile Organic Compounds by GC/MS

File ID: I:\ACQUDATA\msvoa12\Data\062714\M6931.D\
Instrument ID: R-MS-12

Analytical Method: 8260C
Analysis Lot: 399131

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
50	95	15	40	21.09	108109	Pass
75	95	30	60	53.19	272627	Pass
95	95	100	100	100.00	512512	Pass
96	95	5	9	6.43	32963	Pass
173	174	0	2	0.77	2864	Pass
174	95	50	120	72.89	373589	Pass
175	174	5	9	7.45	27851	Pass
176	174	95	101	97.48	364181	Pass
177	176	5	9	6.26	22805	Pass

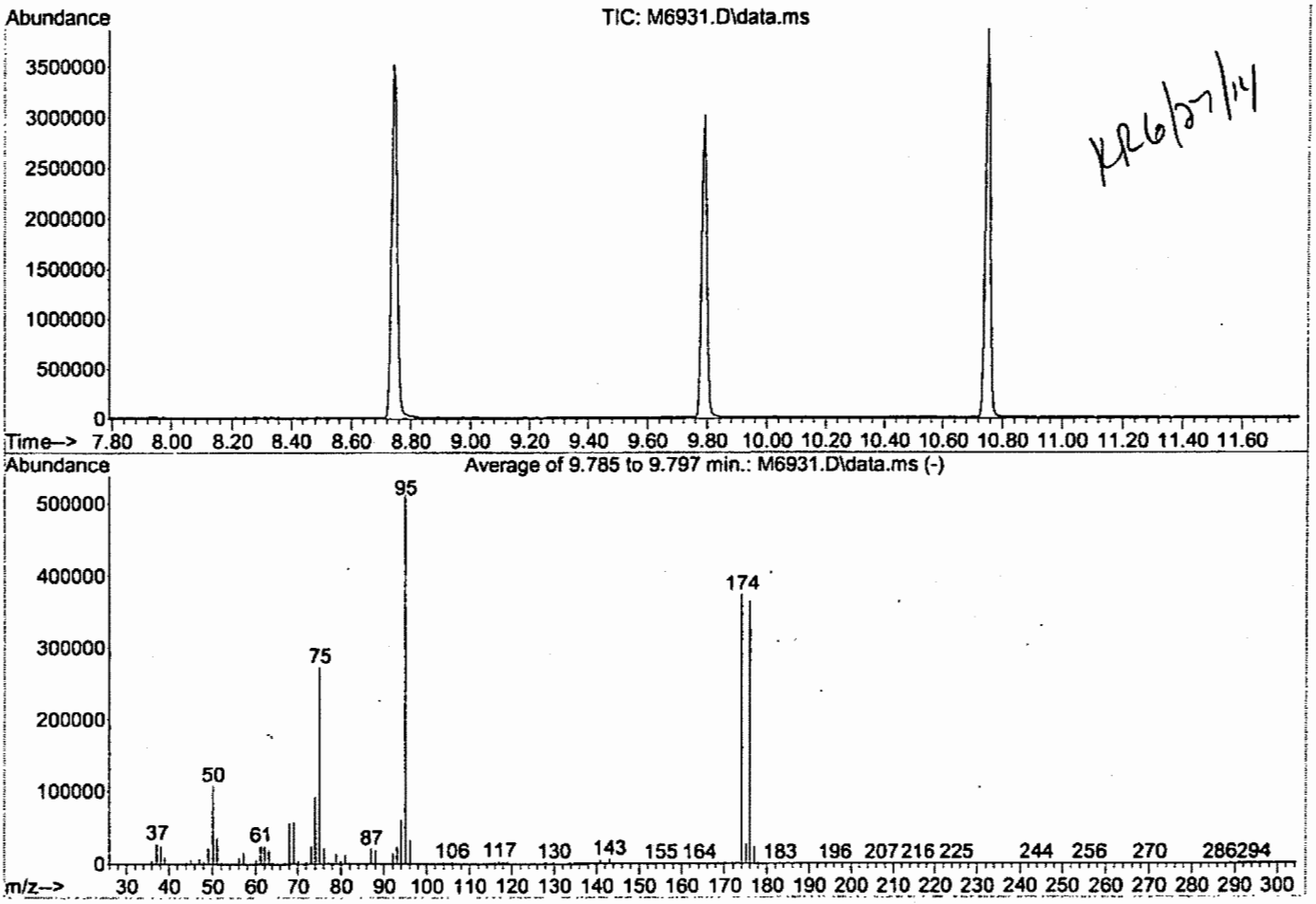
Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407292-02	I:\ACQUDATA\MSVOA12\DATA\062714\M6932.D\	6/27/14 09:28	
Lab Control Sample	RQ1407292-03	I:\ACQUDATA\MSVOA12\DATA\062714\M6933.D\	6/27/14 10:01	
Method Blank	RQ1407292-04	I:\ACQUDATA\MSVOA12\DATA\062714\M6935.D\	6/27/14 11:05	
MRC-MW-90B-061814DL	R1404658-008	I:\ACQUDATA\MSVOA12\DATA\062714\M6936.D\	6/27/14 11:39	

Trichloroethene

Data Path : I:\ACQUDATA\msvoa12\Data\062714\
Data File : M6931.D
Acq On : 27 Jun 2014 8:49 am
Operator : K.RUEST
Sample : TUNE
Misc :
ALS Vial : 1 Sample Multiplier: 1

Integration File: INTP60.P

Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Title : MS#12 - 8260B WATERS 10mL Purge
Last Update : Sat Jun 14 17:33:54 2014



AutoFind: Scans 1425, 1426, 1427; Background Corrected with Scan 1420

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	15	40	21.1	108109	PASS
75	95	30	60	53.2	272627	PASS
95	95	100	100	100.0	512512	PASS
96	95	5	9	6.4	32963	PASS
173	174	0.00	2	0.8	2864	PASS
174	95	50	120	72.9	373589	PASS
175	174	5	9	7.5	27851	PASS
176	174	95	101	97.5	364181	PASS
177	176	5	9	6.3	22805	PASS

00063

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/27/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062714\M6932.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 399131
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
1,1,1,2-Tetrachloroethane	50.0	46.2	0.3312	0.3061	-7.6	NA	± 20 %	Average RF
1,1,1-Trichloroethane (TCA)	50.0	52.9	0.7425	0.7850	5.7	NA	± 20 %	Average RF
1,1,2,2-Tetrachloroethane	50.0	51.4	0.5662	0.5816	2.7	NA	± 20 %	Average RF
1,1,2-Trichlorotrifluoroethane	50.0	49.3	0.4199	0.4138	-1.5	NA	± 20 %	Average RF
1,1-Dichloroethane (1,1-DCA)	50.0	54.5	0.8965	0.9775	9.0	NA	± 20 %	Average RF
1,1-Dichloroethene (1,1-DCE)	50.0	46.0	0.3927	0.3610	-8.1	NA	± 20 %	Average RF
1,1-Dichloropropene	50.0	49.4	0.3962	0.3914	-1.2	NA	± 20 %	Average RF
1,2,3-Trichlorobenzene	50.0	46.4	0.6167	0.5722	-7.2	NA	± 20 %	Average RF
1,2,3-Trichloropropane	50.0	49.9	0.1619	0.1617	-0.1	NA	± 20 %	Average RF
1,2,4-Trichlorobenzene	50.0	47.5	0.7261	0.6895	-5.0	NA	± 20 %	Average RF
1,2,4-Trimethylbenzene	50.0	49.7	2.431	2.415	-0.6	NA	± 20 %	Average RF
1,2-Dibromo-3-chloropropane (DBCP)	50.0	42.9	0.1025	0.08791	-14.2	NA	± 20 %	Average RF
1,2-Dibromoethane	50.0	49.0	0.2437	0.2389	-2.0	NA	± 20 %	Average RF
1,2-Dichlorobenzene	50.0	46.4	1.278	1.185	-7.3	NA	± 20 %	Average RF
1,2-Dichloroethane	50.0	57.4	0.3640	0.4176	14.7	NA	± 20 %	Average RF
1,2-Dichloropropane	50.0	51.6	0.3329	0.3432	3.1	NA	± 20 %	Average RF
1,3-Dichlorobenzene	50.0	45.2	1.364	1.232	-9.6	NA	± 20 %	Average RF
1,3-Dichloropropane	50.0	53.5	0.4524	0.4838	6.9	NA	± 20 %	Average RF
1,4-Dichlorobenzene	50.0	45.6	1.393	1.271	-8.7	NA	± 20 %	Average RF
2,2-Dichloropropane	50.0	52.7	0.7868	0.8286	5.3	NA	± 20 %	Average RF
2-Butanone (MEK)	50.0	60.3	0.1412	0.1705	20.7 *	NA	± 20 %	Average RF
2-Chloroethyl Vinyl Ether	50.0	44.6	0.1598	0.1426	-10.7	NA	± 20 %	Average RF
2-Chlorotoluene	50.0	50.7	2.021	2.051	1.5	NA	± 20 %	Average RF
2-Hexanone	50.0	54.8	0.1585	0.1735	9.5	NA	± 20 %	Average RF
tert-Butyl Alcohol	1000	1180	0.03095	0.03652	18.0	NA	± 20 %	Average RF
4-Chlorotoluene	50.0	51.7	2.390	2.470	3.3	NA	± 20 %	Average RF
4-Isopropyltoluene	50.0	48.2	2.384	2.299	-3.6	NA	± 20 %	Average RF
4-Methyl-2-pentanone	50.0	53.9	0.2123	0.2287	7.7	NA	± 20 %	Average RF
Acetone	50.0	55.4	0.09881	0.1094	10.8	NA	± 20 %	Average RF
Benzene	50.0	49.1	1.285	1.262	-1.8	NA	± 20 %	Average RF
Bromobenzene	50.0	45.9	0.7321	0.6718	-8.2	NA	± 20 %	Average RF
Bromochloromethane	50.0	49.0	0.2794	0.2740	-1.9	NA	± 20 %	Average RF
Bromodichloromethane	50.0	50.3	0.3973	0.3996	0.6	NA	± 20 %	Average RF
Bromoform	50.0	43.1	0.3115	0.2686	-13.8	NA	± 20 %	Average RF
Bromomethane	50.0	33.9	0.2636	0.1789	-32.1 *	NA	± 20 %	Average RF
Carbon Disulfide	50.0	46.2	1.516	1.400	-7.7	NA	± 20 %	Average RF
Carbon Tetrachloride	50.0	48.9	0.1243	0.1216	-2.1	NA	± 20 %	Average RF
Chlorobenzene	50.0	45.7	0.9545	0.8715	-8.7	NA	± 20 %	Average RF
Chloroethane	50.0	39.8	0.3700	0.2946	-20.4 *	NA	± 20 %	Average RF
Chloroform	50.0	54.1	0.8431	0.9115	8.1	NA	± 20 %	Average RF
Chloromethane	50.0	43.0	0.5810	0.5001	-13.9	NA	± 20 %	Average RF

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/27/14

Continuing Calibration Verification Summary
Volatile Organic Compounds by GC/MS

Analytical Method: 8260C

File ID: I:\ACQUDATA\MSVOA12\DATA\062714\M6932.D\

Calibration Date: 6/13/14
Calibration ID: RC1400048
Analysis Lot: 399131
Units: ppb

Analyte Name	Expected	Result	Average RF	CCV RF	%D	%Drift	Criteria	Curve Fit
Dibromochloromethane	50.0	47.8	0.2867	0.2744	-4.3	NA	± 20 %	Average RF
Dibromomethane	50.0	53.6	0.1473	0.1579	7.2	NA	± 20 %	Average RF
Dichlorodifluoromethane (CFC 12)	50.0	45.0	0.5045	0.4541	-10.0	NA	± 20 %	Average RF
Methylene Chloride	50.0	47.8	0.5147	0.4920	-4.4	NA	± 20 %	Average RF
Diisopropyl Ether	50.0	55.8	1.752	1.957	11.7	NA	± 20 %	Average RF
Ethyl tert-Butyl Ether	50.0	54.9	1.490	1.637	9.9	NA	± 20 %	Average RF
Ethylbenzene	50.0	45.9	0.5238	0.4808	-8.2	NA	± 20 %	Average RF
Hexachlorobutadiene	50.0	55.8	0.3114	0.3478	11.7	NA	± 20 %	Average RF
Isopropylbenzene (Cumene)	50.0	47.8	2.886	2.756	-4.5	NA	± 20 %	Average RF
Methyl tert-Butyl Ether	50.0	56.9	1.152	1.310	13.7	NA	± 20 %	Average RF
Naphthalene	50.0	48.7	1.392	1.355	-2.7	NA	± 20 %	Average RF
Styrene	50.0	47.6	1.047	0.9956	-4.9	NA	± 20 %	Average RF
Tetrachloroethene (PCE)	50.0	43.0	0.2709	0.2328	-14.1	NA	± 20 %	Average RF
Toluene	50.0	47.3	1.361	1.286	-5.5	NA	± 20 %	Average RF
Trichloroethene (TCE)	50.0	42.9	0.3273	0.2806	-14.2	NA	± 20 %	Average RF
Trichlorofluoromethane (CFC 11)	50.0	53.6	0.7177	0.7689	7.1	NA	± 20 %	Average RF
Vinyl Acetate	50.0	57.0	0.07886	0.08988	14.0	NA	± 20 %	Average RF
Vinyl Chloride	50.0	42.1	0.6376	0.5371	-15.8	NA	± 20 %	Average RF
Xylenes, Total	150	137	NA	NA	NA	NA	± 20 %	
cis-1,2-Dichloroethene	50.0	50.1	0.5403	0.5410	0.1	NA	± 20 %	Average RF
cis-1,3-Dichloropropene	50.0	50.2	0.5023	0.5044	0.4	NA	± 20 %	Average RF
m,p-Xylenes	100	91.7	0.6427	0.5895	-8.3	NA	± 20 %	Average RF
n-Butylbenzene	50.0	52.7	2.114	2.228	5.4	NA	± 20 %	Average RF
n-Propylbenzene	50.0	49.6	3.379	3.354	-0.7	NA	± 20 %	Average RF
o-Xylene	50.0	45.5	0.6461	0.5875	-9.1	NA	± 20 %	Average RF
sec-Butylbenzene	50.0	49.4	2.797	2.765	-1.2	NA	± 20 %	Average RF
tert-Amyl Methyl Ether	50.0	53.1	1.288	1.368	6.2	NA	± 20 %	Average RF
tert-Butylbenzene	50.0	46.9	1.995	1.872	-6.2	NA	± 20 %	Average RF
trans-1,2-Dichloroethene	50.0	48.2	0.4855	0.4680	-3.6	NA	± 20 %	Average RF
trans-1,3-Dichloropropene	50.0	51.6	0.4146	0.4278	3.2	NA	± 20 %	Average RF
4-Bromofluorobenzene	50.0	52.3	0.4652	0.4870	4.7	NA	± 20 %	Average RF
Dibromofluoromethane	50.0	54.2	0.2865	0.3104	8.3	NA	± 20 %	Average RF
Toluene-d8	50.0	51.7	1.241	1.282	3.3	NA	± 20 %	Average RF

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062714\M6932.D
Misc :
Acq On : 27 Jun 2014 9:28 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 27 10:00:19 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

KR 6/27/14

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	
1	I	Pentafluorobenzene	1.0000	1.0000	0.0	95	0.00	
2	P	Dichlorodifluoromethane	0.5045	0.4541	10.0	82	0.00	
3	P	Chloromethane	0.5810	0.5001	13.9	82	0.00	
4	P	Vinyl Chloride	0.6376	0.5371	15.8	79	0.00	
5	P	Bromomethane	0.2636	0.1789	32.1#	60	0.00	⊗
6	P	Chloroethane	0.3700	0.2946	20.4#	79	0.00	⊗
7		Freon 21	0.8818	0.8524	3.3	96	0.00	
8	P	Trichlorofluoromethane	0.7177	0.7689	-7.1	103	0.00	
9		Diethyl Ether	0.3887	0.4204	-8.2	104	0.00	
10		Freon 123a	0.5809	0.6164	-6.1	101	0.00	
11		Freon 123	0.6622	0.6544	1.2	97	0.00	
12		Acrolein	0.0377	0.0279	MF 26.0#	68	0.00	⊗
13	P	1,1-Diclethene	0.3927	0.3610	8.1	93	0.00	
14	P	Freon 113	0.4199	0.4138	1.5	93	0.00	
15	P	Acetone	0.0988	0.1094	-10.7	107	0.00	
16		2-Propanol	0.0188	0.0228	M -21.3#	112	0.00	
17		Iodomethane	0.4370	0.3348	M 23.4#	64	0.00	
18	P	Carbon Disulfide	1.5162	1.3995	7.7	96	0.00	
19		Acetonitrile	0.0169	0.0220	M -30.2#	132	0.00	
20		Allyl Chloride	0.2910	0.2879	1.1	91	0.00	
21	P	Methyl Acetate	0.2364	0.2769	-17.1	109	0.00	
22	P	Methylene Chloride	0.5147	0.4920	4.4	100	0.00	
23		TBA	0.0310	0.0365	-17.7	109	0.00	
24		Acrylonitrile	0.1206	0.1426	-18.2	110	0.00	
25	P	Methyl-t-Butyl Ether	1.1516	1.3096	-13.7	105	0.00	
26	P	trans-1,2-Dichloroethene	0.4855	0.4680	3.6	94	0.00	
27		Halothane	0.0000	0.0000	0.0	0#	-3.01#	
28	P	1,1-Diclethane	0.8965	0.9775	-9.0	105	0.00	
29		Vinyl Acetate	0.0789	0.0899	-13.9	103	0.00	
30		DIPE	1.7522	1.9566	-11.7	107	0.00	
31		2-Chloro-1,3-Butadiene	0.8140	0.8876	-9.0	111	0.00	
32		ETBE	1.4904	1.6375	-9.9	103	0.00	
33		2,2-Dichloropropane	0.7868	0.8286	-5.3	106	0.00	
34	P	cis-1,2-Dichloroethene	0.5403	0.5410	-0.1	97	0.00	
35	P	2-Butanone	0.1412	0.1705	-20.8#	112	0.00	⊗
36		Propionitrile	0.0456	0.0500	-9.6	108	0.00	
37		Bromochloromethane	0.2794	0.2740	1.9	94	0.00	
38		Methacrylonitrile	0.1489	0.1520	-2.1	105	0.00	
39		Tetrahydrofuran	0.0978	0.1074	-9.8	110	0.00	
40	P	Chloroform	0.8431	0.9115	-8.1	108	0.00	
41	P	1,1,1-Trichloroethane	0.7425	0.7850	-5.7	104	0.00	
42		TAME	1.2882	1.3682	-6.2	100	0.00	
43	I	1,4-Difluorobenzene	1.0000	1.0000	0.0	100	0.00	
44	P	Cyclohexane	0.3451	0.3301	4.3	105	0.00	
45	s	surr4,Dibrflmethane	0.2865	0.3104	-8.3	108	0.00	
46	P	Carbontetrachloride	0.1243	0.1216	2.2	99	0.00	
47		1,1-Dichloropropene	0.3962	0.3914	1.2	100	0.00	

00392

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062714\M6932.D
Misc :
Acq On : 27 Jun 2014 9:28 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 27 10:00:19 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
48	s	surr1,1,2-dichloroethane-d4	0.3043	0.3804	-25.0#	123	0.00
49	P	Benzene	1.2852	1.2622	1.8	99	0.00
50	P	1,2-Dichloroethane	0.3640	0.4176	-14.7	118	0.00
51		Iso-Butyl Alcohol	0.0084	0.0099	-17.9	115	0.00
52		n-Heptane	0.3698	0.3869	-4.6	108	0.00
53		1-Butanol	0.0050	0.0055	-10.0	101	0.00
54	P	Trichloroethene	0.3273	0.2806	14.3	88	0.00
55	P	Methylcyclohexane	0.3992	0.3818	4.4	100	0.00
56	P	1,2-Diclpropane	0.3329	0.3432	-3.1	104	0.00
57		Dibromomethane	0.1473	0.1579	-7.2	109	0.00
58		1,4-Dioxane	0.0021	0.0021	0.0	103	0.00
59		Methyl Methacrylate	0.1654	0.1602	3.1	100	0.00
60	P	Bromodichloromethane	0.3973	0.3996	-0.6	102	0.00
61		2-Nitropropane	0.0525	0.0483	8.0	97	0.00
62		2-Chloroethylvinyl Ether	0.1598	0.1426	10.8	88	0.00
63	P	cis-1,3-Dichloropropene	0.5023	0.5044	-0.4	101	0.00
64	P	4-Methyl-2-pentanone	0.2123	0.2287	-7.7	110	0.00
65	s	SURR3,Toluene-d8	1.2410	1.2818	-3.3	103	0.00
66	P	Toluene	1.3610	1.2860	5.5	95	0.00
67	P	trans-1,3-Dichloropropene	0.4146	0.4278	-3.2	102	0.00
68		Ethyl Methacrylate	0.3281	0.3443	-4.9	102	0.00
69	P	1,1,2-Trichloroethane	0.2285	0.2237	2.1	98	0.00
70	s	SURR2,BFB	0.4652	0.4870	-4.7	103	0.00
71	I	d5-Chlorobenzene	1.0000	1.0000	0.0	98	0.00
72	P	Tetrachloroethene	0.2709	0.2328	14.1	86	0.00
73	P	2-Hexanone	0.1585	0.1735	-9.5	107	0.00
74		1,3-Dichloropropane	0.4524	0.4838	-6.9	104	0.00
75	P	Dibromochloromethane	0.2867	0.2744	4.3	92	0.00
76		N-Butyl Acetate	0.4040	0.4648	-15.0	109	0.00
77	P	1,2-Dibromoethane	0.2437	0.2389	2.0	97	0.00
78	P	Chlorobenzene	0.9545	0.8715	8.7	91	0.00
~~79~~		~~3-CBTF~~	~~0.4621~~	~~0.0002~~	~~100.0#~~	~~0#~~	~~0.04~~
~~80~~		~~4-CBTF~~	~~0.4185~~	~~0.0002~~	~~100.0#~~	~~0#~~	~~0.00~~
81		1,1,1,2-Tetrachloroethane	0.3312	0.3061	7.6	90	0.00
82	P	Ethylbenzene	0.5238	0.4808	8.2	91	0.00
83	P	(m+p)Xylene	0.6427	0.5895	8.3	90	0.00
84	P	o-Xylene	0.6461	0.5875	9.1	90	0.00
85	P	Styrene	1.0469	0.9956	4.9	91	0.00
86	I	1,4-Dichlorobenzene-d4	1.0000	1.0000	0.0	95	0.00
87	P	Bromoform	0.3115	0.2686	13.8	83	0.00
~~88~~		~~2-CBTF~~	~~0.8449~~	~~0.0004~~	~~100.0#~~	~~0#~~	~~0.00~~
89	P	Isopropylbenzene	2.8859	2.7563	4.5	91	0.00
90		Cyclohexanone	0.0277	0.0265	4.3	96	0.00
91		trans-1,4-Dichloro-2-Butene	0.1778	0.1467	17.5	87	0.00
92	P	1,1,2,2-Tetrachloroethane	0.5662	0.5816	-2.7	101	0.00
93		Bromobenzene	0.7321	0.6718	8.2	90	0.00

00393

Evaluate Continuing Calibration Report

Sample : CCV
Data File: I:\ACQUDATA\msvoa12\Data\062714\M6932.D
Misc :
Acq On : 27 Jun 2014 9:28 am
Operator : K.RUEST
InstName : MSVOA-12

Quant Method : I:\ACQUDATA\MSVOA12\METHODS\W061314.M
Quant Title : MS#12 - 8260B WATERS 10mL Purge
Quant Time: Jun 27 10:00:19 2014
QLast Update : Sat Jun 14 17:33:54 2014
Response via : Initial Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
94		1,2,3-Trichloropropane	0.1619	0.1617	0.1	100	0.00
95		n-Propylbenzene	3.3794	3.3543	0.7	94	0.00
96		2-Chlorotoluene	2.0215	2.0508	-1.4	96	0.00
~~97~~		~~3-Chlorotoluene~~	~~2.1093~~	~~0.0000~~	~~100.0#~~	~~0#~~	~~10.14#~~
98		4-Chlorotoluene	2.3904	2.4703	-3.3	99	0.00
99		1,3,5-Trimethylbenzene	2.4183	2.3393	3.3	93	0.00
100		tert-Butylbenzene	1.9946	1.8715	6.2	90	0.00
101		1,2,4-Trimethylbenzene	2.4307	2.4151	0.6	93	0.00
~~102~~		~~3,4-DCBTF~~	~~0.5797~~	~~0.0005~~	~~99.9#~~	~~0#~~	~~0.00~~
103		sec-Butylbenzene	2.7969	2.7647	1.2	93	0.00
104		p-Isopropyltoluene	2.3839	2.2989	3.6	90	0.00
105	P	1,3-Dclbenz	1.3635	1.2324	9.6	86	0.00
106	P	1,4-Dclbenz	1.3925	1.2712	8.7	89	0.00
~~107~~		~~2,4-DCBTF~~	~~0.5290~~	~~0.0005~~	~~99.9#~~	~~0#~~	~~0.00~~
~~108~~		~~2,5-DCBTF~~	~~0.5736~~	~~0.0005~~	~~99.9#~~	~~0#~~	~~-0.04~~
109		n-Butylbenzene	2.1142	2.2283	-5.4	98	0.00
110	P	1,2-Dclbenz	1.2776	1.1849	7.3	88	0.00
111	P	1,2-Dibromo-3-chloropropane	0.1025	0.0879	14.2	82	0.00
~~112~~		~~Trielution Dichlorotoluene~~	~~1.0306~~	~~0.0009~~	~~99.9#~~	~~0#~~	~~0.00~~
~~113~~		~~1,3,5 Trichlorobenzene~~	~~0.8305~~	~~0.0007~~	~~99.9#~~	~~0#~~	~~0.00~~
~~114~~		~~Coelution Dichlorotoluene~~	~~1.1064~~	~~0.0009~~	~~99.9#~~	~~0#~~	~~0.00~~
115	P	1,2,4-Tcbenzene	0.7261	0.6895	5.0	89	0.00
116		Hexachlorobt	0.3114	0.3478	-11.7	113	0.00
117		Naphthalen	1.3921	1.3550	2.7	86	0.00
118		1,2,3-Tclbenzene	0.6167	0.5722	7.2	90	0.00
~~119~~		~~2,4,5-Trichlorotolene~~	~~0.3902~~	~~0.0003~~	~~99.9#~~	~~0#~~	~~0.01~~
~~120~~		~~2,3,6-Trichlorotoluene~~	~~0.3666~~	~~0.0007~~	~~99.8#~~	~~0#~~	~~0.02~~

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00394

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/27/14 11:05
Sample Matrix:	Water		

Method Blank Summary
Volatile Organic Compounds by GC/MS

Sample Name:	Method Blank	**Instrument ID:**	R-MS-12
Lab Code:	RQ1407292-04	**File ID:**	I:\ACQUDATA\MSVOA12\DATA\062714\M6935.D\

Analytical Method: 8260C

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407292-03	I:\ACQUDATA\MSVOA12\DATA\062714\M6933.D\	6/27/14 10:01
MRC-MW-90B-061814DL	R1404658-008	I:\ACQUDATA\MSVOA12\DATA\062714\M6936.D\	6/27/14 11:39

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/27/14 11:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407292-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399131
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062714\M6935.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
630-20-6	1,1,1,2-Tetrachloroethane	1.0	U	1.0	0.22	
71-55-6	1,1,1-Trichloroethane (TCA)	1.0	U	1.0	0.36	
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	1.0	0.25	
76-13-1	1,1,2-Trichlorotrifluoroethane	1.0	U	1.0	0.31	
75-34-3	1,1-Dichloroethane (1,1-DCA)	1.0	U	1.0	0.20	
75-35-4	1,1-Dichloroethene (1,1-DCE)	1.0	U	1.0	0.57	
563-58-6	1,1-Dichloropropene	1.0	U	1.0	0.29	
87-61-6	1,2,3-Trichlorobenzene	1.0	U	1.0	0.82	
96-18-4	1,2,3-Trichloropropane	1.0	U	1.0	0.70	
120-82-1	1,2,4-Trichlorobenzene	**0.26**	J	1.0	0.23	
95-63-6	1,2,4-Trimethylbenzene	1.0	U	1.0	0.20	
96-12-8	1,2-Dibromo-3-chloropropane (DBCP)	2.0	U	2.0	0.74	
106-93-4	1,2-Dibromoethane	1.0	U	1.0	0.24	
95-50-1	1,2-Dichlorobenzene	1.0	U	1.0	0.21	
107-06-2	1,2-Dichloroethane	1.0	U	1.0	0.36	
78-87-5	1,2-Dichloropropane	1.0	U	1.0	0.20	
541-73-1	1,3-Dichlorobenzene	1.0	U	1.0	0.20	
142-28-9	1,3-Dichloropropane	1.0	U	1.0	0.27	
106-46-7	1,4-Dichlorobenzene	1.0	U	1.0	0.20	
594-20-7	2,2-Dichloropropane	1.0	U	1.0	0.27	
78-93-3	2-Butanone (MEK)	5.0	U	5.0	0.81	
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U	1.0	0.44	
95-49-8	2-Chlorotoluene	1.0	U	1.0	0.20	
591-78-6	2-Hexanone	5.0	U	5.0	1.7	
75-65-0	tert-Butyl Alcohol	40	U	40	11	
106-43-4	4-Chlorotoluene	1.0	U	1.0	0.24	
99-87-6	4-Isopropyltoluene	1.0	U	1.0	0.20	
108-10-1	4-Methyl-2-pentanone	5.0	U	5.0	0.67	
67-64-1	Acetone	5.0	U	5.0	1.3	
71-43-2	Benzene	1.0	U	1.0	0.20	
108-86-1	Bromobenzene	1.0	U	1.0	0.28	
74-97-5	Bromochloromethane	1.0	U	1.0	0.32	
75-27-4	Bromodichloromethane	1.0	U	1.0	0.32	
75-25-2	Bromoform	1.0	U	1.0	0.42	
74-83-9	Bromomethane	**0.39**	J	1.0	0.29	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/27/14 11:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407292-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399131
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062714\M6935.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
75-15-0	Carbon Disulfide	1.0	U	1.0	0.22	
56-23-5	Carbon Tetrachloride	1.0	U	1.0	0.45	
108-90-7	Chlorobenzene	1.0	U	1.0	0.29	
75-00-3	Chloroethane	1.0	U	1.0	0.24	
67-66-3	Chloroform	1.0	U	1.0	0.25	
74-87-3	Chloromethane	1.0	U	1.0	0.21	
124-48-1	Dibromochloromethane	1.0	U	1.0	0.31	
74-95-3	Dibromomethane	1.0	U	1.0	0.32	
75-71-8	Dichlorodifluoromethane (CFC 12)	1.0	U	1.0	0.46	
75-09-2	Methylene Chloride	1.0	U	1.0	0.32	
108-20-3	Diisopropyl Ether	1.0	U	1.0	0.20	
637-92-3	Ethyl tert-Butyl Ether	1.0	U	1.0	0.20	
100-41-4	Ethylbenzene	1.0	U	1.0	0.20	
87-68-3	Hexachlorobutadiene	**0.63**	J	2.0	0.62	
98-82-8	Isopropylbenzene (Cumene)	1.0	U	1.0	0.20	
1634-04-4	Methyl tert-Butyl Ether	1.0	U	1.0	0.29	
91-20-3	Naphthalene	**0.24**	J	1.0	0.20	
100-42-5	Styrene	1.0	U	1.0	0.20	
127-18-4	Tetrachloroethene (PCE)	1.0	U	1.0	0.30	
108-88-3	Toluene	1.0	U	1.0	0.20	
79-01-6	Trichloroethene (TCE)	1.0	U	1.0	0.22	
75-69-4	Trichlorofluoromethane (CFC 11)	1.0	U	1.0	0.20	
108-05-4	Vinyl Acetate	2.0	U	2.0	1.1	
75-01-4	Vinyl Chloride	1.0	U	1.0	0.32	
1330-20-7	Xylenes, Total	3.0	U	3.0	0.53	
156-59-2	cis-1,2-Dichloroethene	1.0	U	1.0	0.30	
10061-01-5	cis-1,3-Dichloropropene	1.0	U	1.0	0.24	
179601-23-1	m,p-Xylenes	2.0	U	2.0	0.33	
104-51-8	n-Butylbenzene	1.0	U	1.0	0.21	
103-65-1	n-Propylbenzene	1.0	U	1.0	0.20	
95-47-6	o-Xylene	1.0	U	1.0	0.20	
135-98-8	sec-Butylbenzene	1.0	U	1.0	0.27	
994-05-8	tert-Amyl Methyl Ether	1.0	U	1.0	0.20	
98-06-6	tert-Butylbenzene	1.0	U	1.0	0.20	
156-60-5	trans-1,2-Dichloroethene	1.0	U	1.0	0.33	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/27/14 11:05
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407292-04	**Basis:**	NA

Volatile Organic Compounds by GC/MS

Analytical Method:	8260C	**Analysis Lot:**	399131
Data File Name:	I:\ACQUDATA\MSVOA12\DATA\062714\M6935.D\	**Instrument Name:**	R-MS-12
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
10061-02-6	trans-1,3-Dichloropropene	1.0	U	1.0	0.20	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
4-Bromofluorobenzene	101	85-122	6/27/14 11:05	
Dibromofluoromethane	106	89-119	6/27/14 11:05	
Toluene-d8	103	87-121	6/27/14 11:05	

Analysis: RSK.175
Date: 8/27/13
Instr. V2

Analyst: Dan Harris, Ben Wojtasiewicz
Data Path: \ACQDATA\ V2 \DATA\ 082713

Run Method: rsk082713.M
LIMS Run#:

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
*	Blank										
	He Blank								1	Y	
	ICAL Blank								1001	Y	
	1 ppb		25 uL of 20 ppb						1002	N	Acetylene ↑
	1 ppb		~~100 uL of 100 ppb~~ * "						1003	Y	
	2 ppb		50 uL of 20 ppb						1004	N	Propane ↓
	10 ppb		100 uL of 50 ppb						1005	N	Propane ↓
	10 ppb		"						1006	Y	
	20 ppb		8 uL 10 mix / 42.5 uL						1007	Y	
	50 ppb		20 uL " "						1008	Y	
	75 ppb		30 uL " "						1009	Y	
	100 ppb		40 uL " "						1010	Y	
	2 ppb		50 uL of 50 ppb						1011	Y	
	ICV								1014	Y	

dlh 8/27/13

All samples = NA mL + NA uL Surrogate; NA mL purged

* dlh 9/3/13

Primary Mix : 49492
Primary Propane : 27095 (BW)
Primary :
Primary :

Secondary Mix : 49493
Secondary Propane : 27095 (TW)
Secondary :
Secondary :

10 uL/42.5 uL = ICV

Surrogate : NA

0118

Analysis: RSK 175 Analyst: J. Cushman Run Method: VRSK082713.M

Date: 6/23/14 Data Path: J:\ACQDATA\V2 \DATA\062314

Instr. V2 LIMS Run#: 398405

Pos.	Sample	Diln.	Diln. Prep.	Client	RL	Tier	Vial	pH	File#	OK?	Comments
	He Blank	-	-				-	-	1	-	
	CCV	-	-				1	-	1001	(N)	Methane low
	CCV	-	-				2	-	1002	Y	Repeat to confirm
	CCV	-	-				2	-	1003	Y	
	MBlank	-	-				1	-	1004	(N)	J-level methane, repeat
	MBlank	-	-				2	-	1005	Y	J-level methane
	LCS	-	-				1	-	1006	Y	
	DLCS	-	-				2	-	1007	Y	
	J1404488-003	1	-	Tech Tech 660	2722	II	1	<2	1008	Y	
	-005	1	-				1	<2	1009	(Y)	over range, repeat @ 1/2
	-005	2	250 mL inject				1	<2	1010	Y	DL
	R1404631-001	1	-	Tech Tech 660	979	IV	1	<2	1011	Y	
	-004	1	-				1	<2	1012	Y	
	R1404658-004	1	-	Tech Tech 660	979	IV	1	<2	1013	(Y)	over range, repeat @ 1/2
	-004	2	250 mL inject				1	<2	1014	Y	DL
	-013	1	-				1	<2	1015	(Y)	over range, repeat @ 1/10
	-013	10	50 mL inject				1	<2	1016	Y	DL
	-014	1	-				1	<2	1017	(Y)	over range, repeat @ 1/100
	CCV	-	-				2	-	1018	Y	
	R1404658-021	1	-	Tech Tech 660	979	IV	1	<2	1019	Y	
	-014	100	(1 mL/50 mL) 250 mL inject				2	<2	1020	Y	DL
	CCV	-	-				3	-	1021	Y	

JC 6/23/14

All samples = NA mL + NA uL Surrogate; NA mL purged

Primary : 62941 20 uL/42.5 mL CCV Secondary : 62942 10 uL/42.5 mL LCS DLCS Surrogate : NA

Primary : Secondary :

Primary : Secondary :

Primary : Secondary :

dlh 7/31/13

ALS Environmental-Rochester

Analyst: B Wojtasiewicz
Date: 8/27/2013

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	Avg. R.T.	1PPB R F STD 1	2PPB R F STD 2	10.0PPB R F STD 3	20PPB R F STD 4	50PPB R F STD 5	75PPB R F STD 6	100PPB R F STD 7	Avg R F	% RSD
Methane	0.29	0.8369	0.7754	0.7632	0.7422	0.7178	0.7195	0.7307	**0.7551**	5.6%
Ethylene	0.77	0.5121	0.5030	0.4969	0.5145	0.4921	0.5080	0.5206	**0.5067**	2.0%
Ethane	1.15	0.7478	0.7047	0.7275	0.7211	0.6941	0.7031	0.7167	**0.7164**	2.5%
Propene	4.81		0.1874	0.1532	0.1732	0.2013	0.2286	0.2484	**0.1987**	17.8%
Propane	5.80	0.7040	0.7346	0.7895	0.7607	0.7480	0.7493	0.7625	**0.7498**	3.5%
Acetylene	0.64	0.0922	0.0935	0.0769	0.0923	0.0921	0.1004	0.1072	**0.0935**	9.9%

***LR =Linear Regression**

BW 09/03/13

ALS Environmental-Rochester

Analyst: B Wwojtasiewicz
Date: 08/27/13
Time: 12:27

Method: RSK-175 Dissolved Gases

Instrument I.D.: Varian FID (V2)

ICAL Date: 8/27/2013

ICV EVALUATION

Compound	R.T. WINDOW MIN. FROM	R.T. WINDOW MIN. TO	Time	Area Units	Conc. Result	True Value	Percent Recovery	% LIMITS
Methane	0.19	0.39	0.29	19.54	25.87	26.2	98.7%	70-130
Ethylene	0.78	0.98	0.88	12.56	24.78	24.3	102.1%	70-130
Ethane	1.05	1.25	1.15	18.81	26.25	26.1	100.8%	70-130
Propene	4.71	4.91	4.81	5.45	27.43	24.0	114.1%	70-130
Propane	5.70	5.90	5.80	19.55	26.07	25.5	102.3%	70-130
Acetylene	0.54	0.74	0.64	4.65	49.72	50.1	99.2%	70-130

*LR = Linear Regression
X = Out of Control Limits

JC 6/23/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/23/14
Time: 11:02 AM

Method: RSK-175 Dissolved Gases

CCV EVALUATION
ICAL Date: 08/27/13
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	38.053	0.7551	0.7271	3.7%	52.3
Ethylene	0.77	0.97	0.87	26.235	0.5067	0.5398	6.5%	48.6
Ethane	1.03	1.23	1.13	37.623	0.7164	0.7231	0.9%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.65	5.85	5.75	37.192	0.7498	0.7301	2.6%	50.9
Acetylene	0.53	0.73	0.63	10.718	0.0935	0.1071	14.5%	100.1
						Avg %D:	5.7%	(#62941)

JC 6/23/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/23/14
Time: 11:25Am

Method: RSK-175 Dissolved Gases

CCV EVALUATION
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

ICAL Date: 08/27/13

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	36.680	0.7551	0.7008	7.2%	52.3
Ethylene	0.77	0.97	0.87	25.497	0.5067	0.5246	3.5%	48.6
Ethane	1.03	1.23	1.13	36.202	0.7164	0.6958	2.9%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.65	5.85	5.75	35.639	0.7498	0.6997	6.7%	50.9
Acetylene	0.53	0.73	0.63	10.931	0.0935	0.1092	16.8%	100.1
						Avg %D:	7.4%	(#62941)

JC 6/23/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/23/14
Time: 14:07

Method: RSK-175 Dissolved Gases

CCV EVALUATION

ICAL Date: 08/27/13

Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

Compound	R. T. Window From	To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	34.518	0.7551	0.6595	12.7%	52.3
Ethylene	0.78	0.98	0.88	24.645	0.5067	0.5071	0.1%	48.6
Ethane	1.05	1.25	1.15	34.243	0.7164	0.6582	8.1%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.71	5.91	5.81	33.772	0.7498	0.6630	11.6%	50.9
Acetylene	0.54	0.74	0.64	11.557	0.0935	0.1155	23.5%	100.1
						Avg %D:	11.2%	(#62941)

JC 6/23/14

ALS Environmental-Rochester

Analyst: J. Cushman
Daily Calibration Date: 6/23/14
Time: 14:38

Method: RSK-175 Dissolved Gases

CCV EVALUATION
Instrument I.D.: Varian FID (V2)
Column: Carboxen 1000

ICAL Date: 08/27/13

Compound	R. T. Window From	R. T. Window To	R. T. Daily 50 Std	Area Units	Avg. R F	R. F. Daily 50 Std	% D	Conc. ppb
Methane	0.18	0.38	0.28	35.353	0.7551	0.6755	10.5%	52.3
Ethylene	0.77	0.97	0.87	25.047	0.5067	0.5154	1.7%	48.6
Ethane	1.04	1.24	1.14	34.034	0.7164	0.6542	8.7%	52.0
Propene	-0.10	0.10			0.1987	0.0000		48.1
Propane	5.67	5.87	5.77	33.374	0.7498	0.6552	12.6%	50.9
Acetylene	0.54	0.74	0.64	11.922	0.0935	0.1191	27.4%	100.1
						Avg %D:	12.2%	(#62941)

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/23/14 11:51
Sample Matrix:	Water		

Method Blank Summary
Dissolved Gases by GC/FID

Sample Name:	Method Blank	**Instrument ID:**	R-GC-02
Lab Code:	RQ1407031-01	**File ID:**	1005.run
Analytical Method:	RSK 175		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407031-02	1006.run	6/23/14 12:02
Duplicate Lab Control Sample	RQ1407031-03	1007.run	6/23/14 12:12
MRC-MW-60B-061814	R1404658-004	1013.run	6/23/14 13:16
MRC-MW-60B-061814DL	R1404658-004	1014.run	6/23/14 13:27
MRC-MW-81B-061114	R1404658-013	1015.run	6/23/14 13:37
MRC-MW-81B-061114DL	R1404658-013	1016.run	6/23/14 13:47
MRC-MW-48A-061114	R1404658-014	1017.run	6/23/14 13:57
MRC-MW-37A-061314	R1404658-021	1019.run	6/23/14 14:18
MRC-MW-48A-061114DL	R1404658-014	1020.run	6/23/14 14:28

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/23/14 11:51
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407031-01	**Basis:**	NA

Dissolved Gases by GC/FID

Analytical Method:	RSK 175	**Analysis Lot:**	398405
Data File Name:	1005.run	**Instrument Name:**	R-GC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
74-84-0	Ethane	1.0	U	1.0	0.20	
74-85-1	Ethene	1.0	U	1.0	0.11	
74-82-8	Methane	**0.68**	J	1.0	0.21	

Analysis: DSSD Analyst: NPINEDA Run Method: Perchlorate

Date: 4/29/14 Instr.: HPLC-02 Quant Method: PerCD129

LIMS Run#: _____

Setup: Column: Kprime # 2100 Col.Temp: 30 Flow: 0.5ml/min

Mobile Phase: 50/50 MeCN/H2O 0.1 Ch3COOH ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	AMBLK			B0030524	—	
	↓			525	—	
	CCV Ion/MSS			526	Y	
	RVC			527	Y	
	.1ppb	1ml/10ml	660006	528	Y	
	.2ppb	2ml/10ml		529	Y	
	.5ppb	5ml/10ml		530	Y	
	.75ppb	7.5ml/10ml		531	Y	
	1.0ppb	10ml/10ml		532	Y	
	2.0ppb	20ml/10ml		533	Y	
	5.0ppb	50ml/10ml	↓	534	Y	
	ICV	10ml/10ml	660005	535	YDV	exp 5/31/14
	CCV 1.0ppb		660007	536	YC	
	RQ1400131-01			537	Y	
	04			538	Y	
	02			539	Y	
	03			540	Y	
	↓ 05			541	Y	
	R1400128-001			542	Y	
	RQ1400431-06			543	Y	
	07			544	Y	
	R1400128-002			545	Y	
	003			546	Y	
	CCV 1.0ppb		660007	547	YC	
	R1400128-004			548	Y	
	R1400205-001			549	Y	
	R1400119-001			550	Y	
	↓ 001	10.0		551	Y	
	RQ1400431-04			552	Y	
	CCV 1.0ppb		660007	553	YC	
	RQ1400826-01			554	Y	
	: 04			555	Y	
	02			556	N	OUT F
	03			557	Y	

