APRIL 2018 SURFACE WATER TECHNICAL MEMORANDUM FOR DARK HEAD COVE AND COW PEN CREEK LOCKHEED MARTIN CORPORATION, MIDDLE RIVER COMPLEX 2323 EASTERN BOULEVARD, MIDDLE RIVER, MD

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Lockheed Martin Corporation

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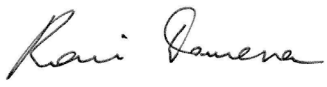

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TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

LIST OF FIGURES

LIST OF TABLES

APPENDICES

ACRONYMS AND ABBREVIATIONS

AECOM	AECOM Technical Services, Inc.
BGE	Baltimore Gas and Electric
BTAG	(USEPA) Biological Technical Advisory Group
cis-1,2-DCE	cis-1,2-dichloroethene
COC	chain of custody
COMAR	Code of Maryland Regulations
DO	dissolved oxygen
g/d/feet	gallon(s) per day per foot
GIS	geographic information system
gpm	gallon(s) per minute
HASP	health and safety plan
MDE	Maryland Department of the Environment
µg/L	microgram(s) per liter
MRC	Middle River Complex
ORP	oxygen reduction potential
PCB(s)	polychlorinated biphenyl(s)
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

EXECUTIVE SUMMARY

On behalf of Lockheed Martin Corporation, AECOM Technical Services, Inc., has prepared this technical memorandum documenting the April 2018 surface water monitoring at the Lockheed Martin Middle River Complex in Middle River, Maryland. This technical memorandum is part of the long-term groundwater and surface-water monitoring program at the Middle River Complex. The objectives of the surface-water monitoring program are to update surface-water analytical data, understand the nature and extent of contamination, evaluate contaminant trends to supplement ongoing remediation efforts, and assess off-site contaminant migration. Investigative activities that will be conducted from 2018 to 2020 as part of this surface-water monitoring program include three annual rounds of sampling and chemical analyses of surface water in Dark Head Cove and Cow Pen Creek in April, June, and September of each year.

This technical memorandum evaluates the April 2018 surface water sampling analytical data based on current and historical results and estimates of potential groundwater to surface water discharge. On-site personnel collected 18 field samples from 17 sampling locations at Cow Pen Creek and Dark Head Cove on April 16–17, 2018, on behalf of Lockheed Martin Corporation. Surface water samples were collected and sent to ALS Environmental in Middletown, Pennsylvania, to be chemically analyzed for volatile organic compounds and 1,4-dioxane. Polychlorinated biphenyls were analyzed by ALS Environmental in Rochester, New York. The analytical results were compared to Maryland ambient water quality criteria for human health consumption of organisms (*Code of Maryland Regulations* 26.08.02.03), United States Environmental Protection Agency Region III Biological Technical Advisory Group freshwater screening-levels (USEPA, 2006), and site-specific risk-based screening levels for swimming. Findings from the April 2018 surface water sampling are as follows:

trichloroethene—detected at one location below screening levels

cis-1,2-dichloroethene—detected at one location below screening levels

1,4-dioxane—detected at one location below screening levels

Polychlorinated biphenyls, as the dichlorobiphenyl homolog group, were detected at all 14 of the Dark Head Cove surface water sampling locations, ranging from 0.0019 to 0.0066 micrograms per liter. In comparison, the detection of polychlorinated biphenyls, as the tertachlorobiphenyl group, was identified at just one location in 2017 (Tetra Tech Inc., 2017b). The April 2018 polychlorinated biphenyl concentrations are below site-specific swimming standards and below Maryland ambient water quality for organisms; however they are above Maryland ambient water quality criteria for human health consumption-of-organisms (*Code of Maryland Regulations* 26.08.02.03). A fish consumption advisory is currently in effect for Middle River, recommending consumption of no more than six meals of blue crab per month, due to polychlorinated biphenyl contamination in the area.

Since high turbidity was not measured in the 2018 sampling event, polychlorinated biphenyl analytical detections were not associated with high turbidity, and therefore possibly represent surface water detections. Polychlorinated biphenyls were also detected in a field blank collected during the April 2018 site groundwater sampling, one week prior to the surface water sampling event.

To further evaluate the 2018 surface water polychlorinated biphenyl detections, Lockheed Martin Corporation proposes two action items:

1. Perform a laboratory comparison study between the 2018 laboratory (ALS Environmental) and the previous laboratory (TestAmerica), by obtaining full data packages from both laboratories for the existing 2017 and 2018 analyses, and perform a thorough review of method detection limits, reporting limits, laboratory quality controls, and recoveries to identify any potential laboratory issues contributing to the detections.

2. Conduct an interim limited-scope surface water sampling event in Dark Head Cove. Laboratory split samples will be collected as a set of co-located field samples at eight of the Dark Head Cove locations, which will be analyzed by the two different laboratories (TestAmerica and ALS Environmental), prior to the April 2019 surface water sampling event to determine if procedures used by the different laboratories caused the variability between the 2017 and 2018 results. Laboratory split samples will be collected at a rate of 100% for polychlorinated biphenyl homolog analysis. The results of this study will be submitted to Maryland Department of the Environment before the next surface water sampling event scheduled in April 2019.

The 2019 groundwater and surface water sampling programs will also be modified to include the comparison study and additional Quality Assurance measures, upon agreement with Maryland Department of the Environment.

SECTION 1
INTRODUCTION

On behalf of Lockheed Martin Corporation, AECOM Technical Services, Inc., has prepared the following technical memorandum for the April 2018 surface water monitoring at the Middle River Complex in Middle River, Maryland (see Figure 1). This technical memorandum details the analytical results from 17 surface water samples and one duplicate sample collected along Dark Head Cove and Cow Pen Creek. Site contaminants at the Middle River Complex could potentially be introduced to surface water through groundwater discharge or through groundwater infiltration into storm drains, thereby discharging into surface water through nearby outfalls.

Before 2017, surface water had been sampled annually by Tetra Tech, Inc. In 2017, the sampling frequency increased to three times per year (April, June, and September) to assess whether volatile organic compounds were reaching Dark Head Cove and Cow Pen Creek during implementation of the groundwater remedy at concentrations exceeding site-specific risk-based screening levels. Additional sampling sought to determine if polychlorinated biphenyls were in surface water subsequent to the sediment removal action that Lockheed Martin Corporation performed in Dark Head Cove from 2015 to 2016, and to determine if the Block G 1,4-dioxane groundwater plume (see Figure 4-5, Tetra Tech, 2017a) is potentially discharging to Cow Pen Creek.

Surface water samples collected in Dark Head Cove in 2017 were not analyzed for 1,4-dioxane, as it is not a chemical of concern in groundwater in the southeastern portion of the Middle River Complex. Selected surface water samples collected in 2018 are analyzed for 1,4-dioxane because it had been detected in the 2017 groundwater samples in the southeastern plume, and screening levels had since been revised lower. Similarly, polychlorinated biphenyls are not chemicals of concern in southwestern groundwater and therefore were not analyzed for in Cow Pen Creek surface water samples.

This technical memorandum is organized as follows:

Section 1—Introduction: presents objectives for the surface-water monitoring program.

Section 2—Site Background: briefly describes the site history and surface water sampling history.

Section 3—Investigation Approach and Methodology: presents the technical approach to surface water sampling and describes the field methodology employed.

Section 4—Analytical Results: discusses the analytical results for each analyte.

Section 5—Summary: summarizes findings and conclusions.

Section 6—References: cites references used to compile this technical memorandum.

SECTION 2
SITE BACKGROUND

2.1 MIDDLE RIVER COMPLEX BACKGROUND

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

LMC Properties, Inc., owns the Middle River Complex. Its primary activities at the Middle River Complex include facility and building management and maintenance. The main site tenant, MRA Systems, Inc., designs, manufactures, fabricates, tests, overhauls, repairs, and maintains aeronautical structures, parts, and components for military and commercial applications. Lockheed Martin Rotary and Mission Systems (a division of Lockheed Martin Corporation) conducts engineering activities and fabricates, assembles, tests, and otherwise supports vertical-launch systems. Applied Nano Structured Solutions, LLC, engaged in research and design of nanotechnology applications, also occupies a portion of the Middle River Complex.