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 660007 exp: 4/30/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

Analysis: 6850. Perc Analyst: BA Run Method: Percdadz

Date: 6/23/14 Instr. HPLC-02 Quant Method: Perc.0129

LIMS Run#: 398569

Setup: Column: K'Prime #2011 Col.Temp: 30 Flow: 0.5ml/min

Mobile Phase: 50/50 H2O/MeCN 0.1ch3cooh ul Inj.: 30

Pos.	Sample	Diln.	Stds. ID	File#	OK?	Comments
	BUL			B0031523	—	
	ION/MASSCCV			24	YT	
	CCV 1.00PPB		70263	25	YC	
	RQ1407014-01			26	Y	
	-04			27	Y	
	-02			28	Y	
	-03			29	Y	
	-05			30	Y	
	R1404658-015			31	Y	
	-016			32	Y	
	-019			33	Y	
	R1404589-005			34	Y	
	-010			35	Y	
	CCV 1.00PPB		70263	36	YC	
	-015			37	Y	
	R1404561-001			38	Y	
	4622-004			39	Y	
	RQ1407014-06			40	Y	
	-07			41	Y	
	-04			42	Y	
	CCV 1.00PPB		70263	43	YC	
	$\bar{X}$ = 191901					
	High = 387852					
	Low = 95957					
	BA 6/24/14					

All samples = _____mL + _____uL Combined IS/Surr.;

Primary: 70263 exp: 11/3/14 Secondary: _____ exp:

Primary: _____ exp: Secondary: _____ exp:

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:50:10 2014
Response via : Initial Calibration

Calibration Files
1 =B0030528.D 2 =B0030529.D 3 =B0030530.D
4 =B0030531.D 5 =B0030532.D 6 =B0030533.D

	Compound	1	2	3	4	5	6	Avg	%RSD
1)	O18LP	ISTD							
2)	Perchlorate	1.105	1.013	1.011	1.067	1.156	1.094	1.085	5.34
3)	#2 perc ion	0.432	0.339	0.348	0.348	0.374	0.344	0.366	8.94

(#) = Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\012914\B0030535.D Vial: 9
Acq On : 29 Jan 2014 10:56 am Operator: m.pedro
Sample : icv Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Wed Jan 29 13:51:55 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	91	0.00
2	Perchlorate	1.085	1.075	0.9	84	0.04
3	#2 perc ion	0.366	0.352	3.8	85	0.00

1/29

00732

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0030535.D PERC0129.M Wed Jan 29 13:54:02 2014 Page 1

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031525.D Vial: 6
Acq On : 23 Jun 2014 8:40 am Operator: B.ALLGEIER
Sample : CCV1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	108	0.00
2	Perchlorate	1.085	1.097	-1.1	103	0.00
3	#2 perc ion	0.366	0.327	10.7	95	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031525.D PERC0129.M Tue Jun 24 08:45:00 2014 00736 Page 1

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031536.D Vial: 6
Acq On : 23 Jun 2014 11:07 am Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	103	0.04
2	Perchlorate	1.085	1.106	-1.9	98	0.04
3	#2 perc ion	0.366	0.338	7.7	93	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031536.D PERC0129.M Tue Jun 24 08:50:28 2014

Evaluate Continuing Calibration Report

Data File : I:\ACQUDATA\HPLC02\DATA\062314\B0031543.D Vial: 6
Acq On : 23 Jun 2014 12:41 pm Operator: B.ALLGEIER
Sample : CCV 1.00PPB Inst : Instrumen
Misc : Multiplr: 1.00
MS Integration Params: RTEINT.P

Method : I:\ACQUDATA\HPLC02\METHODS\PERC0129.M (RTE Integrator)
Title : Perchlorate by DOD
Last Update : Thu Jan 30 12:27:27 2014
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.70min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	O18LP	1.000	1.000	0.0	102	0.03
2	Perchlorate	1.085	1.126	-3.8	99	0.03
3	#2 perc ion	0.366	0.344	6.0	94	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0
B0031543.D PERC0129.M Tue Jun 24 09:04:01 2014

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/23/14 08:53
Sample Matrix:	Water	**Date Extracted:**	6/23/14

Method Blank Summary

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Sample Name:	Method Blank	**Instrument ID:**	R-HPLC-02
Lab Code:	RQ1407014-01	**File ID:**	I:\ACQUDATA\HPLC02\DATA\062314\B0031526.D\
Analytical Method:	6850		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Limit of Detection VerificationLODV	RQ1407014-04	I:\ACQUDATA\HPLC02\DATA\062314\B0031527.D\	6/23/14 09:06
Lab Control Sample	RQ1407014-02	I:\ACQUDATA\HPLC02\DATA\062314\B0031528.D\	6/23/14 09:20
Duplicate Lab Control Sample	RQ1407014-03	I:\ACQUDATA\HPLC02\DATA\062314\B0031529.D\	6/23/14 09:33
Interference Check StandardICS	RQ1407014-05	I:\ACQUDATA\HPLC02\DATA\062314\B0031530.D\	6/23/14 09:47
MRC-MW-60A-061114	R1404658-015	I:\ACQUDATA\HPLC02\DATA\062314\B0031531.D\	6/23/14 10:00
MRC-MW-60B-061114	R1404658-016	I:\ACQUDATA\HPLC02\DATA\062314\B0031532.D\	6/23/14 10:13
MRC-MW-90B-060914	R1404658-019	I:\ACQUDATA\HPLC02\DATA\062314\B0031533.D\	6/23/14 10:27
Limit of Detection VerificationLODV	RQ1407014-04	I:\ACQUDATA\HPLC02\DATA\062314\B0031542.D\	6/23/14 12:28

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/23/14
		Date Analyzed:	6/23/14 08:53
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407014-01	**Basis:**	NA

Perchlorates in Water, Soils, Solid Wastes Using High Performance LC/Electrospray/Mass Spectrometry

Analytical Method:	6850	**Analysis Lot:**	398569
Prep Method:	Method	**Extraction Lot:**	211378
Data File Name:	I:\ACQUDATA\HPLC02\DATA\062314\B0031526.D\	**Instrument Name:**	R-HPLC-02
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
14797-73-0	Perchlorate	0.20	U	0.20	0.026	

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/26/14 08:21

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\062614\AG054.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 399233

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.97	496	Pass
174	95	50	120	77.33	51117	Pass
175	174	5	9	6.93	3544	Pass
176	174	95	101	98.04	50117	Pass
177	176	5	9	7.65	3833	Pass
50	95	15	40	15.95	10545	Pass
75	95	30	60	44.06	29125	Pass
95	95	100	100	100.00	66101	Pass
96	95	5	9	6.39	4224	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Initial CalibrationICAL	RQ1407315-04	I:\ACQUDATA\5975E\data\062614\AG057.D\	6/26/14 09:36	
Initial CalibrationICAL	RQ1407315-05	I:\ACQUDATA\5975E\data\062614\AG058.D\	6/26/14 09:55	
Initial CalibrationICAL	RQ1407315-06	I:\ACQUDATA\5975E\data\062614\AG059.D\	6/26/14 10:15	
Initial CalibrationICAL	RQ1407315-07	I:\ACQUDATA\5975E\data\062614\AG060.D\	6/26/14 10:35	
Initial CalibrationICAL	RQ1407315-08	I:\ACQUDATA\5975E\data\062614\AG061.D\	6/26/14 10:55	
Initial CalibrationICAL	RQ1407315-09	I:\ACQUDATA\5975E\data\062614\AG062.D\	6/26/14 11:14	
Initial CalibrationICAL	RQ1407315-10	I:\ACQUDATA\5975E\data\062614\AG063.D\	6/26/14 11:32	
Initial CalibrationICAL	RQ1407315-11	I:\ACQUDATA\5975E\data\062614\AG064.D\	6/26/14 11:50	
Continuing Calibration Verification	RQ1407315-02	I:\ACQUDATA\5975E\data\062614\AG066.D\	6/26/14 12:27	
Method Blank	RQ1407012-01	I:\ACQUDATA\5975E\data\062614\AG067.D\	6/26/14 12:45	
Lab Control Sample	RQ1407012-02	I:\ACQUDATA\5975E\data\062614\AG068.D\	6/26/14 13:04	
Duplicate Lab Control Sample	RQ1407012-03	I:\ACQUDATA\5975E\data\062614\AG069.D\	6/26/14 13:22	
Lab Control Sample	RQ1407012-04	I:\ACQUDATA\5975E\data\062614\AG070.D\	6/26/14 13:40	
Continuing Cal. VerificationCCVA	RQ1407315-03	I:\ACQUDATA\5975E\data\062614\AG077.D\	6/26/14 15:49	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Analyzed:**	6/26/14 12:45
Sample Matrix:	Water	**Date Extracted:**	6/25/14

Method Blank Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Sample Name:	Method Blank	**Instrument ID:**	R-MS-56
Lab Code:	RQ1407012-01	**File ID:**	I:\ACQUDATA\5975E\data\062614\AG067.D\
Analytical Method:	522		
Prep Method:	Method		

This Method Blank applies to the following analyses:

Sample Name	Lab Code	File ID	Date Analyzed
Lab Control Sample	RQ1407012-02	I:\ACQUDATA\5975E\data\062614\AG068.D\	6/26/14 13:04
Duplicate Lab Control Sample	RQ1407012-03	I:\ACQUDATA\5975E\data\062614\AG069.D\	6/26/14 13:22
Lab Control Sample	RQ1407012-04	I:\ACQUDATA\5975E\data\062614\AG070.D\	6/26/14 13:40
MRC-MW-90B-060914	R1404658-019	I:\ACQUDATA\5975E\data\062714\AG107.D\	6/27/14 14:23
MRC-MW-19A-060914	R1404658-020	I:\ACQUDATA\5975E\data\062714\AG108.D\	6/27/14 14:41

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Extracted:	6/25/14
		Date Analyzed:	6/26/14 12:45
Sample Name:	Method Blank	**Units:**	µg/L
Lab Code:	RQ1407012-01	**Basis:**	As Received

1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

Analytical Method:	522	**Analysis Lot:**	399233
Prep Method:	Method	**Extraction Lot:**	211375
Data File Name:	I:\ACQUDATA\5975E\data\062614\AG067.D\	**Instrument Name:**	R-MS-56
		Dilution Factor:	1

CAS No.	Analyte Name	Result	Q	MRL	MDL	Note
123-91-1	1,4-Dioxane	0.200	U	0.200	0.0200	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
1,4-Dioxane-d8	89	70-130	6/26/14 12:45	

Method Path : I:\ACQUDATA\5975E\METHODS\
Method File : SDIOX062614.M
Title : 8270 BNA ANALYSIS
Last Update : Thu Jun 26 12:13:22 2014
Response Via : Initial Calibration

Calibration Files
2 =AG057.D 10 =AG058.D 20 =AG059.D 100 =AG060.D 200 =AG061.D 500 =AG062.D 1000=AG063.D 5000=AG064.D

	Compound	2	10	20	100	200	500	1000	5000	Avg	%RSD
1)	IR d8-THF	----------ISTD----------									
2)	T 1,4-Dioxane	1.064	1.230	1.303	1.415	1.390	1.385	1.519	1.599	1.363	12.22
3)	S SURR,1,4-DIOXA...	1.007	1.144	1.128	1.225	1.196	1.204	1.304	1.360	1.196	9.07

(#) = Out of Range

JM 6/26/14

T1969

Data Path : I:\ACQUDATA\5975E\data\062614\
Data File : AG065.D
Acq On : 26 Jun 2014 12:08 pm
Operator : J.Misiurewicz
Sample : ICV
Misc : 200 ppb STD
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 26 12:44:16 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX062614.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Thu Jun 26 12:13:22 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1 IR	d8-THF	500.000	500.000	0.0	107	0.03
2 T	1,4-Dioxane	200.000	164.215	17.9	88	0.03
3 S	SURR,1,4-DIOXANE-d8	200.000	178.851	10.6	97	0.04

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : I:\ACQUDATA\5975E\data\062614\
Data File : AG066.D
Acq On : 26 Jun 2014 12:27 pm
Operator : J.Misiurewicz
Sample : CCV
Misc : 2 ppb STD 8270D/522
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 26 14:22:45 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX062614.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Thu Jun 26 12:13:22 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

DM 6/26/14

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	103	0.00
2	T	1,4-Dioxane	2.000	2.128	-6.4	109	0.05
3	S	SURR,1,4-DIOXANE-d8	2.000	2.148	-7.4	111	0.05

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Data Path : I:\ACQUDATA\5975E\data\062614\
Data File : AG077.D
Acq On : 26 Jun 2014 3:49 pm
Operator : J.Misiurewicz
Sample : CCV
Misc : 200 ppb STD 8270D/522
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 27 07:30:49 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX062614.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Thu Jun 26 12:13:22 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	108	0.02
2	T	1,4-Dioxane	200.000	195.814	2.1	105	0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	195.861	2.1	107	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO
Project: Middle River- Lockheed Martin Corp

Service Request: R1404658
Date Analyzed: 6/27/14 10:51

Tune Summary
1,4-Dioxane by Solid Phase Extraction and GC/MS With Selected Ion Monitoring

File ID: I:\ACQUDATA\5975E\data\062714\AG096.D\
Instrument ID: R-MS-56

Analytical Method: 522
Analysis Lot: 399324

Target Mass	Relative to Mass	Lower Limit%	Upper Limit%	Relative Abundance %	Raw Abundance	Result Pass/Fail
173	174	0	2	0.37	215	Pass
174	95	50	120	74.33	58499	Pass
175	174	5	9	6.87	4019	Pass
176	174	95	101	95.94	56123	Pass
177	176	5	9	6.45	3618	Pass
50	95	15	40	15.99	12581	Pass
75	95	30	60	45.57	35864	Pass
95	95	100	100	100.00	78701	Pass
96	95	5	9	6.51	5120	Pass

Sample Name	Lab Code	File ID	Date Analyzed	Q
Continuing Calibration Verification	RQ1407350-02	I:\ACQUDATA\5975E\data\062714\AG098.D\	6/27/14 11:38	
MRC-MW-90B-060914	R1404658-019	I:\ACQUDATA\5975E\data\062714\AG107.D\	6/27/14 14:23	
MRC-MW-19A-060914	R1404658-020	I:\ACQUDATA\5975E\data\062714\AG108.D\	6/27/14 14:41	
Continuing Cal. VerificationCCVA	RQ1407350-03	I:\ACQUDATA\5975E\data\062714\AG109.D\	6/27/14 15:00	

Data Path : I:\ACQUDATA\5975E\data\062714\
Data File : AG098.D
Acq On : 27 Jun 2014 11:38 am
Operator : J.Misiurewicz
Sample : CCV
Misc : 2 ppb STD 8270D/522
ALS Vial : 3 Sample Multiplier: 1

Quant Time: Jun 27 12:51:13 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX062614.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Thu Jun 26 12:13:22 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	110	0.03
2	T	1,4-Dioxane	2.000	2.106	-5.3	115	0.07
3	S	SURR,1,4-DIOXANE-d8	2.000	2.027	-1.4	111	0.07

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00647

Data Path : I:\ACQUDATA\5975E\data\062714\
Data File : AG109.D
Acq On : 27 Jun 2014 3:00 pm
Operator : J.Misiurewicz
Sample : CCV
Misc : 200 ppb STD 8270D/522
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 30 06:21:29 2014
Quant Method : I:\ACQUDATA\5975E\METHODS\SDIOX062614.M
Quant Title : 8270 BNA ANALYSIS
QLast Update : Thu Jun 26 12:13:22 2014
Response via : Initial Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 20% Max. Rel. Area : 200%

6/30/14

		Compound	Amount	Calc.	%Dev	Area%	Dev(min)
1	IR	d8-THF	500.000	500.000	0.0	112	0.02
2	T	1,4-Dioxane	200.000	191.188	4.4	106	0.01
3	S	SURR,1,4-DIOXANE-d8	200.000	191.561	4.2	108	0.02

(#) = Out of Range SPCC's out = 0 CCC's out = 0

00654

METALS

COVER PAGE - INORGANIC ANALYSIS DATA PACKAGE

Contract: R1404658 SDG No.: MRC-MW-81B-

Lab Code: Case No.: SAS No.:

SOW No.: SW846 CLP-M

Sample ID.	Lab Sample No.
MRC-MW-81B-061114	R1404658-013
MRC-MW-48A-061114	R1404658-014
MRC-MW-48A-061114D	R1404658-014D
MRC-MW-48A-061114S	R1404658-014S
MRC-MW-60A-061114	R1404658-015
MRC-MW-60B-061114	R1404658-016
MRC-MW-76A-061114	R1404658-017
MRC-MW-76B-061114	R1404658-018
MRC-MW-19A-060914	R1404658-020
MRC-MW-37A-061314	R1404658-021
MRC-MW-02A-060914	R1404658-022
MRC-MW-02A-060914D	R1404658-022D
MRC-MW-02A-060914S	R1404658-022S

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: See Attatched Case Narrative

Signature: Name: Deb Patten

Date: 7/8/14 Title: Project Chemist

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Calib Blank 1	1.00	21:13												X			X													
Calib Std 1	1.00	21:19															X													
Calib Std 2	1.00	21:25																												
Calib Std 3	1.00	21:31												X																
Calib Std 4	1.00	21:37												X			X													
Calib Std 5	1.00	21:43												X			X													
ICV1	1.00	21:49												X			X													
ICB1	1.00	21:55												X			X													
CRDL1	1.00	22:01												X			X													
ICS-A1	1.00	22:07												X			X													
ICS-AB1	1.00	22:13												X			X													
CCV1	1.00	22:19												X			X													
CCB1	1.00	22:25												X			X													
ZZZZZZ	1.00	22:31																												
ZZZZZZ	1.00	22:37																												
ZZZZZZ	1.00	22:43																												
ZZZZZZ	1.00	22:49																												
ZZZZZZ	1.00	22:56																												
ZZZZZZ	100.00	23:02																												
ZZZZZZ	100.00	23:08																												
ZZZZZZ	1.00	23:14																												
ZZZZZZ	1.00	23:20																												
ZZZZZZ	1.00	23:26																												
CCV2	1.00	23:32												X			X													
CCB2	1.00	23:38												X			X													
ZZZZZZ	1.00	23:44																												
ZZZZZZ	5.00	23:50																												
ZZZZZZ	1.00	23:56																												
ZZZZZZ	10.00	00:03																												
CCV3	1.00	00:09												X			X													
CCB3	1.00	00:15												X			X													
CRDL2	1.00	00:21												X			X													
ICS-A2	1.00	00:27												X			X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

00852

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/24/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
ICS-AB2	1.00	00:33												X			X													
ZZZZZZ	1.00	00:39																												
ZZZZZZ	1.00	00:45																												
CCV4	1.00	00:51												X			X													
CCB4	1.00	00:57												X			X													
PBW	1.00	01:03												X			X													
LCSW	1.00	01:09												X			X													
ZZZZZZ	1.00	01:15																												
ZZZZZZ	1.00	01:22																												
ZZZZZZ	1.00	01:28																												
ZZZZZZ	5.00	01:34																												
MRC-MW-81B-061114	1.00	01:40												X			X													
MRC-MW-48A-061114	1.00	01:46												X			X													
MRC-MW-48A-061114D	1.00	01:52												X			X													
MRC-MW-48A-061114S	1.00	01:59												X			X													
CCV5	1.00	02:05												X			X													
CCB5	1.00	02:11												X			X													
MRC-MW-48A-061114A	1.00	02:17												X			X													
MRC-MW-48A-061114L	5.00	02:23												X			X													
MRC-MW-60A-061114	1.00	02:29												X			X													
MRC-MW-60B-061114	1.00	02:35												X			X													
MRC-MW-76A-061114	1.00	02:41												X																
MRC-MW-76B-061114	1.00	02:48												X			X													
MRC-MW-19A-060914	1.00	02:54												X			X													
MRC-MW-37A-061314	1.00	03:00												X			X													
MRC-MW-02A-060914	1.00	03:06												X			X													
CCV6	1.00	03:12												X			X													
CCB6	1.00	03:18												X			X													
CRDL3	1.00	03:24												X			X													
ICS-A3	1.00	03:30												X			X													
ICS-AB3	1.00	03:36												X			X													
CCV7	1.00	03:42												X			X													
CCB7	1.00	03:48												X			X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

00853

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/25/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank 1	1.00	14:27															X										
Calib Std 1	1.00	14:33															X										
Calib Std 2	1.00	14:40																									
Calib Std 3	1.00	14:46																									
Calib Std 4	1.00	14:51															X										
Calib Std 5	1.00	14:58															X										
ICV2	1.00	15:04															X										
ICB2	1.00	15:10															X										
CRDL1	1.00	15:16															X										
ICS-A1	1.00	15:22															X										
ICS-AB1	1.00	15:28															X										
CCV1	1.00	15:34															X										
CCB1	1.00	15:40															X										
PBW	1.00	15:46																									
LCSW	1.00	15:52																									
MRC-MW-76A-061114	10.00	15:58															X										
MRC-MW-76A-061114	50.00	16:04															X										
ZZZZZZ	1.00	16:10																									
ZZZZZZ	1.00	16:16																									
ZZZZZZ	1.00	16:22																									
CCV2	1.00	16:28															X										
CCB2	1.00	16:34															X										
ZZZZZZ	1.00	16:40																									
ZZZZZZ	1.00	16:46																									
ZZZZZZ	1.00	16:52																									
ZZZZZZ	1.00	16:59																									
ZZZZZZ	1.00	17:04																									
ZZZZZZ	1.00	17:11																									
ZZZZZZ	1.00	17:16																									
ZZZZZZ	1.00	17:22																									
CCV3	1.00	17:28															X										
CCB3	1.00	17:35															X										
ZZZZZZ	1.00	17:40																									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

00854

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: Optima ICP 3 Method: P

Start Date: 6/25/2014 End Date: 6/25/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	17:46																												
ZZZZZZ	1.00	17:52																												
ZZZZZZ	1.00	17:58																												
ZZZZZZ	1.00	18:04																												
ZZZZZZ	1.00	18:10																												
ZZZZZZ	1.00	18:16																												
ZZZZZZ	5.00	18:22																												
ZZZZZZ	1.00	18:28																												
CCV4	1.00	18:34															X													
CCB4	1.00	18:40															X													
CRDL2	1.00	18:46															X													
ICS-A2	1.00	18:52															X													
ICS-AB2	1.00	18:58															X													
ZZZZZZ	1.00	19:04																												
ZZZZZZ	1.00	19:09																												
CCV5	1.00	19:16															X													
CCB5	1.00	19:22															X													

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/30/2014 End Date: 6/30/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Blank	1.00	14:51					X					X																		
Standard 1	1.00	14:57					X					X																		
Standard 2	1.00	15:03					X					X																		
Standard 3	1.00	15:10					X					X																		
ICV2	1.00	15:16					X					X																		
ICB2	1.00	15:23					X					X																		
CRDL1	1.00	15:29					X					X																		
ICS-A1	1.00	15:35					X					X																		
ICS-AB1	1.00	15:42					X					X																		
CCV1	1.00	15:48					X					X																		
CCB1	1.00	15:55					X					X																		
ZZZZZZ	1.00	16:01																												
ZZZZZZ	1.00	16:08																												
ZZZZZZ	1.00	16:14																												
ZZZZZZ	1.00	16:21																												
ZZZZZZ	1.00	16:28																												
ZZZZZZ	1.00	16:34																												
ZZZZZZ	1.00	16:41																												
CCV2	1.00	16:47					X					X																		
CCB2	1.00	16:54					X					X																		
ZZZZZZ	1.00	17:01																												
ZZZZZZ	5.00	17:08																												
ZZZZZZ	1.00	17:14																												
ZZZZZZ	1.00	17:21																												
ZZZZZZ	1.00	17:28																												
ZZZZZZ	1.00	17:34																												
CRDL2	1.00	17:41					X					X																		
ZZZZZZ	1.00	17:47																												
CCV3	1.00	17:54					X					X																		
CCB3	1.00	18:00					X					X																		
PBW	1.00	18:22																												
LCSW	1.00	18:29																												
ZZZZZZ	10.00	18:35																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 6/30/2014 End Date: 6/30/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	10.00	18:42																												
ZZZZZZ	10.00	18:49																												
ZZZZZZ	10.00	18:55																												
ZZZZZZ	10.00	19:02																												
ZZZZZZ	10.00	19:09																												
ZZZZZZ	10.00	19:16																												
CCV4	1.00	19:22					X					X																		
CCB4	1.00	19:28					X					X																		
ZZZZZZ	10.00	19:35																												
ZZZZZZ	10.00	19:42																												
ZZZZZZ	10.00	19:49																												
ZZZZZZ	10.00	19:55																												
ZZZZZZ	10.00	20:02																												
ZZZZZZ	10.00	20:08																												
ZZZZZZ	10.00	20:15																												
MRC-MW-81B-061114	10.00	20:22					X																							
MRC-MW-48A-061114	10.00	20:28					X																							
CCV5	1.00	20:35					X					X																		
CCB5	1.00	20:41					X					X																		
MRC-MW-60A-061114	10.00	20:48																												
MRC-MW-60B-061114	10.00	20:55																												
MRC-MW-76A-061114	10.00	21:01										X																		
MRC-MW-76B-061114	10.00	21:08																												
MRC-MW-19A-060914	10.00	21:15										X																		
MRC-MW-37A-061314	10.00	21:21																												
MRC-MW-02A-060914	10.00	21:28																												
MRC-MW-02A-060914L	50.00	21:35																												
CRDL3	1.00	21:42					X					X																		
CCV6	1.00	21:48					X					X																		
CCB6	1.00	21:54					X					X																		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/3/2014 End Date: 7/3/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN			
Blank	1.00	07:59											X																	
Standard 1	1.00	08:06											X																	
Standard 2	1.00	08:12											X																	
Standard 3	1.00	08:19											X																	
ICV2	1.00	08:25											X																	
ICB2	1.00	08:32											X																	
CRDL1	1.00	08:38											X																	
ICS-A1	1.00	08:45											X																	
ICS-AB1	1.00	08:51											X																	
CCV1	1.00	08:57											X																	
CCB1	1.00	09:04											X																	
ZZZZZZ	1.00	09:10																												
PBW	1.00	09:17																												
LCSW	1.00	09:24																												
ZZZZZZ	1.00	09:30																												
ZZZZZZ	1.00	09:37																												
ZZZZZZ	1.00	09:44																												
ZZZZZZ	1.00	09:50																												
ZZZZZZ	1.00	09:57																												
ZZZZZZ	1.00	10:04																												
ZZZZZZ	1.00	10:11																												
CCV2	1.00	10:17											X																	
CCB2	1.00	10:23											X																	
ZZZZZZ	1.00	10:30																												
ZZZZZZ	1.00	10:37																												
ZZZZZZ	1.00	10:43																												
ZZZZZZ	1.00	10:50																												
ZZZZZZ	1.00	10:57																												
ZZZZZZ	1.00	11:04																												
MRC-MW-81B-061114	2.00	11:10																												
MRC-MW-48A-061114	2.00	11:17																												
MRC-MW-60A-061114	2.00	11:24											X																	
MRC-MW-60B-061114	2.00	11:30																												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/3/2014 End Date: 7/3/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV3	1.00	11:37											X														
CCB3	1.00	11:43											X														
MRC-MW-76A-061114	10.00	11:50																									
MRC-MW-76A-061114	2.00	11:57											X														
MRC-MW-76B-061114	2.00	12:03																									
MRC-MW-19A-060914	20.00	12:10																									
MRC-MW-37A-061314	5.00	12:17											X														
MRC-MW-02A-060914	20.00	12:23																									
CRDL2	1.00	12:30											X														
ZZZZZZ	1.00	12:36																									
CCV4	1.00	12:43											X														
CCB4	1.00	12:49											X														
ZZZZZZ	1.00	12:59																									
ZZZZZZ	1.00	13:06																									
ZZZZZZ	1.00	13:12																									
ZZZZZZ	1.00	13:19																									
ZZZZZZ	1.00	13:26																									
ZZZZZZ	1.00	13:32																									
CCV5	1.00	13:39											X														
CCB5	1.00	13:45											X														
ZZZZZZ	5.00	13:52																									
ZZZZZZ	1.00	13:59																									
MRC-MW-81B-061114	1.00	14:05											X														
MRC-MW-48A-061114	1.00	14:12											X														
MRC-MW-60B-061114	1.00	14:18											X														
MRC-MW-76B-061114	1.00	14:25											X														
CRDL3	1.00	14:32											X														
CCV6	1.00	14:38											X														
CCB6	1.00	14:44											X														
ZZZZZZ	1.00	14:52																									
CRDL4	1.00	14:58											X														
CCV7	1.00	15:05											X														
CCB7	1.00	15:11											X														

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	14:35			X	X	X	X	X			X	X								X	X			X		
Standard 1	1.00	14:42			X	X	X	X	X			X	X								X	X			X		
Standard 2	1.00	14:48			X	X	X	X	X			X	X								X	X			X		
Standard 3	1.00	14:54			X	X	X	X	X			X	X								X	X			X		
ICV1	1.00	15:01			X	X	X	X	X			X	X								X	X			X		
ICB1	1.00	15:07			X	X	X	X	X			X	X								X	X			X		
CRDL1	1.00	15:14			X	X	X	X	X			X	X								X	X			X		
ICS-A1	1.00	15:20			X	X	X	X	X			X	X								X	X			X		
ICS-AB1	1.00	15:27			X	X	X	X	X			X	X								X	X			X		
CCV1	1.00	15:33			X	X	X	X	X			X	X								X	X			X		
CCB1	1.00	15:40			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	15:46																										
ZZZZZZ	1.00	15:53																										
ZZZZZZ	1.00	15:59																										
ZZZZZZ	1.00	16:06																										
ZZZZZZ	1.00	16:13																										
ZZZZZZ	1.00	16:19																										
ZZZZZZ	1.00	16:26																										
ZZZZZZ	5.00	16:33																										
ZZZZZZ	1.00	16:39																										
ZZZZZZ	1.00	16:46																										
CCV2	1.00	16:53			X	X	X	X	X			X	X								X	X			X		
CCB2	1.00	16:59			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	17:06																										
ZZZZZZ	1.00	17:12																										
ZZZZZZ	1.00	17:19																										
ZZZZZZ	1.00	17:26																										
ZZZZZZ	1.00	17:32																										
ZZZZZZ	1.00	17:39																										
ZZZZZZ	1.00	17:46																										
ZZZZZZ	1.00	17:53																										
ZZZZZZ	1.00	17:59																										
ZZZZZZ	1.00	18:06																										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV3	1.00	18:13			X	X	X	X	X			X	X								X	X			X		
CCB3	1.00	18:19			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	18:26																										
ZZZZZZ	1.00	18:32																										
ZZZZZZ	1.00	18:39																										
ZZZZZZ	1.00	18:46																										
ZZZZZZ	5.00	18:52																										
ZZZZZZ	1.00	18:59																										
ZZZZZZ	1.00	19:06																										
ZZZZZZ	1.00	19:13																										
CRDL2	1.00	19:19			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	19:26																										
CCV4	1.00	19:32			X	X	X	X	X			X	X								X	X			X		
CCB4	1.00	19:39			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	19:45																										
ZZZZZZ	1.00	19:52																										
ZZZZZZ	1.00	19:59																										
ZZZZZZ	1.00	20:05																										
ZZZZZZ	1.00	20:12																										
ZZZZZZ	1.00	20:19																										
ZZZZZZ	1.00	20:25																										
ZZZZZZ	5.00	20:32																										
CRDL3	1.00	20:38			X	X	X	X	X			X	X								X	X			X		
CCV5	1.00	20:45			X	X	X	X	X			X	X								X	X			X		
CCB5	1.00	20:51			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	20:58																										
ZZZZZZ	1.00	21:05																										
ZZZZZZ	1.00	21:11																										
ZZZZZZ	1.00	21:18																										
ZZZZZZ	1.00	21:25																										
ZZZZZZ	1.00	21:31																										
ZZZZZZ	1.00	21:38																										
ZZZZZZ	1.00	21:45																										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV6	1.00	21:51			X	X	X	X	X			X	X								X	X			X		
CCB6	1.00	21:58			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	22:04																										
ZZZZZZ	1.00	22:11																										
ZZZZZZ	1.00	22:18																										
ZZZZZZ	1.00	22:24																										
ZZZZZZ	5.00	22:31																										
ZZZZZZ	1.00	22:38																										
ZZZZZZ	1.00	22:44																										
CRDL4	1.00	22:51			X	X	X	X	X			X	X								X	X			X		
CCV7	1.00	22:58			X	X	X	X	X			X	X								X	X			X		
CCB7	1.00	23:04			X	X	X	X	X			X	X								X	X			X		
PBW	1.00	23:11			X	X	X	X	X			X	X								X	X			X		
LCSW	1.00	23:17			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	23:24																										
ZZZZZZ	1.00	23:31																										
MRC-MW-19A-060914	20.00	23:38											X															
MRC-MW-19A-060914L	100.00	23:44											X															
MRC-MW-02A-060914	20.00	23:51											X															
MRC-MW-02A-060914L	100.00	23:58											X															
CRDL5	1.00	00:04			X	X	X	X	X			X	X								X	X			X		
CCV8	1.00	00:10			X	X	X	X	X			X	X								X	X			X		
CCB8	1.00	00:17			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	00:24																										
ZZZZZZ	1.00	00:30																										
ZZZZZZ	1.00	00:37																										
ZZZZZZ	5.00	00:43																										
ZZZZZZ	1.00	00:50																										
ZZZZZZ	1.00	00:57																										
ZZZZZZ	1.00	01:04																										
ZZZZZZ	1.00	01:11																										
ZZZZZZ	5.00	01:17																										
ZZZZZZ	1.00	01:24																										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/6/2014 End Date: 7/7/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
CCV9	1.00	01:31			X	X	X	X	X			X	X								X	X			X		
CCB9	1.00	01:37			X	X	X	X	X			X	X								X	X			X		
ZZZZZZ	1.00	01:44																										
ZZZZZZ	1.00	01:50																										
ZZZZZZ	1.00	01:57																										
ZZZZZZ	1.00	02:04																										
MRC-MW-81B-061114	1.00	02:11			X	X		X	X			X									X	X			X		
MRC-MW-81B-061114L	5.00	02:17			X	X		X	X			X									X	X			X		
MRC-MW-48A-061114	1.00	02:24			X	X		X	X			X									X	X			X		
MRC-MW-60A-061114	1.00	02:31			X		X	X	X			X									X	X			X		
MRC-MW-60B-061114	1.00	02:37			X		X	X	X			X									X	X			X		
MRC-MW-76A-061114	1.00	02:44			X	X	X	X	X												X	X			X		
CCV10	1.00	02:51			X	X	X	X	X			X	X								X	X			X		
CCB10	1.00	02:57			X	X	X	X	X			X	X								X	X			X		
MRC-MW-76B-061114	1.00	03:04			X	X	X	X	X			X									X	X			X		
MRC-MW-19A-060914	1.00	03:10			X	X	X	X	X												X	X			X		
MRC-MW-37A-061314	1.00	03:17			X	X	X	X	X			X									X	X			X		
MRC-MW-02A-060914	1.00	03:24			X		X	X	X			X										X			X		
CRDL6	1.00	03:30			X	X	X	X	X			X	X								X	X			X		
CCV11	1.00	03:37			X	X	X	X	X			X	X								X	X			X		
CCB11	1.00	03:43			X	X	X	X	X			X	X								X	X			X		

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/10/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
Blank	1.00	18:24				X									X				X		X			X				*
Standard 1	1.00	18:31				X									X				X		X			X				*
Standard 2	1.00	18:37				X									X				X		X			X				*
Standard 3	1.00	18:44				X									X				X		X			X				*
ICV2	1.00	18:50				X									X				X		X			X				*
ICB2	1.00	18:56				X									X				X		X			X				*
CRDL1	1.00	19:03				X									X				X		X			X				*
ICS-A1	1.00	19:09				X									X				X		X			X				*
ICS-AB1	1.00	19:16				X									X				X		X			X				*
CCV1	1.00	19:22				X									X				X		X			X				*
CCB1	1.00	19:29				X									X				X		X			X				*
ZZZZZZ	1.00	19:35																										
PBW	1.00	19:41													X				X					X				*
LCSW	1.00	19:48													X				X					X				*
ZZZZZZ	1.00	19:54																										
ZZZZZZ	1.00	20:01																										
ZZZZZZ	1.00	20:07																										
ZZZZZZ	1.00	20:14																										
ZZZZZZ	5.00	20:20																										
CRDL2	1.00	20:26				X									X				X		X			X				*
ZZZZZZ	1.00	20:33																										
CCV2	1.00	20:39				X									X				X		X			X				*
CCB2	1.00	20:46				X									X				X		X			X				*
ZZZZZZ	1.00	20:52																										
ZZZZZZ	1.00	20:59																										
ZZZZZZ	1.00	21:05																										
ZZZZZZ	5.00	21:11																										
CRDL3	1.00	21:18				X									X				X		X			X				*
CCV3	1.00	21:24				X									X				X		X			X				*
CCB3	1.00	21:31				X									X				X		X			X				*
ZZZZZZ	1.00	21:37																										
ZZZZZZ	1.00	21:44																										
ZZZZZZ	1.00	21:50																										

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/10/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																									
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
ZZZZZZ	1.00	21:56																									
ZZZZZZ	1.00	22:03																									
ZZZZZZ	1.00	22:09																									
CRDL4	1.00	22:16				X								X				X		X			X				*
CCV4	1.00	22:22				X								X				X		X			X				*
CCB4	1.00	22:29				X								X				X		X			X				*
MRC-MW-81B-061114	1.00	22:35												X				X					X				*
MRC-MW-81B-061114L	5.00	22:41												X				X					X				*
MRC-MW-48A-061114	1.00	22:48												X				X					X				*
MRC-MW-60A-061114	1.00	22:54				X								X				X					X				*
MRC-MW-60B-061114	1.00	23:01				X								X				X					X				*
MRC-MW-76A-061114	1.00	23:07												X									X				*
MRC-MW-76B-061114	1.00	23:14												X									X				*
MRC-MW-19A-060914	1.00	23:20												X									X				*
MRC-MW-19A-060914	2.00	23:27																									
CCV5	1.00	23:33				X								X				X		X			X				*
CCB5	1.00	23:39				X								X				X		X			X				*
MRC-MW-37A-061314	1.00	23:46												X				X					X				*
MRC-MW-02A-060914	1.00	23:52				X								X				X		X			X				*
MRC-MW-76A-061114	10.00	23:59																X									
MRC-MW-76B-061114	10.00	00:05																X									
MRC-MW-19A-060914	20.00	00:12																X									
CRDL5	1.00	00:18				X								X				X		X			X				*
CCV6	1.00	00:24				X								X				X		X			X				*
CCB6	1.00	00:31				X								X				X		X			X				*

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS

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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/10/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																								
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH								
Blank	1.00	18:24					X																					
Standard 1	1.00	18:31					X																					
Standard 2	1.00	18:37					X																					
Standard 3	1.00	18:44					X																					
ICV2	1.00	18:50					X																					
ICB2	1.00	18:56					X																					
CRDL1	1.00	19:03					X																					
ICS-A1	1.00	19:09					X																					
ICS-AB1	1.00	19:16					X																					
CCV1	1.00	19:22					X																					
CCB1	1.00	19:29					X																					
ZZZZZZ	1.00	19:35																										
PBW	1.00	19:41					X																					
LCSW	1.00	19:48					X																					
ZZZZZZ	1.00	19:54																										
ZZZZZZ	1.00	20:01																										
ZZZZZZ	1.00	20:07																										
ZZZZZZ	1.00	20:14																										
ZZZZZZ	5.00	20:20																										
CRDL2	1.00	20:26					X																					
ZZZZZZ	1.00	20:33																										
CCV2	1.00	20:39					X																					
CCB2	1.00	20:46					X																					
ZZZZZZ	1.00	20:52																										
ZZZZZZ	1.00	20:59																										
ZZZZZZ	1.00	21:05																										
ZZZZZZ	5.00	21:11																										
CRDL3	1.00	21:18					X																					
CCV3	1.00	21:24					X																					
CCB3	1.00	21:31					X																					
ZZZZZZ	1.00	21:37																										
ZZZZZZ	1.00	21:44																										
ZZZZZZ	1.00	21:50																										
ZZZZZZ	1.00	21:56																										

METALS

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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/10/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																							
				B	AU	LI	MO	OS	PD	P	PT	SI	S	SN	SR	TI	U	W	IN	TH							
ZZZZZZ	1.00	22:03																									
ZZZZZZ	1.00	22:09																									
CRDL4	1.00	22:16					X																				
CCV4	1.00	22:22					X																				
CCB4	1.00	22:29					X																				
MRC-MW-81B-061114	1.00	22:35					X																				
MRC-MW-81B-061114L	5.00	22:41					X																				
MRC-MW-48A-061114	1.00	22:48					X																				
MRC-MW-60A-061114	1.00	22:54					X																				
MRC-MW-60B-061114	1.00	23:01					X																				
MRC-MW-76A-061114	1.00	23:07					X																				
MRC-MW-76B-061114	1.00	23:14					X																				
MRC-MW-19A-060914	1.00	23:20					X																				
MRC-MW-19A-060914	2.00	23:27																									
CCV5	1.00	23:33					X																				
CCB5	1.00	23:39					X																				
MRC-MW-37A-061314	1.00	23:46					X																				
MRC-MW-02A-060914	1.00	23:52					X																				
MRC-MW-76A-061114	10.00	23:59																									
MRC-MW-76B-061114	10.00	00:05																									
MRC-MW-19A-060914	20.00	00:12																									
CRDL5	1.00	00:18					X																				
CCV6	1.00	00:24					X																				
CCB6	1.00	00:31					X																				

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/11/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Blank	1.00	08:17									X																
Standard 1	1.00	08:23									X																
Standard 2	1.00	08:29									X																
Standard 3	1.00	08:36									X																
ICV1	1.00	08:42									X																
ICB1	1.00	08:49									X																
CRDL1	1.00	08:55									X																
ICS-A1	1.00	09:01									X																
ICS-AB1	1.00	09:08									X																
CCV1	1.00	09:14									X																
CCB1	1.00	09:21									X																
ZZZZZZ	1.00	09:27																									
PBW	1.00	09:33									X																
LCSW	1.00	09:40									X																
ZZZZZZ	1.00	09:46																									
ZZZZZZ	1.00	09:53																									
ZZZZZZ	1.00	09:59																									
ZZZZZZ	5.00	10:06																									
CRDL2	1.00	10:12									X																
ZZZZZZ	1.00	10:19																									
CCV2	1.00	10:25									X																
CCB2	1.00	10:32									X																
ZZZZZZ	1.00	10:38																									
ZZZZZZ	1.00	10:44																									
ZZZZZZ	1.00	10:51																									
ZZZZZZ	1.00	10:57																									
ZZZZZZ	1.00	11:04																									
ZZZZZZ	5.00	11:10																									
CRDL3	1.00	11:17									X																
CCV3	1.00	11:23									X																
CCB3	1.00	11:29									X																
MRC-MW-81B-061114	1.00	11:36									X																
MRC-MW-81B-061114L	5.00	11:42									X																

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE ICPMS Method: MS

Start Date: 7/11/2014 End Date: 7/11/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
MRC-MW-48A-061114	1.00	11:49									X																
MRC-MW-60A-061114	1.00	11:55									X																
MRC-MW-60B-061114	1.00	12:02									X																
CCV4	1.00	12:08									X																
CCB4	1.00	12:14									X																
MRC-MW-76A-061114	1.00	12:21									X																
MRC-MW-76B-061114	1.00	12:27									X																
MRC-MW-19A-060914	1.00	12:34									X																
MRC-MW-37A-061314	1.00	12:40									X																
MRC-MW-02A-060914	1.00	12:46									X																
CRDL4	1.00	12:53									X																
CCV5	1.00	12:59									X																
CCB5	1.00	13:06									X																

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/23/2014 End Date: 6/23/2014

Sample ID.	D/F	Time	% R	Analytes																								
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
Calib Blank	1.00	06:46																X									
0.2ppb std	1.00	06:47																X									
0.5ppb std	1.00	06:49																X									
1.0ppb std	1.00	06:51																X									
2.0ppb std	1.00	06:52																X									
5.0ppb std	1.00	06:54																X									
10.0ppb std	1.00	06:56																X									
ICV1	1.00	06:57																X									
ICB1	1.00	06:59																X									
CRDL1	1.00	07:01																X									
CCV1	1.00	07:02																X									
CCB1	1.00	07:04																X									
PBW	1.00	07:05																X									
LCSW	1.00	07:07																X									
ZZZZZZ	1.00	07:09																										
ZZZZZZ	1.00	07:10																										
ZZZZZZ	1.00	07:12																										
MRC-MW-81B-061114	1.00	07:14																X									
MRC-MW-48A-061114	1.00	07:15																X									
MRC-MW-60A-061114	1.00	07:17																X									
CCV2	1.00	07:19																X									
CCB2	1.00	07:20																X									
MRC-MW-60B-061114	1.00	07:22																X									
MRC-MW-76A-061114	1.00	07:23																X									
MRC-MW-76B-061114	1.00	07:25																X									
MRC-MW-19A-060914	1.00	07:27																X									
MRC-MW-37A-061314	1.00	07:28																X									
MRC-MW-02A-060914	1.00	07:30																X									
MRC-MW-02A-060914D	1.00	07:32																X									
MRC-MW-02A-060914S	1.00	07:33																X									
ZZZZZZ	1.00	07:35																										
CCV3	1.00	07:37																X									
CCB3	1.00	07:38																X									

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

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METALS
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ANALYSIS RUN LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: MRC-MW-81B-0

Instrument ID Number: PE FAA/CVAA Method: CV

Start Date: 6/23/2014 End Date: 6/23/2014

Sample ID.	D/F	Time	% R	Analytes																										
				AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN
ZZZZZZ	1.00	07:40																												
ZZZZZZ	1.00	07:42																												
ZZZZZZ	1.00	07:43																												
ZZZZZZ	1.00	07:45																												
ZZZZZZ	1.00	07:47																												
ZZZZZZ	1.00	07:48																												
ZZZZZZ	1.00	07:50																												
CRDL2	1.00	07:51																X												
CCV4	1.00	07:53																X												
CCB4	1.00	07:55																X												

* - Denotes additional elements (other than the standard CLP elements) are represented on another Form 14

00871

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration ICV1			Continuing Calibration CCV1			CCV2		M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Antimony	50	51	102	50	51	102	53	106	MS
Arsenic	50	51	102	50	51	102	51	102	MS
Barium	50	52	104	50	51	102	50	100	MS
Beryllium	50	49	98	50	48	96	48	96	MS
Cadmium	50	51	102	50	51	102	53	106	MS
Chromium	50	48	96	50	47	94	49	98	MS
Cobalt	50	51	102	50	51	102	52	104	MS
Copper	50	52	104	50	51	102	52	104	MS
Iron	5000	5080	102	5000	5130	103	4980	100	P
Manganese	750	768	102	750	772	103	755	101	P
Mercury	3.00	3.12	104	3.00	3.10	103	3.16	105	CV
Selenium	50	51	102	50	50	100	49	98	MS
Silver	50	52	104	50	52	104	54	108	MS
Vanadium	50	52	104	50	52	104	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV3)	%R(1)	Found (CCV4)	%R(1)	M
Antimony				50	53	106	52	104	MS
Arsenic				50	51	102	51	102	MS
Barium				50	49	98	49	98	MS
Beryllium				50	48	96	48	96	MS
Cadmium				50	53	106	51	102	MS
Chromium				50	48	96	46	92	MS
Cobalt				50	52	104	51	102	MS
Copper				50	52	104	52	104	MS
Iron				5000	4760	95	5040	101	P
Manganese				750	720	96	762	102	P
Mercury				3.00	3.17	106	3.15	105	CV
Selenium				50	49	98	49	98	MS
Silver				50	54	108	52	104	MS
Vanadium				50	51	102	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV5)	%R(1)	Found (CCV6)	%R(1)	M
Antimony				50	52	104	53	106	MS
Arsenic				50	51	102	51	102	MS
Barium				50	50	100	51	102	MS
Beryllium				50	48	96	47	94	MS
Cadmium				50	52	104	52	104	MS
Chromium				50	45	90			MS
Cobalt				50	51	102	52	104	MS
Copper				50	51	102	53	106	MS
Iron				5000	4970	99	4910	98	P
Manganese				750	751	100	744	99	P
Selenium				50	49	98	50	100	MS
Silver				50	53	106	53	106	MS
Vanadium				50	52	104	52	104	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1) (CCV1)	Found	%R(1) (CCV8)	M
Antimony				50	52	104	52	104	MS
Arsenic				50	51	102	51	102	MS
Barium				50	50	100	52	104	MS
Beryllium				50	49	98	47	94	MS
Cadmium				50	52	104	51	102	MS
Cobalt				50	52	104	52	104	MS
Copper				50	52	104	52	104	MS
Iron				5000	4980	100			P
Manganese				750	749	100			P
Selenium				50	49	98	50	100	MS
Silver				50	53	106	52	104	MS
Vanadium				50	52	104	52	104	MS

Comments:

00799

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1) (CCV 9)	Found	%R(1) (CCV 10)	M
Antimony				50	53	106	52	104	MS
Arsenic				50	51	102	48	96	MS
Barium				50	48	96	50	100	MS
Beryllium				50	49	98	47	94	MS
Cadmium				50	53	106	53	106	MS
Cobalt				50	50	100	50	100	MS
Copper				50	53	106	52	104	MS
Selenium				50	47	94	49	98	MS
Silver				50	53	106	53	106	MS
Vanadium				50	51	102	50	100	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV1)	%R(1)	Found	%R(1)	M
Antimony				50	53	106			MS
Arsenic				50	50	100			MS
Barium				50	51	102			MS
Beryllium				50	45	90			MS
Cadmium				50	51	102			MS
Cobalt				50	49	98			MS
Copper				50	51	102			MS
Selenium				50	47	94			MS
Silver				50	53	106			MS
Vanadium				50	49	98			MS

Comments:

METALS

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BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L) ICB1	C	Continuing Calibration Blank (ug/L) 1 CCB1	C	2 CCB2	C	3 CCB3	C	Preparation Blank	C	M
Antimony	0.228	J	0.198	J	0.208	J	0.200	J	0.188	J	MS
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U	0.887	J	MS
Barium	0.024	U	0.024	U	0.024	U	0.024	U	0.056	J	MS
Beryllium	0.028	J	0.022	J	0.025	J	0.024	J	0.020	U	MS
Cadmium	0.008	U	-0.015	J	-0.012	J	-0.014	J	-0.020	J	MS
Chromium	0.470	U	0.470	U	0.470	U	0.470	U	1.495	J	MS
Cobalt	0.008	U	0.008	U	-0.022	J	-0.041	J	-0.112	J	MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U	0.265	J	MS
Iron	9.97	U	12.69	J	9.97	U	9.97	U	-18.489	J	P
Manganese	-1.41	J	-2.19	J	-2.86	J	-2.97	J	-4.032	J	P
Mercury	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	CV
Selenium	0.213	U	0.213	U	0.213	U	0.213	U	-0.247	J	MS
Silver	0.015	U	0.015	U	0.015	U	0.015	U	0.015	J	MS
Vanadium	0.358	U	0.358	U	0.358	U	0.358	U	-0.942	J	MS

211494

211492

Comments:

METALS

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BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 (CCB4)	C	2 (CCB5)	C	3 (CCB6)	C	Preparation Blank	C	M
Antimony			0.250	J	0.194	J	0.249	J			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			0.024	U	0.024	U	0.024	U			MS
Beryllium			0.020	U	0.020	U	0.034	J			MS
Cadmium			-0.010	J	-0.011	J	-0.019	J			MS
Chromium			0.470	U	0.470	U					MS
Cobalt			-0.021	J	-0.021	J	-0.059	J			MS
Copper			0.252	U	0.252	U	0.365	J			MS
Iron			-11.44	J	-13.90	J	-16.21	J			P
Manganese			-3.71	J	-3.58	J	-3.97	J			P
Mercury			0.024	U							CV
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.015	U	0.015	U	0.023	J			MS
Vanadium			0.358	U	0.358	U	0.358	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 (CCB 7)	C	2 (CCB 8)	C	3 (CCB 9)	C	Preparation Blank	C	M
Antimony			0.254	J	0.259	J	0.284	J			MS
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			0.024	U	0.024	U	0.024	U			MS
Beryllium			0.031	J	0.020	U	0.024	J			MS
Cadmium			0.008	U	-0.016	J	-0.022	J			MS
Cobalt			-0.043	J	-0.016	J	-0.052	J			MS
Copper			0.252	U	0.252	U	2.277				MS
Iron			9.97	U							P
Manganese			-4.18	J							P
Selenium			0.213	U	0.213	U	0.213	U			MS
Silver			0.023	J	0.027	J	0.029	J			MS
Vanadium			0.358	U	0.358	U	0.358	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1 (CCB10)	C	2 (CCB11)	C	3	C	Preparation Blank	C	M
Antimony			0.915	J	0.877	J					MS
Arsenic			0.211	U	0.211	U					MS
Barium			0.032	J	0.025	J					MS
Beryllium			0.054	J	0.039	J					MS
Cadmium			0.008	U	-0.012	J					MS
Cobalt			-0.033	J	-0.045	J					MS
Copper			2.184		0.992	J					MS
Selenium			0.213	U	0.213	U					MS
Silver			0.090	J	0.071	J					MS
Vanadium			0.358	U	0.358	U					MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					M
	True	Found (ICV2)	%R(1)	True	Found (CCV1)	%R(1)	Found (CCV2)	%R(1)	
Arsenic	50	50	100	50	49	98	50	100	MS
Barium	50	48	96	50	50	100	49	98	MS
Cobalt	50	50	100	50	49	98	50	100	MS
Copper	50	50	100	50	50	100	50	100	MS
Lead	50	50	100	50	50	100	50	100	MS
Manganese	750	786	105	750	777	104	786	105	P
Nickel	50	52	104	50	50	100	52	104	MS
Selenium	50	48	96	50	50	100	49	98	MS
Thallium	50	51	102	50	50	100	50	100	MS
Molybdenum	50	52	104	50	53	106	51	102	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found (CCV3)	%R(1)	Found (CCV4)	%R(1)	M
Arsenic				50	49	98	51	102	MS
Barium				50	50	100	50	100	MS
Cobalt				50	50	100	50	100	MS
Copper				50	47	94	47	94	MS
Lead				50	48	96	50	100	MS
Manganese				750	809	108	797	106	P
Nickel				50	50	100	53	106	MS
Selenium				50	48	96	48	96	MS
Thallium				50	52	104	50	100	MS
Molybdenum				50	50	100	52	104	MS

Comments:

METALS
-2A-
INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration					
	True	Found	%R(1)	True	Found	%R(1) CCV5	Found	%R(1) CCV6	M
Arsenic				50	50	100	49	98	MS
Barium				50	52	104	53	106	MS
Cobalt				50	49	98	50	100	MS
Copper				50	47	94	49	98	MS
Lead				50	51	102	49	98	MS
Manganese				750	815	109			P
Nickel				50	49	98	48	96	MS
Selenium				50	48	96	48	96	MS
Thallium				50	54	108	49	98	MS
Molybdenum				50	51	102	51	102	MS

Comments:

METALS

-2A-

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Initial Calibration Source: ACCUSTANDARD

Continuing Calibration Source: ACCUSTANDARD

Concentration Units: ug/L

Analyte	Initial Calibration			Continuing Calibration			CCV1		M
	True	Found	%R(1)	True	Found	%R(1)	Found	%R(1)	
Copper				50	49	98			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L) ICB2	C	Continuing Calibration Blank (ug/L) 1 CCB1	C	2 CCB2	C	3 CCB3	C	Preparation Blank	C	M
Arsenic	0.211	U	0.211	U	0.211	U	0.211	U			MS
Barium	0.024	U	0.024	U	0.024	U	0.024	U			MS
Cobalt	0.026	J	0.015	J	-0.027	J	0.008	U			MS
Copper	0.252	U	0.252	U	0.252	U	0.252	U			MS
Lead	0.061	U	0.061	U	0.061	U	0.061	U	0.061	U	MS
Manganese	0.41	J	0.35	U	0.35	U	0.35	U			P
Nickel	0.236	U	0.236	U	0.236	U	0.236	U	0.236	U	MS
Selenium	0.213	U	0.213	U	0.213	U	0.213	U			MS
Thallium	0.031	U	0.031	U	0.031	U	0.031	U	0.031	U	MS
Molybdenum	0.068	U	0.068	U	0.068	U	0.068	U	0.068	U	MS

Comments:

METALS

-3-

BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) CCB4 1	C	CCB5 2	C	CCB6 3	C	Preparation Blank	C	M
Arsenic			0.211	U	0.211	U	0.211	U			MS
Barium			0.024	U	0.024	U	0.033	J			MS
Cobalt			0.033	J	0.008	U	0.013	J			MS
Copper			0.252	U	0.252	U	0.252	U			MS
Lead			0.061	U	0.061	U	0.061	U			MS
Manganese			0.35	U	0.36	J					P
Nickel			0.236	U	0.236	U	0.236	U			MS
Selenium			0.213	U	0.213	U	0.213	U			MS
Thallium			0.031	U	0.031	U	0.031	U			MS
Molybdenum			0.068	U	0.068	U	0.068	U			MS

Comments:

METALS

-3-

BLANKS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

Preparation Blank Matrix (soil/water): WATER

Preparation Blank Concentration Units (ug/L or mg/kg): UG/L

Analyte	Initial Calib. Blank (ug/L)	C	Continuing Calibration Blank (ug/L) CCB 1	C	2	C	3	C	Preparation Blank	C	M
Copper			0.252	U							MS

Comments:

METALS

-10-

DETECTION LIMITS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

ICP ID Number: Optima ICP 3 Date: 2/4/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Iron	259.939		100.0	10.0	P
Manganese	257.610		10.0	0.4	P

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

ICP ID Number: PE ICPMS Date: 2/6/2014

Flame AA ID Number: _____

Furnace AA ID Number:

Analyte	Isotope	Back-ground	PQL ug/L	MDL ug/L	M
Antimony	123		1.00	0.157	MS
Arsenic	75		1.00	0.211	MS
Barium	137		1.00	0.024	MS
Beryllium	9		1.00	0.020	MS
Cadmium	111		1.00	0.008	MS
Chromium	52		2.00	0.470	MS
Cobalt	59		1.00	0.008	MS
Copper	63		1.00	0.252	MS
Lead	208		1.00	0.061	MS
Nickel	60		1.00	0.236	MS
Selenium	82		2.00	0.213	MS
Silver	107		1.00	0.015	MS
Thallium	203		1.00	0.031	MS
Vanadium	51		2.00	0.358	MS
Molybdenum	98		1.00	0.068	MS

Comments: _____

METALS

-10-

DETECTION LIMITS

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-0

ICP ID Number: _____ Date: 2/19/2014

Flame AA ID Number: PE FAA/CVAA

Furnace AA ID Number:

Analyte	Wave-length (nm)	Back-ground	PQL ug/L	MDL ug/L	M
Mercury	253.70	BD	0.200	0.024	CV

Comments: _____

METALS

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PREPARATION LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-061114

Method: P

Sample ID	Preparation Date	Initial Volume	Final Volume (mL)
LCSW	6/23/2014	50.0	50.0
PBW	6/23/2014	50.0	50.0
MRC-MW-81B-061114	6/23/2014	50.0	50.0
MRC-MW-48A-061114	6/23/2014	50.0	50.0
MRC-MW-48A-061114D	6/23/2014	50.0	50.0
MRC-MW-48A-061114S	6/23/2014	50.0	50.0
MRC-MW-60A-061114	6/23/2014	50.0	50.0
MRC-MW-60B-061114	6/23/2014	50.0	50.0
MRC-MW-76A-061114	6/23/2014	50.0	50.0
MRC-MW-76B-061114	6/23/2014	50.0	50.0
MRC-MW-19A-060914	6/23/2014	50.0	50.0
MRC-MW-37A-061314	6/23/2014	50.0	50.0
MRC-MW-02A-060914	6/23/2014	50.0	50.0

Comments:

METALS

-13-

PREPARATION LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-061114

Method: MS

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/24/2014	50.0	50.0
PBW	6/24/2014	50.0	50.0
MRC-MW-81B-061114	6/24/2014	50.0	50.0
MRC-MW-48A-061114	6/24/2014	50.0	50.0
MRC-MW-60A-061114	6/24/2014	50.0	50.0
MRC-MW-60B-061114	6/24/2014	50.0	50.0
MRC-MW-76A-061114	6/24/2014	50.0	50.0
MRC-MW-76B-061114	6/24/2014	50.0	50.0
MRC-MW-19A-060914	6/24/2014	50.0	50.0
MRC-MW-37A-061314	6/24/2014	50.0	50.0
MRC-MW-02A-060914	6/24/2014	50.0	50.0

Comments:

METALS

-13-

PREPARATION LOG

Contract: R1404658

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG NO.: MRC-MW-81B-061114

Method: CV

Sample ID	Preparation Date	Initial Volume	Final Volume(mL)
LCSW	6/23/2014	25.0	25.0
PBW	6/23/2014	25.0	25.0
MRC-MW-81B-061114	6/23/2014	25.0	25.0
MRC-MW-48A-061114	6/23/2014	25.0	25.0
MRC-MW-60A-061114	6/23/2014	25.0	25.0
MRC-MW-60B-061114	6/23/2014	25.0	25.0
MRC-MW-76A-061114	6/23/2014	25.0	25.0
MRC-MW-76B-061114	6/23/2014	25.0	25.0
MRC-MW-19A-060914	6/23/2014	25.0	25.0
MRC-MW-37A-061314	6/23/2014	25.0	25.0
MRC-MW-02A-060914	6/23/2014	25.0	25.0
MRC-MW-02A-060914D	6/23/2014	25.0	25.0
MRC-MW-02A-060914S	6/23/2014	25.0	25.0

Comments:

Creator: LDOLGOS
Creation Date: Jun 30, 2014 8:08:24
Last Modified: Jun 30, 2014 14:43:03
Description: QC 8000 350.1 Ammonia - RUN LOG - 1406300A

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 2.000	1.0000	CalStd	
2	Standard B - 1.000	1.0000	CalStd	
3	Standard C - 0.500	1.0000	CalStd	
4	Standard D - 0.200	1.0000	CalStd	
5	Standard E - 0.100	1.0000	CalStd	
6	Standard F - 0.050	1.0000	CalStd	
7	Standard G - 0.020	1.0000	CalStd	
8	Standard H - 0.010	1.0000	CalStd	
9	Standard I - 0.000	1.0000	CalStd	
1	ICV TV= 0.90	1.0000	Unknown	
2	ICB	1.0000	Unknown	
3	CRDL - 0.050	1.0000	Unknown	
4	CRDL - 0.010	1.0000	Unknown	
5	CCV	1.0000	Unknown	
6	CCB	1.0000	Unknown	
7	LCS TV= 0.500	1.0000	Unknown	
8	R1404444-001	1.0000	Unknown	
9	R1404444-002	1.0000	Unknown	
10	R1404444-003	1.0000	Unknown	
11	4444-003 DUP	1.0000	Unknown	
12	4444-003 SPK	1.0000	Unknown	
13	R1404444-004	1.0000	Unknown	
14	R1404444-005	1.0000	Unknown	
15	R1404444-006	1.0000	Unknown	
16	R1404444-007	1.0000	Unknown	
17	CCV	1.0000	Unknown	
18	CCB	1.0000	Unknown	
19	R1404444-008	1.0000	Unknown	
20	R1404444-009	1.0000	Unknown	
21	R1404444-010	1.0000	Unknown	
22	R1404444-011	1.0000	Unknown	
23	R1404444-011 DUP	1.0000	Unknown	
24	R1404444-011 SPK	1.0000	Unknown	
25	R1404444-012	1.0000	Unknown	
26	R1404444-013	1.0000	Unknown	
27	R1404444-014	1.0000	Unknown	
28	R1404444-015	1.0000	Unknown	
29	CCV	1.0000	Unknown	
30	CCB	1.0000	Unknown	
31	R1404444-016	1.0000	Unknown	

6/30/14

Creator: LDOLGOS
Creation Date: Jun 30, 2014 17:09:13
Last Modified: Jun 30, 2014 18:10:17
Description: QC 8000 350.1 Ammonia - RUN LOG - 140630A3

Cup #	Sample ID	Manual Dilution	Sample Type	
166	CCV	1.0000	Unknown	
167	CCB	1.0000	Unknown	
168	LCS	1.0000	Unknown	
169	R1404658-013	1.0000	Unknown	
170	R1404658-014	1.0000	Unknown	
171	R1404658-016	1.0000	Unknown	
172	R1404658-021	1.0000	Unknown	
173	R1404683-001	1.0000	Unknown	
174	R1404683-002	1.0000	Unknown	
175	R1404683-003	1.0000	Unknown	
176	R1404683-004	1.0000	Unknown	
177	R1404683-005	1.0000	Unknown	
178	CCV	1.0000	Unknown	
179	CCB	1.0000	Unknown	
180	R1404683-006	1.0000	Unknown	
181	4683-006 DUP	1.0000	Unknown	
182	4683-006 SPK	1.0000	Unknown	
183	R1404683-007	1.0000	Unknown	
184	R1404683-008	1.0000	Unknown	
185	R1404683-009	1.0000	Unknown	
186	R1404683-010	1.0000	Unknown	
187	R1404879-002	1.0000	Unknown	
188	R1404879-003	1.0000	Unknown	
189	R1404924-001	1.0000	Unknown	
190	CCV	1.0000	Unknown	
191	CCB	1.0000	Unknown	
192	R1404683-009 DUP	1.0000	Unknown	
193	4683-009 SPK	1.0000	Unknown	
194	R1404889-001	1.0000	Unknown	
195	R1404801-001	1.0000	Unknown	
196	R1404924-001 RPT 1/10	10.0000	Unknown	
197	LCS	1.0000	Unknown	
198	R1404926-001 1/1000	1,000.0000	Unknown	
199	R1404827-001	1.0000	Unknown	
200	R1404934-001 1/10	10.0000	Unknown	
1	R1404801-001 RPT 1/2	2.0000	Unknown	
2	CCV	1.0000	Unknown	
3	CCB	1.0000	Unknown	
4	R1404924-001 RPT 1/50	50.0000	Unknown	
5	R1404934-001 RPT 1/20	20.0000	Unknown	

Cup #	Sample ID	Manual Dilution	Sample Type	
6	R1404889-001 DUP	1.0000	Unknown	
7	4889-001 SPK	1.0000	Unknown	
8	CCV	1.0000	Unknown	
9	CCB	1.0000	Unknown	

OPERATOR: LDOLGOS
ACQ. TIME: Jun 30, 2014 12:15:08
DATA FILENAME: C:\OMNION\DATA\1406300A.FDT
TRAY FILENAME: C:\OMNION\TRAYS\1406300A.TRA

Multi-Channel Table
Type: Unknowns
Channel Range: 1 to 8 -- Cup Range: 1 to 25

Cup	Sample ID	Sampling Date	Sampling Time	Rep #	QC 8000 350.1 Ammonia (mg/L)	Man Dil Factor	Auto Dil Factor
1	ICV TV= 0.90	30 Jun 2014	12:15:11	1	0.8985	1.0	1.00
2	ICB	30 Jun 2014	12:16:10	1	0.0045	1.0	1.00
3	CRDL - 0.050	30 Jun 2014	12:17:08	1	0.0516	1.0	1.00
4	CRDL - 0.010	30 Jun 2014	12:18:06	1	0.0155	1.0	1.00
5	CCV	30 Jun 2014	12:19:04	1	0.8998	1.0	1.00
6	CCB	30 Jun 2014	12:20:03	1	-0.0000	1.0	1.00
7	LCS TV= 0.500	30 Jun 2014	12:21:01	1	0.4859	1.0	1.00
8	R1404444-001	30 Jun 2014	12:21:58	1	0.0019	1.0	1.00
9	R1404444-002	30 Jun 2014	12:22:55	1	0.0099	1.0	1.00
10	R1404444-003	30 Jun 2014	12:23:52	1	0.0035	1.0	1.00
11	4444-003 DUP	30 Jun 2014	12:24:49	1	0.0054	1.0	1.00
12	4444-003 SPK	30 Jun 2014	12:25:46	1	0.4255	1.0	1.00
13	R1404444-004	30 Jun 2014	12:26:43	1	0.0054	1.0	1.00
14	R1404444-005	30 Jun 2014	12:27:40	1	0.0435	1.0	1.00
15	R1404444-006	30 Jun 2014	12:28:38	1	0.0502	1.0	1.00
16	R1404444-007	30 Jun 2014	12:29:36	1	0.0454	1.0	1.00
17	CCV	30 Jun 2014	12:30:34	1	0.8939	1.0	1.00
18	CCB	30 Jun 2014	12:31:32	1	0.0050	1.0	1.00
19	R1404444-008	30 Jun 2014	12:32:30	1	0.0320	1.0	1.00
20	R1404444-009	30 Jun 2014	12:33:29	1	0.0478	1.0	1.00
21	R1404444-010	30 Jun 2014	12:34:27	1	0.0121	1.0	1.00
22	R1404444-011	30 Jun 2014	12:35:25	1	0.0435	1.0	1.00
23	R1404444-011 DUP	30 Jun 2014	12:36:23	1	0.0412	1.0	1.00
24	R1404444-011 SPK	30 Jun 2014	12:37:21	1	0.4969	1.0	1.00
25	R1404444-012	30 Jun 2014	12:38:18	1	0.0359	1.0	1.00

7/1/30/14

OPERATOR: LDOLGOS
ACQ. TIME: Jun 30, 2014 17:22:00
DATA FILENAME: C:\OMNION\DATA\140630A3.FDT
TRAY FILENAME: C:\OMNION\TRAYS\140630A3.TRA

Multi-Channel Table
Type: Unknowns
Channel Range: 1 to 8 -- Cup Range: 151 to 175

Cup	Sample ID	Sampling Date	Sampling Time	Rep #	QC 8000 350.1 Ammonia (mg/L)	Man Dil Factor	Auto Dil Factor	
166	CCV	30 Jun 2014	17:22:05	1	0.9179	1.0	1.00	
167	CCB	30 Jun 2014	17:23:05	1	0.0076	1.0	1.00	
168	LCS	30 Jun 2014	17:24:05	1	0.5062	1.0	1.00	Run 399753
169	R1404658-013	30 Jun 2014	17:25:06	1	0.1591	1.0	1.00	
170	R1404658-014	30 Jun 2014	17:26:06	1	0.0210	1.0	1.00	
171	R1404658-016	30 Jun 2014	17:27:05	1	0.0065	1.0	1.00	
172	R1404658-021	30 Jun 2014	17:28:04	1	0.0463	1.0	1.00	
173	R1404683-001	30 Jun 2014	17:29:03	1	0.0199	1.0	1.00	
174	R1404683-002	30 Jun 2014	17:30:03	1	0.5824	1.0	1.00	
175	R1404683-003	30 Jun 2014	17:31:02	1	0.0080	1.0	1.00	neg peak <MRL

OPERATOR: LDOLGOS
ACQ. TIME: Jun 30, 2014 17:22:00
DATA FILENAME: C:\OMNION\DATA\140630A3.FDT
TRAY FILENAME: C:\OMNION\TRAYS\140630A3.TRA

Multi-Channel Table
Type: Unknowns
Channel Range: 1 to 8 -- Cup Range: 176 to 200

Cup	Sample ID	Sampling Date	Sampling Time	Rep #	QC 8000 350.1 Ammonia (mg/L)	Man Dil Factor	Auto Dil Factor	
176	R1404683-004	30 Jun 2014	17:32:01	1	-0.0000	1.0	1.00	
177	R1404683-005	30 Jun 2014	17:33:00	1	0.6108	1.0	1.00	
178	CCV	30 Jun 2014	17:33:59	1	0.9155	1.0	1.00	
179	CCB	30 Jun 2014	17:34:57	1	0.0096	1.0	1.00	
180	R1404683-006	30 Jun 2014	17:35:56	1	1.0173	1.0	1.00	
181	4683-006 DUP	30 Jun 2014	17:36:56	1	1.0321	1.0	1.00	
182	4683-006 SPK	30 Jun 2014	17:37:56	1	1.4730	1.0	1.00	
183	R1404683-007	30 Jun 2014	17:38:56	1	0.0039	1.0	1.00	
184	R1404683-008	30 Jun 2014	17:39:57	1	0.2287	1.0	1.00	
185	R1404683-009	30 Jun 2014	17:40:57	1	0.0836	1.0	1.00	
186	R1404683-010	30 Jun 2014	17:41:57	1	1.0297	1.0	1.00	
187	R1404879-002	30 Jun 2014	17:42:57	1	0.4580	1.0	1.00	
188	R1404879-003	30 Jun 2014	17:43:56	1	0.3852	1.0	1.00	
189	R1404924-001	30 Jun 2014	17:44:55	1	16.7148	1.0	1.00	rpt 1/10
190	CCV	30 Jun 2014	17:45:54	1	0.9321	1.0	1.00	
191	CCB	30 Jun 2014	17:46:53	1	0.0090	1.0	1.00	
192	R1404683-009 DUP	30 Jun 2014	17:50:52	1	0.0893	1.0	1.00	
193	4683-009 SPK	30 Jun 2014	17:51:51	1	0.5652	1.0	1.00	
194	R1404889-001	30 Jun 2014	17:52:50	1	0.0987	1.0	1.00	Cid on next page/run.
195	R1404801-001	30 Jun 2014	17:53:49	1	2.4334	1.0	1.00	rpt 1/2
196	R1404924-001 RPT 1/10	30 Jun 2014	17:54:49	1	51.3690	10.0	1.00	rpt 1/50 Run 399755
197	LCS	30 Jun 2014	17:55:49	1	0.5038	1.0	1.00	
198	R1404926-001 1/1000	30 Jun 2014	17:56:50	1	1819.7224	1000.0	1.00	
199	R1404827-001	30 Jun 2014	17:57:50	1	0.5476	1.0	1.00	
200	R1404934-001 1/10	30 Jun 2014	17:58:50	1	36.4443	10.0	1.00	rpt 1/20

OPERATOR: LDOLGOS
ACQ. TIME: Jun 30, 2014 17:22:00
DATA FILENAME: C:\OMNION\DATA\140630A3.FDT
TRAY FILENAME: C:\OMNION\TRAYS\140630A3.TRA

Multi-Channel Table
Type: Unknowns
Channel Range: 1 to 8 -- Cup Range: 1 to 25

Cup	Sample ID	Sampling Date	Sampling Time	Rep #	QC 8000 350.1 Ammonia (mg/L)	Man Dil Factor	Auto Dil Factor
1	R1404801-001 RPT 1/2	30 Jun 2014	17:59:49	1	2.5860	2.0	1.00
2	CCV	30 Jun 2014	18:00:47	1	0.9209	1.0	1.00
3	CCB	30 Jun 2014	18:01:45	1	0.0087	1.0	1.00
4	R1404924-001 RPT 1/50	30 Jun 2014	18:02:43	1	55.2665	50.0	1.00
5	R1404934-001 RPT 1/20	30 Jun 2014	18:03:41	1	37.0897	20.0	1.00
6	R1404889-001 DUP	30 Jun 2014	18:05:49	1	0.1033	1.0	1.00
7	4889-001 SPK	30 Jun 2014	18:06:47	1	0.5373	1.0	1.00
8	CCV	30 Jun 2014	18:07:45	1	0.9189	1.0	1.00
9	CCB	30 Jun 2014	18:08:42	1	0.0076	1.0	1.00

****
** SEQUENCE **
****

TOC Unit: TOC(Offline)
070114B Tue Jul 01 16:11:06 2014

Pos/ Vial	Sample Name	Method	Run Type	# Rep	Vol (mL)	# Blk	Dil Fact	Ovr Rng	Remarks
1	CCV	TOC	Chk. 5	2	1.000	0	1.00	No	
2	CCB	TOC	Chk. 5	2	1.000	0	1.00	No	
3	LCS	TOC	Chk. 5	2	1.000	0	1.00	No	
4	R1404444-008	TOC	Sample	2	1.000	0	1.00	No	
5	R1404444-008DUP	TOC	Sample	2	1.000	0	1.00	No	
6	R1404444-008SPK	TOC	Sample	2	1.000	0	1.00	No	
7	R1404444-009	TOC	Sample	2	1.000	0	1.00	No	
8	R1404444-010	TOC	Sample	2	1.000	0	1.00	No	
9	R1404444-011	TOC	Sample	2	1.000	0	1.00	No	
10	R1404444-012	TOC	Sample	2	1.000	0	1.00	No	
11	R1404444-013	TOC	Sample	2	1.000	0	1.00	No	
12	R1404444-017	TOC	Sample	2	1.000	0	1.00	No	
13	CCV	TOC	Chk. 5	2	1.000	0	1.00	No	
14	CCB	TOC	Chk. 5	2	1.000	0	1.00	No	
15	R1404658-013	TOC	Sample	2	1.000	0	1.00	No	
16	R1404658-014	TOC	Sample	2	1.000	0	1.00	No	
17	R1404658-016	TOC	Sample	2	1.000	0	1.00	No	
18	R1404658-021	TOC	Sample	2	1.000	0	1.00	No	
19	R1404564-008	TOC	Sample	2	1.000	0	1.00	No	
20	R1404564-010	TOC	Sample	2	1.000	0	1.00	No	
21	R1404564-012	TOC	Sample	2	1.000	0	1.00	No	
22	R1404564-016	TOC	Sample	2	1.000	0	1.00	No	
23	R1404564-018	TOC	Sample	2	1.000	0	1.00	No	
24	R1404564-020	TOC	Sample	2	1.000	0	1.00	No	
25	CCV	TOC	Chk. 5	2	1.000	0	1.00	No	
26	CCB	TOC	Chk. 5	2	1.000	0	1.00	No	
27	LCS	TOC	Chk. 5	2	1.000	0	1.00	No	
28	R1404564-022	TOC	Sample	2	1.000	0	1.00	No	
29	R1404564-024	TOC	Sample	2	1.000	0	1.00	No	
30	R1404564-028	TOC	Sample	2	1.000	0	1.00	No	
31	R1404564-028DUP	TOC	Sample	2	1.000	0	1.00	No	
32	R1404564-028SPK	TOC	Sample	2	1.000	0	1.00	No	
33	R1404564-030	TOC	Sample	2	1.000	0	1.00	No	
34	R1404564-032	TOC	Sample	2	1.000	0	1.00	No	
35	R1404564-034	TOC	Sample	2	1.000	0	1.00	No	
36	R1404783-002	TOC	Sample	2	1.000	0	1.00	No	
37	CCV	TOC	Chk. 5	2	1.000	0	1.00	No	
38	CCB	TOC	Chk. 5	2	1.000	0	1.00	No	
39	R1404783-004	TOC	Sample	2	1.000	0	1.00	No	
40	R1404783-006	TOC	Sample	2	1.000	0	1.00	No	
41	R1404783-008	TOC	Sample	2	1.000	0	1.00	No	
42	R1404592-001	TOC	Sample	2	1.000	0	1.00	No	100
43	R1404592-002	TOC	Sample	2	1.000	0	1.00	No	100
44	R1404697-001	TOC	Sample	2	1.000	0	1.00	No	10

Analyst: CWoods
7-1-14
Pipettes: Wayne and TOC Tech Barney

****
** SEQUENCE **
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TOC Unit: TOC(Offline)
070114B Tue Jul 01 16:11:06 2014

Pos/ Vial	Sample Name	Method	Run Type	# Rep	Vol (mL)	# Blk	Dil Fact	Ovr Rng		Remarks
45	R1404697-001DUP	TOC	Sample	2	1.000	0	1.00	No	10	-
46	R1404697-001SPK	TOC	Sample	2	1.000	0	1.00	No	10	
47	CCV	TOC	Chk. 5	2	1.000	0	1.00	No		
48	CCB	TOC	Chk. 5	2	1.000	0	1.00	No		

Logged

Creator : KATRINA MENGS
Creation Date : 6/19/2014 11:23:46 AM
Last Modified : 6/19/2014 11:51:43 AM
Description :

Cup	Sample ID	MDF	Weight	Sample Type	Comments
S1	STD 1.00			Calibration Standard	
S2	STD 0.500			Calibration Standard	
S3	STD 0.200			Calibration Standard	
S4	STD 0.100			Calibration Standard	
S5	STD 0.050			Calibration Standard	
S6	STD 0.020			Calibration Standard	
S7	STD 0.010			Calibration Standard	
S8	STD 0.000			Calibration Standard	
1	ICV TV= 0.36			Unknown	
2	ICB			Unknown	
3	CRDL 0.020			Unknown	
4	CRDL 0.010			Unknown	
5	CCV			Unknown	
6	CCB			Unknown	
7	LCS			Unknown	
8	MRC-MW-81B			Unknown	
9	81B DUP			Unknown	
10	81B SPK			Unknown	
11	MRC-MW-48A			Unknown	
12	MRC-MW-60B			Unknown	
13	MRC-MW-37A			Unknown	
14	DUP RPT			Unknown	
15	SPK RPT			Unknown	repeated with witness Katrina
16	CCV			Unknown	
17	CCB			Unknown	

Analyte Table

	OPO4-RL 365.1 QC85
	(mg/L)
STD 1.00	1.00000
STD 0.500	0.50000
STD 0.200	0.20000
STD 0.100	0.10000
STD 0.050	0.05000
STD 0.020	0.02000
STD 0.010	0.01000
STD 0.000	0.00000

02404

Sample Dilutions

Analyst: L. Dolgos Date: 7/3/14
Instrument: Lachat QC8000 Analysis: Silica

	Sample ID	1st Dilution				2nd Dilution			3nd Dilution		
		mL's of Sample	mL's of Diluent	Matrix of Diluent	Dilution Factor	mL's of 1st Dilution	mL's of Diluent	Dilution Factor	mL's of 2nd Dilution	mL's of Diluent	Dilution Factor
1	R1404658-013	0.5	9.5	DI	20						
2	014	0.5	9.5		20						
3	016	0.5	9.5		20						
4	021	1	4		5						
5	021dup	1	4		5						
6	021SPK	1	4		5						
7	R1404592-002	1	9		10	1	4	50			
8	R1404592-002	1	9		10	1	3	40			
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											

7/3/14

Creator: LDOLGOS
Creation Date: Jul 3, 2014 10:13:16
Last Modified: Jul 3, 2014 12:27:23
Description: QC 8000 USGS I-2700-85 Si D - RUN LOG - 1407030A

Cup #	Sample ID	Manual Dilution	Sample Type	
1	Standard A - 1.000	1.0000	CalStd	
2	Standard B - 0.500	1.0000	CalStd	
3	Standard C - 0.200	1.0000	CalStd	
4	Standard D - 0.100	1.0000	CalStd	
5	Standard E - 0.050	1.0000	CalStd	
6	Standard F - 0.020	1.0000	CalStd	
7	Standard G - 0.010	1.0000	CalStd	
8	Standard H - 0.000	1.0000	CalStd	
1	ICV TV= 0.400	1.0000	Unknown	
2	ICB	1.0000	Unknown	
3	CRDL- 0.020	1.0000	Unknown	
4	CRDL- 0.010	1.0000	Unknown	
5	CCV	1.0000	Unknown	
6	CCB	1.0000	Unknown	
7	LCS TV= 0.250	1.0000	Unknown	
8	R1404658-013 1/20	20.0000	Unknown	
9	R1404658-014 1/20	20.0000	Unknown	
10	R1404658-016 1/20	20.0000	Unknown	
11	R1404658-021 1/5	5.0000	Unknown	
12	4658-021 DUP 1/5	5.0000	Unknown	
13	4658-021 SPK 1/5	5.0000	Unknown	
14	R1404592-002 1/40	50.0000	Unknown	
15	CCV	20.0000	Unknown	
16	CCB	1.0000	Unknown	

OPERATOR: LDOLGOS
ACQ. TIME: Jul 3, 2014 13:00:12
DATA FILENAME: C:\OMNION\DATA\140703A1.FDT
TRAY FILENAME: C:\OMNION\TRAYS\1407030A.TRA

Multi-Channel Table
Type: Unknowns
Channel Range: 1 to 8 -- Cup Range: 1 to 25

Cup	Sample ID	Sampling Date	Sampling Time	Rep #	QC 8000 USGS I-2700-85 SILICA (mg/L)	Man Dil Factor	Auto Dil Factor
1	ICV TV= 0.400	03 Jul 2014	13:00:15	1	0.4348	1.0	1.00
2	ICB	03 Jul 2014	13:01:42	1	-0.0014	1.0	1.00
3	CRDL- 0.020	03 Jul 2014	13:03:08	1	0.0197	1.0	1.00
4	CRDL- 0.010	03 Jul 2014	13:04:34	1	0.0082	1.0	1.00
5	CCV	03 Jul 2014	13:06:00	1	0.4275	1.0	1.00
6	CCB	03 Jul 2014	13:07:27	1	-0.0013	1.0	1.00
7	LCS TV= 0.250	03 Jul 2014	13:08:52	1	0.2525	1.0	1.00
8	R1404658-013 1/20	03 Jul 2014	13:10:17	1	12.4941	20.0	1.00
9	R1404658-014 1/20	03 Jul 2014	13:11:43	1	19.1733	20.0	1.00
10	R1404658-016 1/20	03 Jul 2014	13:13:08	1	11.4604	20.0	1.00
11	R1404658-021 1/5	03 Jul 2014	13:14:33	1	3.2505	5.0	1.00
12	4658-021 DUP 1/5	03 Jul 2014	13:15:58	1	3.3146	5.0	1.00
13	4658-021 SPK 1/5	03 Jul 2014	13:17:24	1	4.4247	5.0	1.00
14	CCV	03 Jul 2014	13:18:49	1	0.4307	1.0	1.00
15	CCB	03 Jul 2014	13:20:14	1	-0.0027	1.0	1.00
16	R1404592-002 RPT 1/40	03 Jul 2014	13:21:40	1	21.5717	40.0	1.00
17	CCV	03 Jul 2014	13:23:07	1	0.4235	1.0	1.00
18	CCB	03 Jul 2014	13:24:33	1	-0.0037	1.0	1.00

Run 400169

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	399753	RQ1407485-01	6/30/14 17:22	0.900	0.918	102	90 - 110
CCV2	399753	RQ1407485-08	6/30/14 17:33	0.900	0.915	102	90 - 110
CCV3	399753	RQ1407485-10	6/30/14 17:45	0.900	0.932	104	90 - 110
CCV4	399753	RQ1407485-14	6/30/14 18:00	0.900	0.921	102	90 - 110
CCV5	399753	RQ1407485-19	6/30/14 18:00	0.900	0.921	102	90 - 110
CCV6	399753	RQ1407485-20	6/30/14 18:07	0.900	0.919	102	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Ammonia as Nitrogen, undistilled

Analytical Method: 350.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	399753	RQ1407485-02	6/30/14 17:23	0.004	0.050	**0.008**	J
CCB2	399753	RQ1407485-07	6/30/14 17:34	0.004	0.050	**0.01**	J
CCB3	399753	RQ1407485-09	6/30/14 17:46	0.004	0.050	**0.009**	J
CCB4	399753	RQ1407485-13	6/30/14 18:01	0.004	0.050	**0.009**	J
CCB5	399753	RQ1407485-17	6/30/14 18:01	0.004	0.050	**0.009**	J
CCB6	399753	RQ1407485-18	6/30/14 18:08	0.004	0.050	**0.008**	J

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** ppm

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	399872	RQ1407530-01	7/1/14 15:31	15.0	15.2	101	85 - 115
CCV2	399872	RQ1407530-04	7/1/14 19:54	15.0	15.1	101	85 - 115
CCV3	399872	RQ1407530-06	7/2/14 00:05	15.0	14.9	99	85 - 115

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Carbon, Dissolved Organic (DOC)

Analytical Method: SM 5310B/C-2000(2011) **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	399872	RQ1407530-08	7/1/14 15:51	0.4	1.0	1.0	U
CCB2	399872	RQ1407530-05	7/1/14 20:15	0.4	1.0	1.0	U
CCB3	399872	RQ1407530-07	7/2/14 00:26	0.4	1.0	1.0	U

Client: Tetra Tech GEO **Service Request:** R1404658

Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Chloride

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398225	RQ1406980-08	6/19/14 15:06	3.25	3.40	105	90 - 110
CCV2	398225	RQ1406980-09	6/19/14 17:34	3.25	3.39	104	90 - 110
CCV3	398225	RQ1406980-10	6/19/14 20:03	3.25	3.40	104	90 - 110
CCV4	398225	RQ1406980-11	6/19/14 22:32	3.25	3.39	104	90 - 110
CCV5	398225	RQ1406980-12	6/20/14 01:00	3.25	3.39	104	90 - 110
CCV6	398362	RQ1407151-01	6/21/14 14:08	3.25	3.40	105	90 - 110
CCV7	398362	RQ1407151-02	6/21/14 16:37	3.25	3.39	104	90 - 110
CCV8	398362	RQ1407151-03	6/21/14 19:05	3.25	3.40	105	90 - 110
CCV9	398362	RQ1407151-04	6/21/14 21:34	3.25	3.40	105	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Chloride

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398225	RQ1406980-03	6/19/14 15:18	0.03	0.20	0.20	U
CCB2	398225	RQ1406980-04	6/19/14 17:47	0.03	0.20	0.20	U
CCB3	398225	RQ1406980-05	6/19/14 20:15	0.03	0.20	0.20	U
CCB4	398225	RQ1406980-06	6/19/14 22:44	0.03	0.20	0.20	U
CCB5	398225	RQ1406980-07	6/20/14 01:13	0.03	0.20	0.1	J
CCB6	398362	RQ1407151-05	6/21/14 14:20	0.03	0.20	0.20	U
CCB7	398362	RQ1407151-06	6/21/14 16:49	0.03	0.20	0.20	U
CCB8	398362	RQ1407151-07	6/21/14 19:18	0.03	0.20	0.20	U
CCB9	398362	RQ1407151-08	6/21/14 21:46	0.03	0.20	0.20	U