2.1.1 Middle River Complex History

In 1929, the Glenn L. Martin Company (a predecessor entity of Lockheed Martin Corporation) acquired large parcels of undeveloped land in Middle River, Maryland, on which to manufacture aircraft for the United States government and commercial clients. In the early 1960s, Glenn L. Martin Company merged with American-Marietta Company to form Martin Marietta Corporation. Around 1975, the adjacent eastern airport area (currently Martin State Airport), approximately 750 acres, was transferred to the State of Maryland. In the mid-1990s, Martin Marietta Corporation merged with Lockheed Corporation to form Lockheed Martin Corporation.

Shortly after the merger, General Electric Company entities acquired most of Lockheed Martin Corporation's aeronautical business in Middle River and the General Electric subsidiary, MRA Systems, Inc., began operations at the site.

2.1.2 Middle River Complex Characteristics

2.1.2.1 Physiography

The Middle River Complex is in the Western Shore of the Coastal Plain physiographic province, which is generally characterized by low relief. The Middle River Complex's topography slopes gently, ranging from sea level to 32 feet above mean sea level (Cassell, 1977). The topography declines from Eastern Boulevard to the southwest and south toward Cow Pen Creek and Dark Head Cove.

2.1.2.2 Hydrology

The Middle River Complex is at the junction of Cow Pen Creek and Dark Head Cove. Both of these surface water bodies discharge into Dark Head Creek, a tributary of Middle River, which is a tributary of Chesapeake Bay. The Middle River Complex is approximately 3.24 miles (17,100 feet) upstream of Chesapeake Bay. The Middle River Complex has no surface water bodies on site.

Surface-water runoff discharges from the facility via storm drains, except for areas immediately adjacent to Cow Pen Creek and Dark Head Cove. Lockheed Martin Corporation maintains a National Pollutant Discharge Elimination System permit (state discharge permit Number 00-DP-0298, National Pollutant Discharge Elimination System Number MD0002852), issued by the Maryland Department of the Environment Industrial Discharge Permits Division, Water Management Administration. The permit covers storm-water discharge from the entire property, rather than from individual tenants.

2.1.2.3 Regional Hydrogeology

Sand and gravel zones in the unconsolidated surficial deposits at the Middle River Complex, when present, might form an unconfined or water table aquifer system (Bennett and Meyer, 1952). The water table at the Middle River Complex generally conforms to the land surface, with the highest water levels in interior land areas and the lowest levels at approximately surface water elevations along the shoreline.

Regionally, the Patuxent Formation is the most important water-bearing formation in the Baltimore area. Industrial wells in the southeastern part of the area, specifically Curtis Bay and Sparrows Point, yield 500–900 gallons per minute (gpm). In these industrialized areas, the transmissivity and storage coefficient in confined portions of the aquifer average about 50,000 gallons per day per foot (g/d/feet) and 0.00026, respectively.

The Patapsco Formation is also an important water-bearing formation in industrialized Baltimore, where it is separated by clay into a lower and an upper aquifer. Industrial wells screened in the lower aquifer yield as much as 500–750 gpm, with an estimated transmissivity of 25,000 g/d/feet (Bennett and Meyer, 1952). The upper aquifer yields quantities of water similar to industrial wells, but likely has a higher overall transmissivity, because it is thicker than the lower aquifer.

2.2 SURFACE WATER

Dark Head Cove and Cow Pen Creek receive groundwater discharge from the Middle River Complex either directly or through outfalls. Chemicals of concern found in Middle River Complex groundwater (e.g., TCE and 1,4-dioxane) have historically been detected both in creek and cove samples. Sampling of surface water and sediment adjacent to the Middle River Complex's southern and western property boundaries began in March 2005 (Tetra Tech Inc., 2005).

Tetra Tech conducted subsequent sampling in 2005 and in each year from 2010–2017 to characterize surface water and sediment, conduct a human health and ecological risk assessment, aid in subsequent design of the sediment remedy, and to support storm-drain investigations (Tetra Tech Inc., 2017b). The current annual sampling program seeks to determine the extent to which chemicals in groundwater and soil at the Middle River Complex have been transported to surface water, and if constituents in sediments might be affecting surface water. The sampling program (occurring in April, June, and September) is also designed to provide analytical data during times of greatest recreational use of these surface water bodies.

SECTION 3
INVESTIGATION APPROACH AND METHODOLOGY

The overall objective in characterizing site surface water is to provide updated surface-water-quality data. Surface water analytical data from Cow Pen Creek and Dark Head Cove will be used to assess the nature and extent of contamination, including potential contaminant transport from the Middle River Complex (MRC) into surface water. Before beginning fieldwork, appropriate personnel from AECOM Technical Services, Inc., (AECOM) reviewed the site-specific health and safety plan (HASP) and the respective "Safe Work" permits and emergency response plan included in the HASP.

AECOM conducted mandatory health and safety tailgate meetings before each day's fieldwork and twilight debrief meetings at the end of each day. The AECOM site health and safety officer documented the topics covered and personnel in attendance. Safety requirements are addressed in detail in the site-specific AECOM HASP, included in the *2018–2020 Groundwater and Surface Water Monitoring Work Plan* (AECOM, 2018).

3.1 SURFACE WATER SAMPLING

The April 2018 surface water sampling described herein provides additional and updated surface-water-quality data for Dark Head Cove and Cow Pen Creek. Specifically, current goals are to determine whether volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and/or 1,4-dioxane previously detected in groundwater and soil are reaching Dark Head Cove and Cow Pen Creek via groundwater seepage, infiltration, or transport through nearby storm drains at concentrations greater than the established risk-based screening levels. Concentrations of VOCs, PCBs, and 1,4-dioxane in surface water were determined through laboratory analyses of the collected samples.

All samples in Dark Head Cove and Cow Pen Creek were collected with dedicated, disposable tubing, attached to a depth transducer that was part of the YSI water quality meter. The meter

was lowered to approximately one foot below the water surface and samples were collected via a peristaltic pump set at a purge rate of approximately 500 milliliters per minute. The one exception to this is MRC-SW17A, located in Cow Pen Creek. MRC-SW17A was collected approximately three inches below the water surface (total water column thickness) using a dipper cup.

Dark Head Cove—Fourteen surface water samples were collected in Dark Head Cove at and near Outfalls 005E, 005W, 006, 007, 008, and 009, which discharge to the cove (Figure 3). Two samples were collected at Outfalls 006, 007, 008, and 009: one sample from 10 feet offshore ("A" sample) and a second sample from 50 feet offshore ("B" sample). Three sampling locations west of Outfall 008 (MRC-SW13A, MRC-SW15A, and MRC-SW16A) have no associated "B" sample. These surface water samples were collected 10 feet offshore. Two outlets are at Outfalls 005: 005E and 005W. One sample was collected at each outlet, 10 feet offshore, recorded as the 5A1 and 5A2 samples. A single sample was collected 50 feet offshore, perpendicular to the bulkhead and halfway between the outlets, and was recorded as the "B" sample.

Cow Pen Creek—Two samples (MRC-SW1A and MRC-SW2A) were collected along the centerline of Cow Pen Creek downgradient of Outfall 004, with one sample collected upstream of the southwestern trichloroethene (TCE) plume near the Block G swale outfall and one sample collected downstream of the southwestern TCE plume. A third sample (MRC-SW17A) was collected near Outfall 003 and represents the farthest upgradient sample that can be collected within the site boundaries. MRC-SW17A was collected immediately downstream of the Baltimore Gas and Electric (BGE) property boundary. BGE owns this section of the creek and does not allow creek samples to be collected by Lockheed Martin on BGE property. Table 1 summarizes the analytical constituents included in the 2018 monitoring program.