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398116	RQ1406954-09	6/19/14 10:06	1.80	1.84	102	90 - 110
CCV2	398116	RQ1406954-10	6/19/14 12:37	1.80	1.83	102	90 - 110
CCV3	398116	RQ1406954-11	6/19/14 15:06	1.80	1.84	102	90 - 110
CCV4	398225	RQ1406980-08	6/19/14 15:06	1.80	1.84	102	90 - 110
CCV5	398116	RQ1406954-12	6/19/14 17:34	1.80	1.83	102	90 - 110
CCV6	398225	RQ1406980-09	6/19/14 17:34	1.80	1.83	102	90 - 110
CCV7	398225	RQ1406980-10	6/19/14 20:03	1.80	1.83	102	90 - 110
CCV8	398225	RQ1406980-11	6/19/14 22:32	1.80	1.83	102	90 - 110
CCV9	398225	RQ1406980-12	6/20/14 01:00	1.80	1.83	102	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Nitrate as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398116	RQ1406954-05	6/19/14 10:18	0.02	0.10	0.10	U
CCB2	398116	RQ1406954-06	6/19/14 12:49	0.02	0.10	0.10	U
CCB3	398116	RQ1406954-07	6/19/14 15:18	0.02	0.10	0.10	U
CCB4	398225	RQ1406980-03	6/19/14 15:18	0.02	0.10	0.10	U
CCB5	398116	RQ1406954-08	6/19/14 17:47	0.02	0.10	0.10	U
CCB6	398225	RQ1406980-04	6/19/14 17:47	0.02	0.10	0.10	U
CCB7	398225	RQ1406980-05	6/19/14 20:15	0.02	0.10	0.10	U
CCB8	398225	RQ1406980-06	6/19/14 22:44	0.02	0.10	0.10	U
CCB9	398225	RQ1406980-07	6/20/14 01:13	0.02	0.10	0.10	U

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Nitrite as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398116	RQ1406954-09	6/19/14 10:06	1.80	1.84	102	90 - 110
CCV2	398116	RQ1406954-10	6/19/14 12:37	1.80	1.84	102	90 - 110
CCV3	398116	RQ1406954-11	6/19/14 15:06	1.80	1.85	103	90 - 110
CCV4	398225	RQ1406980-08	6/19/14 15:06	1.80	1.85	103	90 - 110
CCV5	398116	RQ1406954-12	6/19/14 17:34	1.80	1.85	103	90 - 110
CCV6	398225	RQ1406980-09	6/19/14 17:34	1.80	1.85	103	90 - 110
CCV7	398225	RQ1406980-10	6/19/14 20:03	1.80	1.86	103	90 - 110
CCV8	398225	RQ1406980-11	6/19/14 22:32	1.80	1.85	103	90 - 110
CCV9	398225	RQ1406980-12	6/20/14 01:00	1.80	1.86	103	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404658

Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Nitrite as Nitrogen

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398116	RQ1406954-05	6/19/14 10:18	0.03	0.10	0.10	U
CCB2	398116	RQ1406954-06	6/19/14 12:49	0.03	0.10	0.10	U
CCB3	398116	RQ1406954-07	6/19/14 15:18	0.03	0.10	0.10	U
CCB4	398225	RQ1406980-03	6/19/14 15:18	0.03	0.10	0.10	U
CCB5	398116	RQ1406954-08	6/19/14 17:47	0.03	0.10	0.10	U
CCB6	398225	RQ1406980-04	6/19/14 17:47	0.03	0.10	0.10	U
CCB7	398225	RQ1406980-05	6/19/14 20:15	0.03	0.10	0.10	U
CCB8	398225	RQ1406980-06	6/19/14 22:44	0.03	0.10	0.10	U
CCB9	398225	RQ1406980-07	6/20/14 01:13	0.03	0.10	0.10	U

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398262	RQ1406994-01	6/19/14 11:37	0.360	0.369	103	90 - 110
CCV2	398262	RQ1406994-07	6/19/14 11:49	0.360	0.351	97	90 - 110

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Orthophosphate as Phosphorus

Analytical Method: 365.1 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398262	RQ1406994-02	6/19/14 11:38	0.002	0.010	**0.006**	J
CCB2	398262	RQ1406994-08	6/19/14 11:50	0.002	0.010	**0.008**	J

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	400169	RQ1407621-01	7/3/14 13:06	0.400	0.428	107	90 - 110
CCV2	400169	RQ1407621-07	7/3/14 13:18	0.400	0.431	108	90 - 110
CCV3	400169	RQ1407621-10	7/3/14 13:23	0.400	0.424	106	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Silica, Dissolved as SiO2

Analytical Method: USGS I-2700-85 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	400169	RQ1407621-02	7/3/14 13:07	0.003	0.010	0.010	U
CCB2	400169	RQ1407621-08	7/3/14 13:20	0.003	0.010	0.010	U
CCB3	400169	RQ1407621-09	7/3/14 13:24	0.003	0.010	0.010	U

Client: Tetra Tech GEO **Service Request:** R1404658

Project: Middle River- Lockheed Martin Corp

Continuing Calibration Verification (CCV) Summary
Sulfate

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	398116	RQ1406954-09	6/19/14 10:06	3.20	3.20	100	90 - 110
CCV2	398116	RQ1406954-10	6/19/14 12:37	3.20	3.21	100	90 - 110
CCV3	398116	RQ1406954-11	6/19/14 15:06	3.20	3.19	100	90 - 110
CCV4	398225	RQ1406980-08	6/19/14 15:06	3.20	3.19	100	90 - 110
CCV5	398116	RQ1406954-12	6/19/14 17:34	3.20	3.17	99	90 - 110
CCV6	398225	RQ1406980-09	6/19/14 17:34	3.20	3.17	99	90 - 110
CCV7	398225	RQ1406980-10	6/19/14 20:03	3.20	3.07	96	90 - 110
CCV8	398225	RQ1406980-11	6/19/14 22:32	3.20	3.10	97	90 - 110
CCV9	398225	RQ1406980-12	6/20/14 01:00	3.20	3.21	100	90 - 110
CCV10	398801	RQ1407186-09	6/24/14 14:19	3.20	3.18	99	90 - 110
CCV11	398801	RQ1407186-10	6/24/14 16:49	3.20	3.16	99	90 - 110
CCV12	398801	RQ1407186-11	6/24/14 19:17	3.20	3.16	99	90 - 110
CCV13	398801	RQ1407186-12	6/24/14 21:46	3.20	3.20	100	90 - 110

Client: Tetra Tech GEO **Service Request:** R1404658
Project: Middle River- Lockheed Martin Corp

Continuing Calibration Blank (CCB) Summary
Sulfate

Analytical Method: 300.0 **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	MDL	MRL	Result	Q
CCB1	398116	RQ1406954-05	6/19/14 10:18	0.19	0.20	0.20	U
CCB2	398116	RQ1406954-06	6/19/14 12:49	0.19	0.20	0.20	U
CCB3	398116	RQ1406954-07	6/19/14 15:18	0.19	0.20	0.20	U
CCB4	398225	RQ1406980-03	6/19/14 15:18	0.19	0.20	0.20	U
CCB5	398116	RQ1406954-08	6/19/14 17:47	0.19	0.20	0.20	U
CCB6	398225	RQ1406980-04	6/19/14 17:47	0.19	0.20	0.20	U
CCB7	398225	RQ1406980-05	6/19/14 20:15	0.19	0.20	0.20	U
CCB8	398225	RQ1406980-06	6/19/14 22:44	0.19	0.20	0.20	U
CCB9	398225	RQ1406980-07	6/20/14 01:13	0.19	0.20	0.20	U
CCB10	398801	RQ1407186-05	6/24/14 14:32	0.19	0.20	0.20	U
CCB11	398801	RQ1407186-06	6/24/14 17:01	0.19	0.20	0.20	U
CCB12	398801	RQ1407186-07	6/24/14 19:30	0.19	0.20	0.20	U
CCB13	398801	RQ1407186-08	6/24/14 21:58	0.19	0.20	0.20	U

Analytical Results Summary

Instrument Name: R-Buret-01 **Analyst:** AGRAHAM **Analysis Lot:** 398680 **Method/Testcode:** SM 2320 B-1997(2011)/Alkalinity

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
RQ1407176-01	Alkalinity, Total as CaCO3	MB		Water	1.20 mg/L	100 mL	1.2 mg/L J	1	0.3	2.0			6/24/14 08:43	N	II
RQ1407176-02	Alkalinity, Total as CaCO3	LCS		Water	18.00 mg/L	100 mL	18.0 mg/L	1	0.3	2.0	90		6/24/14 08:43	N	II
R1404444-001	Alkalinity, Total as CaCO3	N/A		Water	416.00 mg/L	5 mL	416 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-002	Alkalinity, Total as CaCO3	N/A		Water	410.00 mg/L	5 mL	410 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-003	Alkalinity, Total as CaCO3	N/A		Water	388.00 mg/L	10 mL	388 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-004	Alkalinity, Total as CaCO3	N/A		Water	121.00 mg/L	20 mL	121 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-005	Alkalinity, Total as CaCO3	N/A		Water	370.00 mg/L	10 mL	370 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-006	Alkalinity, Total as CaCO3	N/A		Water	146.67 mg/L	15 mL	147 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-007	Alkalinity, Total as CaCO3	N/A		Water	378.00 mg/L	10 mL	378 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
RQ1407176-04	Alkalinity, Total as CaCO3	DUP	R1404444-007	Water	380.00 mg/L	10 mL	380 mg/L	1	0.3	2.0		<1	6/24/14 08:43	N	II
RQ1407176-03	Alkalinity, Total as CaCO3	MS	R1404444-007	Water	472.00 mg/L	10 mL	472 mg/L	1	0.3	2.0	94		6/24/14 08:43	N	II
R1404444-008	Alkalinity, Total as CaCO3	N/A		Water	146.67 mg/L	15 mL	147 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-009	Alkalinity, Total as CaCO3	N/A		Water	116.00 mg/L	20 mL	116 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-010	Alkalinity, Total as CaCO3	N/A		Water	504.00 mg/L	5 mL	504 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
RQ1407176-06	Alkalinity, Total as CaCO3	DUP	R1404444-010	Water	500.00 mg/L	5 mL	500 mg/L	1	0.3	2.0		<1	6/24/14 08:43	N	II
RQ1407176-05	Alkalinity, Total as CaCO3	MS	R1404444-010	Water	690.00 mg/L	5 mL	690 mg/L	1	0.3	2.0	93		6/24/14 08:43	N	II
R1404444-011	Alkalinity, Total as CaCO3	N/A		Water	160.00 mg/L	15 mL	160 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-012	Alkalinity, Total as CaCO3	N/A		Water	129.00 mg/L	20 mL	129 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-013	Alkalinity, Total as CaCO3	N/A		Water	420.00 mg/L	5 mL	420 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-014	Alkalinity, Total as CaCO3	N/A		Water	290.00 mg/L	10 mL	290 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-015	Alkalinity, Total as CaCO3	N/A		Water	173.33 mg/L	15 mL	173 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-016	Alkalinity, Total as CaCO3	N/A		Water	120.00 mg/L	20 mL	120 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404444-017	Alkalinity, Total as CaCO3	N/A		Water	99.20 mg/L	25 mL	99.2 mg/L	1	0.3	2.0			6/24/14 08:43	N	II
R1404658-013	Alkalinity, Total as CaCO3	N/A		Water	194.67 mg/L	15 mL	195 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
R1404658-014	Alkalinity, Total as CaCO3	N/A		Water	44.40 mg/L	50 mL	44.4 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
R1404658-016	Alkalinity, Total as CaCO3	N/A		Water	50.67 mg/L	45 mL	50.7 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV

R4658
R4564
2 pwd

Reviewed & Approved
By: CL
Date: 6/26/14

0230

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: R-Buret-01 **Analyst:** AGRAHAM **Analysis Lot:** 398681 **Method/Testcode:** SM 2320 B-1997(2011)/Alkalinity

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
RQ1407177-01	Alkalinity, Total as CaCO3	MB		Water	1.20 mg/L	100 mL	1.2 mg/L J	1	0.3	2.0			6/24/14 08:43	N	III
RQ1407177-01	Bicarbonate Alkalinity as CaCO3	MB		Water	1.20 mg/L		1.2 mg/L J	1	0.3	2.0			6/24/14 08:43:00	N	III
RQ1407177-02	Alkalinity, Total as CaCO3	LCS		Water	18.50 mg/L	100 mL	18.5 mg/L	1	0.3	2.0	92		6/24/14 08:43	N	III
R1404560-002	Alkalinity, Total as CaCO3	N/A		Water	210.00 mg/L	10 mL	210 mg/L	1	0.3	2.0			6/24/14 08:43	N	III
RQ1407177-04	Alkalinity, Total as CaCO3	DUP	R1404560-002	Water	208.00 mg/L	10 mL	208 mg/L	1	0.3	2.0		<1	6/24/14 08:43	N	III
RQ1407177-03	Alkalinity, Total as CaCO3	MS	R1404560-002	Water	302.00 mg/L	10 mL	302 mg/L	1	0.3	2.0	92		6/24/14 08:43	N	III
R1404592-002	Alkalinity, Total as CaCO3	N/A		Water	9.90 mg/L	100 mL	9.9 mg/L	1	0.3	2.0			6/24/14 13:37	N	I
R1404592-002	Bicarbonate Alkalinity as CaCO3	N/A		Water	9.90 mg/L		9.9 mg/L	1	0.3	2.0			6/24/14 13:37:00	N	I
R1404592-002	Phenolphthalein Alkalinity as CaCO3	N/A		Water	0.00 mg/L		2.0 mg/L U	1		2.0			6/24/14 13:37:00	N	I
R1404658-021	Alkalinity, Total as CaCO3	N/A		Water	60.57 mg/L	35 mL	60.6 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
R1404564-001	Alkalinity, Total as CaCO3	N/A		Water	163.33 mg/L	15 mL	163 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
R1404564-003	Alkalinity, Total as CaCO3	N/A		Water	134.00 mg/L	20 mL	134 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
R1404564-005	Alkalinity, Total as CaCO3	N/A		Water	106.00 mg/L	20 mL	106 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
R1404564-007	Alkalinity, Total as CaCO3	N/A		Water	-0.10 mg/L	100 mL	2.0 mg/L U	1	0.3	2.0			6/24/14 13:37	N	IV
R1404564-009	Alkalinity, Total as CaCO3	N/A		Water	146.67 mg/L	15 mL	147 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV
RQ1407177-06	Alkalinity, Total as CaCO3	DUP	R1404564-009	Water	146.67 mg/L	15 mL	147 mg/L	1	0.3	2.0		<1	6/24/14 08:43	N	IV
RQ1407177-05	Alkalinity, Total as CaCO3	MS	R1404564-009	Water	208.00 mg/L	15 mL	208 mg/L	1	0.3	2.0	92		6/24/14 08:43	N	IV
R1404564-011	Alkalinity, Total as CaCO3	N/A		Water	72.67 mg/L	30 mL	72.7 mg/L	1	0.3	2.0			6/24/14 08:43	N	IV

6936

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404658-MB1	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**1.2**	J	mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Ammonia as Nitrogen, undistilled	350.1	**0.008**	J	mg/L	0.050	0.004	1	NA	6/30/14 17:23	
Carbon, Dissolved Organic (DOC)	SM 5310B/C-2000(201	1.0	U	mg/L	1.0	0.4	1	NA	7/1/14 15:51	
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	6/19/14 15:18	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	0.02	1	NA	6/19/14 10:18	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	0.03	1	NA	6/19/14 10:18	
Orthophosphate as Phosphorus	365.1	**0.006**	J	mg/L	0.010	0.002	1	NA	6/19/14 11:38	
Silica, Dissolved as SiO2	USGS I-2700-85	0.010	U	mg/L	0.010	0.003	1	NA	7/3/14 13:07	
Solids, Total Dissolved (TDS)	SM 2540 C-1997(2011)	10	U	mg/L	10	5	1	NA	6/23/14 09:19	
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	6/19/14 10:18	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404658-MB2	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Alkalinity, Total as CaCO3	SM 2320 B-1997(2011)	**1.2**	J	mg/L	2.0	0.3	1	NA	6/24/14 08:43	
Chloride	300.0	0.20	U	mg/L	0.20	0.03	1	NA	6/21/14 14:20	
Nitrate as Nitrogen	300.0	0.10	U	mg/L	0.10	0.02	1	NA	6/19/14 15:18	
Nitrite as Nitrogen	300.0	0.10	U	mg/L	0.10	0.03	1	NA	6/19/14 15:18	
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	6/19/14 15:18	

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	Tetra Tech GEO	**Service Request:**	R1404658
Project:	Middle River- Lockheed Martin Corp	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank		
Lab Code:	R1404658-MB3	**Basis:**	NA

General Chemistry Parameters

Analyte Name	Method	Result	Q	Units	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
Sulfate	300.0	0.20	U	mg/L	0.20	0.19	1	NA	6/24/14 14:32	

APPENDIX D—ANALYTICAL DATA TABLE FOR 2014 SAMPLES

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-EXT06-060514 20140605	MRC-MW01A-061314 20140613	MRC-MW01A-061314-AVG 20140613	MRC-MW01A-061314-D 20140613	MRC-MW02A-060914 20140609	MRC-MW02A-061814 20140618	MRC-MW04A-060914 20140609	MRC-MW07A-060314 20140603
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,1,1-TRICHLOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,1-DICHLOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,1-DICHLOROETHENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,1-DICHLOROPROPENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2,3-TRICHLOROBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2,3-TRICHLOROPROPANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2,4-TRICHLOROBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	NA	NA	NA	2 U	NA	NA
1,2-DIBROMOETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2-DICHLOROBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2-DICHLOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,3-DICHLOROBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
1,3-DICHLOROPROPANE	NA	NA	NA	NA	NA	1 U	NA	NA
1,4-DICHLOROBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
2,2-DICHLOROPROPANE	NA	NA	NA	NA	NA	1 U	NA	NA
2-BUTANONE	NA	NA	NA	NA	NA	5 U	NA	NA
2-CHLOROETHYL VINYL ETHER	NA	NA	NA	NA	NA	1 U	NA	NA
2-CHLOROTOLUENE	NA	NA	NA	NA	NA	1 U	NA	NA
2-HEXANONE	NA	NA	NA	NA	NA	5 U	NA	NA
4-CHLOROTOLUENE	NA	NA	NA	NA	NA	1 U	NA	NA
4-ISOPROPYLTOLUENE	NA	NA	NA	NA	NA	1 U	NA	NA
4-METHYL-2-PENTANONE	NA	NA	NA	NA	NA	5 U	NA	NA
ACETONE	NA	NA	NA	NA	NA	5 U	NA	NA
BENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
BROMOBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
BROMOCHLOROMETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
BROMODICHLOROMETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
BROMOFORM	NA	NA	NA	NA	NA	1 U	NA	NA
BROMOMETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
CARBON DISULFIDE	NA	NA	NA	NA	NA	1 U	NA	NA
CARBON TETRACHLORIDE	NA	NA	NA	NA	NA	1 U	NA	NA
CHLOROBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
CHLORODIBROMOMETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
CHLOROETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
CHLOROFORM	NA	NA	NA	NA	NA	1 U	NA	NA
CHLOROMETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
CIS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	1 U	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	1 U	NA	NA
DIBROMOMETHANE	NA	NA	NA	NA	NA	1 U	NA	NA
DICHLORODIFLUOROMETHANE	NA	NA	NA	NA	NA	1.6	NA	NA
DIISOPROPYL ETHER	NA	NA	NA	NA	NA	1 U	NA	NA
ETHYL TERT-BUTYL ETHER	NA	NA	NA	NA	NA	1 U	NA	NA
ETHYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
HEXACHLOROBUTADIENE	NA	NA	NA	NA	NA	2 U	NA	NA
ISOPROPYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
M+P-XYLENES	NA	NA	NA	NA	NA	2 U	NA	NA
METHYL TERT-BUTYL ETHER	NA	NA	NA	NA	NA	1 U	NA	NA
METHYLENE CHLORIDE	NA	NA	NA	NA	NA	1 U	NA	NA
NAPHTHALENE	NA	NA	NA	NA	NA	1 U	NA	NA
N-BUTYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
N-PROPYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
O-XYLENE	NA	NA	NA	NA	NA	1 U	NA	NA
SEC-BUTYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
STYRENE	NA	NA	NA	NA	NA	1 U	NA	NA
TERT-AMYL METHYL ETHER	NA	NA	NA	NA	NA	1 U	NA	NA
TERT-BUTYLBENZENE	NA	NA	NA	NA	NA	1 U	NA	NA
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	NA	NA	40 U	NA	NA
TETRACHLOROETHENE	NA	NA	NA	NA	NA	1 U	NA	NA
TOLUENE	NA	NA	NA	NA	NA	1 U	NA	NA
TOTAL XYLENES	NA	NA	NA	NA	NA	3 U	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	NA	NA	1 U	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	NA	NA	1 U	NA	NA
TRICHLOROETHENE	NA	NA	NA	NA	NA	1 U	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-EXT06-060514 20140605	MRC-MW01A-061314 20140613	MRC-MW01A-061314-AVG 20140613	MRC-MW01A-061314-D 20140613	MRC-MW02A-060914 20140609	MRC-MW02A-061814 20140618	MRC-MW04A-060914 20140609	MRC-MW07A-060314 20140603
TRICHLOROFLUOROMETHANE	NA	NA	NA	NA	NA	5.4	NA	NA
VINYL ACETATE	NA	NA	NA	NA	NA	2 U	NA	NA
VINYL CHLORIDE	NA	NA	NA	NA	NA	1 U	NA	NA
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	1.7	NA	NA	NA	NA	NA	NA	4.69
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	NA	NA	NA	NA	0.157 U	NA	1.6 U	0.413 U
ARSENIC	NA	NA	NA	NA	0.211 U	NA	2.8 J	0.211 U
BARIUM	NA	NA	NA	NA	144	NA	472	83.9
BERYLLIUM	NA	NA	NA	NA	5.6	NA	0.205 J	0.236 J
CADMIUM	NA	NA	NA	NA	0.152 J	NA	0.08 U	0.68 J
CHROMIUM	NA	NA	NA	NA	2 J	NA	4.9 J	4.1 U
COBALT	NA	NA	NA	NA	108	NA	7.7 J	33.4 J
COPPER	NA	NA	NA	NA	119	NA	83.1	14.3
IRON	NA	NA	NA	NA	271	NA	224	413
LEAD	NA	NA	NA	NA	0.354 J	NA	0.61 U	0.779 J
MANGANESE	NA	NA	NA	NA	43.8	NA	159	676
MERCURY	NA	NA	NA	NA	0.024 U	NA	0.024 U	0.024 U
MOLYBDENUM	NA	NA	NA	NA	0.479 J	NA	2.2 J	0.103 U
NICKEL	NA	NA	NA	NA	150	NA	22.1	134
SELENIUM	NA	NA	NA	NA	0.745 J	NA	2.1 U	1.7 J
SILICON	NA	NA	NA	NA	NA	NA	NA	3740
SILVER	NA	NA	NA	NA	0.015 U	NA	0.153 U	0.065 U
THALLIUM	NA	NA	NA	NA	0.031 U	NA	0.307 U	0.054 J
VANADIUM	NA	NA	NA	NA	0.457 J	NA	3.6 U	0.713 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-EXT06-060514 20140605	MRC-MW01A-061314 20140613	MRC-MW01A-061314-AVG 20140613	MRC-MW01A-061314-D 20140613	MRC-MW02A-060914 20140609	MRC-MW02A-061814 20140618	MRC-MW04A-060914 20140609	MRC-MW07A-060314 20140603
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	4.2	4.2	4.2	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID	MRC-MW08A-052214	MRC-MW08B-061214	MRC-MW100A-061214	MRC-MW100B-061214	MRC-MW100B-061214-DL	MRC-MW101A-050814	MRC-MW101B-050814	MRC-MW102A-050814	MRC-MW102B-050814
SAMPLE DATE	20140522	20140612	20140612	20140612	20140612	20140508	20140508	20140508	20140508
VOLATILES (UG/L)									
1,1,1,2-TETRACHLOROETHANE	0.22 U	1 U	1 U	1 U	2 U	0.22 U	0.22 U	0.22 U	0.22 U
1,1,1-TRICHLOROETHANE	0.36 U	1 U	1 U	1 U	2 U	0.36 U	0.36 U	0.36 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	0.25 U	1 U	1 U	1 U	2 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	1 U	1 U	0.63 J	2 U	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ
1,1-DICHLOROETHANE	0.2 U	1 U	2.2	28	26 D	0.2 U	3.1	0.2 U	0.2 U
1,1-DICHLOROETHENE	0.57 U	1 U	1.8	84	76 D	0.57 U	1.1	0.57 U	1.9
1,1-DICHLOROPROPENE	0.29 U	1 U	1 U	1 U	2 U	0.29 U	0.29 U	0.29 U	0.29 U
1,2,3-TRICHLOROBENZENE	0.82 U	1 U	1 U	1 U	2 U	0.82 U	0.82 U	0.82 U	0.82 U
1,2,3-TRICHLOROPROPANE	0.7 U	1 U	1 U	1 U	2 U	0.7 U	0.7 U	0.7 U	0.7 U
1,2,4-TRICHLOROBENZENE	0.23 U	1 U	1 U	1 U	2 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2,4-TRIMETHYLBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	2 U	2 U	2 U	4 U	0.74 U	0.74 U	0.74 U	0.74 U
1,2-DIBROMOETHANE	0.24 U	1 U	1 U	1 U	2 U	0.24 U	0.24 U	0.24 U	0.24 U
1,2-DICHLOROBENZENE	0.21 U	1 U	1 U	1 U	2 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-DICHLOROETHANE	0.36 UJ	1 U	1 U	0.9 J	0.9 DJ	0.36 U	0.36 U	0.36 U	0.36 U
1,2-DICHLOROPROPANE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	0.27 U	1 U	1 U	1 U	2 U	0.27 U	0.27 U	0.27 U	0.27 U
1,4-DICHLOROBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	0.27 U	1 U	1 U	1 U	2 U	0.27 U	0.27 U	0.27 U	0.27 U
2-BUTANONE	0.81 UJ	5 U	5 U	5 U	10 U	0.81 U	0.81 U	0.81 U	0.81 U
2-CHLOROETHYL VINYL ETHER	0.44 U	1 U	1 U	1 U	2 U	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ
2-CHLOROTOLUENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	1.7 UJ	5 U	5 U	5 U	10 U	1.7 U	1.7 U	1.7 U	1.7 U
4-CHLOROTOLUENE	0.24 U	1 U	1 U	1 U	2 U	0.24 U	0.24 U	0.24 U	0.24 U
4-ISOPROPYLTOLUENE	0.2 U	1 U	1 U	1 U	2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
4-METHYL-2-PENTANONE	0.67 U	5 U	5 U	5 U	10 U	0.67 U	0.67 U	0.67 U	0.67 U
ACETONE	1.3 UJ	5 U	5 U	5 U	10 U	1.3 U	1.3 U	1.3 U	1.3 U
BENZENE	0.2 U	1 U	1 U	0.25 J	2 U	0.2 U	0.2 U	0.22 J	0.27 J
BROMOBENZENE	0.28 U	1 U	1 U	1 U	2 U	0.28 U	0.28 U	0.28 U	0.28 U
BROMOCHLOROMETHANE	0.32 U	1 U	1 U	1 U	2 U	0.32 U	0.32 U	0.32 U	0.32 U
BROMODICHLOROMETHANE	0.32 U	1 U	1 U	1 U	2 U	0.32 U	0.32 U	0.32 U	0.32 U
BROMOFORM	0.42 U	1 U	1 U	1 U	2 U	0.42 U	0.42 U	0.42 U	0.42 U
BROMOMETHANE	0.29 U	1 U	1 U	1 U	2 U	0.29 U	0.29 U	0.29 U	0.29 U
CARBON DISULFIDE	0.22 U	1 U	1 U	1 U	2 U	0.22 U	0.22 U	0.22 U	0.22 U
CARBON TETRACHLORIDE	0.45 U	1 U	1 U	1 U	2 U	0.45 U	0.45 U	0.45 U	0.45 U
CHLOROBENZENE	0.29 U	1 U	1 U	1 U	2 U	0.29 U	0.29 U	0.29 U	0.29 U
CHLORODIBROMOMETHANE	0.31 U	1 U	1 U	1 U	2 U	0.31 U	0.31 U	0.31 U	0.31 U
CHLOROETHANE	0.24 U	1 U	1 U	1 U	2 U	0.24 U	0.24 U	0.24 U	0.24 U
CHLOROFORM	0.25 U	1 U	1 U	0.56 J	2.2 D	0.25 U	0.25 U	0.25 U	0.25 U
CHLOROMETHANE	0.21 U	1 U	1 U	1 U	2 U	0.21 U	0.21 U	0.21 U	0.21 U
CIS-1,2-DICHLOROETHENE	0.3 U	1 U	1.1	39	36 D	2.6	1.4	1.2	410 J
CIS-1,3-DICHLOROPROPENE	0.24 U	1 U	1 U	1 U	2 U	0.24 U	0.24 U	0.24 U	0.24 U
DIBROMOMETHANE	0.32 U	1 U	1 U	1 U	2 U	0.32 U	0.32 U	0.32 U	0.32 U
DICHLORODIFLUOROMETHANE	0.46 U	1 U	1 U	1 U	2 U	0.46 U	0.46 U	0.46 U	0.46 U
DIISOPROPYL ETHER	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYL TERT-BUTYL ETHER	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	0.62 U	2 U	2 U	2 U	4 U	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ
ISOPROPYLBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
M+P-XYLENES	0.33 U	2 U	2 U	2 U	4 U	0.33 U	0.33 U	0.33 U	0.33 U
METHYL TERT-BUTYL ETHER	0.29 U	1 U	1 U	1 U	2 U	0.29 U	0.29 U	0.29 U	0.29 U
METHYLENE CHLORIDE	0.32 U	1 U	1 U	0.35 J	2 U	0.32 U	0.32 U	0.32 U	0.32 U
NAPHTHALENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-BUTYLBENZENE	0.21 U	1 U	1 U	1 U	2 U	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ
N-PROPYLBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	0.27 U	1 U	1 U	1 U	2 U	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ
STYRENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-AMYL METHYL ETHER	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	0.2 U	1 U	1 U	1 U	2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
TERTIARY-BUTYL ALCOHOL	11 U	40 U	40 U	40 U	80 U	11 U	11 U	11 U	11 U
TETRACHLOROETHENE	0.3 U	1 U	1 U	0.8 J	0.88 DJ	0.3 U	0.3 U	0.3 U	0.3 U
TOLUENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
TOTAL XYLENES	0.53 U	3 U	3 U	3 U	6 U	0.53 U	0.53 U	0.53 U	0.53 U
TRANS-1,2-DICHLOROETHENE	0.33 U	1 U	1 U	0.36 J	2 U	0.33 U	0.33 U	0.33 U	2.9
TRANS-1,3-DICHLOROPROPENE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHENE	0.22 U	0.9 J	5.2	220 E	200 D	1.1	1.4	0.22 U	93

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW08A-052214 20140522	MRC-MW08B-061214 20140612	MRC-MW100A-061214 20140612	MRC-MW100B-061214 20140612	MRC-MW100B-061214-DL 20140612	MRC-MW101A-050814 20140508	MRC-MW101B-050814 20140508	MRC-MW102A-050814 20140508	MRC-MW102B-050814 20140508
TRICHLOROFLUOROMETHANE	0.2 U	1 U	1 U	1 U	2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE	1.1 U	2 U	2 U	2 U	4 U	1.1 U	1.1 U	1.1 U	1.1 U
VINYL CHLORIDE	0.32 U	1 U	1 U	0.42 J	2 U	0.32 U	0.32 U	0.32 U	0.35 J
VOLATILE GASES (UG/L)									
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)									
1,4-DIOXANE	0.39	0.0764 J	2.09	94.6	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)									
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)									
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)									
ANTIMONY	0.157 U	NA	NA	0.157 UN	NA	NA	NA	NA	0.248 U
ARSENIC	2.2	NA	NA	0.211 U	NA	NA	NA	NA	1.4
BARIUM	150	NA	NA	93.2	NA	NA	NA	NA	42.4
BERYLLIUM	0.287	NA	NA	0.664 J	NA	NA	NA	NA	12.8 J
CADMIUM	0.008 U	NA	NA	0.008 U	NA	NA	NA	NA	0.812 J
CHROMIUM	1.7 U	NA	NA	2.4	NA	NA	NA	NA	2.1 U
COBALT	149	NA	NA	64.1 E	NA	NA	NA	NA	437 J
COPPER	6.8 J	NA	NA	0.689 J	NA	NA	NA	NA	2.1 J
IRON	44800	NA	NA	31700	NA	NA	NA	NA	264
LEAD	1.2	NA	NA	0.197 J	NA	NA	NA	NA	0.687 J
MANGANESE	42800	NA	NA	1750	NA	NA	NA	NA	396
MERCURY	0.024 U	NA	NA	0.024 U	NA	NA	NA	NA	0.024 U
MOLYBDENUM	0.892 J	NA	NA	0.073 J	NA	NA	NA	NA	0.09 U
NICKEL	372	NA	NA	101 E	NA	NA	NA	NA	602 J
SELENIUM	0.213 U	NA	NA	0.213 U	NA	NA	NA	NA	4.5
SILICON	7270	NA	NA	NA	NA	NA	NA	NA	8780
SILVER	0.015 U	NA	NA	0.02 J	NA	NA	NA	NA	0.027 U
THALLIUM	0.031 U	NA	NA	0.064 J	NA	NA	NA	NA	0.031 U
VANADIUM	0.169 U	NA	NA	0.358 U	NA	NA	NA	NA	0.479 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW08A-052214 20140522	MRC-MW08B-061214 20140612	MRC-MW100A-061214 20140612	MRC-MW100B-061214 20140612	MRC-MW100B-061214-DL 20140612	MRC-MW101A-050814 20140508	MRC-MW101B-050814 20140508	MRC-MW102A-050814 20140508	MRC-MW102B-050814 20140508
MISCELLANEOUS PARAMETERS (MG/L)									
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)									
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	0.026 U	2.2	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW103A-031814 20140318	MRC-MW-103A-041814 20140418	MRC-MW103B-031814 20140318	MRC-MW-103B-041814 20140418	MRC-MW104A-051214 20140512	MRC-MW104B-051214 20140512	MRC-MW105A-051214 20140512	MRC-MW106B/C-052314 20140523
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 UJ	NA	0.22 UJ	NA	0.22 U	0.22 U	NA	0.22 U
1,1,1-TRICHLOROETHANE	0.36 UJ	NA	0.36 UJ	NA	0.36 U	0.36 U	NA	0.36 U
1,1,2,2-TETRACHLOROETHANE	0.25 UJ	NA	0.25 UJ	NA	0.25 U	0.25 U	NA	0.25 UJ
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 UJ	NA	0.31 UJ	NA	0.31 U	0.31 U	NA	0.31 U
1,1-DICHLOROETHANE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
1,1-DICHLOROETHENE	0.57 UJ	NA	0.57 UJ	NA	0.57 U	0.57 U	NA	0.57 U
1,1-DICHLOROPROPENE	0.29 UJ	NA	0.29 UJ	NA	0.29 U	0.29 U	NA	0.29 U
1,2,3-TRICHLOROBENZENE	0.82 UJ	NA	0.82 UJ	NA	0.82 U	0.82 U	NA	0.82 U
1,2,3-TRICHLOROPROPANE	0.7 UJ	NA	0.7 UJ	NA	0.7 U	0.7 U	NA	0.7 U
1,2,4-TRICHLOROBENZENE	0.23 UJ	NA	0.23 UJ	NA	0.23 U	0.23 U	NA	0.23 U
1,2,4-TRIMETHYLBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 UJ	NA	0.74 UJ	NA	0.74 U	0.74 U	NA	0.74 U
1,2-DIBROMOETHANE	0.24 UJ	NA	0.24 UJ	NA	0.24 U	0.24 U	NA	0.24 U
1,2-DICHLOROBENZENE	0.21 UJ	NA	0.21 UJ	NA	0.21 U	0.21 U	NA	0.21 U
1,2-DICHLOROETHANE	23 J	NA	1.3 J	NA	0.36 U	0.36 U	NA	0.36 U
1,2-DICHLOROPROPANE	0.27 J	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
1,3-DICHLOROBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
1,3-DICHLOROPROPANE	0.27 UJ	NA	0.27 UJ	NA	0.27 U	0.27 U	NA	0.27 U
1,4-DICHLOROBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
2,2-DICHLOROPROPANE	0.27 UJ	NA	0.27 UJ	NA	0.27 U	0.27 U	NA	0.27 U
2-BUTANONE	0.81 UJ	NA	0.81 UJ	NA	0.81 U	0.81 U	NA	0.81 U
2-CHLOROETHYL VINYL ETHER	0.44 UJ	NA	0.44 UJ	NA	0.44 UJ	0.44 UJ	NA	0.44 U
2-CHLOROTOLUENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
2-HEXANONE	1.7 UJ	NA	1.7 UJ	NA	1.7 U	1.7 U	NA	1.7 U
4-CHLOROTOLUENE	0.24 UJ	NA	0.24 UJ	NA	0.24 U	0.24 U	NA	0.24 U
4-ISOPROPYLTOLUENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
4-METHYL-2-PENTANONE	0.67 UJ	NA	0.67 UJ	NA	0.67 U	0.67 U	NA	0.67 U
ACETONE	1.3 UJ	NA	1.3 UJ	NA	1.3 UJ	1.3 UJ	NA	1.3 U
BENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
BROMOBENZENE	0.28 UJ	NA	0.28 UJ	NA	0.28 U	0.28 U	NA	0.28 U
BROMOCHLOROMETHANE	0.32 UJ	NA	0.32 UJ	NA	0.32 U	0.32 U	NA	0.32 U
BROMODICHLOROMETHANE	0.32 UJ	NA	0.32 UJ	NA	0.32 U	0.32 U	NA	0.32 U
BROMOFORM	0.42 UJ	NA	0.42 UJ	NA	0.42 U	0.42 U	NA	0.42 U
BROMOMETHANE	0.29 UJ	NA	0.29 UJ	NA	0.29 U	0.29 U	NA	0.29 UJ
CARBON DISULFIDE	0.22 UJ	NA	0.22 UJ	NA	0.22 U	0.22 U	NA	0.55 J
CARBON TETRACHLORIDE	0.45 UJ	NA	0.45 UJ	NA	0.45 U	0.45 U	NA	0.45 U
CHLOROBENZENE	0.29 UJ	NA	0.29 UJ	NA	0.29 U	0.29 U	NA	0.29 U
CHLORODIBROMOMETHANE	0.31 UJ	NA	0.31 UJ	NA	0.31 U	0.31 U	NA	0.31 U
CHLOROETHANE	0.24 UJ	NA	0.24 UJ	NA	0.24 U	0.24 U	NA	0.28 J
CHLOROFORM	1.5 J	NA	0.25 UJ	NA	0.25 U	0.25 U	NA	0.27 J
CHLOROMETHANE	0.21 UJ	NA	0.21 UJ	NA	0.21 U	0.21 U	NA	0.21 U
CIS-1,2-DICHLOROETHENE	0.3 UJ	NA	0.3 UJ	NA	0.3 U	0.3 U	NA	0.43 J
CIS-1,3-DICHLOROPROPENE	0.24 UJ	NA	0.24 UJ	NA	0.24 U	0.24 U	NA	0.24 U
DIBROMOMETHANE	0.32 UJ	NA	0.32 UJ	NA	0.32 U	0.32 U	NA	0.32 U
DICHLORODIFLUOROMETHANE	0.46 UJ	NA	0.46 UJ	NA	0.46 U	0.46 U	NA	0.46 U
DIISOPROPYL ETHER	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
ETHYL TERT-BUTYL ETHER	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
ETHYLBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
HEXACHLOROBUTADIENE	0.62 UJ	NA	0.62 UJ	NA	0.62 UJ	0.62 UJ	NA	0.62 U
ISOPROPYLBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
M+P-XYLENES	0.33 UJ	NA	0.33 UJ	NA	0.33 U	0.33 U	NA	0.33 U
METHYL TERT-BUTYL ETHER	0.29 UJ	NA	0.29 UJ	NA	0.29 U	0.29 U	NA	0.29 U
METHYLENE CHLORIDE	0.32 UJ	NA	0.32 UJ	NA	0.32 U	0.32 U	NA	0.32 U
NAPHTHALENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
N-BUTYLBENZENE	0.21 UJ	NA	0.21 UJ	NA	0.21 U	0.21 U	NA	0.21 U
N-PROPYLBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
O-XYLENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
SEC-BUTYLBENZENE	0.27 UJ	NA	0.27 UJ	NA	0.27 U	0.27 U	NA	0.27 U
STYRENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
TERT-AMYL METHYL ETHER	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
TERT-BUTYLBENZENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
TERTIARY-BUTYL ALCOHOL	11 UJ	NA	11 UJ	NA	11 UJ	11 UJ	NA	11 U
TETRACHLOROETHENE	0.3 UJ	NA	0.3 UJ	NA	0.3 U	0.3 U	NA	0.3 U
TOLUENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
TOTAL XYLENES	0.53 UJ	NA	0.53 UJ	NA	0.53 U	0.53 U	NA	0.53 U
TRANS-1,2-DICHLOROETHENE	0.33 UJ	NA	0.33 UJ	NA	0.33 U	0.33 U	NA	0.33 U
TRANS-1,3-DICHLOROPROPENE	0.2 UJ	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
TRICHLOROETHENE	0.22 UJ	NA	0.22 UJ	NA	0.22 U	0.22 U	NA	2.9