3.1.1 Chemical Analyses

All surface water samples were analyzed at ALS Environmental (in Middletown, Pennsylvania) for chemical analysis of VOCs and 1,4-dioxane. PCBs were analyzed by ALS Environmental in Rochester, New York. Cow Pen Creek samples were analyzed for 1,4-dioxane and Dark Head

Cove surface water samples were analyzed for PCB homologs. Sampling methods are described in the *2018–2020 Groundwater and Surface Water Monitoring Work Plan* (AECOM, 2018).

One duplicate sample for each parameter (VOCs, 1,4-dioxane, and PCB homologs) was collected during the April 2018 surface-water sampling. One trip-blank sample per sampling event (i.e., one per cooler) was also collected for VOC analysis for quality assurance/quality control purposes. Water quality parameters, including color, temperature, pH, specific conductance, hardness, salinity, turbidity, dissolved oxygen, and oxidation-reduction potential, were measured at all surface water sampling locations at the time of sampling.

3.1.2 Staff Gauges and Tidal Stages

Tidal stage at the time of sample collection was recorded from the Wilson Point Park staff gauge. Both staff gauges in Dark Head Cove had been damaged or destroyed. As a result, the Wilson Point Park direct-read staff gauge was used during the April 2018 sampling. Tidal stages were recorded on April 16 and 17, 2018, before and after sampling. The day before sampling began (April 15), approximately 0.34 inches of precipitation was recorded during a heavy rain, and an additional 0.68 inches of rain was recorded during the first day of sampling. AECOM plans to revise the *2018–2020 Groundwater and Surface Water Monitoring Work Plan* (AECOM, 2018) to include a stand-by period before scheduled surface-water sampling in the event of a heavy rain, to ensure site-representative sample data-quality and avoid any dilution of chemicals of concern by rain.

When sampling began on April 16, the Wilson Point Park staff gauge read 2.90 feet at approximately 1500 hours. By the end of the first day, the staff gauge read 2.80 feet at approximately 1700 hours, contributing to a difference of only one-tenth of a foot in water level. Tidal information from the Bowley Bar Point station, southeast of Middle River, Maryland, reported low tide at 1511 hours on April 16, 2018. Surface water samples were collected in Cow Pen Creek between 1507 hours and 1638 hours, at the beginning of the low-tide cycle.

On April 17, the second day of sampling, the Wilson Point Park staff gauge read 1.80 feet at approximately 0830 hours, and 1.35 feet at approximately 1230 hours. On the second day of sampling, Bowley Bar Point station reported low tide at 0248 hours, high tide at 0931 hours, and low tide again at 1557 hours. On April 17, surface water samples were collected between

0912 hours and 1120 hours, before and after the high-tide cycle. All tidal information is documented on the surface water sample forms in Appendix A.

3.2 MOBILE DATA-COLLECTION DOCUMENTATION

All site activities and observations, including an overall record of field activities, were recorded on electronic field log sheets and submitted in daily field reports to the Lockheed Martin Remediation Technical Operations and Lockheed Martin Corporation. Completed chains-of-custody (COC) and matrix specific sampling log sheets were maintained. Completed COC forms are found in the *Data-Validation Report* in Appendix B. AECOM used two of Esri's mobile applications, *Survey123* and *Collector for ArcGIS®*, during groundwater and surface-water data collection. They feature map and business logic that enhance a technician's ability to locate and record accurate data. All electronic data collection will be designed to be consistent with the forms in Appendix B.

Once in the field, if the technician required location services, needed to reference a base map, or needed to add or edit a location, *Collector for ArcGIS®* was used. The technician was also able to review historical information about the location, make edits, and take photos with the application, as required. New records were created within *Survey123*, leveraging form-based business logic, including related reference tables, and if/then-style follow-up fields.

Upon sampling completion, the technician submitted the record from their mobile device, where it was synchronized with AECOM's *Portal for ArcGIS®*. The team could access data immediately once it had synchronized. Data were downloaded from *Portal for ArcGIS®* and were available to be used in any other geographic information system (GIS) or database management system. Surface-water sampling locations were also surveyed using a handheld global positioning system receiver in the Maryland State Plane North American Datum 1983.

3.3 EQUIPMENT DECONTAMINATION

No decontamination fluids other than distilled water were used for the surface water sampling. Distilled water rinse was discharged directly into Dark Head Cove or Cow Pen Creek. Therefore, collecting and disposing of rinse water generated during this sampling event was unnecessary.

3.4 WASTE MANAGEMENT

No investigation-derived waste was generated during this surface water sampling. General waste, such as gloves and tubing, was disposed of as general refuse.

3.5 DATA REVIEW

Laboratory data were entered into an internal sample database and evaluated against site-specific risk-based swimming-screening levels and applicable regulatory criteria. AECOM performed a manual data review and data-validation using the *EQuIS™ Automated Validated Assistant* tool. This included completing a limited data review (evaluating data completeness, holding times, laboratory and field blank contamination, laboratory batch quality control, field duplicate precision, and detection limits) concurrent with the data evaluation. The review is based on the United States Environmental Protection Agency (USEPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA-540-R-2017-002, January 2017a) and USEPA *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 540-R-2017-001, January 2017b) for an Organic/Inorganic Level I (https://www.epa.gov/quality/epa-region-3-data-validation) data review. Data were reviewed based on the specifics of the analytical method used. The data-qualifying flags applied to the surface water chemical results during data validation are identified in the *Data-Validation Report* in Appendix B.

3.6 EESH-GIS DATABASE

AECOM has uploaded new surface water sampling locations and validated data into the Lockheed Martin EESH-GIS database.

SECTION 4
ANALYTICAL RESULTS

Validated analytical data from the April 2018 surface-water sampling were evaluated with respect to appropriate ecological and human health screening-level criteria, including:

Maryland ambient water quality criteria for human health consumption-of-organisms (*Code of Maryland Regulations* [COMAR] 26.08.02.03)

United States Environmental Protection Agency (USEPA) Region III Biological Technical Advisory Group (BTAG) freshwater screening levels (USEPA, 2006)

Site-specific swimming screening levels. Site-specific swimming screening levels were developed in 2017 for trichloroethene (TCE), *cis*-1,2-dichloroethene (*cis*-1,2-DCE), and 1,4-dioxane for Dark Head Cove and Cow Pen Creek at the Middle River Complex (MRC). These risk-based screening values were approved by the Maryland Department of the Environment (MDE) in 2017.

Site contaminants in groundwater at the MRC could potentially be introduced to surface water through groundwater discharge or through groundwater infiltration into storm drains, thereby discharging to surface water through nearby outfalls. The objectives of additional sampling were to determine if polychlorinated biphenyls (PCBs) were in surface water subsequent to a sediment removal action Lockheed Martin performed in Dark Head Cove from 2015 to 2016, and to determine if the Block G 1,4-dioxane groundwater plume (see Figure 4-5) (Tetra Tech, 2017) is discharging into Cow Pen Creek near the southwestern TCE groundwater plume.

The analytical data suggest that a method of transporting groundwater contaminants of concern (notably *cis*-1,2-DCE and TCE at SW-13A), to surface water exists, via either of the two pathways described above. Table 2 outlines the detected analytes from each sampling location and compares that to the screening levels established by each of the above entities. To improve readability throughout Section 4, the leading "MRC" prefix before each sample name has been dropped, i.e., MRC-SW17A will henceforth be referred to as SW17A.

4.1 VOLATILE ORGANIC COMPOUNDS

Table 2 summarizes volatile organic compound (VOC) detections in 2018. The distribution of detections is shown in Figure 4. Three VOCs were detected in surface water: acetone, TCE, and *cis*-1,2-DCE. Acetone was detected in all 17 surface-water sampling locations, ranging from 4.5 to 13.6 micrograms per liter (µg/L). Acetone is a common laboratory contaminant used in decontaminating equipment. All acetone sample detections have an associated "B" flag that was added during data validation, indicating that the detections are possibly due to sample carryover from the laboratory and might be false-positives.