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW103A-031814 20140318	MRC-MW-103A-041814 20140418	MRC-MW103B-031814 20140318	MRC-MW-103B-041814 20140418	MRC-MW104A-051214 20140512	MRC-MW104B-051214 20140512	MRC-MW105A-051214 20140512	MRC-MW106B/C-052314 20140523
TRICHLOROFLUOROMETHANE	3.1 J	NA	0.2 UJ	NA	0.2 U	0.2 U	NA	0.2 U
VINYL ACETATE	1.1 UJ	NA	1.1 UJ	NA	1.1 U	1.1 U	NA	1.1 U
VINYL CHLORIDE	0.32 UJ	NA	0.32 UJ	NA	0.32 U	0.32 U	NA	0.32 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	0.0044 U	0.0044 U	0.0044 U	0.0044 U	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.011 U	0.011 U	0.011 U	0.011 U	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.01 UJ	0.01 U	0.01 UJ	0.01 U	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	0.0017 U	0.0017 U	0.0017 U	0.0017 U	NA	NA	NA	NA
NONACHLOROBIPHENYLS	0.019 U	0.019 UJ	0.019 U	0.019 UJ	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	0.0084 U	0.0084 U	0.0084 U	0.0084 U	NA	NA	NA	NA
PCB-209	0.018 U	0.018 U	0.018 U	0.018 U	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.0088 U	0.0088 U	0.0088 U	0.0088 U	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.0054 U	0.0054 U	0.0054 U	0.0054 U	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.0045 U	0.0034 U	0.005 U	0.0034 U	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	0.0044 U	NA	0.0044 U	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	0.011 U	NA	0.011 U	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	0.01 U	NA	0.01 U	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	0.0017 U	NA	0.0017 U	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	0.019 UJ	NA	0.019 UJ	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	0.0084 U	NA	0.0084 U	NA	NA	NA	NA
PCB-209	NA	0.018 U	NA	0.018 U	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	0.0088 U	NA	0.0088 U	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	0.0054 U	NA	0.0054 U	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	0.0034 U	NA	0.0034 U	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	NA	NA	NA	NA	NA	0.182 U	0.157 U	NA
ARSENIC	NA	NA	NA	NA	NA	0.211 U	0.211 U	NA
BARIUM	NA	NA	NA	NA	NA	52.7	53.8	NA
BERYLLIUM	NA	NA	NA	NA	NA	4.7 J	2.9	NA
CADMIUM	NA	NA	NA	NA	NA	0.008 U	0.233 J	NA
CHROMIUM	NA	NA	NA	NA	NA	2.2 U	2 U	NA
COBALT	NA	NA	NA	NA	NA	51.2	38.2	NA
COPPER	NA	NA	NA	NA	NA	5.7	11.3	NA
IRON	NA	NA	NA	NA	NA	664	164	NA
LEAD	NA	NA	NA	NA	NA	0.767 J	0.396 J	NA
MANGANESE	NA	NA	NA	NA	NA	440	69.7	NA
MERCURY	NA	NA	NA	NA	NA	0.024 U	0.024 U	NA
MOLYBDENUM	NA	NA	NA	NA	NA	0.068 U	0.068 U	NA
NICKEL	NA	NA	NA	NA	NA	61.3	30.2	NA
SELENIUM	NA	NA	NA	NA	NA	0.279 J	1.9 J	NA
SILICON	NA	NA	NA	NA	NA	3640	1750	NA
SILVER	NA	NA	NA	NA	NA	0.016 U	0.015 U	NA
THALLIUM	NA	NA	NA	NA	NA	0.031 U	0.031 U	NA
VANADIUM	NA	NA	NA	NA	NA	1.1 J	0.479 U	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW103A-031814 20140318	MRC-MW-103A-041814 20140418	MRC-MW103B-031814 20140318	MRC-MW-103B-041814 20140418	MRC-MW104A-051214 20140512	MRC-MW104B-051214 20140512	MRC-MW105A-051214 20140512	MRC-MW106B/C-052314 20140523
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW107B/C-060214 20140602	MRC-MW109A-060514 20140605	MRC-MW109B-060514 20140605	MRC-MW10A-052214 20140522	MRC-MW110A-060314 20140603	MRC-MW110B-060314 20140603	MRC-MW111A-061614 20140616	MRC-MW111B-061614 20140616
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1 U	1 U
1,1,1-TRICHLOROETHANE	0.36 UJ	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	1 U	1
1,1,2,2-TETRACHLOROETHANE	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 UJ	1 U	1 U
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 UJ	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	1 U	1.7
1,1-DICHLOROETHANE	0.2 UJ	0.2 U	0.2 U	0.22 J	0.61 J	0.2 U	1 U	41
1,1-DICHLOROETHENE	0.57 UJ	1.3	0.57 U	0.57 U	0.76 J	0.57 U	1 U	220 E
1,1-DICHLOROPROPENE	0.29 UJ	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1 U	1 U
1,2,3-TRICHLOROBENZENE	0.82 UJ	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	1 U	1 U
1,2,3-TRICHLOROPROPANE	0.7 UJ	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	1 U	1 U
1,2,4-TRICHLOROBENZENE	0.23 UJ	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	1 U	1 U
1,2,4-TRIMETHYLBENZENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 UJ	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	2 U	2 U
1,2-DIBROMOETHANE	0.24 UJ	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U	1 U
1,2-DICHLOROBENZENE	0.21 UJ	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1 U	1 U
1,2-DICHLOROETHANE	0.36 UJ	0.36 U	0.36 U	0.36 UJ	0.36 UJ	0.36 UJ	1 U	1.4
1,2-DICHLOROPROPANE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
1,3-DICHLOROBENZENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
1,3-DICHLOROPROPANE	0.27 UJ	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1 U	1 U
1,4-DICHLOROBENZENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
2,2-DICHLOROPROPANE	0.27 UJ	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1 U	1 U
2-BUTANONE	0.81 UJ	0.81 U	0.81 U	0.81 UJ	0.81 U	0.81 U	5 U	5 U
2-CHLOROETHYL VINYL ETHER	0.44 UJ	0.44 U	0.44 U	0.44 U	0.44 U	0.44 U	1 U	1 U
2-CHLOROTOLUENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
2-HEXANONE	1.7 UJ	1.7 U	1.7 U	1.7 UJ	1.7 U	1.7 U	5 U	5 U
4-CHLOROTOLUENE	0.24 UJ	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U	1 U
4-ISOPROPYLTOLUENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
4-METHYL-2-PENTANONE	0.67 UJ	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	5 U	5 U
ACETONE	1.3 UJ	6.3 U	1.3 U	1.7 U	1.3 U	1.3 U	8.4	1.7 J
BENZENE	0.2 UJ	0.21 J	10	0.2 U	1.5	18	1 U	3.2
BROMOBENZENE	0.28 UJ	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1 U	1 U
BROMOCHLOROMETHANE	0.32 UJ	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U	1 U
BROMODICHLOROMETHANE	0.32 UJ	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U	1 U
BROMOFORM	0.42 UJ	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	1 U	1 U
BROMOMETHANE	0.29 UJ	0.29 U	0.29 U	0.29 U	0.29 UJ	0.29 UJ	1 U	1 U
CARBON DISULFIDE	0.22 UJ	0.22 U	0.22 U	0.22 U	0.22 U	0.23 J	1 U	1 U
CARBON TETRACHLORIDE	0.45 UJ	0.45 U	0.45 U	0.45 U	0.45 UJ	0.45 UJ	1 U	1 U
CHLOROBENZENE	0.29 UJ	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1 U	1 U
CHLORODIBROMOMETHANE	0.31 UJ	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	1 U	1 U
CHLOROETHANE	0.24 UJ	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U	0.94 J
CHLOROFORM	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.54 J	1 U	0.48 J
CHLOROMETHANE	0.21 UJ	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1 U	1 U
CIS-1,2-DICHLOROETHENE	0.3 UJ	45	21	0.49 J	6.3	3.2	1 U	47
CIS-1,3-DICHLOROPROPENE	0.24 UJ	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U	1 U
DIBROMOMETHANE	0.32 UJ	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U	1 U
DICHLORODIFLUOROMETHANE	0.46 UJ	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	1 U	1 U
DIISOPROPYL ETHER	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
ETHYL TERT-BUTYL ETHER	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
ETHYLBENZENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.83 J	1 U	1 U
HEXACHLOROBUTADIENE	0.62 UJ	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	2 U	2 U
ISOPROPYLBENZENE	0.2 UJ	0.2 U	0.25 J	0.2 U	0.2 U	0.2 U	1 U	1 U
M+P-XYLENES	0.33 UJ	0.33 U	0.33 U	0.33 U	0.33 U	0.63 J	2 U	2 U
METHYL TERT-BUTYL ETHER	0.29 UJ	0.29 U	0.29 U	0.29 U	0.29 U	1.1	1 U	1 U
METHYLENE CHLORIDE	0.32 UJ	0.32 U	0.32 U	0.32 U	0.32 UJ	0.32 UJ	1 U	1 U
NAPHTHALENE	0.2 UJ	0.2 U	0.33 U	0.2 U	0.2 U	0.2 U	1 U	1 U
N-BUTYLBENZENE	0.21 UJ	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1 U	1 U
N-PROPYLBENZENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
O-XYLENE	0.2 UJ	0.2 U	0.42 J	0.2 U	0.2 U	0.81 J	1 U	1 U
SEC-BUTYLBENZENE	0.27 UJ	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1 U	1 U
STYRENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
TERT-AMYL METHYL ETHER	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
TERT-BUTYLBENZENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
TERTIARY-BUTYL ALCOHOL	11 UJ	11 U	11 U	11 U	11 U	11 U	40 U	40 U
TETRACHLOROETHENE	0.3 UJ	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1 U	2.2
TOLUENE	0.2 UJ	0.36 J	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
TOTAL XYLENES	0.53 UJ	0.53 U	0.53 U	0.53 U	0.53 U	1.4 J	3 U	3 U
TRANS-1,2-DICHLOROETHENE	0.33 UJ	1.1	1.6	0.33 U	0.33 U	0.33 U	1 U	0.44 J
TRANS-1,3-DICHLOROPROPENE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
TRICHLOROETHENE	0.22 UJ	0.22 U	4.1	0.22 U	31	30	1 U	590 E

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW107B/C-060214 20140602	MRC-MW109A-060514 20140605	MRC-MW109B-060514 20140605	MRC-MW10A-052214 20140522	MRC-MW110A-060314 20140603	MRC-MW110B-060314 20140603	MRC-MW111A-061614 20140616	MRC-MW111B-061614 20140616
TRICHLOROFLUOROMETHANE	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U	1 U
VINYL ACETATE	1.1 UJ	1.1 U	1.1 U	1.1 U	1.1 UJ	1.1 UJ	2 U	2 U
VINYL CHLORIDE	0.32 UJ	31	0.6 J	0.32 U	0.41 J	0.32 U	1 U	1.8
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	1.32	3.23	3.29	0.177 J	132
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.277 U	0.157 UJ	2.8 J	0.157 U	0.157 U	0.188 U	NA	0.157 U
ARSENIC	0.226 J	6 J	0.629 J	2.1	0.806 J	0.286 J	NA	4
BARIUM	49.4 U	102	74.5	98.4	944	173	NA	83.6
BERYLLIUM	0.067 J	0.083 J	0.675 J	0.287 J	2.9	0.552 J	NA	0.281 J
CADMIUM	0.081 J	0.008 U	0.03 U	0.008 U	0.008 U	0.008 U	NA	0.467 J
CHROMIUM	2.2 U	1.8 J	1.5 J	3.3 U	0.763 U	0.938 U	NA	0.47 U
COBALT	5.6 J	70.2	31.9	92.2	859 J	172 J	NA	49.5
COPPER	0.875 J	2.5	3.7	2.6 J	3.6	12.2	NA	1.2
IRON	4200	60000	164	71400	41100	10800	NA	31900
LEAD	0.27 J	0.233 J	0.345 J	0.773 J	0.304 J	1.1 J	NA	0.678 J
MANGANESE	689	944	83	6900	19800	1510	NA	805
MERCURY	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	NA	0.024 U
MOLYBDENUM	0.409 J	0.42 J	0.652 J	0.287 U	0.154 U	0.148 U	NA	0.068 U
NICKEL	19.7	48.8	56.6	67.1	566	159	NA	87.6
SELENIUM	0.213 U	3.7 J	0.546 J	1.5 J	0.254 J	0.213 U	NA	0.52 J
SILICON	5030	10300	5330	4340	9230	6020	NA	NA
SILVER	0.015 U	0.03 U	0.015 U	0.02 U	0.016 U	0.026 U	NA	0.015 U
THALLIUM	0.031 UJ	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	NA	0.037 J
VANADIUM	0.479 U	0.375 U	3.2 J	5 U	0.479 U	0.479 U	NA	0.358 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW107B/C-060214 20140602	MRC-MW109A-060514 20140605	MRC-MW109B-060514 20140605	MRC-MW10A-052214 20140522	MRC-MW110A-060314 20140603	MRC-MW110B-060314 20140603	MRC-MW111A-061614 20140616	MRC-MW111B-061614 20140616
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	0.026 U	0.16 J	NA	1.8	0.026 U	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW111B-061614-DL 20140616	MRC-MW112A-060514 20140605	MRC-MW113A-032014 20140320	MRC-MW-113A-041814 20140418	MRC-MW114A-032014 20140320	MRC-MW114A-032014-AVG 20140320	MRC-MW114A-032014-D 20140320	MRC-MW-114A-041814 20140418
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	5 U	0.22 UJ	2.2 UJ	NA	0.22 UJ	0.22 U	0.22 UJ	NA
1,1,1-TRICHLOROETHANE	5 U	0.36 UJ	3.6 UJ	NA	0.36 UJ	0.36 U	0.36 UJ	NA
1,1,2,2-TETRACHLOROETHANE	5 U	0.25 UJ	2.5 UJ	NA	0.25 UJ	0.25 U	0.25 UJ	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	1.7 DJ	0.31 UJ	3.1 UJ	NA	0.31 UJ	0.31 U	0.31 UJ	NA
1,1-DICHLOROETHANE	37 D	0.2 UJ	2.2 J	NA	0.2 UJ	0.2 U	0.2 UJ	NA
1,1-DICHLOROETHENE	190 D	0.57 UJ	5.7 UJ	NA	0.57 UJ	0.57 U	0.57 UJ	NA
1,1-DICHLOROPROPENE	5 U	0.29 UJ	2.9 UJ	NA	0.29 UJ	0.29 U	0.29 UJ	NA
1,2,3-TRICHLOROBENZENE	5 U	0.82 UJ	60 J	NA	120 J	120	120 J	NA
1,2,3-TRICHLOROPROPANE	5 U	0.7 UJ	7 UJ	NA	0.7 UJ	0.7 U	0.7 UJ	NA
1,2,4-TRICHLOROBENZENE	5 U	0.23 UJ	270 J	NA	530 J	565	600 J	NA
1,2,4-TRIMETHYLBENZENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
1,2-DIBROMO-3-CHLOROPROPANE	10 U	0.74 UJ	7.4 UJ	NA	0.74 UJ	0.74 U	0.74 UJ	NA
1,2-DIBROMOETHANE	5 U	0.24 UJ	2.4 UJ	NA	0.24 UJ	0.24 U	0.24 UJ	NA
1,2-DICHLOROBENZENE	5 U	0.21 UJ	15 J	NA	30 J	31	32 J	NA
1,2-DICHLOROETHANE	5 U	0.36 UJ	3.6 UJ	NA	960 J	1030	1100 J	NA
1,2-DICHLOROPROPANE	5 U	0.2 UJ	2 UJ	NA	7.7 J	7.8	7.9 J	NA
1,3-DICHLOROBENZENE	5 U	0.2 UJ	14 J	NA	4.7 J	4.7	4.7 J	NA
1,3-DICHLOROPROPANE	5 U	0.27 UJ	2.7 UJ	NA	0.27 UJ	0.27 U	0.27 UJ	NA
1,4-DICHLOROBENZENE	5 U	0.34 J	36 J	NA	49 J	49	49 J	NA
2,2-DICHLOROPROPANE	5 U	0.27 UJ	2.7 UJ	NA	0.27 UJ	0.27 U	0.27 UJ	NA
2-BUTANONE	25 U	0.81 UJ	8.2 UJ	NA	0.81 UJ	0.81 U	0.81 UJ	NA
2-CHLOROETHYL VINYL ETHER	5 U	0.44 UJ	4.4 UJ	NA	0.44 UJ	0.44 U	0.44 UJ	NA
2-CHLOROTOLUENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
2-HEXANONE	25 U	1.7 UJ	17 UJ	NA	1.7 UJ	1.7 U	1.7 UJ	NA
4-CHLOROTOLUENE	5 U	0.24 UJ	2.4 UJ	NA	0.24 UJ	0.24 U	0.24 UJ	NA
4-ISOPROPYLTOLUENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
4-METHYL-2-PENTANONE	25 U	0.67 UJ	6.7 UJ	NA	0.67 UJ	0.67 U	0.67 UJ	NA
ACETONE	25 U	1.3 UJ	13 UJ	NA	1.3 UJ	1.3 U	1.3 UJ	NA
BENZENE	2.8 DJ	0.27 J	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
BROMOBENZENE	5 U	0.28 UJ	2.9 UJ	NA	0.28 UJ	0.28 U	0.28 UJ	NA
BROMOCHLOROMETHANE	5 U	0.32 UJ	3.2 UJ	NA	0.32 UJ	0.32 U	0.32 UJ	NA
BROMODICHLOROMETHANE	5 U	0.32 UJ	3.2 UJ	NA	0.32 UJ	0.32 U	0.32 UJ	NA
BROMOFORM	5 U	0.42 UJ	4.2 UJ	NA	0.42 UJ	0.42 U	0.42 UJ	NA
BROMOMETHANE	5 U	0.29 UJ	2.9 UJ	NA	0.29 UJ	0.29 U	0.29 UJ	NA
CARBON DISULFIDE	5 U	0.22 UJ	2.2 UJ	NA	0.48 J	0.455	0.43 J	NA
CARBON TETRACHLORIDE	5 U	0.45 UJ	4.5 UJ	NA	0.45 UJ	0.45 U	0.45 UJ	NA
CHLOROBENZENE	5 U	1.8 J	23 J	NA	510 J	540	570 J	NA
CHLORODIBROMOMETHANE	5 U	0.31 UJ	3.1 UJ	NA	0.31 UJ	0.31 U	0.31 UJ	NA
CHLOROETHANE	1.6 DJ	0.24 UJ	2.4 UJ	NA	0.24 UJ	0.24 U	0.24 UJ	NA
CHLOROFORM	5 U	0.25 UJ	2.6 J	NA	0.25 UJ	0.25 U	0.25 UJ	NA
CHLOROMETHANE	5 U	0.21 UJ	2.1 UJ	NA	0.21 UJ	0.21 U	0.21 UJ	NA
CIS-1,2-DICHLOROETHENE	42 D	1.9 J	8.4 J	NA	0.95 J	0.88	0.81 J	NA
CIS-1,3-DICHLOROPROPENE	5 U	0.24 UJ	2.4 UJ	NA	0.24 UJ	0.24 U	0.24 UJ	NA
DIBROMOMETHANE	5 U	0.32 UJ	3.2 UJ	NA	0.32 UJ	0.32 U	0.32 UJ	NA
DICHLORODIFLUOROMETHANE	5 U	0.46 UJ	4.7 UJ	NA	0.46 UJ	0.46 U	0.46 UJ	NA
DIISOPROPYL ETHER	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
ETHYL TERT-BUTYL ETHER	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
ETHYLBENZENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
HEXACHLOROBUTADIENE	10 U	0.62 UJ	6.2 UJ	NA	0.62 UJ	0.62 U	0.62 UJ	NA
ISOPROPYLBENZENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
M+P-XYLENES	10 U	0.33 UJ	3.4 UJ	NA	0.33 UJ	0.33 U	0.33 UJ	NA
METHYL TERT-BUTYL ETHER	5 U	0.29 UJ	2.9 UJ	NA	0.29 UJ	0.29 U	0.29 UJ	NA
METHYLENE CHLORIDE	5 U	0.32 UJ	3.2 UJ	NA	1.6 J	1.45	1.3 J	NA
NAPHTHALENE	5 U	0.2 UJ	2.5 U	NA	0.2 UJ	0.39 U	0.58 U	NA
N-BUTYLBENZENE	5 U	0.21 UJ	2.1 UJ	NA	0.21 UJ	0.21 U	0.21 UJ	NA
N-PROPYLBENZENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
O-XYLENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
SEC-BUTYLBENZENE	5 U	0.27 UJ	2.7 UJ	NA	0.27 UJ	0.27 U	0.27 UJ	NA
STYRENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
TERT-AMYL METHYL ETHER	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
TERT-BUTYLBENZENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
TERTIARY-BUTYL ALCOHOL	200 U	11 UJ	110 UJ	NA	11 UJ	11 U	11 UJ	NA
TETRACHLOROETHENE	2.1 DJ	0.3 UJ	43 J	NA	2.1 J	2.1	2.1 J	NA
TOLUENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
TOTAL XYLENES	15 U	0.53 UJ	5.4 UJ	NA	0.53 UJ	0.53 U	0.53 UJ	NA
TRANS-1,2-DICHLOROETHENE	5 U	0.33 UJ	3.4 UJ	NA	0.33 UJ	0.33 U	0.33 UJ	NA
TRANS-1,3-DICHLOROPROPENE	5 U	0.2 UJ	2 UJ	NA	0.2 UJ	0.2 U	0.2 UJ	NA
TRICHLOROETHENE	530 D	3.1 J	24 J	NA	4.5 J	4.5	4.5 J	NA

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Chemical Results for Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE	MRC-MW111B-061614-DL 20140616	MRC-MW112A-060514 20140605	MRC-MW113A-032014 20140320	MRC-MW-113A-041814 20140418	MRC-MW114A-032014 20140320	MRC-MW114A-032014-AVG 20140320	MRC-MW114A-032014-D 20140320	MRC-MW-114A-041814 20140418
TRICHLOROFLUOROMETHANE	5 U	0.2 UJ	1500 J	NA	140 J	140	140 J	NA
VINYL ACETATE	10 U	1.1 UJ	11 UJ	NA	1.1 UJ	1.1 U	1.1 UJ	NA
VINYL CHLORIDE	1.8 DJ	1.4 J	3.2 UJ	NA	5.3 J	5.25	5.2 J	NA
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	6.86	NA	0.709	0.782	0.855	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U	0.0044 U
HEPTACHLOROBIPHENYLS	NA	NA	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
HEXACHLOROBIPHENYL	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U
MONOCHLOROBIPHENYLS	NA	NA	0.0017 U	0.0017 U	0.012	0.012	0.012	0.0066
NONACHLOROBIPHENYLS	NA	NA	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 UJ
OCTACHLOROBIPHENYLS	NA	NA	0.0084 U	0.0084 U	0.0084 U	0.0084 U	0.0084 U	0.0084 U
PCB-209	NA	NA	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
PENTACHLOROBIPHENYLS	NA	NA	0.0088 U	0.0088 U	0.0088 U	0.0088 U	0.0088 U	0.0088 U
TETRACHLOROBIPHENYLS	NA	NA	0.0054 U	0.0054 U	0.0054 U	0.0054 U	0.0054 U	0.0054 U
TRICHLOROBIPHENYLS	NA	NA	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	0.0044 U	NA	NA	NA	0.0044 U
HEPTACHLOROBIPHENYLS	NA	NA	NA	0.011 U	NA	NA	NA	0.011 U
HEXACHLOROBIPHENYL	NA	NA	NA	0.01 U	NA	NA	NA	0.01 U
MONOCHLOROBIPHENYLS	NA	NA	NA	0.0017 U	NA	NA	NA	0.0017 U
NONACHLOROBIPHENYLS	NA	NA	NA	0.019 U	NA	NA	NA	0.019 UJ
OCTACHLOROBIPHENYLS	NA	NA	NA	0.0084 U	NA	NA	NA	0.0084 U
PCB-209	NA	NA	NA	0.018 U	NA	NA	NA	0.018 U
PENTACHLOROBIPHENYLS	NA	NA	NA	0.0088 U	NA	NA	NA	0.0088 U
TETRACHLOROBIPHENYLS	NA	NA	NA	0.0054 U	NA	NA	NA	0.0054 U
TRICHLOROBIPHENYLS	NA	NA	NA	0.0034 U	NA	NA	NA	0.0034 U
METALS (UG/L)								
ANTIMONY	NA	0.759 U	NA	NA	NA	NA	NA	NA
ARSENIC	NA	0.871 J	NA	NA	NA	NA	NA	NA
BARIUM	NA	115	NA	NA	NA	NA	NA	NA
BERYLLIUM	NA	9.6	0.98 J	NA	6.8	6.9	7	NA
CADMIUM	NA	0.008 U	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	2 J	NA	NA	NA	NA	NA	NA
COBALT	NA	67.9	34.4	NA	28.8	29.1	29.4	NA
COPPER	NA	2.7	NA	NA	NA	NA	NA	NA
IRON	NA	12500	NA	NA	NA	NA	NA	NA
LEAD	NA	0.394 J	NA	NA	NA	NA	NA	NA
MANGANESE	NA	284	NA	NA	NA	NA	NA	NA
MERCURY	NA	0.024 U	0.024 U	NA	0.024 U	0.024 U	0.024 U	NA
MOLYBDENUM	NA	0.068 UJ	NA	NA	NA	NA	NA	NA
NICKEL	NA	86.9	54.8	NA	67.1	68	68.9	NA
SELENIUM	NA	1.1 J	NA	NA	NA	NA	NA	NA
SILICON	NA	4140	NA	NA	NA	NA	NA	NA
SILVER	NA	0.015 U	NA	NA	NA	NA	NA	NA
THALLIUM	NA	0.031 U	NA	NA	NA	NA	NA	NA
VANADIUM	NA	4.1 J	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW111B-061614-DL 20140616	MRC-MW112A-060514 20140605	MRC-MW113A-032014 20140320	MRC-MW-113A-041814 20140418	MRC-MW114A-032014 20140320	MRC-MW114A-032014-AVG 20140320	MRC-MW114A-032014-D 20140320	MRC-MW-114A-041814 20140418
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	0.69	NA	0.76	0.785	0.81	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW115A-060214 20140602	MRC-MW116A-060214 20140602	MRC-MW11A-060214 20140602	MRC-MW11C-052214 20140522	MRC-MW12A-053014 20140530	MRC-MW-12A-063014 20140630	MRC-MW-12A-072414 20140724	MRC-MW12B-053014 20140530
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 U	0.22 U	2.2 U	0.22 U	2.2 UJ	NA	NA	0.44 U
1,1,1-TRICHLOROETHANE	0.36 U	0.36 U	3.6 U	0.36 U	3.6 U	NA	NA	0.72 U
1,1,2,2-TETRACHLOROETHANE	0.25 UJ	0.25 UJ	2.5 UJ	0.25 UJ	2.5 U	NA	NA	0.5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	0.31 U	3.1 U	0.31 U	3.1 U	NA	NA	0.62 U
1,1-DICHLOROETHANE	0.2 U	0.2 U	2 U	0.2 U	25	NA	NA	4.8
1,1-DICHLOROETHENE	0.57 U	0.57 U	5.7 U	0.57 U	220	NA	NA	38
1,1-DICHLOROPROPENE	0.29 U	0.29 U	2.9 U	0.29 U	2.9 U	NA	NA	0.58 U
1,2,3-TRICHLOROBENZENE	0.82 U	0.82 U	8.2 U	0.82 U	8.2 U	NA	NA	1.7 U
1,2,3-TRICHLOROPROPANE	0.7 U	0.7 U	7 U	0.7 U	7 U	NA	NA	1.4 U
1,2,4-TRICHLOROBENZENE	0.23 U	0.23 U	2.4 U	0.23 U	2.5 U	NA	NA	0.46 U
1,2,4-TRIMETHYLBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	0.74 U	7.4 U	0.74 U	7.4 U	NA	NA	1.5 U
1,2-DIBROMOETHANE	0.24 U	0.24 U	2.4 U	0.24 U	2.4 U	NA	NA	0.48 U
1,2-DICHLOROBENZENE	0.21 U	0.21 U	2.1 U	0.21 U	2.1 U	NA	NA	0.42 U
1,2-DICHLOROETHANE	0.36 UJ	0.36 UJ	3.6 UJ	0.36 U	3.6 U	NA	NA	0.78 J
1,2-DICHLOROPROPANE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
1,3-DICHLOROBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
1,3-DICHLOROPROPANE	0.27 U	0.27 U	2.7 U	0.27 U	2.7 U	NA	NA	0.54 U
1,4-DICHLOROBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
2,2-DICHLOROPROPANE	0.27 U	0.27 U	2.7 U	0.27 U	2.7 U	NA	NA	0.54 U
2-BUTANONE	0.81 U	0.81 U	8.2 U	0.81 U	8.2 U	NA	NA	1.7 U
2-CHLOROETHYL VINYL ETHER	0.44 U	0.44 U	4.4 U	0.44 U	10 U	NA	NA	2 U
2-CHLOROTOLUENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
2-HEXANONE	1.7 U	1.7 U	17 U	1.7 U	17 U	NA	NA	3.4 U
4-CHLOROTOLUENE	0.24 U	0.24 U	2.4 U	0.24 U	2.4 U	NA	NA	0.48 U
4-ISOPROPYLTOLUENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
4-METHYL-2-PENTANONE	0.67 U	0.67 U	6.7 U	0.67 U	6.7 U	NA	NA	1.4 U
ACETONE	1.3 U	2.5 U	13 U	1.3 U	13 U	NA	NA	2.5 U
BENZENE	0.2 U	0.2 U	2 U	0.2 U	4.7 J	NA	NA	1.2 J
BROMOBENZENE	0.28 U	0.28 U	2.9 U	0.28 U	2.9 U	NA	NA	0.56 U
BROMOCHLOROMETHANE	0.32 U	0.32 U	3.2 U	0.32 U	3.2 U	NA	NA	0.64 U
BROMODICHLOROMETHANE	0.32 U	0.32 U	3.2 U	0.32 U	3.2 U	NA	NA	0.64 U
BROMOFORM	0.42 U	0.42 U	4.2 U	0.42 U	4.2 U	NA	NA	0.84 U
BROMOMETHANE	0.29 UJ	0.29 UJ	2.9 UJ	0.29 UJ	2.9 U	NA	NA	0.58 U
CARBON DISULFIDE	0.22 U	0.22 U	2.2 U	0.22 U	2.2 U	NA	NA	0.44 U
CARBON TETRACHLORIDE	0.45 UJ	0.45 UJ	4.5 UJ	0.45 U	4.5 UJ	NA	NA	0.9 U
CHLOROBENZENE	0.29 U	0.29 U	2.9 U	0.29 U	2.9 U	NA	NA	0.58 U
CHLORODIBROMOMETHANE	0.31 U	0.31 U	3.1 U	0.31 U	3.1 UJ	NA	NA	0.62 UJ
CHLOROETHANE	0.24 U	0.24 U	2.4 U	0.24 U	2.4 U	NA	NA	0.48 U
CHLOROFORM	0.25 U	0.25 U	2.5 U	0.25 U	4.6 J	NA	NA	0.62 J
CHLOROMETHANE	0.21 U	0.21 U	2.1 U	0.21 U	2.1 U	NA	NA	0.42 U
CIS-1,2-DICHLOROETHENE	0.3 U	0.3 U	3 U	0.3 U	82	NA	NA	19
CIS-1,3-DICHLOROPROPENE	0.24 U	0.24 U	2.4 U	0.24 U	2.4 U	NA	NA	0.48 U
DIBROMOMETHANE	0.32 U	0.32 U	3.2 U	0.32 U	3.2 U	NA	NA	0.64 U
DICHLORODIFLUOROMETHANE	0.46 U	0.46 U	4.7 U	0.46 U	4.7 U	NA	NA	0.92 U
DIISOPROPYL ETHER	0.2 U	0.2 U	2 U	0.2 U	2 UJ	NA	NA	0.4 U
ETHYL TERT-BUTYL ETHER	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
ETHYLBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
HEXACHLOROBUTADIENE	0.62 U	0.62 U	6.2 U	0.62 U	7.1 U	NA	NA	1.3 U
ISOPROPYLBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
M+P-XYLENES	0.33 U	0.33 U	3.4 U	0.33 U	3.4 U	NA	NA	0.66 U
METHYL TERT-BUTYL ETHER	0.29 U	0.29 U	2.9 U	0.29 U	2.9 U	NA	NA	0.58 U
METHYLENE CHLORIDE	0.32 UJ	0.32 UJ	3.2 UJ	0.32 U	3.2 U	NA	NA	0.64 U
NAPHTHALENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
N-BUTYLBENZENE	0.21 U	0.21 U	2.1 U	0.21 U	2.1 U	NA	NA	0.42 U
N-PROPYLBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
O-XYLENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
SEC-BUTYLBENZENE	0.27 U	0.27 U	2.7 U	0.27 U	2.7 U	NA	NA	0.54 U
STYRENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
TERT-AMYL METHYL ETHER	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
TERT-BUTYLBENZENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
TERTIARY-BUTYL ALCOHOL	11 U	11 U	110 U	11 U	110 U	NA	NA	22 U
TETRACHLOROETHENE	0.3 U	0.3 U	3 U	0.3 U	3 U	NA	NA	0.6 U
TOLUENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
TOTAL XYLENES	0.53 U	0.53 U	5.4 U	0.53 U	5.4 U	NA	NA	1.1 U
TRANS-1,2-DICHLOROETHENE	0.33 U	0.33 U	3.4 U	0.33 U	3.4 U	NA	NA	0.66 U
TRANS-1,3-DICHLOROPROPENE	0.2 U	0.2 U	2 U	0.2 U	2 U	NA	NA	0.4 U
TRICHLOROETHENE	0.22 U	0.22 U	2.2 U	0.22 U	1300	NA	NA	320

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW115A-060214 20140602	MRC-MW116A-060214 20140602	MRC-MW11A-060214 20140602	MRC-MW11C-052214 20140522	MRC-MW12A-053014 20140530	MRC-MW-12A-063014 20140630	MRC-MW-12A-072414 20140724	MRC-MW12B-053014 20140530
TRICHLOROFLUOROMETHANE	0.2 U	0.2 U	2 U	0.2 U	2 UJ	NA	NA	0.4 U
VINYL ACETATE	1.1 UJ	1.1 UJ	11 UJ	1.1 U	11 UJ	NA	NA	2.1 U
VINYL CHLORIDE	0.32 U	0.32 U	3.2 U	0.32 U	3.2 U	NA	NA	0.64 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	0.2 U	NA	NA	0.2 U
ETHENE	NA	NA	NA	NA	0.52 J	NA	NA	0.11 U
METHANE	NA	NA	NA	NA	46	NA	NA	2 U
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	0.0224 J	0.02 U	0.0956 J	0.02 U	374	NA	NA	71.8
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.157 U	0.302 U	21.9	NA	0.157 U	NA	NA	0.157 U
ARSENIC	1.5	1.9	1.5	NA	0.975 J	NA	NA	0.634 J
BARIUM	248	46.1 U	46.5 U	NA	112	NA	NA	84.6
BERYLLIUM	0.02 U	0.047 J	0.047 J	NA	1	NA	NA	0.088 J
CADMIUM	0.008 U	0.065 J	0.008 U	NA	0.008 U	NA	NA	0.008 U
CHROMIUM	1.7 U	3.6 U	4.4 U	NA	1.7 U	NA	NA	1.7 U
COBALT	43.2 J	1.9 J	2.4 J	NA	65.7	NA	NA	10.4
COPPER	3.8	5.7	15.3	NA	1.8	NA	NA	3.4
IRON	4910	2380	4670	NA	55000	NA	NA	9900
LEAD	0.122 U	0.718 J	2.4	NA	0.547 J	NA	NA	1.2
MANGANESE	822	179	242	NA	2610	NA	NA	815
MERCURY	0.024 U	0.024 U	0.024 U	NA	0.024 U	NA	NA	0.024 U
MOLYBDENUM	7.2	13.7	5.2	NA	0.228 U	NA	NA	0.154 U
NICKEL	40.1	5	8.9	NA	115	NA	NA	38.5
SELENIUM	0.213 U	0.355 J	1.4 J	NA	0.638 J	NA	NA	0.213 U
SILICON	8110	12900	18500	NA	8210	NA	NA	5570
SILVER	0.015 U	0.015 U	0.05 U	NA	0.015 U	NA	NA	0.015 U
THALLIUM	0.031 U	0.031 UJ	0.031 U	NA	0.031 U	NA	NA	0.031 U
VANADIUM	0.479 U	3.7 U	12.7 J	NA	1.7 U	NA	NA	2.9 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW115A-060214 20140602	MRC-MW116A-060214 20140602	MRC-MW11A-060214 20140602	MRC-MW11C-052214 20140522	MRC-MW12A-053014 20140530	MRC-MW-12A-063014 20140630	MRC-MW-12A-072414 20140724	MRC-MW12B-053014 20140530
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	0.024 J	NA	NA	0.091
CARBONATE ALKALINITY	NA	NA	NA	NA	28.1	NA	NA	34.2
CHLORIDE	NA	NA	NA	NA	59.1 J	NA	NA	13.1 J
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	1.7	NA	NA	1 U
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	0.2 U	NA	NA	0.2 U
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	0.3 U	NA	NA	0.3 U
ORTHOPHOSPHATE-P	NA	NA	NA	NA	0.02 J	NA	NA	0.016 J
SILICA	NA	NA	NA	NA	15.1	NA	NA	8.13
SULFATE	NA	NA	NA	NA	23.7	NA	NA	9.6
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	178	NA	NA	74
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	200	280	NA
PERCHLORATE	0.026 U	0.026 U	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW-12B-063014 20140630	MRC-MW-12B-072414 20140724	MRC-MW12C-053014 20140530	MRC-MW13A-053014 20140530	MRC-MW13A-053014-AVG 20140530	MRC-MW13A-053014-D 20140530	MRC-MW14A-060414 20140604	MRC-MW14B-060514 20140605
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1.1 U
1,1,1-TRICHLOROETHANE	NA	NA	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	3.7 J
1,1,2,2-TETRACHLOROETHANE	NA	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.3 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	3.9 J
1,1-DICHLOROETHANE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.98 J	24
1,1-DICHLOROETHENE	NA	NA	0.57 U	0.57 U	0.57 U	0.57 U	0.98 J	240
1,1-DICHLOROPROPENE	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.5 U
1,2,3-TRICHLOROBENZENE	NA	NA	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	4.1 U
1,2,3-TRICHLOROPROPANE	NA	NA	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	3.5 U
1,2,4-TRICHLOROBENZENE	NA	NA	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	1.2 U
1,2,4-TRIMETHYLBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	3.7 U
1,2-DIBROMOETHANE	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U
1,2-DICHLOROBENZENE	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1.1 U
1,2-DICHLOROETHANE	NA	NA	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	1.8 U
1,2-DICHLOROPROPANE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,3-DICHLOROBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,3-DICHLOROPROPANE	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1.4 U
1,4-DICHLOROBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
2,2-DICHLOROPROPANE	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1.4 U
2-BUTANONE	NA	NA	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U	4.1 U
2-CHLOROETHYL VINYL ETHER	NA	NA	1 U	1 U	1 U	1 U	0.44 U	2.2 U
2-CHLOROTOLUENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
2-HEXANONE	NA	NA	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	8.3 U
4-CHLOROTOLUENE	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U
4-ISOPROPYLTOLUENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
4-METHYL-2-PENTANONE	NA	NA	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	3.4 U
ACETONE	NA	NA	1.3 U	1.3 U	1.3 U	1.3 U	2 U	6.2 U
BENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	18
BROMOBENZENE	NA	NA	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1.5 U
BROMOCHLOROMETHANE	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.6 U
BROMODICHLOROMETHANE	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.6 U
BROMOFORM	NA	NA	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	2.1 U
BROMOMETHANE	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.5 U
CARBON DISULFIDE	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1.1 U
CARBON TETRACHLORIDE	NA	NA	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	2.3 U
CHLOROBENZENE	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.5 U
CHLORODIBROMOMETHANE	NA	NA	0.31 UJ	0.31 UJ	0.31 U	0.31 UJ	0.31 U	1.6 U
CHLOROETHANE	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U
CHLOROFORM	NA	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	2.7 J
CHLOROMETHANE	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1.1 U
CIS-1,2-DICHLOROETHENE	NA	NA	0.3 U	0.61 J	0.615	0.62 J	9.4	34
CIS-1,3-DICHLOROPROPENE	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1.2 U
DIBROMOMETHANE	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.6 U
DICHLORODIFLUOROMETHANE	NA	NA	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	2.4 U
DIISOPROPYL ETHER	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
ETHYL TERT-BUTYL ETHER	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
ETHYLBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
HEXACHLOROBUTADIENE	NA	NA	0.62 U	0.62 U	0.62 U	0.62 U	0.62 U	3.1 U
ISOPROPYLBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
M+P-XYLENES	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1.7 U
METHYL TERT-BUTYL ETHER	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1.5 U
METHYLENE CHLORIDE	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1.6 U
NAPHTHALENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
N-BUTYLBENZENE	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1.1 U
N-PROPYLBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
O-XYLENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
SEC-BUTYLBENZENE	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1.4 U
STYRENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TERT-AMYL METHYL ETHER	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TERT-BUTYLBENZENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TERTIARY-BUTYL ALCOHOL	NA	NA	11 U	11 U	11 U	11 U	11 U	54 U
TETRACHLOROETHENE	NA	NA	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	2.5 J
TOLUENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TOTAL XYLENES	NA	NA	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	2.7 U
TRANS-1,2-DICHLOROETHENE	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	1.6	2.4 J
TRANS-1,3-DICHLOROPROPENE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TRICHLOROETHENE	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U	2.3	1000

Table D-1
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Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW-12B-063014 20140630	MRC-MW-12B-072414 20140724	MRC-MW12C-053014 20140530	MRC-MW13A-053014 20140530	MRC-MW13A-053014-AVG 20140530	MRC-MW13A-053014-D 20140530	MRC-MW14A-060414 20140604	MRC-MW14B-060514 20140605
TRICHLOROFLUOROMETHANE	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
VINYL ACETATE	NA	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	5.1 U
VINYL CHLORIDE	NA	NA	0.32 U	0.41 J	0.365	0.32 J	0.32 U	1.6 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	0.2 U
ETHENE	NA	NA	NA	NA	NA	NA	NA	0.29 J
METHANE	NA	NA	NA	NA	NA	NA	NA	12
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	0.02 U	0.554	0.55	0.546	3.65	177
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	NA	NA	NA	NA	NA	NA	0.157 UJ	0.184 U
ARSENIC	NA	NA	NA	NA	NA	NA	1.3 J	69.4 J
BARIUM	NA	NA	NA	NA	NA	NA	87.9	132
BERYLLIUM	NA	NA	NA	NA	NA	NA	0.066 J	0.467 J
CADMIUM	NA	NA	NA	NA	NA	NA	0.052 J	0.068 J
CHROMIUM	NA	NA	NA	NA	NA	NA	0.492 J	4.3
COBALT	NA	NA	NA	NA	NA	NA	31.8	56.6 J
COPPER	NA	NA	NA	NA	NA	NA	2.2	3
IRON	NA	NA	NA	NA	NA	NA	31800	26300
LEAD	NA	NA	NA	NA	NA	NA	0.069 J	1
MANGANESE	NA	NA	NA	NA	NA	NA	2010	2280
MERCURY	NA	NA	NA	NA	NA	NA	0.024 U	0.024 U
MOLYBDENUM	NA	NA	NA	NA	NA	NA	0.068 UJ	0.206 U
NICKEL	NA	NA	NA	NA	NA	NA	32.7	120 J
SELENIUM	NA	NA	NA	NA	NA	NA	1.3 J	258 J
SILICON	NA	NA	NA	NA	NA	NA	8860	9460
SILVER	NA	NA	NA	NA	NA	NA	0.015 U	0.073 U
THALLIUM	NA	NA	NA	NA	NA	NA	0.031 U	0.031 U
VANADIUM	NA	NA	NA	NA	NA	NA	0.169 U	4.9 J
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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SAMPLE ID SAMPLE DATE	MRC-MW-12B-063014 20140630	MRC-MW-12B-072414 20140724	MRC-MW12C-053014 20140530	MRC-MW13A-053014 20140530	MRC-MW13A-053014-AVG 20140530	MRC-MW13A-053014-D 20140530	MRC-MW14A-060414 20140604	MRC-MW14B-060514 20140605
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	0.044 J
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	0.3 U
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	72.3
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	0.8 J
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	0.2 U
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	0.2 U
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	0.02 U
SILICA	NA	NA	NA	NA	NA	NA	NA	16.3
SULFATE	NA	NA	NA	NA	NA	NA	NA	15.1
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	60	49	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW14C-060414 20140604	MRC-MW15A-052014 20140520	MRC-MW16A-052014 20140520	MRC-MW17A-060514 20140605	MRC-MW19A-060914 20140609	MRC-MW19A-061814 20140618	MRC-MW21A-060314 20140603	MRC-MW21B-060314 20140603
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 U	NA	0.22 U	0.22 U	NA	1 U	0.22 U	1.1 UJ
1,1,1-TRICHLOROETHANE	0.36 U	NA	0.36 U	0.36 U	NA	1 U	0.36 U	1.8 UJ
1,1,2,2-TETRACHLOROETHANE	0.25 U	NA	0.25 UJ	0.25 U	NA	1 U	0.25 UJ	1.3 UJ
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	NA	0.31 U	0.31 U	NA	1 U	0.31 U	1.6 UJ
1,1-DICHLOROETHANE	0.2 U	NA	35	0.36 J	NA	3	1.2	12 J
1,1-DICHLOROETHENE	0.57 U	NA	96	0.57 U	NA	1 U	1.5	140 J
1,1-DICHLOROPROPENE	0.29 U	NA	0.29 U	0.29 U	NA	1 U	0.29 U	1.5 UJ
1,2,3-TRICHLOROBENZENE	0.82 U	NA	0.82 U	0.82 U	NA	1 U	0.82 U	4.1 UJ
1,2,3-TRICHLOROPROPANE	0.7 U	NA	0.7 U	0.7 U	NA	1 U	0.7 U	3.5 UJ
1,2,4-TRICHLOROBENZENE	0.24 U	NA	0.23 U	0.23 U	NA	1 U	0.23 U	1.2 UJ
1,2,4-TRIMETHYLBENZENE	0.2 U	NA	0.2 U	4.6	NA	1 U	0.2 U	1 UJ
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	NA	0.74 U	0.74 U	NA	2 U	0.74 U	3.7 UJ
1,2-DIBROMOETHANE	0.24 U	NA	0.24 U	0.24 U	NA	1 U	0.24 U	1.2 UJ
1,2-DICHLOROBENZENE	0.21 U	NA	0.21 U	0.21 U	NA	1 U	0.21 U	1.1 UJ
1,2-DICHLOROETHANE	0.36 U	NA	0.36 U	0.36 U	NA	1 U	0.36 UJ	5 J
1,2-DICHLOROPROPANE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
1,3-DICHLOROBENZENE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
1,3-DICHLOROPROPANE	0.27 U	NA	0.27 U	0.27 U	NA	1 U	0.27 U	1.4 UJ
1,4-DICHLOROBENZENE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
2,2-DICHLOROPROPANE	0.27 U	NA	0.27 U	0.27 U	NA	1 U	0.27 U	1.4 UJ
2-BUTANONE	0.81 UJ	NA	0.81 U	0.81 UJ	NA	5 U	0.81 U	4.1 UJ
2-CHLOROETHYL VINYL ETHER	0.44 U	NA	0.44 U	0.44 U	NA	1 U	0.44 U	2.2 UR
2-CHLOROTOLUENE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
2-HEXANONE	1.7 U	NA	1.7 U	1.7 U	NA	5 U	1.7 U	8.3 UJ
4-CHLOROTOLUENE	0.24 U	NA	0.24 U	0.24 U	NA	1 U	0.24 U	1.2 UJ
4-ISOPROPYLTOLUENE	0.2 U	NA	0.2 U	0.55 J	NA	1 U	0.2 U	1 UJ
4-METHYL-2-PENTANONE	0.67 U	NA	0.67 U	0.67 U	NA	5 U	0.67 U	3.4 UJ
ACETONE	1.3 UJ	NA	1.3 U	1.3 UJ	NA	5 U	1.6 U	6.2 UJ
BENZENE	0.2 U	NA	0.87 J	160	NA	1 U	0.2 U	26 J
BROMOBENZENE	0.28 U	NA	0.28 U	0.28 U	NA	1 U	0.28 U	1.5 UJ
BROMOCHLOROMETHANE	0.32 U	NA	0.32 U	0.32 U	NA	1 U	0.32 U	1.6 UJ
BROMODICHLOROMETHANE	0.32 U	NA	0.32 U	0.32 U	NA	1 U	0.32 U	1.6 UJ
BROMOFORM	0.42 U	NA	0.42 U	0.42 U	NA	1 U	0.42 U	2.1 UJ
BROMOMETHANE	0.29 J	NA	0.31 U	0.29 U	NA	1 U	0.29 UJ	1.5 UJ
CARBON DISULFIDE	0.22 U	NA	0.22 U	0.22 U	NA	1 U	0.22 U	1.1 UJ
CARBON TETRACHLORIDE	0.45 U	NA	0.45 U	0.45 U	NA	1 U	0.45 UJ	2.3 UJ
CHLOROBENZENE	0.29 U	NA	0.29 U	0.29 U	NA	1 U	0.29 U	1.5 UJ
CHLORODIBROMOMETHANE	0.31 U	NA	0.31 U	0.31 U	NA	1 U	0.31 U	1.6 UJ
CHLOROETHANE	0.24 U	NA	0.29 J	0.32 J	NA	1 U	0.24 U	1.2 UJ
CHLOROFORM	0.25 U	NA	0.25 U	0.25 J	NA	0.75 J	0.25 U	2.3 J
CHLOROMETHANE	0.21 U	NA	0.21 U	0.21 U	NA	1 U	0.21 J	1.1 UJ
CIS-1,2-DICHLOROETHENE	0.3 U	NA	13	2	NA	1 U	0.3 U	5.6 J
CIS-1,3-DICHLOROPROPENE	0.24 U	NA	0.24 U	0.24 U	NA	1 U	0.24 U	1.2 UJ
DIBROMOMETHANE	0.32 U	NA	0.32 U	0.32 U	NA	1 U	0.32 U	1.6 UJ
DICHLORODIFLUOROMETHANE	0.46 U	NA	0.46 U	0.46 U	NA	1 U	0.46 U	2.4 UJ
DIISOPROPYL ETHER	0.2 U	NA	0.2 U	10	NA	1 U	0.2 U	1 UJ
ETHYL TERT-BUTYL ETHER	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
ETHYLBENZENE	0.2 U	NA	0.2 U	45	NA	1 U	0.2 U	1 UJ
HEXACHLOROBUTADIENE	0.62 U	NA	0.62 U	0.62 U	NA	2 U	0.62 U	3.1 UJ
ISOPROPYLBENZENE	0.2 U	NA	0.2 U	3.5	NA	1 U	0.2 U	12 J
M+P-XYLENES	0.33 U	NA	0.33 U	21	NA	2 U	0.33 U	1.7 UJ
METHYL TERT-BUTYL ETHER	0.29 U	NA	0.29 U	0.29 U	NA	1 U	0.29 U	1.5 UJ
METHYLENE CHLORIDE	0.32 U	NA	0.32 U	0.32 U	NA	1 U	0.32 UJ	1.6 UJ
NAPHTHALENE	0.23 U	NA	0.2 U	3.9	NA	1 U	0.2 U	1 UJ
N-BUTYLBENZENE	0.21 U	NA	0.21 U	0.48 J	NA	1 U	0.21 U	1.1 UJ
N-PROPYLBENZENE	0.2 U	NA	0.2 U	5.9	NA	1 U	0.2 U	1 UJ
O-XYLENE	0.2 U	NA	0.2 U	4.9	NA	1 U	0.2 U	1 UJ
SEC-BUTYLBENZENE	0.27 U	NA	0.27 U	0.67 J	NA	1 U	0.27 U	1.4 UJ
STYRENE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
TERT-AMYL METHYL ETHER	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
TERT-BUTYLBENZENE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
TERTIARY-BUTYL ALCOHOL	11 U	NA	11 U	11 U	NA	40 U	11 U	54 UJ
TETRACHLOROETHENE	0.3 U	NA	9.5	0.3 U	NA	1 U	0.64 J	7.6 J
TOLUENE	0.2 U	NA	0.2 U	32	NA	1 U	0.2 U	1 UJ
TOTAL XYLENES	0.53 U	NA	0.53 U	26	NA	3 U	0.53 U	2.7 UJ
TRANS-1,2-DICHLOROETHENE	0.33 U	NA	0.47 J	0.33 U	NA	1 U	0.33 U	1.7 UJ
TRANS-1,3-DICHLOROPROPENE	0.2 U	NA	0.2 U	0.2 U	NA	1 U	0.2 U	1 UJ
TRICHLOROETHENE	0.22 U	NA	26	12	NA	1 U	2	780 J

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SAMPLE ID SAMPLE DATE	MRC-MW14C-060414 20140604	MRC-MW15A-052014 20140520	MRC-MW16A-052014 20140520	MRC-MW17A-060514 20140605	MRC-MW19A-060914 20140609	MRC-MW19A-061814 20140618	MRC-MW21A-060314 20140603	MRC-MW21B-060314 20140603
TRICHLOROFLUOROMETHANE	0.2 U	NA	0.2 U	0.2 U	NA	1	0.2 U	1 UJ
VINYL ACETATE	1.1 U	NA	1.1 U	1.1 U	NA	2 U	1.1 UJ	5.1 UJ
VINYL CHLORIDE	0.32 U	NA	12	0.54 J	NA	1 U	0.39 J	1.6 UJ
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	0.22 J
ETHENE	NA	NA	NA	NA	NA	NA	NA	0.6 J
METHANE	NA	NA	NA	NA	NA	NA	NA	21
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	0.0286 J	22.5	83.8	5.04	8.06	NA	1.16	62.4
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.157 UJ	0.203 U	0.207 U	0.157 UJ	0.196 J	NA	0.178 U	0.157 U
ARSENIC	0.652 J	2.8	0.547 J	1.3 J	2	NA	2.7	0.211 U
BARIUM	72.3	169	299	331	42.8	NA	41.1 U	110
BERYLLIUM	0.186 J	0.124 J	7.9	0.427 J	2.2	NA	0.121 J	0.488 J
CADMIUM	0.046 U	0.008 U	1.5	0.008 U	1.8	NA	0.008 U	0.008 U
CHROMIUM	7.5	1.3 U	1.6 U	0.694 J	6.3	NA	2.1 U	1.2 U
COBALT	9.4 J	24.4	369	59.4	880	NA	3.5 J	57.8 J
COPPER	6.9	8.6 J	13.3 J	9.6	228	NA	8.5	3.6
IRON	14700	38300	4750	60600	3520	NA	12500	33600
LEAD	4.6	0.955 J	0.909 J	0.263 J	1.6	NA	0.311 J	0.144 J
MANGANESE	869	5540	6100	8740	2090	NA	700	3040
MERCURY	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	NA	0.024 U	0.024 U
MOLYBDENUM	0.068 UJ	0.331 U	0.308 U	0.068 UJ	0.153 J	NA	1.3	0.098 U
NICKEL	13.2 J	5.9	379	70.3	2550	NA	5.1	70.3
SELENIUM	0.213 UJ	0.213 U	1.9 J	0.213 UJ	1.8 J	NA	0.213 U	0.341 J
SILICON	16700	3890	17700	6320	NA	NA	6140	6500
SILVER	0.043 U	0.015 U	0.017 U	0.019 U	0.045 J	NA	0.015 U	0.015 U
THALLIUM	0.031 U	0.031 U	0.031 U	0.031 U	0.185 J	NA	0.031 U	0.035 J
VANADIUM	25.3 J	1.8 U	0.502 U	0.169 U	2.1	NA	0.95 U	0.479 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW14C-060414 20140604	MRC-MW15A-052014 20140520	MRC-MW16A-052014 20140520	MRC-MW17A-060514 20140605	MRC-MW19A-060914 20140609	MRC-MW19A-061814 20140618	MRC-MW21A-060314 20140603	MRC-MW21B-060314 20140603
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	0.035 J
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	41.5
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	69.8
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	1 U
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	0.2 U
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	0.3 U
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	0.011 U
SILICA	NA	NA	NA	NA	NA	NA	NA	14.9
SULFATE	NA	NA	NA	NA	NA	NA	NA	2.8
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	161
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	0.026 U	NA	NA	NA	0.026 U

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW22A-060314 20140603	MRC-MW22B-061714 20140617	MRC-MW24A-052914 20140529	MRC-MW25A-061714 20140617	MRC-MW26A-052114 20140521	MRC-MW27A-052914 20140529	MRC-MW27B-052914 20140529	MRC-MW27C-052914 20140529
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 U	1 U	NA	1 U	NA	0.22 U	2.2 U	0.22 U
1,1,1-TRICHLOROETHANE	0.36 U	1 U	NA	1 U	NA	0.36 U	3.6 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	0.25 UJ	1 U	NA	1 U	NA	0.25 U	2.5 U	0.25 U
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	1 U	NA	1 U	NA	0.31 U	3.1 U	0.31 U
1,1-DICHLOROETHANE	0.2 U	1.4	NA	1 U	NA	1.3	7.7 J	0.2 U
1,1-DICHLOROETHENE	0.57 U	4.3	NA	1 U	NA	1.7	14	0.57 U
1,1-DICHLOROPROPENE	0.29 U	1 U	NA	1 U	NA	0.29 U	2.9 U	0.29 U
1,2,3-TRICHLOROBENZENE	0.82 U	1 U	NA	1 U	NA	0.82 U	8.2 U	0.82 U
1,2,3-TRICHLOROPROPANE	0.7 U	1 U	NA	1 U	NA	0.7 U	7 U	0.7 U
1,2,4-TRICHLOROBENZENE	0.23 U	1 U	NA	1 U	NA	0.23 U	2.4 U	0.23 U
1,2,4-TRIMETHYLBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	2 U	NA	2 U	NA	0.74 U	7.4 U	0.74 U
1,2-DIBROMOETHANE	0.24 U	1 U	NA	1 U	NA	0.24 U	2.4 U	0.24 U
1,2-DICHLOROBENZENE	0.21 U	1 U	NA	1 U	NA	0.21 U	2.1 U	0.21 U
1,2-DICHLOROETHANE	0.36 UJ	1 U	NA	1 U	NA	0.36 U	3.6 U	0.36 U
1,2-DICHLOROPROPANE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
1,3-DICHLOROBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
1,3-DICHLOROPROPANE	0.27 U	1 U	NA	1 U	NA	0.27 U	2.7 U	0.27 U
1,4-DICHLOROBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
2,2-DICHLOROPROPANE	0.27 U	1 U	NA	1 U	NA	0.27 U	2.7 U	0.27 U
2-BUTANONE	0.81 U	5 U	NA	5 U	NA	0.81 U	8.2 U	0.81 U
2-CHLOROETHYL VINYL ETHER	0.44 U	1 U	NA	1 U	NA	1 U	10 UR	1 U
2-CHLOROTOLUENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
2-HEXANONE	1.7 U	5 U	NA	5 U	NA	1.7 U	17 UJ	1.7 UJ
4-CHLOROTOLUENE	0.24 U	1 U	NA	1 U	NA	0.24 U	2.4 U	0.24 U
4-ISOPROPYLTOLUENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
4-METHYL-2-PENTANONE	0.67 U	5 U	NA	5 U	NA	0.67 U	6.7 U	0.67 U
ACETONE	1.3 U	5 U	NA	2.8 J	NA	1.3 U	13 UJ	1.3 UJ
BENZENE	0.2 U	0.3 J	NA	0.37 J	NA	1.3	2 U	0.2 U
BROMOBENZENE	0.28 U	1 U	NA	1 U	NA	0.28 U	2.9 U	0.28 U
BROMOCHLOROMETHANE	0.32 U	1 U	NA	1 U	NA	0.32 U	3.2 U	0.32 U
BROMODICHLOROMETHANE	0.32 U	1 U	NA	1 U	NA	0.32 U	3.2 U	0.32 U
BROMOFORM	0.42 U	1 U	NA	1 U	NA	0.42 U	4.2 U	0.42 U
BROMOMETHANE	0.29 UJ	1 U	NA	1 U	NA	0.29 U	2.9 U	0.29 U
CARBON DISULFIDE	0.22 U	0.27 J	NA	1 U	NA	0.22 U	2.2 U	0.22 U
CARBON TETRACHLORIDE	0.45 UJ	1 U	NA	1 U	NA	0.45 U	4.5 U	0.45 U
CHLOROBENZENE	0.29 U	1 U	NA	1 U	NA	0.29 U	2.9 U	0.29 U
CHLORODIBROMOMETHANE	0.31 U	1 U	NA	1 U	NA	0.31 UJ	3.1 U	0.31 U
CHLOROETHANE	0.24 U	1 U	NA	1 U	NA	0.24 U	2.4 U	0.24 U
CHLOROFORM	0.25 U	1 U	NA	1 U	NA	0.25 U	2.5 U	0.25 U
CHLOROMETHANE	0.21 U	1 U	NA	1 U	NA	0.21 U	2.1 U	0.21 U
CIS-1,2-DICHLOROETHENE	0.3 U	1 U	NA	3	NA	33	350	0.3 U
CIS-1,3-DICHLOROPROPENE	0.24 U	1 U	NA	1 U	NA	0.24 U	2.4 U	0.24 U
DIBROMOMETHANE	0.32 U	1 U	NA	1 U	NA	0.32 U	3.2 U	0.32 U
DICHLORODIFLUOROMETHANE	0.46 U	1 U	NA	1 U	NA	0.46 U	4.7 U	0.46 U
DIISOPROPYL ETHER	0.2 U	1 U	NA	1 U	NA	0.23 J	2 U	0.2 U
ETHYL TERT-BUTYL ETHER	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
ETHYLBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
HEXACHLOROBUTADIENE	0.62 U	2 U	NA	2 U	NA	0.62 U	6.2 U	0.62 U
ISOPROPYLBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
M+P-XYLENES	0.33 U	2 U	NA	2 U	NA	0.33 U	3.4 U	0.33 U
METHYL TERT-BUTYL ETHER	0.29 U	1 U	NA	1 U	NA	18	5 J	0.29 U
METHYLENE CHLORIDE	0.32 UJ	1 U	NA	1 U	NA	0.32 U	3.2 UJ	0.32 UJ
NAPHTHALENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
N-BUTYLBENZENE	0.21 U	1 U	NA	1 U	NA	0.21 U	2.1 U	0.21 U
N-PROPYLBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
O-XYLENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
SEC-BUTYLBENZENE	0.27 U	1 U	NA	1 U	NA	0.27 U	2.7 U	0.27 U
STYRENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
TERT-AMYL METHYL ETHER	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
TERT-BUTYLBENZENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
TERTIARY-BUTYL ALCOHOL	11 U	40 U	NA	40 U	NA	11 U	110 U	11 U
TETRACHLOROETHENE	0.3 U	0.3 J	NA	1 U	NA	0.38 J	3 U	0.3 U
TOLUENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
TOTAL XYLENES	0.53 U	3 U	NA	3 U	NA	0.53 U	5.4 U	0.53 U
TRANS-1,2-DICHLOROETHENE	0.33 U	1 U	NA	1 U	NA	2.8	5.4 J	0.33 U
TRANS-1,3-DICHLOROPROPENE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
TRICHLOROETHENE	0.62 J	1.6	NA	72	NA	110	1300	0.25 J

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SAMPLE ID SAMPLE DATE	MRC-MW22A-060314 20140603	MRC-MW22B-061714 20140617	MRC-MW24A-052914 20140529	MRC-MW25A-061714 20140617	MRC-MW26A-052114 20140521	MRC-MW27A-052914 20140529	MRC-MW27B-052914 20140529	MRC-MW27C-052914 20140529
TRICHLOROFLUOROMETHANE	0.2 U	1 U	NA	1 U	NA	0.2 U	2 U	0.2 U
VINYL ACETATE	1.1 UJ	2 U	NA	2 U	NA	1.1 U	11 U	1.1 U
VINYL CHLORIDE	0.32 U	1 U	NA	1 U	NA	19	12	0.32 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	1	1 U	NA	6.3	0.2 U	NA
ETHENE	NA	NA	0.11 U	1 U	NA	3.3	0.11 U	NA
METHANE	NA	NA	380	5.8	NA	2400	14	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	0.608	7.7	NA	0.524	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.157 U	0.241 J	0.157 UJ	0.92 J	0.157 U	0.157 U	0.157 U	NA
ARSENIC	0.211 U	0.475 J	0.366 J	0.776 J	0.32 J	4.4	0.447 J	NA
BARIUM	43.2 U	129	245	30.8	426	503	43.2	NA
BERYLLIUM	0.045 J	0.087 J	24	0.541 J	7.1 J	1.7	1.1	NA
CADMIUM	0.027 U	0.008 U	1.2	0.008 U	1.3	0.008 U	0.04 U	NA
CHROMIUM	1.5 U	0.668 J	1.8 U	2.6	1.5 U	0.621 U	2.3 U	NA
COBALT	28.9 J	120	219	12.2	361 J	589	249	NA
COPPER	3.3	0.51 J	50.3	3.6	12.6 J	4.3	8	NA
IRON	752	6600	256 U	773	27000	90200	386	NA
LEAD	0.215 J	0.118 J	0.232 J	0.25 J	0.902 J	0.061 U	0.254 J	NA
MANGANESE	1240	2170	27200	570	9080	31100	136	NA
MERCURY	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	NA
MOLYBDENUM	0.073 U	0.068 U	0.208 U	0.864 J	0.255 U	0.287 U	0.116 U	NA
NICKEL	56.1	210	690	20.5	388 J	247	264	NA
SELENIUM	0.213 U	0.442 J	1.8 J	0.902 J	1 J	0.249 J	2	NA
SILICON	5020	NA	5940	NA	6890	5270	3070	NA
SILVER	0.015 U	0.025 J	0.209 J	0.028 J	0.015 U	0.016 U	0.015 U	NA
THALLIUM	0.031 U	0.036 J	0.031 UJ	0.031 U	0.031 U	0.031 U	0.459 J	NA
VANADIUM	0.479 U	0.358 U	0.169 U	0.815 J	0.169 U	0.169 U	0.255 U	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW22A-060314 20140603	MRC-MW22B-061714 20140617	MRC-MW24A-052914 20140529	MRC-MW25A-061714 20140617	MRC-MW26A-052114 20140521	MRC-MW27A-052914 20140529	MRC-MW27B-052914 20140529	MRC-MW27C-052914 20140529
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	0.259	0.045 J	NA	1.66	0.008 U	NA
CARBONATE ALKALINITY	NA	NA	0.3 U	55.3	NA	73.7	25.1	NA
CHLORIDE	NA	NA	506	55.8	NA	660	82.2	NA
DISSOLVED ORGANIC CARBON	NA	NA	1.2	5	NA	3.4	1 U	NA
NITRATE	NA	NA	NA	0.5 J	NA	NA	NA	NA
NITRATE-N	NA	NA	0.2 U	NA	NA	0.2 U	0.2 U	NA
NITRITE	NA	NA	NA	1 U	NA	NA	NA	NA
NITRITE-N	NA	NA	0.3 U	NA	NA	0.3 U	0.3 U	NA
ORTHOPHOSPHATE-P	NA	NA	0.002 J	0.005 BJ	NA	0.013	0.003 J	NA
SILICA	NA	NA	13	8.84	NA	12.9	6.75	NA
SULFATE	NA	NA	1.9 U	23.2	NA	4.1	5.9	NA
TOTAL DISSOLVED SOLIDS	NA	NA	824	69	NA	1090	172	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW29A-052114 20140521	MRC-MW30A-050814 20140508	MRC-MW31A-050814 20140508	MRC-MW32A-050814 20140508	MRC-MW33A-050814 20140508	MRC-MW34A-051214 20140512	MRC-MW34B-051214 20140512	MRC-MW34C-051214 20140512
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 U	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
1,1,1-TRICHLOROETHANE	0.36 U	NA	NA	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	0.25 UJ	NA	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	NA	NA	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ	0.31 UJ
1,1-DICHLOROETHANE	4.3	NA	NA	0.2 U	0.2 U	0.2 U	0.73 J	0.2 U
1,1-DICHLOROETHENE	2.9	NA	NA	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U
1,1-DICHLOROPROPENE	0.29 U	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
1,2,3-TRICHLOROBENZENE	0.82 U	NA	NA	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U
1,2,3-TRICHLOROPROPANE	0.7 U	NA	NA	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U
1,2,4-TRICHLOROBENZENE	0.23 U	NA	NA	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U
1,2,4-TRIMETHYLBENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	NA	NA	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U
1,2-DIBROMOETHANE	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
1,2-DICHLOROBENZENE	0.21 U	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
1,2-DICHLOROETHANE	0.36 U	NA	NA	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
1,2-DICHLOROPROPANE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	0.27 U	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
1,4-DICHLOROBENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	0.27 U	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U
2-BUTANONE	0.81 U	NA	NA	0.81 U	0.81 U	0.81 U	0.81 U	0.81 U
2-CHLOROETHYL VINYL ETHER	0.44 U	NA	NA	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ
2-CHLOROTOLUENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	1.7 U	NA	NA	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
4-CHLOROTOLUENE	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
4-ISOPROPYLTOLUENE	0.2 U	NA	NA	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
4-METHYL-2-PENTANONE	0.67 U	NA	NA	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U
ACETONE	1.3 U	NA	NA	1.3 U	1.3 U	1.3 U	1.3 U	1.3 U
BENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.23 J	0.2 U
BROMOBENZENE	0.28 U	NA	NA	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U
BROMOCHLOROMETHANE	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
BROMODICHLOROMETHANE	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
BROMOFORM	0.42 U	NA	NA	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U
BROMOMETHANE	0.29 UJ	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
CARBON DISULFIDE	0.22 U	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U
CARBON TETRACHLORIDE	0.45 U	NA	NA	0.45 U	0.45 U	0.45 U	5.4	0.45 U
CHLOROBENZENE	0.29 U	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U
CHLORODIBROMOMETHANE	0.31 U	NA	NA	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U
CHLOROETHANE	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
CHLOROFORM	0.25 U	NA	NA	0.25 U	0.25 U	0.25 U	1.9	0.25 U
CHLOROMETHANE	0.21 U	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U
CIS-1,2-DICHLOROETHENE	3.2	NA	NA	0.3 U	0.67 J	0.3 U	15	0.3 U
CIS-1,3-DICHLOROPROPENE	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U
DIBROMOMETHANE	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
DICHLORODIFLUOROMETHANE	0.46 U	NA	NA	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U
DIISOPROPYL ETHER	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYL TERT-BUTYL ETHER	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	0.62 U	NA	NA	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ	0.62 UJ
ISOPROPYLBENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
M+P-XYLENES	0.33 U	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U
METHYL TERT-BUTYL ETHER	3.4	NA	NA	0.29 U	1.2	0.29 U	18	0.29 U
METHYLENE CHLORIDE	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U
NAPHTHALENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
N-BUTYLBENZENE	0.21 U	NA	NA	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ	0.21 UJ
N-PROPYLBENZENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	0.27 U	NA	NA	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ	0.27 UJ
STYRENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-AMYL METHYL ETHER	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	0.2 U	NA	NA	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ	0.2 UJ
TERTIARY-BUTYL ALCOHOL	11 U	NA	NA	11 U	11 U	11 U	11 U	11 U
TETRACHLOROETHENE	0.3 U	NA	NA	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U
TOLUENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TOTAL XYLENES	0.53 U	NA	NA	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U
TRANS-1,2-DICHLOROETHENE	0.33 U	NA	NA	0.33 U	0.33 U	0.33 U	1.1	0.33 U
TRANS-1,3-DICHLOROPROPENE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHENE	9	NA	NA	0.22 U	0.6 J	14	16	0.22 U

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW29A-052114 20140521	MRC-MW30A-050814 20140508	MRC-MW31A-050814 20140508	MRC-MW32A-050814 20140508	MRC-MW33A-050814 20140508	MRC-MW34A-051214 20140512	MRC-MW34B-051214 20140512	MRC-MW34C-051214 20140512
TRICHLOROFLUOROMETHANE	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE	1.1 U	NA	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U
VINYL CHLORIDE	0.85 J	NA	NA	0.32 U	0.32 U	0.32 U	2.2	0.32 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	0.29 J	NA
ETHENE	NA	NA	NA	NA	NA	NA	0.11 U	NA
METHANE	NA	NA	NA	NA	NA	NA	69	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.157 U	1.1	0.157 U	NA	0.157 UJ	NA	0.284 U	NA
ARSENIC	0.708 J	0.211 U	0.211 U	NA	0.211 UJ	NA	0.211 U	NA
BARIUM	319	98.3	90.5	NA	17.9 J	NA	137	NA
BERYLLIUM	7.5	0.225 J	4.9 J	NA	1.9 J	NA	8.8 J	NA
CADMIUM	0.533 J	0.008 U	0.008 U	NA	0.107 J	NA	0.348 J	NA
CHROMIUM	0.908 U	2.3 U	2.2 U	NA	2.1 U	NA	3.2 U	NA
COBALT	382	2.2	43.2 J	NA	18.2 J	NA	113 J	NA
COPPER	16.1 J	4.5	21.9 J	NA	2.2 J	NA	31.5 J	NA
IRON	4830	132 U	69.1 U	NA	23.1 U	NA	13.6 U	NA
LEAD	0.33 J	0.147 J	0.289 J	NA	0.1 J	NA	0.089 J	NA
MANGANESE	4360	18	14.8	NA	108	NA	411	NA
MERCURY	0.252	0.024 U	0.024 U	NA	0.024 U	NA	0.047 J	NA
MOLYBDENUM	0.194 U	0.364 J	0.068 U	NA	0.068 UJ	NA	0.068 U	NA
NICKEL	165	7.3	83.3 J	NA	14.5 J	NA	135 J	NA
SELENIUM	1.8 J	1.9 J	0.236 J	NA	0.255 J	NA	0.807 J	NA
SILICON	5270	3420	12100	NA	2740	NA	3490	NA
SILVER	0.022 U	0.015 U	0.015 U	NA	0.015 UJ	NA	0.044 U	NA
THALLIUM	0.053 U	0.031 U	0.031 U	NA	0.031 UJ	NA	0.065 J	NA
VANADIUM	0.835 U	10.2 J	0.479 U	NA	0.479 U	NA	0.522 J	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW29A-052114 20140521	MRC-MW30A-050814 20140508	MRC-MW31A-050814 20140508	MRC-MW32A-050814 20140508	MRC-MW33A-050814 20140508	MRC-MW34A-051214 20140512	MRC-MW34B-051214 20140512	MRC-MW34C-051214 20140512
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	0.004 U	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	0.3 U	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	165	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	1.1	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	0.5 J	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	0.3 U	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	0.002 U	NA
SILICA	NA	NA	NA	NA	NA	NA	8.04	NA
SULFATE	NA	NA	NA	NA	NA	NA	27.3	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	314	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW37A-061314 20140613	MRC-MW37A-061814 20140618	MRC-MW37B-060514 20140605	MRC-MW37C-060514 20140605	MRC-MW37C-060514-AVG 20140605	MRC-MW37C-060514-D 20140605	MRC-MW38A-051214 20140512	MRC-MW38A-061814 20140618
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	1 U	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1 U
1,1,1-TRICHLOROETHANE	1 U	NA	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1 U
1,1,2-TRICHLOROTRIFLUOROETHANE	1 U	NA	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	1 U
1,1-DICHLOROETHANE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,1-DICHLOROETHENE	1 U	NA	0.57 U	0.57 U	0.57 U	0.57 U	0.57 U	1 U
1,1-DICHLOROPROPENE	1 U	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1 U
1,2,3-TRICHLOROBENZENE	1 U	NA	0.82 U	0.82 U	0.82 U	0.82 U	0.82 U	1 U
1,2,3-TRICHLOROPROPANE	1 U	NA	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	1 U
1,2,4-TRICHLOROBENZENE	1 U	NA	0.23 U	0.23 U	0.23 U	0.23 U	0.23 U	1 U
1,2,4-TRIMETHYLBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,2-DIBROMO-3-CHLOROPROPANE	2 U	NA	0.74 U	0.74 U	0.74 U	0.74 U	0.74 U	2 U
1,2-DIBROMOETHANE	1 U	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U
1,2-DICHLOROBENZENE	1 U	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1 U
1,2-DICHLOROETHANE	1 U	NA	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	1 U
1,2-DICHLOROPROPANE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,3-DICHLOROBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
1,3-DICHLOROPROPANE	1 U	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1 U
1,4-DICHLOROBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
2,2-DICHLOROPROPANE	1 U	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1 U
2-BUTANONE	5 U	NA	0.81 U	0.81 UJ	0.81 U	0.81 U	0.81 U	5 U
2-CHLOROETHYL VINYL ETHER	1 U	NA	0.44 U	0.44 U	0.44 U	0.44 U	0.44 UJ	1 U
2-CHLOROTOLUENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
2-HEXANONE	5 U	NA	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	5 U
4-CHLOROTOLUENE	1 U	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U
4-ISOPROPYLTOLUENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
4-METHYL-2-PENTANONE	5 U	NA	0.67 U	0.67 U	0.67 U	0.67 U	0.67 U	5 U
ACETONE	2.7 J	NA	1.3 U	1.3 UJ	1.3 U	1.3 U	1.3 UJ	5 U
BENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
BROMOBENZENE	1 U	NA	0.28 U	0.28 U	0.28 U	0.28 U	0.28 U	1 U
BROMOCHLOROMETHANE	1 U	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U
BROMODICHLOROMETHANE	1 U	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U
BROMOFORM	1 U	NA	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	1 U
BROMOMETHANE	1 U	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	0.31 BJ
CARBON DISULFIDE	1 U	NA	0.22 U	0.22 U	0.22 U	0.22 U	0.22 U	1 U
CARBON TETRACHLORIDE	1 U	NA	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	1 U
CHLOROBENZENE	1 U	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1 U
CHLORODIBROMOMETHANE	1 U	NA	0.31 U	0.31 U	0.31 U	0.31 U	0.31 U	1 U
CHLOROETHANE	1 U	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U
CHLOROFORM	1 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	6.9	7
CHLOROMETHANE	1 U	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1 U
CIS-1,2-DICHLOROETHENE	1 U	NA	1.5	0.3 U	0.3 U	0.3 U	0.3 U	1 U
CIS-1,3-DICHLOROPROPENE	1 U	NA	0.24 U	0.24 U	0.24 U	0.24 U	0.24 U	1 U
DIBROMOMETHANE	1 U	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U
DICHLORODIFLUOROMETHANE	1 U	NA	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	1 U
DIISOPROPYL ETHER	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
ETHYL TERT-BUTYL ETHER	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
ETHYLBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
HEXACHLOROBUTADIENE	2 U	NA	0.62 U	0.62 U	0.62 U	0.62 U	0.62 UJ	2 U
ISOPROPYLBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
M+P-XYLENES	2 U	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	2 U
METHYL TERT-BUTYL ETHER	1 U	NA	0.29 U	0.29 U	0.29 U	0.29 U	0.29 U	1 U
METHYLENE CHLORIDE	1 U	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U
NAPHTHALENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
N-BUTYLBENZENE	1 U	NA	0.21 U	0.21 U	0.21 U	0.21 U	0.21 U	1 U
N-PROPYLBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
O-XYLENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
SEC-BUTYLBENZENE	1 U	NA	0.27 U	0.27 U	0.27 U	0.27 U	0.27 U	1 U
STYRENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TERT-AMYL METHYL ETHER	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TERT-BUTYLBENZENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TERTIARY-BUTYL ALCOHOL	40 U	NA	11 U	11 U	11 U	11 U	11 UJ	40 U
TETRACHLOROETHENE	1 U	NA	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	1 U
TOLUENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TOTAL XYLENES	3 U	NA	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	3 U
TRANS-1,2-DICHLOROETHENE	1 U	NA	0.33 U	0.33 U	0.33 U	0.33 U	0.33 U	1 U
TRANS-1,3-DICHLOROPROPENE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
TRICHLOROETHENE	0.35 J	NA	4.8	0.28 J	0.195	0.22 U	0.22 U	1 U

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW37A-061314 20140613	MRC-MW37A-061814 20140618	MRC-MW37B-060514 20140605	MRC-MW37C-060514 20140605	MRC-MW37C-060514-AVG 20140605	MRC-MW37C-060514-D 20140605	MRC-MW38A-051214 20140512	MRC-MW38A-061814 20140618
TRICHLOROFLUOROMETHANE	1 U	NA	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1 U
VINYL ACETATE	2 U	NA	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	2 U
VINYL CHLORIDE	1 U	NA	0.32 U	0.32 U	0.32 U	0.32 U	0.32 U	1 U
VOLATILE GASES (UG/L)								
ETHANE	1 U	NA	0.2 U	NA	NA	NA	NA	NA
ETHENE	1 U	NA	0.11 U	NA	NA	NA	NA	NA
METHANE	1 U	NA	0.21 U	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.288 J	NA	NA	NA	NA	NA	NA	NA
ARSENIC	1.7	NA	NA	NA	NA	NA	NA	NA
BARIUM	59.6	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	0.571 J	NA	NA	NA	NA	NA	NA	NA
CADMIUM	0.289 J	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	6	NA	NA	NA	NA	NA	NA	NA
COBALT	5	NA	NA	NA	NA	NA	NA	NA
COPPER	5.6	NA	NA	NA	NA	NA	NA	NA
IRON	5600	NA	NA	NA	NA	NA	NA	NA
LEAD	4.5	NA	NA	NA	NA	NA	NA	NA
MANGANESE	57.8	NA	NA	NA	NA	NA	NA	NA
MERCURY	0.024 U	NA	NA	NA	NA	NA	NA	NA
MOLYBDENUM	0.169 J	NA	NA	NA	NA	NA	NA	NA
NICKEL	6.2	NA	NA	NA	NA	NA	NA	NA
SELENIUM	1.4 J	NA	NA	NA	NA	NA	NA	NA
SILICON	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	0.038 J	NA	NA	NA	NA	NA	NA	NA
THALLIUM	0.057 J	NA	NA	NA	NA	NA	NA	NA
VANADIUM	10	NA	NA	NA	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW37A-061314 20140613	MRC-MW37A-061814 20140618	MRC-MW37B-060514 20140605	MRC-MW37C-060514 20140605	MRC-MW37C-060514-AVG 20140605	MRC-MW37C-060514-D 20140605	MRC-MW38A-051214 20140512	MRC-MW38A-061814 20140618
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	0.046 BJ	NA	0.004 U	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	60.6	NA	90.4	NA	NA	NA	NA	NA
CHLORIDE	NA	38.7	27	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	3.9	NA	6.4	NA	NA	NA	NA	NA
NITRATE	NA	9.6	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	0.2 U	NA	NA	NA	NA	NA
NITRITE	NA	1 U	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	0.2 U	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	0.062	0.17	NA	NA	NA	NA	NA
SILICA	3.25	NA	8.31	NA	NA	NA	NA	NA
SULFATE	NA	185	11.9	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	422	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	0.59	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW41A-061314 20140613	MRC-MW42A-061314 20140613	MRC-MW42A-061314-AVG 20140613	MRC-MW42A-061314-D 20140613	MRC-MW43A-032014 20140320	MRC-MW-43A-041714 20140417	MRC-MW44A-031814 20140318	MRC-MW-44A-041714 20140417
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	1 U	NA	NA	NA	11 UJ	NA	0.22 UJ	NA
1,1,1-TRICHLOROETHANE	1 U	NA	NA	NA	18 UJ	NA	0.36 UJ	NA
1,1,2,2-TETRACHLOROETHANE	1 U	NA	NA	NA	13 UJ	NA	0.25 UJ	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	1 U	NA	NA	NA	16 UJ	NA	0.31 UJ	NA
1,1-DICHLOROETHANE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
1,1-DICHLOROETHENE	1 U	NA	NA	NA	29 UJ	NA	0.57 UJ	NA
1,1-DICHLOROPROPENE	1 U	NA	NA	NA	15 UJ	NA	0.29 UJ	NA
1,2,3-TRICHLOROBENZENE	1 U	NA	NA	NA	1700 J	NA	0.82 UJ	NA
1,2,3-TRICHLOROPROPANE	1 U	NA	NA	NA	35 UJ	NA	0.7 UJ	NA
1,2,4-TRICHLOROBENZENE	1 U	NA	NA	NA	8000 J	NA	0.23 UJ	NA
1,2,4-TRIMETHYLBENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
1,2-DIBROMO-3-CHLOROPROPANE	2 U	NA	NA	NA	37 UJ	NA	0.74 UJ	NA
1,2-DIBROMOETHANE	1 U	NA	NA	NA	12 UJ	NA	0.24 UJ	NA
1,2-DICHLOROBENZENE	1 U	NA	NA	NA	400 J	NA	0.21 UJ	NA
1,2-DICHLOROETHANE	1 U	NA	NA	NA	18 UJ	NA	0.36 UJ	NA
1,2-DICHLOROPROPANE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
1,3-DICHLOROBENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
1,3-DICHLOROPROPANE	1 U	NA	NA	NA	14 UJ	NA	0.27 UJ	NA
1,4-DICHLOROBENZENE	1 U	NA	NA	NA	480 J	NA	0.2 UJ	NA
2,2-DICHLOROPROPANE	1 U	NA	NA	NA	14 UJ	NA	0.27 UJ	NA
2-BUTANONE	5 U	NA	NA	NA	41 UJ	NA	0.81 UJ	NA
2-CHLOROETHYL VINYL ETHER	1 U	NA	NA	NA	22 UJ	NA	0.44 UJ	NA
2-CHLOROTOLUENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
2-HEXANONE	5 U	NA	NA	NA	83 UJ	NA	1.7 UJ	NA
4-CHLOROTOLUENE	1 U	NA	NA	NA	12 UJ	NA	0.24 UJ	NA
4-ISOPROPYLTOLUENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
4-METHYL-2-PENTANONE	5 U	NA	NA	NA	34 UJ	NA	0.67 UJ	NA
ACETONE	3.2 J	NA	NA	NA	62 UJ	NA	1.5 J	NA
BENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
BROMOBENZENE	1 U	NA	NA	NA	15 UJ	NA	0.28 UJ	NA
BROMOCHLOROMETHANE	1 U	NA	NA	NA	16 UJ	NA	0.32 UJ	NA
BROMODICHLOROMETHANE	1 U	NA	NA	NA	16 UJ	NA	0.32 UJ	NA
BROMOFORM	1 U	NA	NA	NA	21 UJ	NA	0.42 UJ	NA
BROMOMETHANE	1 U	NA	NA	NA	15 UJ	NA	0.29 UJ	NA
CARBON DISULFIDE	1 U	NA	NA	NA	11 UJ	NA	0.22 UJ	NA
CARBON TETRACHLORIDE	1 U	NA	NA	NA	23 UJ	NA	0.45 UJ	NA
CHLOROBENZENE	1 U	NA	NA	NA	15 UJ	NA	0.29 UJ	NA
CHLORODIBROMOMETHANE	1 U	NA	NA	NA	16 UJ	NA	0.31 UJ	NA
CHLOROETHANE	1 U	NA	NA	NA	12 UJ	NA	0.24 UJ	NA
CHLOROFORM	1 U	NA	NA	NA	13 UJ	NA	0.25 UJ	NA
CHLOROMETHANE	1 U	NA	NA	NA	11 UJ	NA	0.21 UJ	NA
CIS-1,2-DICHLOROETHENE	1 U	NA	NA	NA	15 UJ	NA	0.3 UJ	NA
CIS-1,3-DICHLOROPROPENE	1 U	NA	NA	NA	12 UJ	NA	0.24 UJ	NA
DIBROMOMETHANE	1 U	NA	NA	NA	16 UJ	NA	0.32 UJ	NA
DICHLORODIFLUOROMETHANE	1 U	NA	NA	NA	23 UJ	NA	0.46 UJ	NA
DIISOPROPYL ETHER	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
ETHYL TERT-BUTYL ETHER	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
ETHYLBENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
HEXACHLOROBUTADIENE	2 U	NA	NA	NA	31 UJ	NA	0.62 UJ	NA
ISOPROPYLBENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
M+P-XYLENES	2 U	NA	NA	NA	17 UJ	NA	0.33 UJ	NA
METHYL TERT-BUTYL ETHER	1 U	NA	NA	NA	15 UJ	NA	0.29 UJ	NA
METHYLENE CHLORIDE	1 U	NA	NA	NA	16 UJ	NA	0.32 UJ	NA
NAPHTHALENE	1 U	NA	NA	NA	12 U	NA	0.2 UJ	NA
N-BUTYLBENZENE	1 U	NA	NA	NA	11 UJ	NA	0.21 UJ	NA
N-PROPYLBENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
O-XYLENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
SEC-BUTYLBENZENE	1 U	NA	NA	NA	14 UJ	NA	0.27 UJ	NA
STYRENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
TERT-AMYL METHYL ETHER	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
TERT-BUTYLBENZENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
TERTIARY-BUTYL ALCOHOL	40 U	NA	NA	NA	540 UJ	NA	11 UJ	NA
TETRACHLOROETHENE	1 U	NA	NA	NA	15 UJ	NA	0.3 UJ	NA
TOLUENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
TOTAL XYLENES	3 U	NA	NA	NA	27 UJ	NA	0.53 UJ	NA
TRANS-1,2-DICHLOROETHENE	1 U	NA	NA	NA	17 UJ	NA	0.33 UJ	NA
TRANS-1,3-DICHLOROPROPENE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
TRICHLOROETHENE	1 U	NA	NA	NA	11 UJ	NA	0.22 UJ	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW41A-061314 20140613	MRC-MW42A-061314 20140613	MRC-MW42A-061314-AVG 20140613	MRC-MW42A-061314-D 20140613	MRC-MW43A-032014 20140320	MRC-MW-43A-041714 20140417	MRC-MW44A-031814 20140318	MRC-MW-44A-041714 20140417
TRICHLOROFLUOROMETHANE	1 U	NA	NA	NA	10 UJ	NA	0.2 UJ	NA
VINYL ACETATE	2 U	NA	NA	NA	51 UJ	NA	1.1 UJ	NA
VINYL CHLORIDE	1 U	NA	NA	NA	16 UJ	NA	0.32 UJ	NA
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	0.26	NA	NA	NA	NA	NA	1.03 J	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	0.072	0.034	0.0044 U	0.0044 U
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	0.011 U	0.012 J	0.011 U	0.011 U
HEXACHLOROBIPHENYL	NA	NA	NA	NA	0.062	0.054	0.01 UJ	0.01 U
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	0.22	0.23	0.0017 U	0.0017 U
NONACHLOROBIPHENYLS	NA	NA	NA	NA	0.019 U	0.019 U	0.019 U	0.019 U
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	0.0084 U	0.0084 U	0.0084 U	0.0084 U
PCB-209	NA	NA	NA	NA	0.018 U	0.018 U	0.018 U	0.018 U
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	0.18	0.23	0.0088 U	0.0088 U
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	0.041	0.048	0.0054 U	0.0054 U
TRICHLOROBIPHENYLS	NA	NA	NA	NA	0.017 U	0.012	0.0034 U	0.0034 U
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0055	NA	0.0044 U
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.011 U	NA	0.011 U
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	0.01 U	NA	0.01 U
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.026	NA	0.0017 U
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.019 U	NA	0.019 U
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0084 U	NA	0.0084 U
PCB-209	NA	NA	NA	NA	NA	0.018 U	NA	0.018 U
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0088 U	NA	0.0088 U
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0054 U	NA	0.0054 U
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0034 U	NA	0.0034 U
METALS (UG/L)								
ANTIMONY	0.157 UN	0.226 NJ	0.2385	0.251 NJ	NA	NA	NA	NA
ARSENIC	2.7	3.3	3.2	3.1	NA	NA	NA	NA
BARIUM	29.5	29.2	28.4	27.6	NA	NA	NA	NA
BERYLLIUM	0.415 J	5.4	5.3	5.2	NA	NA	NA	NA
CADMIUM	0.008 U	0.008 U	0.008 U	0.008 U	NA	NA	NA	NA
CHROMIUM	0.889 J	2.4	2.35	2.3	NA	NA	NA	NA
COBALT	109 E	80.9 E	78.6	76.3 E	NA	NA	NA	NA
COPPER	5.9	17.5	17.5	17.5	NA	NA	NA	NA
IRON	60600	88600	90600	92600	NA	NA	NA	NA
LEAD	0.334 J	3.4	3.55	3.7	NA	NA	NA	NA
MANGANESE	6290	3310	3235	3160	NA	NA	NA	NA
MERCURY	0.024 U	0.024 U	0.0185	0.025 J	NA	NA	NA	NA
MOLYBDENUM	0.245 J	0.165 J	0.164	0.163 J	NA	NA	NA	NA
NICKEL	57.1 E	80.7 E	77.2	73.7 E	NA	NA	NA	NA
SELENIUM	0.213 U	0.213 U	0.213 U	0.213 U	NA	NA	NA	NA
SILICON	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	0.032 J	0.158 J	0.1575	0.157 J	NA	NA	NA	NA
THALLIUM	0.031 U	0.043 J	0.02925	0.031 U	NA	NA	NA	NA
VANADIUM	0.358 U	2	2.1	2.2	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW41A-061314 20140613	MRC-MW42A-061314 20140613	MRC-MW42A-061314-AVG 20140613	MRC-MW42A-061314-D 20140613	MRC-MW43A-032014 20140320	MRC-MW-43A-041714 20140417	MRC-MW44A-031814 20140318	MRC-MW-44A-041714 20140417
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	0.2 U	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW46A-051214 20140512	MRC-MW48A-061114 20140611	MRC-MW48A-061114-DL 20140611	MRC-MW48A-061814 20140618	MRC-MW49A-051914 20140519	MRC-MW49A-051914-AVG 20140519	MRC-MW49A-051914-D 20140520	MRC-MW50A-051914 20140519
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.22 U
1,1,1-TRICHLOROETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.36 U
1,1,2,2-TETRACHLOROETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.25 UJ
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.31 U
1,1-DICHLOROETHANE	NA	1.4	1.6 DJ	NA	NA	NA	NA	0.2 U
1,1-DICHLOROETHENE	NA	2.5	2.9 DJ	NA	NA	NA	NA	0.57 U
1,1-DICHLOROPROPENE	NA	1 U	4 U	NA	NA	NA	NA	0.29 U
1,2,3-TRICHLOROBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.82 U
1,2,3-TRICHLOROPROPANE	NA	1 U	4 U	NA	NA	NA	NA	0.7 U
1,2,4-TRICHLOROBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.23 U
1,2,4-TRIMETHYLBENZENE	NA	0.69 J	4 U	NA	NA	NA	NA	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	NA	2 U	8 U	NA	NA	NA	NA	0.74 U
1,2-DIBROMOETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.24 U
1,2-DICHLOROBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.21 U
1,2-DICHLOROETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.36 U
1,2-DICHLOROPROPANE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
1,3-DICHLOROBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
1,3-DICHLOROPROPANE	NA	1 U	4 U	NA	NA	NA	NA	0.27 U
1,4-DICHLOROBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
2,2-DICHLOROPROPANE	NA	1 U	4 U	NA	NA	NA	NA	0.27 U
2-BUTANONE	NA	3.3 J	20 U	NA	NA	NA	NA	0.81 U
2-CHLOROETHYL VINYL ETHER	NA	1 U	4 U	NA	NA	NA	NA	0.44 U
2-CHLOROTOLUENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
2-HEXANONE	NA	5 U	20 U	NA	NA	NA	NA	1.7 U
4-CHLOROTOLUENE	NA	1 U	4 U	NA	NA	NA	NA	0.24 U
4-ISOPROPYLTOLUENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
4-METHYL-2-PENTANONE	NA	5 U	20 U	NA	NA	NA	NA	0.67 U
ACETONE	NA	5.1	7.2 DJ	NA	NA	NA	NA	1.3 U
BENZENE	NA	0.27 J	4 U	NA	NA	NA	NA	0.68 J
BROMOBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.28 U
BROMOCHLOROMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.32 U
BROMODICHLOROMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.32 U
BROMOFORM	NA	1 U	4 U	NA	NA	NA	NA	0.42 U
BROMOMETHANE	NA	1 U	1.3 BDJ	NA	NA	NA	NA	0.29 UJ
CARBON DISULFIDE	NA	1 U	4 U	NA	NA	NA	NA	0.22 U
CARBON TETRACHLORIDE	NA	1 U	4 U	NA	NA	NA	NA	0.45 U
CHLOROBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.29 U
CHLORODIBROMOMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.31 U
CHLOROETHANE	NA	0.67 J	4 U	NA	NA	NA	NA	0.24 U
CHLOROFORM	NA	0.36 J	2.2 DJ	NA	NA	NA	NA	0.25 U
CHLOROMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.21 U
CIS-1,2-DICHLOROETHENE	NA	410 E	400 D	NA	NA	NA	NA	0.81 J
CIS-1,3-DICHLOROPROPENE	NA	1 U	4 U	NA	NA	NA	NA	0.24 U
DIBROMOMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.32 U
DICHLORODIFLUOROMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.46 U
DIISOPROPYL ETHER	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
ETHYL TERT-BUTYL ETHER	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
ETHYLBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.22 J
HEXACHLOROBUTADIENE	NA	2 U	8 U	NA	NA	NA	NA	0.62 U
ISOPROPYLBENZENE	NA	0.82 J	0.84 DJ	NA	NA	NA	NA	0.2 U
M+P-XYLENES	NA	2 U	8 U	NA	NA	NA	NA	0.33 U
METHYL TERT-BUTYL ETHER	NA	1 U	4 U	NA	NA	NA	NA	0.29 U
METHYLENE CHLORIDE	NA	0.58 J	4 U	NA	NA	NA	NA	0.32 U
NAPHTHALENE	NA	1.3 B	1.2 DJ	NA	NA	NA	NA	0.2 U
N-BUTYLBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.21 U
N-PROPYLBENZENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
O-XYLENE	NA	1.3	1.1 DJ	NA	NA	NA	NA	0.2 U
SEC-BUTYLBENZENE	NA	0.35 J	4 U	NA	NA	NA	NA	0.27 U
STYRENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
TERT-AMYL METHYL ETHER	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
TERT-BUTYLBENZENE	NA	0.28 J	4 U	NA	NA	NA	NA	0.2 U
TERTIARY-BUTYL ALCOHOL	NA	40 U	160 U	NA	NA	NA	NA	11 U
TETRACHLOROETHENE	NA	2.3	2.2 DJ	NA	NA	NA	NA	0.3 U
TOLUENE	NA	0.62 J	4 U	NA	NA	NA	NA	0.2 U
TOTAL XYLENES	NA	1.3 J	12 U	NA	NA	NA	NA	0.53 U
TRANS-1,2-DICHLOROETHENE	NA	5.4	12 D	NA	NA	NA	NA	0.39 J
TRANS-1,3-DICHLOROPROPENE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
TRICHLOROETHENE	NA	270 E	260 D	NA	NA	NA	NA	14