Trichloroethene, the primary VOC of concern associated with groundwater at MRC, was detected in one sampling location in Dark Head Cove (SW13A) at a concentration of 1.6 µg/L. *cis*-1,2-DCE, a breakdown product of TCE, was detected in one surface water sample in Dark Head Cove, also SW13A, at a concentration of 0.37 µg/L. This sampling location is at the very southwest corner of the presumed discharge area of the Block F southeastern TCE groundwater plume.

As shown in Table 2, the detected VOC concentrations are well below their various respective screening criteria. The highest TCE concentration in 2017 was 3.8 µg/L at sampling location MRC-SW82 during the April event (Tetra Tech, 2017a), compared to the highest TCE concentration of 1.6 µg/L from the most recent sampling in April 2018. The highest sample concentration for TCE in 2017 was from SW8A2, located approximately 200 feet northeast of location SW13A. Location SW8A2 is off Outfall 008 and on the northeastern tip of the southeastern TCE plume, while location SW13A is on the southwestern tip of the southeastern TCE plume within Dark Head Cove. Surface water sampling is dynamic in nature, creating an uneven distribution of contaminants within Dark Head Cove and Cow Pen Creek through tidal-zone mixing and mechanisms of the groundwater/surface-water discharge/recharge relationship, which is being further evaluated as part of the Block F remedial design.

USEPA and MDE have not established acute or chronic freshwater criteria for TCE; however, both entities have established a human health consumption-of-aquatic-organism criterion of 300 µg/L for TCE when adjusted for the MDE risk level of 1×10^{-05} (i.e., a one in 100,000 risk). The BTAG ecological screening level for TCE is 21 µg/L, The maximum TCE concentration

(1.6 µg/L) detected in this investigation is more than 13 times below the most conservative regulatory screening level of 21 µg/L, and more than 18 times below the MDE-approved risk-based swimming screening level of 30 µg/L for evaluating exposure risks to swimmers (Table 2).

4.2 1,4-DIOXANE

As shown in Figure 4, 1,4-dioxane was detected at a concentration of 0.049*J* µg/L from surface water sample SW8B. The laboratory assigned this sample analyte a "J" qualifier, indicating that this value is an estimated concentration greater than the method detection limit and less than the reporting limit. This concentration is negligible compared to the USEPA ecological screening level of 22,000 µg/L. This concentration is also below the MDE-approved risk-based swimming screening level of 30 µg/L.

4.3 POLYCHLORINATED BIPHENYLS

Polychlorinated biphenyls, specifically the total dichlorobiphenyl homolog, were detected in all 14 surface-water samples collected in Dark Head Cove in April 2018. Concentrations range from 0.0019 µg/L at SW13A to 0.0066 µg/L at SW7A. In 2014-2015, dredging in Dark Head Cove removed sediment impacted with high concentrations of PCBs around Outfall 005, and the remaining cove sediment dredging was completed in March 2017 (Tetra Tech, 2018).

Surface water location SW7A, which had the highest PCB concentration during the April 2018 sampling, had not been sampled in April and June 2017; therefore, historical comparison data are not available. Tetrachlorobiphenyl, the only PCB homolog detected in 2017 Dark Head Cove surface water samples, was detected in only one sample (SW5A-2) at a concentration of 0.014 µg/L. This sample was collected 10 feet from Outfall 005 in September 2017.

Sediment with the highest concentrations of PCBs was removed from Dark Head Cove near Outfall 005 during the sediment-removal action in 2014–2015, followed by a second removal of sediment with lower concentrations in the cove in 2016-2017. Sediment with the lowest concentrations is undergoing remediation via *in situ* application of a carbon amendment that binds the PCBs, decreasing their bioavailability, and thereby removing them from the food chain (Tetra Tech, 2017).

Note that during the April 2018 groundwater sampling, a field blank prepared by a field chemist had a detection of 0.0090 µg/L for total dichlorobiphenyls. The blank was collected by opening the certified laboratory-grade deionized-blank-water in ambient conditions, and pouring it directly into the laboratory-provided bottle ware. This blank result was not applied to the surface-water-sample data validation, because it was collected on land in Block E, one week before the surface water sampling. .

Although the concentrations detected are significantly less than previously reported, all 14 surface water samples collected exceed the human health consumption-of-organism's screening-level criterion of 0.00064 µg/L set in place by the COMAR for total PCBs. No screening level is associated solely with the dichlorobiphenyl homolog group. All total PCB concentrations reported from the April 2018 sampling event consist of the total dichlorobiphenyl homolog. Since high turbidity was not measured in the 2018 sampling event, PCB analytical detections were not associated with high turbidity, and therefore possibly represent surface water detections.

4.4 WATER QUALITY PARAMETERS

Water quality parameters were collected in the field for each of the 17 field samples and one duplicate sample collected during the April 2018 sampling. Water quality parameters, including color, temperature, pH, specific conductance, hardness, salinity, turbidity, dissolved oxygen, and oxidation-reduction potential (ORP), were measured at all surface water sampling locations at the time of sampling. All water-quality-parameter data are in Table 3. Associated parameters were measured at approximately one foot below the water surface, before sample collection.

The slightly basic pH values recorded for this sampling event, ranging between 7.37 and 9.12, are consistent with natural surface water in this region. pH was slightly lower in two samples collected in Cow Pen Creek (SW1A and SW17A), which also displayed lower conductivity as compared to samples from Dark Head Cove. Turbidity was consistent in most samples, with the highest turbidity reported from SW17A within Cow Pen Creek at 32.1 nephelometric turbidity units.

Dissolved oxygen levels are on the high side of typical values, ranging from 8.28 to 9.68 milligrams per liter, indicating a healthy estuarine environment. Additionally, all ORP

values are positive, ranging from 158.9 to 234 millivolts, consistent with surface water containing oxygen. All water-quality parameters recorded during this event are typical of a tidally-controlled estuarine environment.

SECTION 5
SUMMARY

AECOM Technical Services, Inc. (AECOM) collected 18 field samples from 17 locations throughout Cow Pen Creek and Dark Head Cove on April 16–17, 2018, on behalf of Lockheed Martin Corporation (Lockheed Martin). The samples were collected, sent to a laboratory, and chemically analyzed for volatile organic compounds (VOCs), 1,4-dioxane, and polychlorinated biphenyls (PCBs). These analyses were carried out to determine if these constituents are in surface water and, if so, to assess whether there are indications of originating from stormwater outfalls, sediments, or groundwater plumes at the Middle River Complex (MRC).

Trichloroethene (TCE) was detected in one sample (SW13A) within Dark Head Cove and adjacent to the southeastern Block E trichloroethene plume, at a concentration of 1.6 micrograms per liter. This TCE concentration is below the United States Environmental Protection Agency (USEPA) screening level value of 21 micrograms per liter (µg/L), well below the human health consumption-of-organism's level of 300 µg/L per the *Code of Maryland Regulations* (COMAR), and well below the site-specific risk-based swimming screening level of 30 µg/L. The TCE detection in surface water is likely due to groundwater to surface water discharge of the nearby trichloroethene-impacted groundwater plume originating in Block E.

1,4-Dioxane was detected in one sample within Dark Head Cove (SW8B) at an estimated concentration of 0.049 µg/L. This concentration is significantly less than the associated USEPA ecological screening level of 22,000 µg/L, and below the site-specific screening criterion for swimming of 30 µg/L. The nominal detection of 1,4-dioxane is possibly due to discharge into Dark Head Cove from the southeastern groundwater TCE plume emanating from Block E.

PCB homologs, specifically total dichlorobiphenyls, were detected in all 14 surface water samples that were analyzed for these constituents. Concentrations range from 0.0019 µg/L in sample SW13A to 0.0066 µg/L in sample SW7A, both collected in Dark Head Cove. Although the concentrations detected are significantly less than in previously reported years, all 14 samples collected exceed the human health screening level of 0.00064 µg/L set in place by COMAR for

total PCBs based on consumption of organisms. No screening level is associated solely with the dichlorobiphenyl homolog group.

Since high turbidity was not measured in the 2018 sampling event, PCB analytical detections were not associated with high turbidity, and therefore possibly represent surface water detections. PCBs were also detected in a field blank collected during the April 2018 site groundwater sampling, one week prior to the surface water sampling event.

To further evaluate the 2018 surface water PCB detections, Lockheed Martin proposes two action items:

1. Perform a laboratory comparison study between the 2018 laboratory (ALS Environmental) and the previous laboratory (TestAmerica), by obtaining full data packages from both laboratories for the existing 2017 and 2018 analyses, and perform a thorough review of method detection limits, reporting limits, laboratory quality controls, and recoveries to identify any potential laboratory issues contributing to the detections.

2. Conduct an interim limited-scope surface water sampling event in Dark Head Cove. Laboratory split samples will be collected as a set of co-located field samples at eight of the Dark Head Cove locations, which will be analyzed by the two different laboratories (TestAmerica and ALS Environmental), prior to the April 2019 surface water sampling event to determine if procedures used by the different laboratories caused the variability between the 2017 and 2018 results. Laboratory split samples will be collected at a rate of 100% for PCB homolog analysis. The results of this study will be submitted to Maryland Department of the Environment (MDE) before the next surface water sampling event scheduled in April 2019.

The 2019 groundwater and surface water sampling programs will also be modified to include the comparison study and additional Quality Assurance measures, upon agreement with MDE. In addition, AECOM plans to revise the *2018-2020 Groundwater and Surface Water Monitoring Work Plan* (AECOM, 2017) to include a minimum of 48 hours of wait time prior to a scheduled surface water sampling event if there is a precipitation event (greater than 0.1 inches) to ensure site-representative sample data-quality and avoid chemicals of concern dilution influenced by rain events.

SECTION 6
REFERENCES

AECOM Technical Services, Inc. (AECOM), 2017. *2018-2020 Groundwater and Surface Water Monitoring Work Plan, Lockheed Martin Corporation, Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland*. Prepared by AECOM Technical Services, Inc., Germantown, Maryland, for Lockheed Martin Corporation, Bethesda, Maryland. December.

Bennett, R. R. and Meyer, R. R., 1952. "Geology and Ground Water Resources of the Baltimore Area." *Bulletin 4*, State of Maryland Department of Geology, Mines, and Water Resources. Baltimore, Maryland.

Cassell, J. R., 1977. Drainage Area Map: "Existing Storm Water Drains, Chesapeake Park Plaza/Dark Head Cove Road;" Sheet A1 of 7. July 20.

Tetra Tech, Inc. (Tetra Tech), 2005. *Surface Water and Sediment Sampling Report, Lockheed Martin Middle River Complex*. Report prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. April.

_____, 2017a. *Groundwater Monitoring Report March-April 2017, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland*. Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. October.

_____, 2017b. *2017 Surface Water Sampling Report, Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland*. Report prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. December.

_____, 2018. *Construction Completion Report: Season One Sediment Remedy for Dark Head Cove, Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland*. Report prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. Revision 2, August.

United States Environmental Protection Agency, 2006. *Region III BTAG [Biological Technical Advisory Group] Freshwater Screening Benchmarks*. July.

_____, 2017a. *National Functional Guidelines for Organic Superfund Methods Data Review.* EPA-540-R-2017-002. January. https://www.epa.gov/clp/national-functional-guidelines-organic-superfund-methods-data-review-som024

_____, 2017b. *National Functional Guidelines for Inorganic Superfund Methods Data Review.* EPA-540-R-2017-001. 2017. https://www.epa.gov/clp/national-functional-guidelines-inorganic-superfund-methods-data-review-ism024

FIGURES

Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2013 ESRI and its data suppliers).

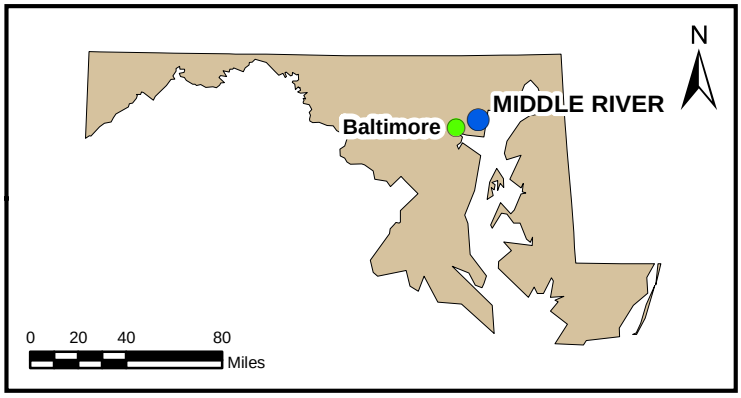


FIGURE 1

MIDDLE RIVER COMPLEX LOCATION MAP

Lockheed Martin Corporation
Middle River Complex, Middle River, Maryland

DATE MODIFIED:	CREATED BY:	SOURCE:
10/29/15	JEE	Tetra Tech 2016-2017 GW & SW Monitoring WP

AECOM

Map Document: (P:\GIS\Middle_River\MapDocs\MXD\mrc_sitemap_may2015.mxd)
10/29/15 -- JEE