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW46A-051214 20140512	MRC-MW48A-061114 20140611	MRC-MW48A-061114-DL 20140611	MRC-MW48A-061814 20140618	MRC-MW49A-051914 20140519	MRC-MW49A-051914-AVG 20140519	MRC-MW49A-051914-D 20140520	MRC-MW50A-051914 20140519
TRICHLOROFLUOROMETHANE	NA	1 U	4 U	NA	NA	NA	NA	0.2 U
VINYL ACETATE	NA	2 U	8 U	NA	NA	NA	NA	1.1 U
VINYL CHLORIDE	NA	56	56 D	NA	NA	NA	NA	0.32 U
VOLATILE GASES (UG/L)								
ETHANE	NA	77	48 J	NA	NA	NA	NA	NA
ETHENE	NA	75	44 J	NA	NA	NA	NA	NA
METHANE	NA	670 E	6300 D	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	1.9	0.157 U	NA	NA	0.785 U	0.785 U	0.785 U	0.157 U
ARSENIC	0.91 J	49.4	NA	NA	2.7 J	3	3.3 J	0.283 J
BARIUM	191	599	NA	NA	246	252.5	259	101
BERYLLIUM	1.4 J	7.7	NA	NA	20.1	20.45	20.8	2.1
CADMIUM	0.251 J	0.008 U	NA	NA	0.04 U	0.04 U	0.04 U	0.04 U
CHROMIUM	1.8 U	3.1	NA	NA	7.8 U	6.7 U	5.6 U	1.3 U
COBALT	21 J	104	NA	NA	772	767.5	763	45.1
COPPER	8.1 J	1.1	NA	NA	134 J	185	236 J	35.2 J
IRON	2200	31400	NA	NA	39.4 U	37.35 U	35.3 U	3160
LEAD	5.7	0.355 J	NA	NA	3.1 J	3	2.9 J	0.433 J
MANGANESE	136	7800	NA	NA	860	891.5	923	250
MERCURY	0.051 J	0.024 U	NA	NA	0.024 U	0.024 U	0.024 U	0.024 U
MOLYBDENUM	1.8	0.086 J	NA	NA	0.926 U	0.683 U	0.44 U	0.218 U
NICKEL	16.4 J	129	NA	NA	1290	1335	1380	47.7
SELENIUM	0.606 J	193	NA	NA	4.8 J	5.5	6.2 J	1.7 J
SILICON	11100	NA	NA	NA	6180	6210	6240	2100
SILVER	0.045 U	0.026 J	NA	NA	0.846 J	0.8605	0.875 J	0.726 J
THALLIUM	0.031 U	0.031 U	NA	NA	0.153 U	0.153 U	0.153 U	0.011 U
VANADIUM	2 J	0.358 U	NA	NA	1.3 U	1.1135 U	0.927 U	2 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW46A-051214 20140512	MRC-MW48A-061114 20140611	MRC-MW48A-061114-DL 20140611	MRC-MW48A-061814 20140618	MRC-MW49A-051914 20140519	MRC-MW49A-051914-AVG 20140519	MRC-MW49A-051914-D 20140520	MRC-MW50A-051914 20140519
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	0.021 BJ	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	44.4	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	115	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	1.6	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	1 U	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	1 U	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	0.009 BJ	NA	NA	NA	NA
SILICA	NA	19.2	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	3.5	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	322	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	0.38

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW52A-060314 20140603	MRC-MW53A-052314 20140523	MRC-MW53B-052314 20140523	MRC-MW54A-052214 20140522	MRC-MW57A-061214 20140612	MRC-MW58A-051914 20140519	MRC-MW59A-051914 20140519	MRC-MW60A-061114 20140611
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	NA	0.22 U	0.22 U	NA	1 U	0.22 U	NA	NA
1,1,1-TRICHLOROETHANE	NA	0.36 U	0.36 U	NA	1 U	0.36 U	NA	NA
1,1,2,2-TETRACHLOROETHANE	NA	0.25 UJ	0.25 UJ	NA	1 U	0.25 UJ	NA	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	0.31 U	0.31 U	NA	1 U	0.31 U	NA	NA
1,1-DICHLOROETHANE	NA	0.43 J	0.2 U	NA	1 U	0.2 U	NA	NA
1,1-DICHLOROETHENE	NA	18	0.57 U	NA	1 U	0.57 U	NA	NA
1,1-DICHLOROPROPENE	NA	0.29 U	0.29 U	NA	1 U	0.29 U	NA	NA
1,2,3-TRICHLOROBENZENE	NA	0.82 U	0.82 U	NA	1 U	0.82 U	NA	NA
1,2,3-TRICHLOROPROPANE	NA	0.7 U	0.7 U	NA	1 U	0.7 U	NA	NA
1,2,4-TRICHLOROBENZENE	NA	0.23 U	0.23 U	NA	1 U	0.23 U	NA	NA
1,2,4-TRIMETHYLBENZENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
1,2-DIBROMO-3-CHLOROPROPANE	NA	0.74 U	0.74 U	NA	2 U	0.74 U	NA	NA
1,2-DIBROMOETHANE	NA	0.24 U	0.24 U	NA	1 U	0.24 U	NA	NA
1,2-DICHLOROBENZENE	NA	0.21 U	0.21 U	NA	1 U	0.21 U	NA	NA
1,2-DICHLOROETHANE	NA	0.38 J	0.36 U	NA	1 U	0.36 U	NA	NA
1,2-DICHLOROPROPANE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
1,3-DICHLOROBENZENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
1,3-DICHLOROPROPANE	NA	0.27 U	0.27 U	NA	1 U	0.27 U	NA	NA
1,4-DICHLOROBENZENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
2,2-DICHLOROPROPANE	NA	0.27 U	0.27 U	NA	1 U	0.27 U	NA	NA
2-BUTANONE	NA	0.81 U	0.81 U	NA	5 U	0.81 U	NA	NA
2-CHLOROETHYL VINYL ETHER	NA	0.44 U	0.44 U	NA	1 U	0.44 U	NA	NA
2-CHLOROTOLUENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
2-HEXANONE	NA	1.7 U	1.7 U	NA	5 U	1.7 U	NA	NA
4-CHLOROTOLUENE	NA	0.24 U	0.24 U	NA	1 U	0.24 U	NA	NA
4-ISOPROPYLTOLUENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
4-METHYL-2-PENTANONE	NA	0.67 U	0.67 U	NA	5 U	0.67 U	NA	NA
ACETONE	NA	1.3 U	1.3 U	NA	2.3 J	1.3 U	NA	NA
BENZENE	NA	1.5	13	NA	1 U	0.2 U	NA	NA
BROMOBENZENE	NA	0.28 U	0.28 U	NA	1 U	0.28 U	NA	NA
BROMOCHLOROMETHANE	NA	0.32 U	0.32 U	NA	1 U	0.32 U	NA	NA
BROMODICHLOROMETHANE	NA	0.32 U	0.32 U	NA	1 U	0.32 U	NA	NA
BROMOFORM	NA	0.42 U	0.42 U	NA	1 U	0.42 U	NA	NA
BROMOMETHANE	NA	0.29 UJ	0.29 UJ	NA	1 U	0.29 UJ	NA	NA
CARBON DISULFIDE	NA	0.22 U	0.22 U	NA	1 U	0.22 U	NA	NA
CARBON TETRACHLORIDE	NA	1.3	0.45 U	NA	1 U	0.45 U	NA	NA
CHLOROBENZENE	NA	0.29 U	0.29 U	NA	1 U	0.29 U	NA	NA
CHLORODIBROMOMETHANE	NA	0.31 U	0.31 U	NA	1 U	0.31 U	NA	NA
CHLOROETHANE	NA	0.24 U	0.24 U	NA	1 U	0.24 U	NA	NA
CHLOROFORM	NA	1.9	0.48 J	NA	1 U	0.25 U	NA	NA
CHLOROMETHANE	NA	0.21 U	0.21 U	NA	1 U	0.21 U	NA	NA
CIS-1,2-DICHLOROETHENE	NA	17	3.9	NA	1 U	0.3 U	NA	NA
CIS-1,3-DICHLOROPROPENE	NA	0.24 U	0.24 U	NA	1 U	0.24 U	NA	NA
DIBROMOMETHANE	NA	0.32 U	0.32 U	NA	1 U	0.32 U	NA	NA
DICHLORODIFLUOROMETHANE	NA	0.46 U	0.46 U	NA	1 U	0.46 U	NA	NA
DIISOPROPYL ETHER	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
ETHYL TERT-BUTYL ETHER	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
ETHYLBENZENE	NA	0.2 U	0.6 J	NA	1 U	0.2 U	NA	NA
HEXACHLOROBUTADIENE	NA	0.62 U	0.62 U	NA	2 U	0.62 U	NA	NA
ISOPROPYLBENZENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
M+P-XYLENES	NA	0.33 U	0.84 J	NA	2 U	0.33 U	NA	NA
METHYL TERT-BUTYL ETHER	NA	0.29 U	3.5	NA	1 U	0.29 U	NA	NA
METHYLENE CHLORIDE	NA	0.32 U	0.32 U	NA	1 U	0.32 U	NA	NA
NAPHTHALENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
N-BUTYLBENZENE	NA	0.21 U	0.21 U	NA	1 U	0.21 U	NA	NA
N-PROPYLBENZENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
O-XYLENE	NA	0.2 U	0.61 J	NA	1 U	0.2 U	NA	NA
SEC-BUTYLBENZENE	NA	0.27 U	0.27 U	NA	1 U	0.27 U	NA	NA
STYRENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
TERT-AMYL METHYL ETHER	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
TERT-BUTYLBENZENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
TERTIARY-BUTYL ALCOHOL	NA	11 U	11 U	NA	40 U	11 U	NA	NA
TETRACHLOROETHENE	NA	0.3 U	0.3 U	NA	1 U	0.3 U	NA	NA
TOLUENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
TOTAL XYLENES	NA	0.53 U	1.5 J	NA	3 U	0.53 U	NA	NA
TRANS-1,2-DICHLOROETHENE	NA	0.33 J	0.33 U	NA	1 U	0.33 U	NA	NA
TRANS-1,3-DICHLOROPROPENE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
TRICHLOROETHENE	NA	320	26	NA	1 U	0.22 U	NA	NA

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SAMPLE ID SAMPLE DATE	MRC-MW52A-060314 20140603	MRC-MW53A-052314 20140523	MRC-MW53B-052314 20140523	MRC-MW54A-052214 20140522	MRC-MW57A-061214 20140612	MRC-MW58A-051914 20140519	MRC-MW59A-051914 20140519	MRC-MW60A-061114 20140611
TRICHLOROFLUOROMETHANE	NA	0.2 U	0.2 U	NA	1 U	0.2 U	NA	NA
VINYL ACETATE	NA	1.1 U	1.1 U	NA	2 U	1.1 U	NA	NA
VINYL CHLORIDE	NA	0.32 U	0.32 U	NA	1 U	0.32 U	NA	NA
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	24.4	4.18	0.195 J	NA	0.788	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	1.1 U	0.157 U	1.4	NA	0.157 UN	NA	0.157 U	0.157 U
ARSENIC	1.7	0.211 U	0.288 J	NA	2	NA	2.9	0.896 J
BARIUM	751	203	323	NA	19.4	NA	174	52.7
BERYLLIUM	28.7	4.8	0.604 J	NA	0.353 J	NA	2.5	0.676 J
CADMIUM	1.1	0.031 U	0.648 J	NA	0.008 U	NA	0.008 U	0.008 U
CHROMIUM	2 U	2.2 U	3.8 U	NA	0.769 J	NA	2.3 U	2.6
COBALT	2110 J	79	1040	NA	54.6 E	NA	504	41.4
COPPER	87.6	11.9 J	28.1 J	NA	9.4	NA	8.3 J	2.2
IRON	7700	146	2330	NA	68900	NA	52300	15200
LEAD	2.4	0.061 U	2.7	NA	0.104 J	NA	0.172 J	0.137 J
MANGANESE	28500	824	1280	NA	38000	NA	10900	2700
MERCURY	0.024 U	0.024 U	0.025 J	NA	0.024 U	NA	0.024 U	0.024 U
MOLYBDENUM	0.264 U	0.385 U	0.474 J	NA	0.744 J	NA	0.914 J	0.407 J
NICKEL	1410	131	923	NA	383 E	NA	306	40.2
SELENIUM	0.213 U	0.315 J	0.213 U	NA	0.213 U	NA	0.213 U	2.3
SILICON	12400	6270	9300	NA	NA	NA	6490	NA
SILVER	0.296 J	0.015 U	0.056 U	NA	0.02 J	NA	0.015 U	0.021 J
THALLIUM	0.888 J	0.031 U	0.031 U	NA	0.031 U	NA	0.031 U	0.031 U
VANADIUM	2.4 U	0.169 U	5.5 U	NA	0.358 U	NA	0.169 U	0.358 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW52A-060314 20140603	MRC-MW53A-052314 20140523	MRC-MW53B-052314 20140523	MRC-MW54A-052214 20140522	MRC-MW57A-061214 20140612	MRC-MW58A-051914 20140519	MRC-MW59A-051914 20140519	MRC-MW60A-061114 20140611
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	0.026 U	9.7	2.4	0.026 U	NA	NA	NA	0.2 U

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW60A-061814 20140618	MRC-MW60B-061114 20140611	MRC-MW60B-061814 20140618	MRC-MW60B-061814-DL 20140618	MRC-MW61A-060614 20140606	MRC-MW62A-031814 20140318	MRC-MW-62A-041714 20140417	MRC-MW62C-031814 20140318
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	5 U	NA	25 U	50 U	NA	0.22 UJ	NA	0.22 UJ
1,1,1-TRICHLOROETHANE	5 U	NA	25 U	50 U	NA	0.36 UJ	NA	0.36 UJ
1,1,2,2-TETRACHLOROETHANE	5 U	NA	25 U	50 U	NA	0.25 UJ	NA	0.25 UJ
1,1,2-TRICHLOROTRIFLUOROETHANE	5 U	NA	25 U	50 U	NA	0.31 UJ	NA	0.31 UJ
1,1-DICHLOROETHANE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
1,1-DICHLOROETHENE	2.9 J	NA	25 U	50 U	NA	0.57 UJ	NA	0.57 UJ
1,1-DICHLOROPROPENE	5 U	NA	25 U	50 U	NA	0.29 UJ	NA	0.29 UJ
1,2,3-TRICHLOROBENZENE	5 U	NA	25 U	50 U	NA	3.2 J	NA	0.82 UJ
1,2,3-TRICHLOROPROPANE	5 U	NA	25 U	50 U	NA	0.7 UJ	NA	0.7 UJ
1,2,4-TRICHLOROBENZENE	5 U	NA	25 U	50 U	NA	15 J	NA	0.69 U
1,2,4-TRIMETHYLBENZENE	5 U	NA	25 U	50 U	NA	0.26 J	NA	0.2 UJ
1,2-DIBROMO-3-CHLOROPROPANE	10 U	NA	50 U	100 U	NA	0.74 UJ	NA	0.74 UJ
1,2-DIBROMOETHANE	5 U	NA	25 U	50 U	NA	0.24 UJ	NA	0.24 UJ
1,2-DICHLOROBENZENE	5 U	NA	25 U	50 U	NA	1.4 J	NA	0.21 UJ
1,2-DICHLOROETHANE	5 U	NA	25 U	50 U	NA	0.36 UJ	NA	0.36 UJ
1,2-DICHLOROPROPANE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
1,3-DICHLOROBENZENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
1,3-DICHLOROPROPANE	5 U	NA	25 U	50 U	NA	0.27 UJ	NA	0.27 UJ
1,4-DICHLOROBENZENE	5 U	NA	25 U	50 U	NA	2.1 J	NA	0.2 UJ
2,2-DICHLOROPROPANE	5 U	NA	25 U	50 U	NA	0.27 UJ	NA	0.27 UJ
2-BUTANONE	25 U	NA	130 U	250 U	NA	0.81 UJ	NA	0.81 UJ
2-CHLOROETHYL VINYL ETHER	5 U	NA	25 U	50 U	NA	0.44 UJ	NA	0.44 UJ
2-CHLOROTOLUENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
2-HEXANONE	25 U	NA	130 U	250 U	NA	1.7 UJ	NA	1.7 UJ
4-CHLOROTOLUENE	5 U	NA	25 U	50 U	NA	0.24 UJ	NA	0.24 UJ
4-ISOPROPYLTOLUENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
4-METHYL-2-PENTANONE	25 U	NA	130 U	250 U	NA	0.67 UJ	NA	0.67 UJ
ACETONE	17 J	NA	130 U	250 U	NA	1.9 J	NA	7.1 J
BENZENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
BROMOBENZENE	5 U	NA	25 U	50 U	NA	0.28 UJ	NA	0.28 UJ
BROMOCHLOROMETHANE	5 U	NA	25 U	50 U	NA	0.32 UJ	NA	0.32 UJ
BROMODICHLOROMETHANE	5 U	NA	25 U	50 U	NA	0.32 UJ	NA	0.32 UJ
BROMOFORM	5 U	NA	25 U	50 U	NA	0.42 UJ	NA	0.42 UJ
BROMOMETHANE	5 U	NA	25 U	50 U	NA	0.29 UJ	NA	0.29 UJ
CARBON DISULFIDE	5 U	NA	25 U	50 U	NA	0.22 UJ	NA	0.22 UJ
CARBON TETRACHLORIDE	5 U	NA	25 U	50 U	NA	0.69 J	NA	0.45 UJ
CHLOROBENZENE	5 U	NA	25 U	50 U	NA	1.2 J	NA	0.29 UJ
CHLORODIBROMOMETHANE	5 U	NA	25 U	50 U	NA	0.31 UJ	NA	0.31 UJ
CHLOROETHANE	5 U	NA	25 U	50 U	NA	0.32 J	NA	0.64 J
CHLOROFORM	1.8 J	NA	25 U	21 DJ	NA	7.6 J	NA	0.25 UJ
CHLOROMETHANE	5 U	NA	25 U	50 U	NA	0.21 UJ	NA	0.27 J
CIS-1,2-DICHLOROETHENE	670	NA	180	190 D	NA	2.7 J	NA	0.3 UJ
CIS-1,3-DICHLOROPROPENE	5 U	NA	25 U	50 U	NA	0.24 UJ	NA	0.24 UJ
DIBROMOMETHANE	5 U	NA	25 U	50 U	NA	0.32 UJ	NA	0.32 UJ
DICHLORODIFLUOROMETHANE	5 U	NA	25 U	50 U	NA	0.46 UJ	NA	0.46 UJ
DIISOPROPYL ETHER	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
ETHYL TERT-BUTYL ETHER	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
ETHYLBENZENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
HEXACHLOROBUTADIENE	10 U	NA	50 U	100 U	NA	0.62 UJ	NA	0.62 UJ
ISOPROPYLBENZENE	1.1 J	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
M+P-XYLENES	10 U	NA	50 U	100 U	NA	0.33 UJ	NA	0.33 UJ
METHYL TERT-BUTYL ETHER	5 U	NA	25 U	50 U	NA	0.29 UJ	NA	0.29 UJ
METHYLENE CHLORIDE	3.9 J	NA	25 U	50 U	NA	0.32 UJ	NA	0.32 UJ
NAPHTHALENE	5 U	NA	25 U	50 U	NA	13 J	NA	0.9 U
N-BUTYLBENZENE	5 U	NA	25 U	50 U	NA	0.21 UJ	NA	0.21 UJ
N-PROPYLBENZENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
O-XYLENE	5 U	NA	25 U	50 U	NA	0.46 J	NA	0.2 UJ
SEC-BUTYLBENZENE	5 U	NA	25 U	50 U	NA	0.27 UJ	NA	0.27 UJ
STYRENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
TERT-AMYL METHYL ETHER	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
TERT-BUTYLBENZENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
TERTIARY-BUTYL ALCOHOL	200 U	NA	1000 U	2000 U	NA	350 J	NA	24 J
TETRACHLOROETHENE	3.5 J	NA	25 U	50 U	NA	12 J	NA	0.3 UJ
TOLUENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
TOTAL XYLENES	15 U	NA	75 U	150 U	NA	0.53 UJ	NA	0.53 UJ
TRANS-1,2-DICHLOROETHENE	4.1 J	NA	25 U	50 U	NA	0.33 UJ	NA	0.33 UJ
TRANS-1,3-DICHLOROPROPENE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
TRICHLOROETHENE	450	NA	5100 E	5600 D	NA	1.5 J	NA	0.22 UJ

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW60A-061814 20140618	MRC-MW60B-061114 20140611	MRC-MW60B-061814 20140618	MRC-MW60B-061814-DL 20140618	MRC-MW61A-060614 20140606	MRC-MW62A-031814 20140318	MRC-MW-62A-041714 20140417	MRC-MW62C-031814 20140318
TRICHLOROFLUOROMETHANE	5 U	NA	25 U	50 U	NA	0.2 UJ	NA	0.2 UJ
VINYL ACETATE	10 U	NA	50 U	100 U	NA	1.1 UJ	NA	1.1 UJ
VINYL CHLORIDE	49	NA	25 U	50 U	NA	0.6 J	NA	0.32 UJ
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	1 U	2 U	NA	NA	NA	NA
ETHENE	NA	NA	0.2 J	2 U	NA	NA	NA	NA
METHANE	NA	NA	110 E	110 D	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0044 U	0.0044 U	0.0044 U
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.011 U	0.011 U	0.011 U
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	0.01 UJ	0.01 U	0.01 UJ
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0017 U	0.0017 U	0.0017 U
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.019 U	0.019 U	0.019 U
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0084 U	0.0084 U	0.0084 U
PCB-209	NA	NA	NA	NA	NA	0.018 U	0.018 U	0.018 U
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0088 U	0.0088 U	0.0088 U
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.0054 U	0.0054 U	0.0054 U
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	0.042	0.0034 U	0.0065 U
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.0052	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.011 U	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	0.01 U	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.0017 U	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.019 U	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.0084 U	NA
PCB-209	NA	NA	NA	NA	NA	NA	0.018 U	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.0088 U	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.0054 U	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	0.0034 U	NA
METALS (UG/L)								
ANTIMONY	NA	0.157 U	NA	NA	0.251 U	NA	NA	NA
ARSENIC	NA	0.211 U	NA	NA	1.3	NA	NA	NA
BARIUM	NA	62.3	NA	NA	273 J	NA	NA	NA
BERYLLIUM	NA	0.171 J	NA	NA	32.2 J	4.8	NA	0.091 J
CADMIUM	NA	0.008 U	NA	NA	1.2	NA	NA	NA
CHROMIUM	NA	3.5	NA	NA	0.816 J	NA	NA	NA
COBALT	NA	45.6	NA	NA	519 J	20.1	NA	12
COPPER	NA	0.509 J	NA	NA	16.4	NA	NA	NA
IRON	NA	11300	NA	NA	174	NA	NA	NA
LEAD	NA	0.061 U	NA	NA	3.3	NA	NA	NA
MANGANESE	NA	2240	NA	NA	18000	NA	NA	NA
MERCURY	NA	0.024 U	NA	NA	0.024 U	0.024 U	NA	0.024 U
MOLYBDENUM	NA	0.068 U	NA	NA	0.078 U	NA	NA	NA
NICKEL	NA	76.6	NA	NA	311 J	100	NA	21.6
SELENIUM	NA	0.739 J	NA	NA	0.213 U	NA	NA	NA
SILICON	NA	NA	NA	NA	5970	NA	NA	NA
SILVER	NA	0.015 U	NA	NA	0.081 J	NA	NA	NA
THALLIUM	NA	0.031 J	NA	NA	0.069 J	NA	NA	NA
VANADIUM	NA	0.358 U	NA	NA	0.358 U	NA	NA	NA
ZINC	NA	NA	NA	NA	344 J	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW60A-061814 20140618	MRC-MW60B-061114 20140611	MRC-MW60B-061814 20140618	MRC-MW60B-061814-DL 20140618	MRC-MW61A-060614 20140606	MRC-MW62A-031814 20140318	MRC-MW-62A-041714 20140417	MRC-MW62C-031814 20140318
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	0.007 BJ	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	50.7	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	19	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	0.6 J	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	1 U	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	1 U	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	0.013 B	NA	NA	NA	NA	NA
SILICA	NA	11.5	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	2.9	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	79	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	0.2 U	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW-62C-041714 20140417	MRC-MW63A-052314 20140523	MRC-MW67A-051314 20140513	MRC-MW68A-051314 20140513	MRC-MW69A-051314 20140513	MRC-MW69B-051314 20140513	MRC-MW70A-060214 20140602	MRC-MW70B-060214 20140602
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	NA	0.22 U	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U
1,1,1-TRICHLOROETHANE	NA	0.36 U	NA	NA	0.36 U	0.36 U	0.36 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	NA	0.25 UJ	NA	NA	0.25 U	0.25 U	0.25 UJ	0.25 UJ
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	0.31 U	NA	NA	0.31 U	0.31 U	0.31 U	0.31 U
1,1-DICHLOROETHANE	NA	4.7	NA	NA	0.2 U	0.2 U	0.87 J	3.5
1,1-DICHLOROETHENE	NA	3.9	NA	NA	0.57 U	0.57 U	0.57 U	37
1,1-DICHLOROPROPENE	NA	0.29 U	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U
1,2,3-TRICHLOROBENZENE	NA	0.82 U	NA	NA	0.82 U	0.82 U	0.82 U	0.82 U
1,2,3-TRICHLOROPROPANE	NA	0.7 U	NA	NA	0.7 U	0.7 U	0.7 U	0.7 U
1,2,4-TRICHLOROBENZENE	NA	0.23 U	NA	NA	0.23 U	0.23 U	0.23 U	0.23 U
1,2,4-TRIMETHYLBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	NA	0.74 U	NA	NA	0.74 U	0.74 U	0.74 U	0.74 U
1,2-DIBROMOETHANE	NA	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U
1,2-DICHLOROBENZENE	NA	0.21 U	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U
1,2-DICHLOROETHANE	NA	0.36 U	NA	NA	0.36 U	0.36 U	0.36 UJ	0.48 J
1,2-DICHLOROPROPANE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
1,3-DICHLOROPROPANE	NA	0.27 U	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U
1,4-DICHLOROBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
2,2-DICHLOROPROPANE	NA	0.27 U	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U
2-BUTANONE	NA	0.81 U	NA	NA	0.81 U	0.81 U	0.81 U	0.81 U
2-CHLOROETHYL VINYL ETHER	NA	0.44 U	NA	NA	0.44 UJ	0.44 UJ	0.44 U	0.44 U
2-CHLOROTOLUENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
2-HEXANONE	NA	1.7 U	NA	NA	1.7 U	1.7 U	1.7 U	1.7 U
4-CHLOROTOLUENE	NA	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U
4-ISOPROPYLTOLUENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
4-METHYL-2-PENTANONE	NA	0.67 U	NA	NA	0.67 U	0.67 U	0.67 U	0.67 U
ACETONE	NA	1.3 U	NA	NA	1.3 UJ	1.3 UJ	1.3 U	2.3 U
BENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.61 J
BROMOBENZENE	NA	0.28 U	NA	NA	0.28 U	0.28 U	0.28 U	0.28 U
BROMOCHLOROMETHANE	NA	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U
BROMODICHLOROMETHANE	NA	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U
BROMOFORM	NA	0.42 U	NA	NA	0.42 U	0.42 U	0.42 U	0.42 U
BROMOMETHANE	NA	0.29 UJ	NA	NA	0.29 U	0.29 U	0.29 UJ	0.29 UJ
CARBON DISULFIDE	NA	0.22 U	NA	NA	0.22 U	0.22 U	0.22 U	0.22 U
CARBON TETRACHLORIDE	NA	0.45 U	NA	NA	0.45 U	0.45 U	0.45 UJ	0.45 UJ
CHLOROBENZENE	NA	0.29 U	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U
CHLORODIBROMOMETHANE	NA	0.31 U	NA	NA	0.31 U	0.31 U	0.31 U	0.31 U
CHLOROETHANE	NA	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U
CHLOROFORM	NA	0.25 U	NA	NA	0.25 U	0.25 U	0.25 U	0.25 U
CHLOROMETHANE	NA	0.21 U	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U
CIS-1,2-DICHLOROETHENE	NA	5.6	NA	NA	0.3 U	0.3 U	1.3	9.6
CIS-1,3-DICHLOROPROPENE	NA	0.24 U	NA	NA	0.24 U	0.24 U	0.24 U	0.24 U
DIBROMOMETHANE	NA	0.32 U	NA	NA	0.32 U	0.32 U	0.32 U	0.32 U
DICHLORODIFLUOROMETHANE	NA	0.46 U	NA	NA	0.46 U	0.46 U	0.46 U	0.46 U
DIISOPROPYL ETHER	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
ETHYL TERT-BUTYL ETHER	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
ETHYLBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
HEXACHLOROBUTADIENE	NA	0.62 U	NA	NA	0.62 UJ	0.62 UJ	0.62 U	0.62 U
ISOPROPYLBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
M+P-XYLENES	NA	0.33 U	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U
METHYL TERT-BUTYL ETHER	NA	0.29 U	NA	NA	0.29 U	0.29 U	0.29 U	0.29 U
METHYLENE CHLORIDE	NA	0.32 U	NA	NA	0.32 U	0.32 U	0.32 UJ	0.32 UJ
NAPHTHALENE	NA	0.2 U	NA	NA	0.2 U	0.52 U	0.2 U	0.2 U
N-BUTYLBENZENE	NA	0.21 U	NA	NA	0.21 U	0.21 U	0.21 U	0.21 U
N-PROPYLBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
O-XYLENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
SEC-BUTYLBENZENE	NA	0.27 U	NA	NA	0.27 U	0.27 U	0.27 U	0.27 U
STYRENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
TERT-AMYL METHYL ETHER	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
TERT-BUTYLBENZENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
TERTIARY-BUTYL ALCOHOL	NA	11 U	NA	NA	11 UJ	11 UJ	11 U	11 U
TETRACHLOROETHENE	NA	0.3 U	NA	NA	0.3 U	0.3 U	0.3 U	0.53 J
TOLUENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
TOTAL XYLENES	NA	0.53 U	NA	NA	0.53 U	0.53 U	0.53 U	0.53 U
TRANS-1,2-DICHLOROETHENE	NA	0.33 U	NA	NA	0.33 U	0.33 U	0.33 U	0.33 U
TRANS-1,3-DICHLOROPROPENE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
TRICHLOROETHENE	NA	6.6	NA	NA	0.22 U	0.22 U	1.2	180

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Chemical Results for Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE	MRC-MW-62C-041714 20140417	MRC-MW63A-052314 20140523	MRC-MW67A-051314 20140513	MRC-MW68A-051314 20140513	MRC-MW69A-051314 20140513	MRC-MW69B-051314 20140513	MRC-MW70A-060214 20140602	MRC-MW70B-060214 20140602
TRICHLOROFLUOROMETHANE	NA	0.2 U	NA	NA	0.2 U	0.2 U	0.2 U	0.2 U
VINYL ACETATE	NA	1.1 U	NA	NA	1.1 U	1.1 U	1.1 UJ	1.1 UJ
VINYL CHLORIDE	NA	1.6	NA	NA	0.32 U	0.32 U	0.32 U	0.46 J
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	9.73	NA	NA	3.27	0.393	2.05	26.9
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	0.0044 U	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.011 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.01 U	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	0.0017 U	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	0.019 U	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	0.0084 U	NA	NA	NA	NA	NA	NA	NA
PCB-209	0.018 U	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.0088 U	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.0054 U	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.0034 U	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	0.0044 U	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	0.011 U	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	0.01 U	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	0.0017 U	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	0.019 U	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	0.0084 U	NA	NA	NA	NA	NA	NA	NA
PCB-209	0.018 U	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	0.0088 U	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	0.0054 U	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	0.0034 U	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	NA	0.157 U	0.785 U	0.785 U	0.393 U	NA	0.202 U	NA
ARSENIC	NA	0.578 J	3.7 J	1.4 J	1.3	NA	3.6	NA
BARIUM	NA	408	688	2400	73.7	NA	92.6	NA
BERYLLIUM	NA	1.1	249 J	168 J	0.034 J	NA	2.4	NA
CADMIUM	NA	0.008 U	10.3	5.7	0.008 U	NA	0.008 U	NA
CHROMIUM	NA	1.9 U	3.8 J	2.4 U	1.5 J	NA	2.7 U	NA
COBALT	NA	326	7550	1640	42.5	NA	29 J	NA
COPPER	NA	8.3 J	2120	84.2	8.1	NA	4.3	NA
IRON	NA	66000	9230	173	6700	NA	59300	NA
LEAD	NA	0.88 J	6.5	0.598 J	0.89 J	NA	1.4 J	NA
MANGANESE	NA	2700	12600	6750	1340	NA	1400	NA
MERCURY	NA	0.024 U	0.024 U	0.024 U	0.024 U	NA	0.024 U	NA
MOLYBDENUM	NA	0.489 J	0.708 J	0.341 U	0.279 J	NA	0.377 J	NA
NICKEL	NA	430	129000	5640	49.6	NA	32.3	NA
SELENIUM	NA	0.213 U	6.4 J	4.5 J	0.505 U	NA	0.63 J	NA
SILICON	NA	13900	14200	17500	4460	NA	8220	NA
SILVER	NA	0.037 U	0.258 J	0.391 J	0.034 U	NA	0.031 U	NA
THALLIUM	NA	0.031 U	1.1 J	0.153 U	0.031 U	NA	0.031 UJ	NA
VANADIUM	NA	3.6 U	0.479 U	0.479 U	0.479 U	NA	4.2 U	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW-62C-041714 20140417	MRC-MW63A-052314 20140523	MRC-MW67A-051314 20140513	MRC-MW68A-051314 20140513	MRC-MW69A-051314 20140513	MRC-MW69B-051314 20140513	MRC-MW70A-060214 20140602	MRC-MW70B-060214 20140602
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	0.026 U	0.026 U	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW71A-052014 20140520	MRC-MW71B-052014 20140520	MRC-MW72B-061714 20140617	MRC-MW72B-061714-DL 20140617	MRC-MW73B-060614 20140606	MRC-MW74A-060614 20140606	MRC-MW74B-060614 20140606	MRC-MW76A-061114 20140611
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 U	0.22 U	5 U	25 U	0.22 U	0.22 U	1.1 U	NA
1,1,1-TRICHLOROETHANE	0.36 U	0.39 J	5 U	25 U	0.36 U	0.36 U	1.8 U	NA
1,1,2,2-TETRACHLOROETHANE	0.25 UJ	0.25 UJ	5 U	25 U	0.25 U	0.25 U	1.3 U	NA
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	0.31 U	5 U	25 U	0.31 U	0.31 U	7.7	NA
1,1-DICHLOROETHANE	0.71 J	2.4	5 U	25 U	0.2 U	0.2 U	1 U	NA
1,1-DICHLOROETHENE	9.1	30	5 U	25 U	0.57 U	0.57 U	2.9 U	NA
1,1-DICHLOROPROPENE	0.29 U	0.29 U	5 U	25 U	0.29 U	0.29 U	1.5 U	NA
1,2,3-TRICHLOROBENZENE	0.82 U	0.82 U	5 U	25 U	0.82 U	0.82 U	4.1 U	NA
1,2,3-TRICHLOROPROPANE	0.7 U	0.7 U	5 U	25 U	0.7 U	0.7 U	3.5 U	NA
1,2,4-TRICHLOROBENZENE	0.23 U	0.23 U	5 U	25 U	0.23 U	0.23 U	1.2 U	NA
1,2,4-TRIMETHYLBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	0.74 U	10 U	50 U	0.74 U	0.74 U	3.7 U	NA
1,2-DIBROMOETHANE	0.24 U	0.24 U	5 U	25 U	0.24 U	0.24 U	1.2 U	NA
1,2-DICHLOROBENZENE	0.21 U	0.21 U	5 U	25 U	0.21 U	0.21 U	1.1 U	NA
1,2-DICHLOROETHANE	0.36 U	0.36 U	5 U	25 U	0.36 U	0.36 U	1.8 U	NA
1,2-DICHLOROPROPANE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
1,3-DICHLOROBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.32 J	1 U	NA
1,3-DICHLOROPROPANE	0.27 U	0.27 U	5 U	25 U	0.27 U	0.27 U	1.4 U	NA
1,4-DICHLOROBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.64 J	1 U	NA
2,2-DICHLOROPROPANE	0.27 U	0.27 U	5 U	25 U	0.27 U	0.27 U	1.4 U	NA
2-BUTANONE	0.81 U	0.81 U	25 U	130 U	0.81 U	0.81 U	4.1 U	NA
2-CHLOROETHYL VINYL ETHER	0.44 U	0.44 U	5 U	25 U	0.44 U	0.44 U	2.2 U	NA
2-CHLOROTOLUENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
2-HEXANONE	1.7 U	1.7 U	25 U	130 U	1.7 U	1.7 U	8.3 U	NA
4-CHLOROTOLUENE	0.24 U	0.24 U	5 U	25 U	0.24 U	0.24 U	1.2 U	NA
4-ISOPROPYLTOLUENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
4-METHYL-2-PENTANONE	0.67 U	0.67 U	25 U	130 U	0.67 U	0.67 U	3.4 U	NA
ACETONE	1.3 U	1.3 U	25 U	130 U	1.3 U	1.6 J	6.2 U	NA
BENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
BROMOBENZENE	0.28 U	0.28 U	5 U	25 U	0.28 U	0.28 U	1.5 U	NA
BROMOCHLOROMETHANE	0.32 U	0.32 U	5 U	25 U	0.32 U	0.32 U	1.6 U	NA
BROMODICHLOROMETHANE	0.32 U	0.32 U	5 U	25 U	0.32 U	0.32 U	1.6 U	NA
BROMOFORM	0.42 U	0.42 U	5 U	25 U	0.42 U	0.42 U	2.1 U	NA
BROMOMETHANE	0.29 UJ	0.29 UJ	5 U	25 U	0.29 U	0.29 U	1.5 U	NA
CARBON DISULFIDE	0.22 U	0.22 U	5 U	25 U	0.22 U	0.22 U	1.1 U	NA
CARBON TETRACHLORIDE	0.45 U	0.45 U	5 U	25 U	0.45 U	0.45 U	2.3 U	NA
CHLOROBENZENE	0.29 U	0.29 U	5 U	25 U	0.29 U	0.29 U	1.5 U	NA
CHLORODIBROMOMETHANE	0.31 U	0.31 U	5 U	25 U	0.31 U	0.31 U	1.6 U	NA
CHLOROETHANE	0.24 U	0.24 U	5 U	25 U	0.24 U	0.24 U	1.2 U	NA
CHLOROFORM	0.25 U	0.25 U	5 U	25 U	0.25 U	0.25 U	1.3 U	NA
CHLOROMETHANE	0.21 U	0.21 U	5 U	25 U	0.21 U	0.21 U	1.1 U	NA
CIS-1,2-DICHLOROETHENE	0.3 U	5	5 U	25 U	2.2	2	21	NA
CIS-1,3-DICHLOROPROPENE	0.24 U	0.24 U	5 U	25 U	0.24 U	0.24 U	1.2 U	NA
DIBROMOMETHANE	0.32 U	0.32 U	5 U	25 U	0.32 U	0.32 U	1.6 U	NA
DICHLORODIFLUOROMETHANE	0.46 U	0.46 U	5 U	25 U	0.46 U	0.46 U	2.4 U	NA
DIISOPROPYL ETHER	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
ETHYL TERT-BUTYL ETHER	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
ETHYLBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
HEXACHLOROBUTADIENE	0.62 U	0.62 U	10 U	50 U	0.62 U	0.62 U	3.1 U	NA
ISOPROPYLBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
M+P-XYLENES	0.33 U	0.33 U	10 U	50 U	0.33 U	0.33 U	1.7 U	NA
METHYL TERT-BUTYL ETHER	0.29 U	0.29 U	5 U	25 U	0.29 U	0.29 U	1.5 U	NA
METHYLENE CHLORIDE	0.32 U	0.32 U	5 U	25 U	0.32 U	0.32 U	1.6 U	NA
NAPHTHALENE	0.2 U	0.2 U	5 U	25 U	0.2 UJ	0.2 UJ	1 UJ	NA
N-BUTYLBENZENE	0.21 U	0.21 U	5 U	25 U	0.21 U	0.21 U	1.1 U	NA
N-PROPYLBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
O-XYLENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
SEC-BUTYLBENZENE	0.27 U	0.27 U	5 U	25 U	0.27 U	0.27 U	1.4 U	NA
STYRENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
TERT-AMYL METHYL ETHER	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
TERT-BUTYLBENZENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
TERTIARY-BUTYL ALCOHOL	11 U	11 U	200 U	1000 U	11 U	11 U	54 U	NA
TETRACHLOROETHENE	0.3 U	0.4 J	5 U	25 U	0.3 U	0.3 U	1.5 U	NA
TOLUENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
TOTAL XYLENES	0.53 U	0.53 U	15 U	75 U	0.53 U	0.53 U	2.7 U	NA
TRANS-1,2-DICHLOROETHENE	0.33 U	0.33 U	5 U	25 U	0.33 U	0.33 U	1.7 U	NA
TRANS-1,3-DICHLOROPROPENE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
TRICHLOROETHENE	0.36 J	49	2200 E	2500 D	100	83	1900	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW71A-052014 20140520	MRC-MW71B-052014 20140520	MRC-MW72B-061714 20140617	MRC-MW72B-061714-DL 20140617	MRC-MW73B-060614 20140606	MRC-MW74A-060614 20140606	MRC-MW74B-060614 20140606	MRC-MW76A-061114 20140611
TRICHLOROFLUOROMETHANE	0.2 U	0.2 U	5 U	25 U	0.2 U	0.2 U	1 U	NA
VINYL ACETATE	1.1 U	1.1 U	10 U	50 U	1.1 U	1.1 U	5.1 U	NA
VINYL CHLORIDE	0.32 U	0.32 U	5 U	25 U	0.32 U	0.32 U	1.6 U	NA
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	1 U	NA	NA	NA	NA	NA
ETHENE	NA	NA	1 U	NA	NA	NA	NA	NA
METHANE	NA	NA	1 U	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	1.43	19.9	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	2.6	0.999 U	NA	NA	NA	NA	NA	0.157 U
ARSENIC	0.211 U	0.211 U	NA	NA	NA	NA	NA	3.1
BARIUM	33.8 U	98.4 U	NA	NA	NA	NA	NA	93.2
BERYLLIUM	1	0.02 U	NA	NA	NA	NA	NA	8.3
CADMIUM	3.7	0.008 U	NA	NA	NA	NA	NA	0.024 J
CHROMIUM	2.7 U	1 U	NA	NA	NA	NA	NA	2 J
COBALT	11.4	7.2	NA	NA	NA	NA	NA	437
COPPER	7.5 J	5.4 J	NA	NA	NA	NA	NA	2.1
IRON	107 U	4830	NA	NA	NA	NA	NA	26600
LEAD	0.179 J	0.541 J	NA	NA	NA	NA	NA	0.102 J
MANGANESE	279	670	NA	NA	NA	NA	NA	17500
MERCURY	0.024 U	0.024 U	NA	NA	NA	NA	NA	0.024 U
MOLYBDENUM	0.809 J	0.195 U	NA	NA	NA	NA	NA	0.068 U
NICKEL	22.2	10.9	NA	NA	NA	NA	NA	366
SELENIUM	0.487 J	0.213 U	NA	NA	NA	NA	NA	2.5
SILICON	9490	5170	NA	NA	NA	NA	NA	NA
SILVER	0.015 U	0.015 U	NA	NA	NA	NA	NA	0.032 J
THALLIUM	0.031 U	0.031 U	NA	NA	NA	NA	NA	0.031 U
VANADIUM	4.8 U	1.1 U	NA	NA	NA	NA	NA	0.358 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE	MRC-MW71A-052014 20140520	MRC-MW71B-052014 20140520	MRC-MW72B-061714 20140617	MRC-MW72B-061714-DL 20140617	MRC-MW73B-060614 20140606	MRC-MW74A-060614 20140606	MRC-MW74B-060614 20140606	MRC-MW76A-061114 20140611
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	0.05 U	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	8.7 B	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	17	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	1.1	NA	NA	NA	NA	NA
NITRATE	NA	NA	0.7 J	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	1 U	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	0.02 B	NA	NA	NA	NA	NA
SILICA	NA	NA	8.56	NA	NA	NA	NA	NA
SULFATE	NA	NA	6.5	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	67	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	0.2	0.06 J	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW76A-061814 20140618	MRC-MW76B-061114 20140611	MRC-MW76B-061814 20140618	MRC-MW77A-060214 20140602	MRC-MW78B-061714 20140617	MRC-MW79B-060214 20140602	MRC-MW80A-061214 20140612	MRC-MW80B-061214 20140612
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	1 U	NA	1 U	0.22 U	1 U	0.44 U	NA	1 U
1,1,1-TRICHLOROETHANE	1 U	NA	1 U	0.36 U	1 U	0.72 U	NA	1 U
1,1,2,2-TETRACHLOROETHANE	1 U	NA	1 U	0.25 UJ	1 U	0.5 UJ	NA	1 U
1,1,2-TRICHLOROTRIFLUOROETHANE	1 U	NA	1 U	0.31 U	1 U	0.62 U	NA	1 U
1,1-DICHLOROETHANE	1 U	NA	1.5	12	1 U	2	NA	1.6
1,1-DICHLOROETHENE	1 U	NA	0.98 J	1.9	1 U	3.1	NA	23
1,1-DICHLOROPROPENE	1 U	NA	1 U	0.29 U	1 U	0.58 U	NA	1 U
1,2,3-TRICHLOROBENZENE	1 U	NA	1 U	0.82 U	1 U	1.7 U	NA	1 U
1,2,3-TRICHLOROPROPANE	1 U	NA	1 U	0.7 U	1 U	1.4 U	NA	1 U
1,2,4-TRICHLOROBENZENE	1 U	NA	1 U	0.23 U	1 U	0.46 U	NA	1 U
1,2,4-TRIMETHYLBENZENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
1,2-DIBROMO-3-CHLOROPROPANE	2 U	NA	2 U	0.74 U	2 U	1.5 U	NA	2 U
1,2-DIBROMOETHANE	1 U	NA	1 U	0.24 U	1 U	0.48 U	NA	1 U
1,2-DICHLOROBENZENE	1 U	NA	1 U	0.21 U	1 U	0.42 U	NA	1 U
1,2-DICHLOROETHANE	1 U	NA	1 U	0.36 UJ	1 U	0.72 UJ	NA	0.42 J
1,2-DICHLOROPROPANE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
1,3-DICHLOROBENZENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
1,3-DICHLOROPROPANE	1 U	NA	1 U	0.27 U	1 U	0.54 U	NA	1 U
1,4-DICHLOROBENZENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
2,2-DICHLOROPROPANE	1 U	NA	1 U	0.27 U	1 U	0.54 U	NA	1 U
2-BUTANONE	5 U	NA	5 U	0.81 U	5 U	1.7 U	NA	5 U
2-CHLOROETHYL VINYL ETHER	1 U	NA	1 U	0.44 U	1 U	0.88 U	NA	1 U
2-CHLOROTOLUENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
2-HEXANONE	5 U	NA	5 U	1.7 U	5 U	3.4 U	NA	5 U
4-CHLOROTOLUENE	1 U	NA	1 U	0.24 U	1 U	0.48 U	NA	1 U
4-ISOPROPYLTOLUENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
4-METHYL-2-PENTANONE	5 U	NA	5 U	0.67 U	5 U	1.4 U	NA	5 U
ACETONE	3 J	NA	5 U	1.3 U	5 U	2.5 U	NA	5 U
BENZENE	1 U	NA	1 U	11	1 U	1.4 J	NA	1 U
BROMOBENZENE	1 U	NA	1 U	0.28 U	1 U	0.56 U	NA	1 U
BROMOCHLOROMETHANE	1 U	NA	1 U	0.32 U	1 U	0.64 U	NA	1 U
BROMODICHLOROMETHANE	1 U	NA	1 U	0.32 U	1 U	0.64 U	NA	1 U
BROMOFORM	1 U	NA	1 U	0.42 U	1 U	0.84 U	NA	1 U
BROMOMETHANE	1 U	NA	1 U	0.29 UJ	1 U	0.58 UJ	NA	1 U
CARBON DISULFIDE	1 U	NA	1 U	0.22 U	1 U	0.44 U	NA	1 U
CARBON TETRACHLORIDE	1 U	NA	1 U	0.45 UJ	1 U	0.9 UJ	NA	1 U
CHLOROBENZENE	1 U	NA	1 U	0.29 U	1 U	0.58 U	NA	1 U
CHLORODIBROMOMETHANE	1 U	NA	1 U	0.31 U	1 U	0.62 U	NA	1 U
CHLOROETHANE	1 U	NA	1 U	0.24 U	1 U	0.48 U	NA	1 U
CHLOROFORM	1 U	NA	1 U	0.25 U	1 U	0.72 J	NA	1 U
CHLOROMETHANE	1 U	NA	1 U	0.21 U	1 U	0.42 U	NA	1 U
CIS-1,2-DICHLOROETHENE	1 U	NA	1.3	2.4	1 U	71	NA	2.5
CIS-1,3-DICHLOROPROPENE	1 U	NA	1 U	0.24 U	1 U	0.48 U	NA	1 U
DIBROMOMETHANE	1 U	NA	1 U	0.32 U	1 U	0.64 U	NA	1 U
DICHLORODIFLUOROMETHANE	1 U	NA	1 U	0.46 U	1 U	0.92 U	NA	1 U
DIISOPROPYL ETHER	1 U	NA	1 U	0.56 J	1 U	0.4 U	NA	1 U
ETHYL TERT-BUTYL ETHER	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
ETHYLBENZENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
HEXACHLOROBUTADIENE	2 U	NA	2 U	0.62 U	2 U	1.3 U	NA	2 U
ISOPROPYLBENZENE	1 U	NA	1 U	0.53 J	1 U	0.4 U	NA	1 U
M+P-XYLENES	2 U	NA	2 U	0.33 U	2 U	0.66 U	NA	2 U
METHYL TERT-BUTYL ETHER	1 U	NA	1 U	120	1 U	36	NA	1 U
METHYLENE CHLORIDE	1 U	NA	1 U	0.81 J	1 U	0.64 UJ	NA	1 U
NAPHTHALENE	1 U	NA	1 U	0.73 J	1 U	0.4 U	NA	1 U
N-BUTYLBENZENE	1 U	NA	1 U	0.26 J	1 U	0.42 U	NA	1 U
N-PROPYLBENZENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
O-XYLENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
SEC-BUTYLBENZENE	1 U	NA	1 U	2.4	1 U	0.54 U	NA	1 U
STYRENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
TERT-AMYL METHYL ETHER	1 U	NA	1 U	0.52 J	1 U	0.4 U	NA	1 U
TERT-BUTYLBENZENE	1 U	NA	1 U	0.35 J	1 U	0.4 U	NA	1 U
TERTIARY-BUTYL ALCOHOL	40 U	NA	40 U	18 J	40 U	27 J	NA	40 U
TETRACHLOROETHENE	1 U	NA	1 U	0.3 U	1 U	0.6 U	NA	1 U
TOLUENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
TOTAL XYLENES	3 U	NA	3 U	0.53 U	3 U	1.1 U	NA	3 U
TRANS-1,2-DICHLOROETHENE	1 U	NA	1 U	0.33 U	1 U	3.9	NA	1 U
TRANS-1,3-DICHLOROPROPENE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
TRICHLOROETHENE	1 U	NA	9.5	6.4	1.3	300	NA	57

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW76A-061814 20140618	MRC-MW76B-061114 20140611	MRC-MW76B-061814 20140618	MRC-MW77A-060214 20140602	MRC-MW78B-061714 20140617	MRC-MW79B-060214 20140602	MRC-MW80A-061214 20140612	MRC-MW80B-061214 20140612
TRICHLOROFLUOROMETHANE	1 U	NA	1 U	0.2 U	1 U	0.4 U	NA	1 U
VINYL ACETATE	2 U	NA	2 U	1.1 UJ	2 U	2.1 UJ	NA	2 U
VINYL CHLORIDE	1 U	NA	1 U	1.4	1 U	16	NA	1 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	1.26	18.1
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	NA	0.365 J	NA	0.171 U	1.6	0.157 U	0.529 NJ	NA
ARSENIC	NA	0.99 J	NA	0.627 J	3.6	1.2	0.573 J	NA
BARIUM	NA	147	NA	638	11.9	227	37.1	NA
BERYLLIUM	NA	0.635 J	NA	28.2	0.437 J	1.2	0.586 J	NA
CADMIUM	NA	0.008 U	NA	0.008 U	0.252 J	0.008 U	0.008 U	NA
CHROMIUM	NA	4	NA	0.967 U	4.4	823 U	1.9 J	NA
COBALT	NA	198	NA	435 J	5.1	274 J	0.761 EJ	NA
COPPER	NA	1.2	NA	31.3	11	13	4.6	NA
IRON	NA	16100	NA	69700	2270	64300	51.2 J	NA
LEAD	NA	0.259 J	NA	0.473 J	2.9	0.154 J	0.123 J	NA
MANGANESE	NA	7560	NA	25400	19.3	19900	28.5	NA
MERCURY	NA	0.024 U	NA	0.024 U	0.025 J	0.024 U	0.034 J	NA
MOLYBDENUM	NA	0.068 U	NA	0.213 U	1	0.195 U	0.864 J	NA
NICKEL	NA	254	NA	661	7.6	74.2	6.1 E	NA
SELENIUM	NA	0.213 U	NA	0.445 J	0.958 J	0.881 J	0.213 U	NA
SILICON	NA	NA	NA	7970	NA	3730	NA	NA
SILVER	NA	0.06 J	NA	0.201 U	0.05 J	0.015 U	0.015 U	NA
THALLIUM	NA	0.047 J	NA	0.131 J	0.031 U	0.061 J	0.031 U	NA
VANADIUM	NA	0.358 U	NA	0.479 U	36.1	0.479 U	0.358 U	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW76A-061814 20140618	MRC-MW76B-061114 20140611	MRC-MW76B-061814 20140618	MRC-MW77A-060214 20140602	MRC-MW78B-061714 20140617	MRC-MW79B-060214 20140602	MRC-MW80A-061214 20140612	MRC-MW80B-061214 20140612
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW81A-061114 20140611	MRC-MW81B-052714 20140527	MRC-MW81B-060414 20140604	MRC-MW81B-061114 20140611	MRC-MW81B-061114-DL 20140611	MRC-MW81B-061814 20140618	MRC-MW81B-062014 20140620	MRC-MW87A-052914 20140529
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	NA	NA	NA	50 U	NA	NA	NA	0.22 U
1,1,1-TRICHLOROETHANE	NA	NA	NA	50 U	NA	NA	NA	0.36 U
1,1,2,2-TETRACHLOROETHANE	NA	NA	NA	50 U	NA	NA	NA	0.25 U
1,1,2-TRICHLOROTRIFLUOROETHANE	NA	NA	NA	50 U	NA	NA	NA	0.31 U
1,1-DICHLOROETHANE	NA	NA	NA	110	NA	NA	NA	0.2 U
1,1-DICHLOROETHENE	NA	NA	NA	370	NA	NA	NA	0.57 U
1,1-DICHLOROPROPENE	NA	NA	NA	50 U	NA	NA	NA	0.29 U
1,2,3-TRICHLOROBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.82 U
1,2,3-TRICHLOROPROPANE	NA	NA	NA	50 U	NA	NA	NA	0.7 U
1,2,4-TRICHLOROBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.23 U
1,2,4-TRIMETHYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	NA	NA	NA	100 U	NA	NA	NA	0.74 U
1,2-DIBROMOETHANE	NA	NA	NA	50 U	NA	NA	NA	0.24 U
1,2-DICHLOROBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.21 U
1,2-DICHLOROETHANE	NA	NA	NA	50 U	NA	NA	NA	0.36 U
1,2-DICHLOROPROPANE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
1,3-DICHLOROBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
1,3-DICHLOROPROPANE	NA	NA	NA	50 U	NA	NA	NA	0.27 U
1,4-DICHLOROBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
2,2-DICHLOROPROPANE	NA	NA	NA	50 U	NA	NA	NA	0.27 U
2-BUTANONE	NA	NA	NA	250 U	NA	NA	NA	0.81 U
2-CHLOROETHYL VINYL ETHER	NA	NA	NA	50 U	NA	NA	NA	1 U
2-CHLOROTOLUENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
2-HEXANONE	NA	NA	NA	250 U	NA	NA	NA	1.7 UJ
4-CHLOROTOLUENE	NA	NA	NA	50 U	NA	NA	NA	0.24 U
4-ISOPROPYLTOLUENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
4-METHYL-2-PENTANONE	NA	NA	NA	250 U	NA	NA	NA	0.67 U
ACETONE	NA	NA	NA	250 U	NA	NA	NA	1.9 U
BENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
BROMOBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.28 U
BROMOCHLOROMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.32 U
BROMODICHLOROMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.32 U
BROMOFORM	NA	NA	NA	50 U	NA	NA	NA	0.42 U
BROMOMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.29 U
CARBON DISULFIDE	NA	NA	NA	50 U	NA	NA	NA	0.22 U
CARBON TETRACHLORIDE	NA	NA	NA	50 U	NA	NA	NA	0.45 U
CHLOROBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.29 U
CHLORODIBROMOMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.31 U
CHLOROETHANE	NA	NA	NA	50 U	NA	NA	NA	0.24 U
CHLOROFORM	NA	NA	NA	50 U	NA	NA	NA	0.25 U
CHLOROMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.21 U
CIS-1,2-DICHLOROETHENE	NA	NA	NA	3400	NA	NA	NA	0.3 U
CIS-1,3-DICHLOROPROPENE	NA	NA	NA	50 U	NA	NA	NA	0.24 U
DIBROMOMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.32 U
DICHLORODIFLUOROMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.46 U
DIISOPROPYL ETHER	NA	NA	NA	50 U	NA	NA	NA	0.2 U
ETHYL TERT-BUTYL ETHER	NA	NA	NA	50 U	NA	NA	NA	0.2 U
ETHYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
HEXACHLOROBUTADIENE	NA	NA	NA	100 U	NA	NA	NA	0.62 U
ISOPROPYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
M+P-XYLENES	NA	NA	NA	100 U	NA	NA	NA	0.33 U
METHYL TERT-BUTYL ETHER	NA	NA	NA	50 U	NA	NA	NA	0.29 U
METHYLENE CHLORIDE	NA	NA	NA	50 U	NA	NA	NA	0.32 UJ
NAPHTHALENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
N-BUTYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.21 U
N-PROPYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
O-XYLENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
SEC-BUTYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.27 U
STYRENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
TERT-AMYL METHYL ETHER	NA	NA	NA	50 U	NA	NA	NA	0.2 U
TERT-BUTYLBENZENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
TERTIARY-BUTYL ALCOHOL	NA	NA	NA	2000 U	NA	NA	NA	11 U
TETRACHLOROETHENE	NA	NA	NA	50 U	NA	NA	NA	0.3 U
TOLUENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
TOTAL XYLENES	NA	NA	NA	150 U	NA	NA	NA	0.53 U
TRANS-1,2-DICHLOROETHENE	NA	NA	NA	27 J	NA	NA	NA	0.33 U
TRANS-1,3-DICHLOROPROPENE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
TRICHLOROETHENE	NA	NA	NA	7800	NA	NA	NA	0.22 U

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Chemical Results for Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE	MRC-MW81A-061114 20140611	MRC-MW81B-052714 20140527	MRC-MW81B-060414 20140604	MRC-MW81B-061114 20140611	MRC-MW81B-061114-DL 20140611	MRC-MW81B-061814 20140618	MRC-MW81B-062014 20140620	MRC-MW87A-052914 20140529
TRICHLOROFLUOROMETHANE	NA	NA	NA	50 U	NA	NA	NA	0.2 U
VINYL ACETATE	NA	NA	NA	100 U	NA	NA	NA	1.1 U
VINYL CHLORIDE	NA	NA	NA	89	NA	NA	NA	0.32 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	0.63 J	10 U	NA	NA	NA
ETHENE	NA	NA	NA	7	7.4 J	NA	NA	NA
METHANE	NA	NA	NA	380 E	780 D	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	NA	NA	NA	NA	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.157 U	NA	NA	0.157 U	NA	NA	NA	NA
ARSENIC	2.8	NA	NA	8.1	NA	NA	NA	NA
BARIUM	202	NA	NA	484	NA	NA	NA	NA
BERYLLIUM	0.834 J	NA	NA	0.151 J	NA	NA	NA	NA
CADMIUM	0.008 U	NA	NA	0.008 U	NA	NA	NA	NA
CHROMIUM	2.4	NA	NA	2.8	NA	NA	NA	NA
COBALT	44.3	NA	NA	58.1	NA	NA	NA	NA
COPPER	4.2	NA	NA	1.5	NA	NA	NA	NA
IRON	48600	NA	NA	36100	NA	NA	NA	NA
LEAD	1.2	NA	NA	0.245 J	NA	NA	NA	NA
MANGANESE	4560	NA	NA	3170	NA	NA	NA	NA
MERCURY	0.024 U	NA	NA	0.024 U	NA	NA	NA	NA
MOLYBDENUM	0.154 J	NA	NA	0.211 J	NA	NA	NA	NA
NICKEL	38.1	NA	NA	88.9	NA	NA	NA	NA
SELENIUM	1 J	NA	NA	30.3	NA	NA	NA	NA
SILICON	NA	NA	NA	NA	NA	NA	NA	NA
SILVER	0.035 J	NA	NA	0.02 J	NA	NA	NA	NA
THALLIUM	0.031 U	NA	NA	0.031 U	NA	NA	NA	NA
VANADIUM	3.2	NA	NA	0.358 U	NA	NA	NA	NA
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW81A-061114 20140611	MRC-MW81B-052714 20140527	MRC-MW81B-060414 20140604	MRC-MW81B-061114 20140611	MRC-MW81B-061114-DL 20140611	MRC-MW81B-061814 20140618	MRC-MW81B-062014 20140620	MRC-MW87A-052914 20140529
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	0.159	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	195	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	155	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	2.3	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	1 U	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	1 U	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	0.055 B	NA	NA
SILICA	NA	NA	NA	12.5	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	3.8	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	517	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	290	6800	NA	NA	NA	10000	NA
PERCHLORATE	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW87B-052814 20140528	MRC-MW88B-052914 20140529	MRC-MW90B-060914 20140609	MRC-MW90B-061814 20140618	MRC-MW90B-061814-DL 20140618	MRC-MW91A-052914 20140529	MRC-MW92C-061114 20140611	MRC-MW93A-060314 20140603
VOLATILES (UG/L)								
1,1,1,2-TETRACHLOROETHANE	0.22 U	0.22 U	NA	1 U	2 U	NA	1 U	0.22 U
1,1,1-TRICHLOROETHANE	0.36 U	0.36 U	NA	1 U	2 U	NA	1 U	0.36 U
1,1,2,2-TETRACHLOROETHANE	0.25 U	0.25 U	NA	1 U	2 U	NA	1 U	0.25 UJ
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	0.31 U	NA	1 U	2 U	NA	1 U	0.31 U
1,1-DICHLOROETHANE	0.2 U	0.2 U	NA	0.61 J	0.6 DJ	NA	1 U	0.2 U
1,1-DICHLOROETHENE	0.57 U	0.57 U	NA	52	48 D	NA	1 U	0.57 U
1,1-DICHLOROPROPENE	0.29 U	0.29 U	NA	1 U	2 U	NA	1 U	0.29 U
1,2,3-TRICHLOROBENZENE	0.82 U	0.82 U	NA	1 U	2 U	NA	1 U	0.82 U
1,2,3-TRICHLOROPROPANE	0.7 U	0.7 U	NA	1 U	2 U	NA	1 U	0.7 U
1,2,4-TRICHLOROBENZENE	0.23 U	0.23 U	NA	1 U	2 U	NA	1 U	0.23 U
1,2,4-TRIMETHYLBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	0.74 U	NA	2 U	4 U	NA	2 U	0.74 U
1,2-DIBROMOETHANE	0.24 U	0.24 U	NA	1 U	2 U	NA	1 U	0.24 U
1,2-DICHLOROBENZENE	0.21 U	0.21 U	NA	1 U	2 U	NA	1 U	0.21 U
1,2-DICHLOROETHANE	0.36 U	0.36 U	NA	1 U	2 U	NA	1 U	0.36 UJ
1,2-DICHLOROPROPANE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
1,3-DICHLOROBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
1,3-DICHLOROPROPANE	0.27 U	0.27 U	NA	1 U	2 U	NA	1 U	0.27 U
1,4-DICHLOROBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
2,2-DICHLOROPROPANE	0.27 U	0.27 U	NA	1 U	2 U	NA	1 U	0.27 U
2-BUTANONE	0.81 U	0.81 U	NA	5 U	10 U	NA	5 U	0.81 U
2-CHLOROETHYL VINYL ETHER	1 U	1 U	NA	1 U	2 U	NA	1 U	0.44 U
2-CHLOROTOLUENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
2-HEXANONE	1.7 UJ	1.7 UJ	NA	5 U	10 U	NA	5 U	1.7 U
4-CHLOROTOLUENE	0.24 U	0.24 U	NA	1 U	2 U	NA	1 U	0.24 U
4-ISOPROPYLTOLUENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
4-METHYL-2-PENTANONE	0.67 U	0.67 U	NA	5 U	10 U	NA	5 U	0.67 U
ACETONE	1.6 U	1.3 UJ	NA	5 U	2.5 DJ	NA	5 U	1.3 U
BENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
BROMOBENZENE	0.28 U	0.28 U	NA	1 U	2 U	NA	1 U	0.28 U
BROMOCHLOROMETHANE	0.32 U	0.32 U	NA	1 U	2 U	NA	1 U	0.32 U
BROMODICHLOROMETHANE	0.32 U	0.32 U	NA	1 U	2 U	NA	1 U	0.32 U
BROMOFORM	0.42 U	0.42 U	NA	1 U	2 U	NA	1 U	0.42 U
BROMOMETHANE	0.3 J	0.29 U	NA	0.41 BJ	0.88 BDJ	NA	1 U	0.29 UJ
CARBON DISULFIDE	0.22 U	0.22 U	NA	0.67 J	1.1 DJ	NA	1 U	0.22 U
CARBON TETRACHLORIDE	0.45 U	0.45 U	NA	1 U	2 U	NA	1 U	0.45 UJ
CHLOROBENZENE	0.29 U	0.29 U	NA	1 U	2 U	NA	1 U	0.29 U
CHLORODIBROMOMETHANE	0.31 U	0.31 U	NA	1 U	2 U	NA	1 U	0.31 U
CHLOROETHANE	0.24 U	0.24 U	NA	1 U	2 U	NA	1 U	0.24 U
CHLOROFORM	0.25 U	0.25 U	NA	1	1.8 DJ	NA	1 U	0.25 U
CHLOROMETHANE	0.21 U	0.21 U	NA	0.55 J	0.56 DJ	NA	1 U	0.37 J
CIS-1,2-DICHLOROETHENE	1.4	0.3 U	NA	9.2	8.7 D	NA	0.93 J	1.4
CIS-1,3-DICHLOROPROPENE	0.24 U	0.24 U	NA	1 U	2 U	NA	1 U	0.24 U
DIBROMOMETHANE	0.32 U	0.32 U	NA	1 U	2 U	NA	1 U	0.32 U
DICHLORODIFLUOROMETHANE	0.46 U	0.46 U	NA	1 U	2 U	NA	1 U	0.46 U
DIISOPROPYL ETHER	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
ETHYL TERT-BUTYL ETHER	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
ETHYLBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
HEXACHLOROBUTADIENE	0.62 U	0.62 U	NA	2 U	4 U	NA	2 U	0.62 U
ISOPROPYLBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
M+P-XYLENES	0.33 U	0.33 U	NA	2 U	4 U	NA	2 U	0.33 U
METHYL TERT-BUTYL ETHER	0.29 U	0.29 U	NA	1 U	2 U	NA	1 U	0.29 U
METHYLENE CHLORIDE	0.32 UJ	0.32 UJ	NA	1 U	0.66 DJ	NA	1 U	0.32 UJ
NAPHTHALENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
N-BUTYLBENZENE	0.21 U	0.21 U	NA	1 U	2 U	NA	1 U	0.21 U
N-PROPYLBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
O-XYLENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
SEC-BUTYLBENZENE	0.27 U	0.27 U	NA	1 U	2 U	NA	1 U	0.27 U
STYRENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
TERT-AMYL METHYL ETHER	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
TERT-BUTYLBENZENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
TERTIARY-BUTYL ALCOHOL	11 U	11 U	NA	40 U	80 U	NA	40 U	11 U
TETRACHLOROETHENE	0.3 U	0.3 U	NA	1 U	2 U	NA	1 U	0.3 U
TOLUENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
TOTAL XYLENES	0.53 U	0.53 U	NA	3 U	6 U	NA	3 U	0.53 U
TRANS-1,2-DICHLOROETHENE	0.33 U	0.33 U	NA	0.41 J	2 U	NA	1 U	0.33 U
TRANS-1,3-DICHLOROPROPENE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
TRICHLOROETHENE	49	0.3 J	NA	300 E	280 D	NA	1.7	2.5

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Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW87B-052814 20140528	MRC-MW88B-052914 20140529	MRC-MW90B-060914 20140609	MRC-MW90B-061814 20140618	MRC-MW90B-061814-DL 20140618	MRC-MW91A-052914 20140529	MRC-MW92C-061114 20140611	MRC-MW93A-060314 20140603
TRICHLOROFLUOROMETHANE	0.2 U	0.2 U	NA	1 U	2 U	NA	1 U	0.2 U
VINYL ACETATE	1.1 U	1.1 U	NA	2 U	4 U	NA	2 U	1.1 UJ
VINYL CHLORIDE	0.32 U	0.32 U	NA	1 U	2 U	NA	1 U	0.32 U
VOLATILE GASES (UG/L)								
ETHANE	NA	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)								
1,4-DIOXANE	NA	NA	19.4	NA	NA	3.55	NA	NA
PCB HOMOLOGS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)								
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)								
ANTIMONY	0.57 U	NA	NA	NA	NA	NA	0.261 J	0.193 U
ARSENIC	0.459 J	NA	NA	NA	NA	NA	1.3	3
BARIUM	97.7	NA	NA	NA	NA	NA	228	133
BERYLLIUM	0.074 J	NA	NA	NA	NA	NA	0.183 J	39.8
CADMIUM	0.008 U	NA	NA	NA	NA	NA	0.008 U	4
CHROMIUM	2.3 U	NA	NA	NA	NA	NA	1.2 J	4.5 U
COBALT	12.4	NA	NA	NA	NA	NA	35.5	3400 J
COPPER	8.9	NA	NA	NA	NA	NA	1.7	89.7
IRON	3260	NA	NA	NA	NA	NA	16400	5190
LEAD	0.061 U	NA	NA	NA	NA	NA	0.303 J	3.4 J
MANGANESE	561	NA	NA	NA	NA	NA	1190	8390
MERCURY	0.024 U	NA	NA	NA	NA	NA	0.024 U	0.024 U
MOLYBDENUM	2.6	NA	NA	NA	NA	NA	2.7	0.859 J
NICKEL	21.4	NA	NA	NA	NA	NA	28.8	3250
SELENIUM	1.8 J	NA	NA	NA	NA	NA	0.213 U	5.8
SILICON	4080	NA	NA	NA	NA	NA	NA	15600
SILVER	0.015 U	NA	NA	NA	NA	NA	0.017 J	0.063 U
THALLIUM	0.031 U	NA	NA	NA	NA	NA	0.031 U	0.153 UJ
VANADIUM	0.749 U	NA	NA	NA	NA	NA	0.358 U	2 U
ZINC	NA	NA	NA	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
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SAMPLE ID SAMPLE DATE	MRC-MW87B-052814 20140528	MRC-MW88B-052914 20140529	MRC-MW90B-060914 20140609	MRC-MW90B-061814 20140618	MRC-MW90B-061814-DL 20140618	MRC-MW91A-052914 20140529	MRC-MW92C-061114 20140611	MRC-MW93A-060314 20140603
MISCELLANEOUS PARAMETERS (MG/L)								
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)								
BROMIDE	NA	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	1.4	NA	NA	NA	NA	NA

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Chemical Results for Groundwater Samples-2014
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SAMPLE ID	MRC-MW94B-052814	MRC-MW95B-052914	MRC-MW96A-051314	MRC-MW96B-051314	MRC-MW98A-061714	MRC-MW98B-061714	MRC-MW98B-061714-DL
SAMPLE DATE	20140528	20140529	20140514	20140514	20140617	20140617	20140617
VOLATILES (UG/L)							
1,1,1,2-TETRACHLOROETHANE	0.22 U	0.22 U	11 U	0.44 U	1 U	1 U	5 U
1,1,1-TRICHLOROETHANE	0.36 U	0.36 U	18 U	0.72 U	1 U	44	40 D
1,1,2,2-TETRACHLOROETHANE	0.25 U	0.25 U	13 U	0.5 U	1 U	1 U	5 U
1,1,2-TRICHLOROTRIFLUOROETHANE	0.31 U	0.31 U	16 U	0.62 U	1 U	3.4	3 DJ
1,1-DICHLOROETHANE	0.2 U	0.2 U	10 U	0.4 U	1.1	120	110 D
1,1-DICHLOROETHENE	0.57 U	0.57 U	72	1.2 U	2.1	260 E	240 D
1,1-DICHLOROPROPENE	0.29 U	0.29 U	15 U	0.58 U	1 U	1 U	5 U
1,2,3-TRICHLOROBENZENE	0.82 U	0.82 U	41 U	1.7 U	1 U	1 U	5 U
1,2,3-TRICHLOROPROPANE	0.7 U	0.7 U	35 U	1.4 U	1 U	1 U	5 U
1,2,4-TRICHLOROBENZENE	0.23 U	0.23 U	12 U	0.46 U	1 U	1 U	5 U
1,2,4-TRIMETHYLBENZENE	0.2 U	0.2 U	10 U	22	1 U	1 U	5 U
1,2-DIBROMO-3-CHLOROPROPANE	0.74 U	0.74 U	37 U	1.5 U	2 U	2 U	10 U
1,2-DIBROMOETHANE	0.24 U	0.24 U	12 U	0.48 U	1 U	1 U	5 U
1,2-DICHLOROBENZENE	0.21 U	0.21 U	11 U	0.42 U	1 U	1 U	5 U
1,2-DICHLOROETHANE	0.36 U	0.36 U	18 U	0.72 U	1 U	1.6	5 U
1,2-DICHLOROPROPANE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
1,3-DICHLOROBENZENE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
1,3-DICHLOROPROPANE	0.27 U	0.27 U	14 U	0.54 U	1 U	1 U	5 U
1,4-DICHLOROBENZENE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
2,2-DICHLOROPROPANE	0.27 U	0.27 U	14 U	0.54 U	1 U	1 U	5 U
2-BUTANONE	0.81 U	0.81 U	41 U	1.7 U	5 U	5 U	25 U
2-CHLOROETHYL VINYL ETHER	1 U	1 U	22 UR	0.88 UJ	1 U	1 U	5 U
2-CHLOROTOLUENE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
2-HEXANONE	1.7 UJ	1.7 UJ	83 U	3.4 U	5 U	5 U	25 U
4-CHLOROTOLUENE	0.24 U	0.24 U	12 U	0.48 U	1 U	1 U	5 U
4-ISOPROPYLTOLUENE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
4-METHYL-2-PENTANONE	0.67 U	0.67 U	34 U	1.4 U	5 U	5 U	25 U
ACETONE	1.3 UJ	1.3 UJ	62 UJ	2.5 UJ	1.5 J	5 U	25 U
BENZENE	0.2 U	0.2 U	10 U	470	1 U	2.2	2.1 DJ
BROMOBENZENE	0.28 U	0.28 U	15 U	0.56 U	1 U	1 U	5 U
BROMOCHLOROMETHANE	0.32 U	0.32 U	16 U	0.64 U	1 U	1 U	5 U
BROMODICHLOROMETHANE	0.32 U	0.32 U	16 U	0.64 U	1 U	1 U	5 U
BROMOFORM	0.42 U	0.42 U	21 U	0.84 U	1 U	1 U	5 U
BROMOMETHANE	0.29 U	0.29 U	15 U	0.58 U	1 U	1 U	5 U
CARBON DISULFIDE	0.22 U	0.22 U	11 U	0.44 U	1 U	1 U	5 U
CARBON TETRACHLORIDE	0.45 U	0.45 U	23 U	0.9 U	1 U	1 U	5 U
CHLOROBENZENE	0.29 U	0.29 U	15 U	0.58 U	1 U	1 U	5 U
CHLORODIBROMOMETHANE	0.31 U	0.31 U	16 U	0.62 U	1 U	1 U	5 U
CHLOROETHANE	0.24 U	0.24 U	12 U	0.48 U	1 U	40	39 D
CHLOROFORM	0.25 U	0.25 U	13 U	0.58 J	1 U	0.86 J	5 U
CHLOROMETHANE	0.21 U	0.21 U	11 U	0.42 U	1 U	1 U	5 U
CIS-1,2-DICHLOROETHENE	0.3 U	0.3 U	31000	22	0.34 J	27	26 D
CIS-1,3-DICHLOROPROPENE	0.24 U	0.24 U	12 U	0.48 U	1 U	1 U	5 U
DIBROMOMETHANE	0.32 U	0.32 U	16 U	0.64 U	1 U	1 U	5 U
DICHLORODIFLUOROMETHANE	0.46 U	0.46 U	23 U	0.92 U	1 U	1 U	5 U
DIISOPROPYL ETHER	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
ETHYL TERT-BUTYL ETHER	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
ETHYLBENZENE	0.2 U	0.2 U	10 U	6.7	1 U	1 U	5 U
HEXACHLOROBUTADIENE	0.62 U	0.62 U	31 UJ	1.3 UJ	2 U	2 U	10 U
ISOPROPYLBENZENE	0.2 U	0.2 U	10 U	7.8	1 U	1 U	5 U
M+P-XYLENES	0.33 U	0.33 U	17 U	35	2 U	2 U	10 U
METHYL TERT-BUTYL ETHER	0.29 U	0.29 U	15 U	23	1 U	1 U	5 U
METHYLENE CHLORIDE	0.32 UJ	0.32 UJ	16 U	0.64 U	1 U	8.2	6 D
NAPHTHALENE	0.2 U	0.2 U	18 J	19	1 U	1 U	5 U
N-BUTYLBENZENE	0.21 U	0.21 U	11 U	1.4 J	1 U	1 U	5 U
N-PROPYLBENZENE	0.2 U	0.2 U	10 U	4.3	1 U	1 U	5 U
O-XYLENE	0.2 U	0.2 U	10 U	68	1 U	1 U	5 U
SEC-BUTYLBENZENE	0.27 U	0.27 U	14 U	1.5 J	1 U	1 U	5 U
STYRENE	0.2 U	0.2 U	10 U	2.2	1 U	1 U	5 U
TERT-AMYL METHYL ETHER	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
TERT-BUTYLBENZENE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
TERTIARY-BUTYL ALCOHOL	11 U	11 U	540 UJ	22 UJ	40 U	40 U	200 U
TETRACHLOROETHENE	0.3 U	0.3 U	15 U	0.6 U	1 U	5.8	5.8 D
TOLUENE	0.2 U	0.2 U	10 U	1.3 J	1 U	1 U	5 U
TOTAL XYLENES	0.53 U	0.53 U	27 U	100	3 U	3 U	15 U
TRANS-1,2-DICHLOROETHENE	0.33 U	0.33 U	75	0.74 J	1 U	0.42 J	5 U
TRANS-1,3-DICHLOROPROPENE	0.2 U	0.2 U	10 U	0.4 U	1 U	1 U	5 U
TRICHLOROETHENE	0.22 U	2.1	3300	15	3.1	500 E	470 D

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SAMPLE ID SAMPLE DATE	MRC-MW94B-052814 20140528	MRC-MW95B-052914 20140529	MRC-MW96A-051314 20140514	MRC-MW96B-051314 20140514	MRC-MW98A-061714 20140617	MRC-MW98B-061714 20140617	MRC-MW98B-061714-DL 20140617
TRICHLOROFLUOROMETHANE	0.2 U	0.2 U	10 U	0.4 U	1 U	0.44 J	5 U
VINYL ACETATE	1.1 U	1.1 U	51 U	2.1 U	2 U	2 U	10 U
VINYL CHLORIDE	0.32 U	0.32 U	37 J	0.64 U	1 U	1.7	5 U
VOLATILE GASES (UG/L)							
ETHANE	NA	NA	NA	NA	NA	NA	NA
ETHENE	NA	NA	NA	NA	NA	NA	NA
METHANE	NA	NA	NA	NA	NA	NA	NA
SEMIVOLATILES (UG/L)							
1,4-DIOXANE	NA	NA	5.52	1.16	1.96	149	NA
PCB HOMOLOGS (UG/L)							
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
FILTERED PCBS (UG/L)							
DICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
HEPTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
HEXACHLOROBIPHENYL	NA	NA	NA	NA	NA	NA	NA
MONOCHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
NONACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
OCTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
PCB-209	NA	NA	NA	NA	NA	NA	NA
PENTACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
TETRACHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
TRICHLOROBIPHENYLS	NA	NA	NA	NA	NA	NA	NA
METALS (UG/L)							
ANTIMONY	NA	NA	0.157 U	0.785 U	0.284 J	0.157 U	NA
ARSENIC	NA	NA	2.1	1.1 U	0.28 J	0.234 J	NA
BARIUM	NA	NA	271	576	46.2	40.9	NA
BERYLLIUM	NA	NA	12.8 J	4.7 J	0.07 J	9	NA
CADMIUM	NA	NA	0.106 J	1 J	0.008 U	0.008 U	NA
CHROMIUM	NA	NA	0.971 J	2.4 U	10.1	0.864 J	NA
COBALT	NA	NA	491	789	0.177 J	87.7	NA
COPPER	NA	NA	18.7	50.4	1.1	2.8	NA
IRON	NA	NA	9790	155 U	172	18700	NA
LEAD	NA	NA	1.2	1.2 J	0.133 J	0.161 J	NA
MANGANESE	NA	NA	4160	2730	6.4 J	2750	NA
MERCURY	NA	NA	0.024 U	0.024 U	0.024 U	0.024 U	NA
MOLYBDENUM	NA	NA	0.068 U	0.587 J	5.2	0.068 U	NA
NICKEL	NA	NA	390	1460	2.5	143	NA
SELENIUM	NA	NA	6.4	2.8 J	2.5	0.213 U	NA
SILICON	NA	NA	14000	8970	NA	NA	NA
SILVER	NA	NA	0.033 U	0.153 U	0.015 U	0.026 J	NA
THALLIUM	NA	NA	0.031 U	0.153 U	0.031 U	0.06 J	NA
VANADIUM	NA	NA	0.479 U	0.479 U	0.803 J	0.358 U	NA
ZINC	NA	NA	NA	NA	NA	NA	NA

Table D-1
Chemical Results for Groundwater Samples-2014
Lockheed Martin Middle River Complex, Middle River, Maryland

SAMPLE ID SAMPLE DATE	MRC-MW94B-052814 20140528	MRC-MW95B-052914 20140529	MRC-MW96A-051314 20140514	MRC-MW96B-051314 20140514	MRC-MW98A-061714 20140617	MRC-MW98B-061714 20140617	MRC-MW98B-061714-DL 20140617
MISCELLANEOUS PARAMETERS (MG/L)							
AMMONIA-N	NA	NA	NA	NA	NA	NA	NA
CARBONATE ALKALINITY	NA	NA	NA	NA	NA	NA	NA
CHLORIDE	NA	NA	NA	NA	NA	NA	NA
DISSOLVED ORGANIC CARBON	NA	NA	NA	NA	NA	NA	NA
NITRATE	NA	NA	NA	NA	NA	NA	NA
NITRATE-N	NA	NA	NA	NA	NA	NA	NA
NITRITE	NA	NA	NA	NA	NA	NA	NA
NITRITE-N	NA	NA	NA	NA	NA	NA	NA
ORTHOPHOSPHATE-P	NA	NA	NA	NA	NA	NA	NA
SILICA	NA	NA	NA	NA	NA	NA	NA
SULFATE	NA	NA	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (UG/L)							
BROMIDE	NA	NA	NA	NA	NA	NA	NA
PERCHLORATE	NA	NA	0.026 U	2.8	NA	NA	NA

B - analyte detected in laboratory blank
D - diiluted sample analysis
DJ - diluted sample concentration is estimated.
E - estimated value. Value is greater than the instrument calibration range. Use the value obtained from the diluted sample (DL) analyses for this result.
J - chemical detected, concentration is estimated
U - not detected at the concentration left of the letter
UG/L - micrograms per liter
NA - not analyzed
MG/L - milligrams per liter