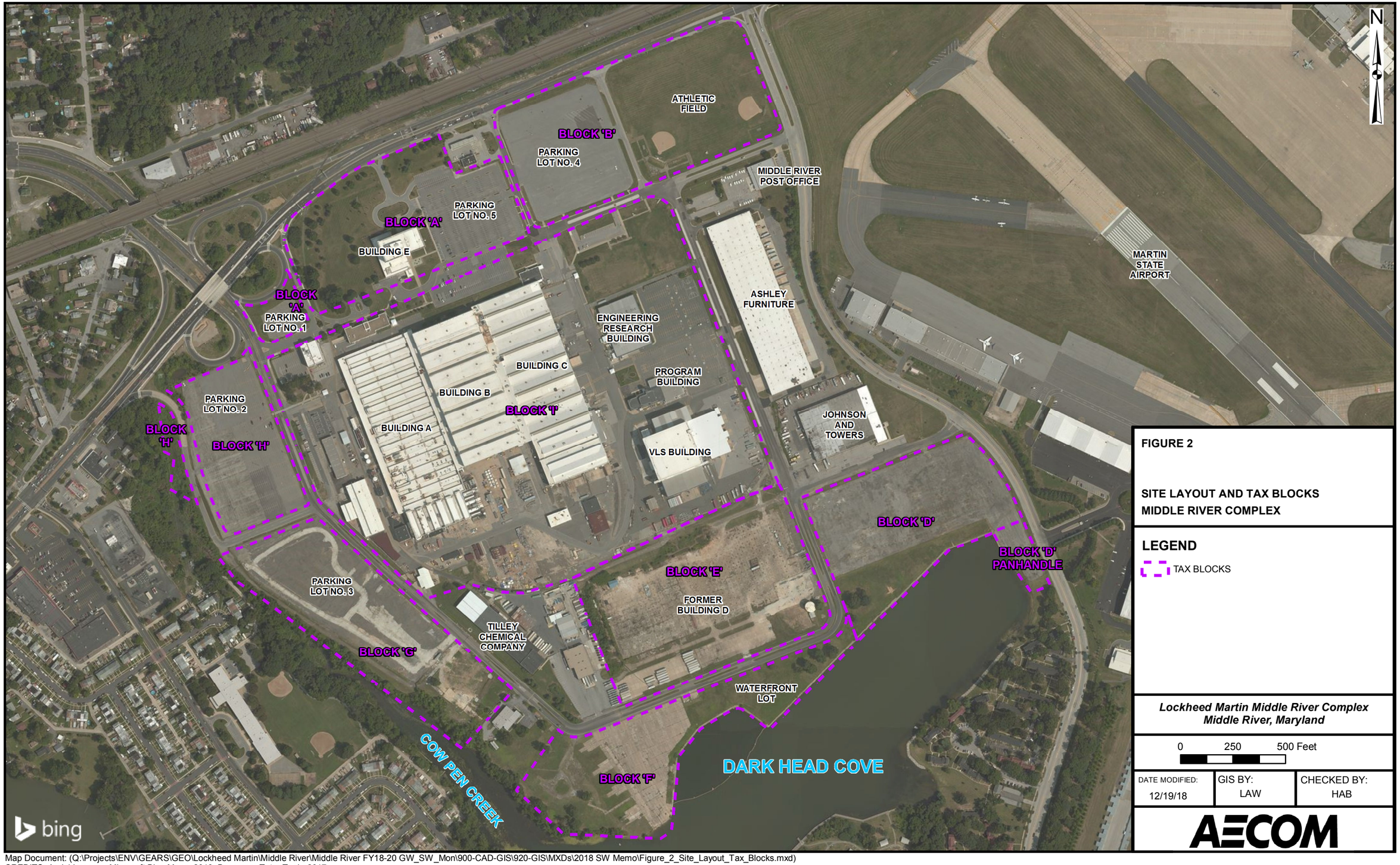


FIGURE 2

SITE LAYOUT AND TAX BLOCKS
MIDDLE RIVER COMPLEX

LEGEND

TAX BLOCKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 250 500 Feet

DATE MODIFIED:	GIS BY:	CHECKED BY:
12/19/18	LAW	HAB

AECOM

Map Document: (Q:\Projects\ENV\GEARS\GEO\Lockheed Martin\Middle River\Middle River FY18-20 GW_SW_Mon\900-CAD-GIS\920-GIS\MXDs\2018 SW Memo\Figure_2_Site_Layout_Tax_Blocks.mxd)
CREDITS: Aerial Imagery, Microsoft Bing Maps, 2018; Basemap, Tetra Tech, 2017

FIGURE 3

2018 SURFACE WATER SAMPLING LOCATIONS
COW PEN CREEK AND DARK HEAD COVE

LEGEND

- SURFACE WATER SAMPLE LOCATION
- STORMWATER OUTFALL LOCATION
- WILSON POINT PARK STAFF GAUGE
- TAX BLOCKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 250 500 Feet

DATE MODIFIED:	GIS BY:	CHECKED BY:
01/03/19	LAW	HAB

AECOM

Map Document: (Q:\Projects\ENV\GEARS\GEO\Lockheed Martin\Middle River\Middle River FY18-20 GW_SW_Mon\900-CAD-GIS\920-GIS\MXDs\2018 SW Memo\Figure_3_SW_Sample_Locs_2018.mxd)
CREDITS: Aerial Imagery, Microsoft Bing Maps, 2018; Basemap, Tetra Tech, 2017

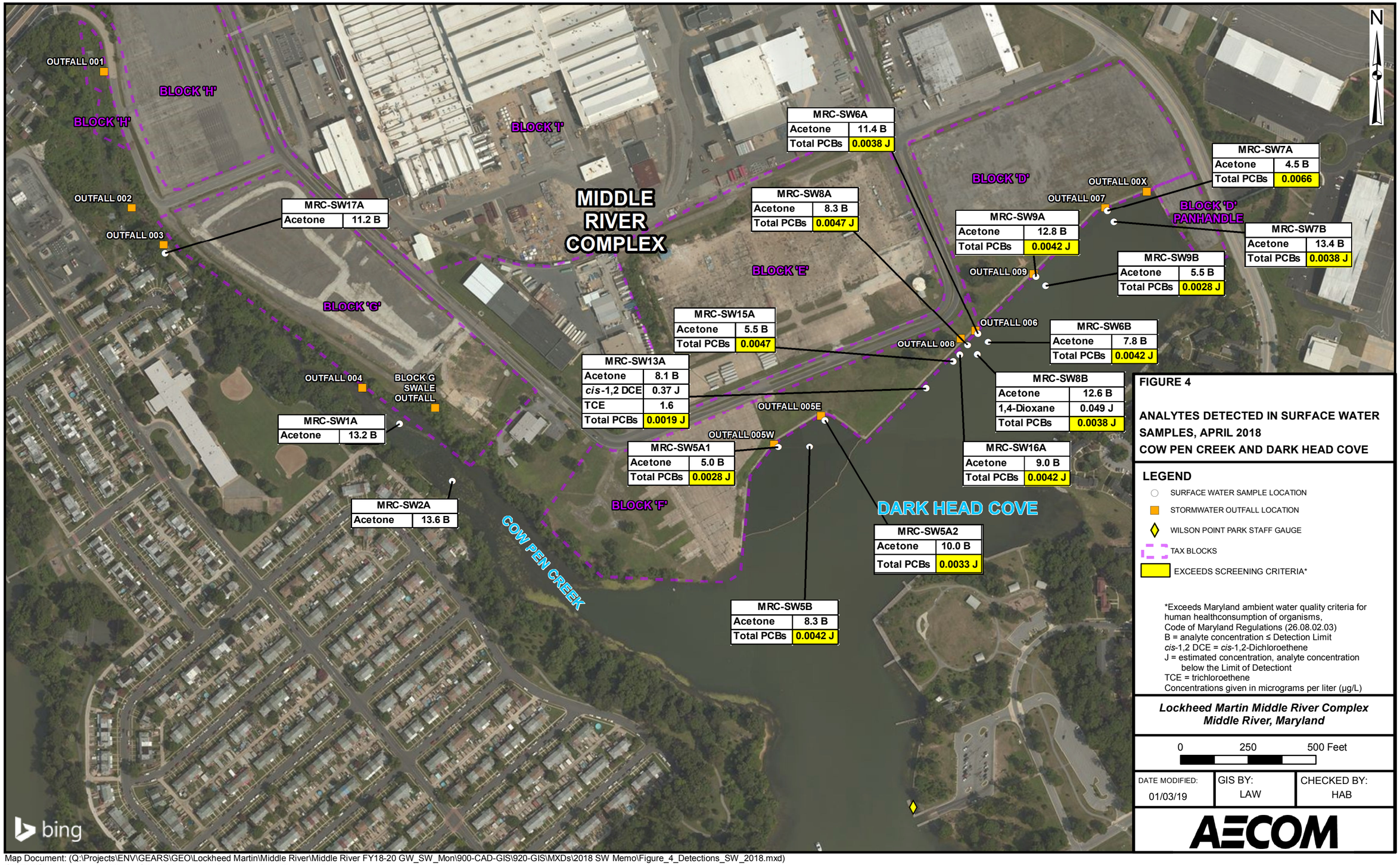


FIGURE 4

ANALYTES DETECTED IN SURFACE WATER SAMPLES, APRIL 2018
COW PEN CREEK AND DARK HEAD COVE

LEGEND

- SURFACE WATER SAMPLE LOCATION
- STORMWATER OUTFALL LOCATION
- WILSON POINT PARK STAFF GAUGE
- TAX BLOCKS
- EXCEEDS SCREENING CRITERIA*

*Exceeds Maryland ambient water quality criteria for human healthconsumption of organisms, Code of Maryland Regulations (26.08.02.03)
B = analyte concentration ≤ Detection Limit
cis-1,2 DCE = *cis*-1,2-Dichloroethene
J = estimated concentration, analyte concentration below the Limit of Detectiont
TCE = trichloroethene
Concentrations given in micrograms per liter (µg/L)

Lockheed Martin Middle River Complex
Middle River, Maryland

0 250 500 Feet

DATE MODIFIED:	GIS BY:	CHECKED BY:
01/03/19	LAW	HAB

AECOM

Map Document: (Q:\Projects\ENV\GEARS\GEO\Lockheed Martin\Middle River\Middle River FY18-20 GW_SW_Mon\900-CAD-GIS\920-GIS\MXDs\2018 SW Memo\Figure_4_Detections_SW_2018.mxd)
CREDITS: Aerial Imagery, Microsoft Bing Maps, 2018; Basemap, Tetra Tech, 2017

TABLES

TABLE 1

Surface Water Sampling Locations and Chemical Analyses, 2018 Only
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Sample location	Sample number	Distance from shore (in feet)	Samples per round	Analytical parameters (all samples)
Dark Head Cove				
Outfall 005E and 005W	MRC-SW5A1	10	1	VOCs, PCBs**
	MRC-SW5A2	10	1	field parameters
	MRC-SW5B	50	1	
Outfall 006	MRC-SW6A	10	1	VOCs, 1,4 Dioxane, PCBs**
	MRC-SW6B	50	1	field parameters
Outfall 007	MRC-SW7A	10	1	VOCs, PCBs**
	MRC-SW7B	50	1	field parameters
Outfall 008	MRC-SW8A	10	1	VOCs, 1,4 Dioxane, PCBs**
	MRC-SW8B	50	1	field parameters
Outfall 009	MRC-SW9A	10	1	VOCs, PCBs**
	MRC-SW9B	50	1	field parameters
Dark Head Cove	MRC-SW13A	10	1	VOCs, PCBs**
	MRC-SW15A	10	1	
	MRC-SW16A	10	1	field parameters
Cow Pen Creek				
Outfall 003	MRC-SW17A	downstream*	1	VOCs, 1,4-dioxane
Near western plume	MRC-SW1A	upstream*	1	
	MRC-SW2A	downstream*	1	field parameters

Notes:

Samples are to be collected in April, June and September each year

* Samples will be collected from the creek's centerline, 10 feet upstream (northwest) and 10 feet downstream (southeast) from the estimated groundwater plume boundaries

** PCB samples will be collected only in the April round, each year

All samples are to be collected one foot below the water surface

VOCs – volatile organic compounds by USEPA SW-846 Method 8260C

MRC - Middle River Complex

PCBs – polychlorinated biphenyl homologs by USEPA SW-846 Method 680

SW - Surface Water

1,4-Dioxane by USEPA SW-848270D SIM

USEPA – United States Environmental Protection Agency

Field parameters include pH, temperature, specific conductance, dissolved oxygen (DO), hardness, turbidity, oxidation-reduction potential (ORP), and salinity using calibrated portable field instruments (Horiba U-10 or equivalent) at the tin

Hardness analyses will require use of a field test kit (Hach, Chemetrics, or equivalent).

One trip blank shall be used and shipped for each cooler containing VOC samples. Trip blanks will be analyzed for the same VOC

One field duplicate will be collected and analyzed for each laboratory analytical parameter (i.e., VOCs, PCBs, 1,4-dioxane)

Table 2
Detected Analytes and Screening Level Exceedances in April 2018 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

LOCATION	National Recommended Water Quality Freshwater		Ecological Surface Water Screening Level[2]	Human Health Consumption of Organism Only[1][3]	Swimming Screening Levels[4]	MRC-SW1A	MRC-SW2A	MRC-SW5A1
SAMPLE DATE						6/18/2018	6/18/2018	6/18/2018
SAMPLE CODE						Normal	Normal	Normal
	Acute	Chronic						
VOLATILES (µg/L)								
Acetone	NE	NE	1,500	NE	NE	13.2 B	13.6 B	5 B
Trichloroethene	NE	NE	21	300	30	ND	ND	ND
cis -1,2-Dichloroethene	NE	NE	590	NE	70	ND	ND	ND
SEMIVOLATILES (µg/L)								
1,4-DIOXANE	NE	NE	22,000	NE	30	ND	ND	NS
POLYCHLORINATED BIPHENYLS (µg/L)								
Total PCBs	NE	0.014	NE	0.00064	10	NS	NS	0.0028 J

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United State Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Site-specific swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane and Total PCBs for Dark Head Cove.

Yellow shading indicates a result that exceeds a screening criterion.

B - The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit for sample and method.
ND - Not detected
J - Estimated result
µg/L - Micrograms per liter
MRC - Middle River Complex
NE - Not established
NS - Not sampled
SW - Surface water

Table 2
Detected Analytes and Screening Level Exceedances in April 2018 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

LOCATION	National Recommended Water Quality Freshwater		Ecological Surface Water Screening Level[2]	Human Health Consumption of Organism Only[1][3]	Swimming Screening Levels[4]	MRC-SW5A2	MRC-SW5B	MRC-SW6A
SAMPLE DATE						6/18/2018	6/18/2018	6/18/2018
SAMPLE CODE						Normal	Normal	Normal
	Acute	Chronic						
VOLATILES (µg/L)								
Acetone	NE	NE	1,500	NE	NE	10.0 B	8.3 B	11.4 B
Trichloroethene	NE	NE	21	300	30	ND	ND	ND
cis -1,2-Dichloroethene	NE	NE	590	NE	70	ND	ND	ND
SEMIVOLATILES (µg/L)								
1,4-DIOXANE	NE	NE	22,000	NE	30	NS	NS	ND
POLYCHLORINATED BIPHENYLS (µg/L)								
Total PCBs	NE	0.014	NE	0.00064	10	0.0033 J	0.0042 J	0.0038 J

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United State Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Site-specific swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane and Total PCBs for Dark Head Cove.

Yellow shading indicates a result that exceeds a screening criterion.

B - The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Li

ND - Not detected

J - Estimated result

µg/L - Micrograms per liter

MRC - Middle River Complex

NE - Not established

NS - Not sampled

SW - Surface water

Table 2
Detected Analytes and Screening Level Exceedances in April 2018 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

LOCATION	National Recommended Water Quality Freshwater		Ecological Surface Water Screening Level[2]	Human Health Consumption of Organism Only[1][3]	Swimming Screening Levels[4]	MRC-SW6B	MRC-SW7A	MRC-SW7B
SAMPLE DATE						6/18/2018	6/18/2018	6/18/2018
SAMPLE CODE						Normal	Normal	Normal
	Acute	Chronic						
VOLATILES (µg/L)								
Acetone	NE	NE	1,500	NE	NE	7.8 B	4.5 B	13.4 B
Trichloroethene	NE	NE	21	300	30	ND	ND	ND
cis -1,2-Dichloroethene	NE	NE	590	NE	70	ND	ND	ND
SEMIVOLATILES (µg/L)								
1,4-DIOXANE	NE	NE	22,000	NE	30	ND	NS	NS
POLYCHLORINATED BIPHENYLS (µg/L)								
Total PCBs	NE	0.014	NE	0.00064	10	0.0042 J	0.0066	0.0038 J

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United State Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Site-specific swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane and Total PCBs for Dark Head Cove.

Yellow shading indicates a result that exceeds a screening criterion.

B - The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Li

ND - Not detected

J - Estimated result

µg/L - Micrograms per liter

MRC - Middle River Complex

NE - Not established

NS - Not sampled

SW - Surface water

Table 2
Detected Analytes and Screening Level Exceedances in April 2018 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

LOCATION	National Recommended Water Quality Freshwater		Ecological Surface Water Screening Level[2]	Human Health Consumption of Organism Only[1][3]	Swimming Screening Levels[4]	MRC-SW8A	MRC-SW8A	MRC-SW8B
SAMPLE DATE						6/18/2018	6/18/2018	6/18/2018
SAMPLE CODE						Normal	Duplicate	Normal
	Acute	Chronic						
VOLATILES (µg/L)								
Acetone	NE	NE	1,500	NE	NE	8 B	8.3 B	12.6 B
Trichloroethene	NE	NE	21	300	30	ND	ND	ND
cis -1,2-Dichloroethene	NE	NE	590	NE	70	ND	ND	ND
SEMIVOLATILES (µg/L)								
1,4-DIOXANE	NE	NE	22,000	NE	30	ND	ND	0.049 J
POLYCHLORINATED BIPHENYLS (µg/L)								
Total PCBs	NE	0.014	NE	0.00064	10	0.0033 J	0.0047	0.0038 J

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United State Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Site-specific swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane and Total PCBs for Dark Head Cove.

Yellow shading indicates a result that exceeds a screening criterion.

B - The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Lir

ND - Not detected

J - Estimated result

µg/L - Micrograms per liter

MRC - Middle River Complex

NE - Not established

NS - Not sampled

SW - Surface water

Table 2
Detected Analytes and Screening Level Exceedances in April 2018 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

LOCATION	National Recommended Water Quality Freshwater		Ecological Surface Water Screening Level[2]	Human Health Consumption of Organism Only[1][3]	Swimming Screening Levels[4]	MRC-SW9A	MRC-SW9B	MRC-SW13A
SAMPLE DATE						6/18/2018	6/18/2018	6/18/2018
SAMPLE CODE						Normal	Normal	Normal
	Acute	Chronic						
VOLATILES (µg/L)								
Acetone	NE	NE	1,500	NE	NE	12.8 B	5.5 B	8.1 B
Trichloroethene	NE	NE	21	300	30	ND	ND	1.6
cis -1,2-Dichloroethene	NE	NE	590	NE	70	ND	ND	0.37 J
SEMIVOLATILES (µg/L)								
1,4-DIOXANE	NE	NE	22,000	NE	30	NS	NS	NS
POLYCHLORINATED BIPHENYLS (µg/L)								
Total PCBs	NE	0.014	NE	0.00064	10	0.0042 J	0.0028 J	0.0019 J

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United State Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Site-specific swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane and Total PCBs for Dark Head Cove.

Yellow shading indicates a result that exceeds a screening criterion.

B - The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Li

ND - Not detected

J - Estimated result

µg/L - Micrograms per liter

MRC - Middle River Complex

NE - Not established

NS - Not sampled

SW - Surface water

Table 2
Detected Analytes and Screening Level Exceedances in April 2018 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

LOCATION	National Recommended Water Quality Freshwater		Ecological Surface Water Screening Level[2]	Human Health Consumption of Organism Only[1][3]	Swimming Screening Levels[4]	MRC-SW15A	MRC-SW16A	MRC-SW17A
SAMPLE DATE						6/18/2018	6/18/2018	6/18/2018
SAMPLE CODE						Normal	Normal	Normal
	Acute	Chronic						
VOLATILES (µg/L)								
Acetone	NE	NE	1,500	NE	NE	5.5 B	9 B	11.2 B
Trichloroethene	NE	NE	21	300	30	ND	ND	ND
cis -1,2-Dichloroethene	NE	NE	590	NE	70	ND	ND	ND
SEMIVOLATILES (µg/L)								
1,4-DIOXANE	NE	NE	22,000	NE	30	NS	NS	ND
POLYCHLORINATED BIPHENYLS (µg/L)								
Total PCBs	NE	0.014	NE	0.00064	10	0.0047	0.0042 J	NS

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United State Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Site-specific swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane and Total PCBs for Dark Head Cove.

Yellow shading indicates a result that exceeds a screening criterion.

B - The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Li

ND - Not detected

J - Estimated result

µg/L - Micrograms per liter

MRC - Middle River Complex

NE - Not established

NS - Not sampled

SW - Surface water

Table 3
Field Measurements for Surface Water Quality, April 2018
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Location	Date	Time	Temp (°C)	pH (s.u.)	Specific Conductance (µs/cm)	Turb (NTU)	DO (mg/L)	ORP (mV)	Salinity (ppt)	Hardness (mg/L CaCO3)
MRC-SW1A	4/16/2018	1620	13.42	7.37	6.956	14.9	9.17	234	1.4	359.8
MRC-SW2A	4/16/2018	1638	13.42	7.93	6.401	13.6	9.06	221.3	1.4	367.5
MRC-SW5A1	4/17/2018	0912	12.82	9.03	8.074	8	9.18	161.3	1.4	342
MRC-SW5A2	4/17/2018	0924	12.85	9.02	8.125	8.8	8.99	158.9	1.4	376.2
MRC-SW5B	4/17/2018	0940	12.84	9.03	8.112	8.7	9.24	167.7	1.4	359.7
MRC-SW6A	4/17/2018	1002	12.48	9.12	7.543	8.5	9.56	201.1	1.4	359.1
MRC-SW6B	4/17/2018	1051	12.37	9.12	7.573	7.9	9.68	173.2	1.4	367.5
MRC-SW7A	4/17/2018	0804	12.69	8.06	7.514	11	9.23	232.7	1.4	376.2
MRC-SW7B	4/17/2018	0837	12.65	8.24	7.51	10.2	8.28	226.5	1.4	359.1
MRC-SW8A	4/17/2018	1016	12.73	9.08	7.724	10	9.26	159.8	1.4	359.7
MRC-SW8A	4/17/2018	1030	12.73	9.08	7.724	10	9.26	159.8	1.4	359.7
MRC-SW8B	4/17/2018	1104	12.4	9.11	7.612	7.6	9.67	171.7	1.4	366.6
MRC-SW9A	4/17/2018	0842	12.66	9.01	7.62	8.5	9.39	187.2	1.4	366.6
MRC-SW9B	4/17/2018	0806	12.56	9.05	7.628	8.9	9.58	196.6	1.4	342.5
MRC-SW13A	4/17/2018	1144	12.68	9.04	7.838	9.7	9.32	170.4	1.4	342.6
MRC-SW15A	4/17/2018	1140	12.58	9.07	7.77	8.1	9.3	171	1.4	343.5
MRC-SW16A	4/17/2018	1120	12.57	9.1	7.746	15.3	9.32	171.2	1.4	342.5
MRC-SW17A	4/16/2018	1507	12.54	7.88	0.303	32.1	9.09	175.8	1.4	359.1

Notes:
Temp - Temperature
(°C) - Degrees Celcius
s.u. - Standard units
µs/cm - MicroSiemens per centimeter
Turb - Turbidity
NTU - Nephelometric turbidity unit
DO - Dissolved oxygen
mg/L - milligrams per liter
ORP - Oxidation reduction potential
mV - millivolts
ppt - parts per trillion

APPENDICES

Appendix A—Surface Water Sampling Log Sheets

Appendix B—Data-Validation Report

Appendix C—Laboratory Analytical Data

APPENDIX A
Surface Water Sampling Forms

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW1A
Sample Location: MRC-SW1A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/16/2018 Time: 1620	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 1500: 2.90 ft 1700: 2.80 ft	**clear**	**7.37**	**6.956**	**13.42**	**14.9**	**9.17**	**1.4**	**234**

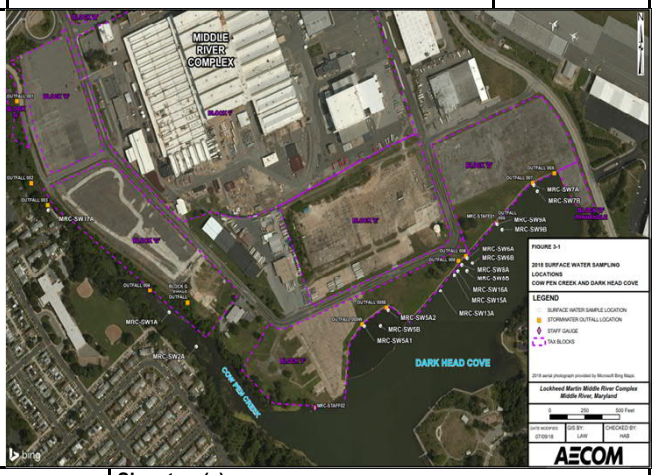
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
1,4-dioxane (8270D/SIM)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.8

MAP:



Circle if Applicable: N/A

MS/MSD

Duplicate ID No.:

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW2A
Sample Location: MRC-SW2A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/16/2018 Time: 1638	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 1500: 2.90 ft 1700: 2.80 ft	**clear**	**7.93**	**6.401**	**13.42**	**13.6**	**9.06**	**1.4**	**221.3**

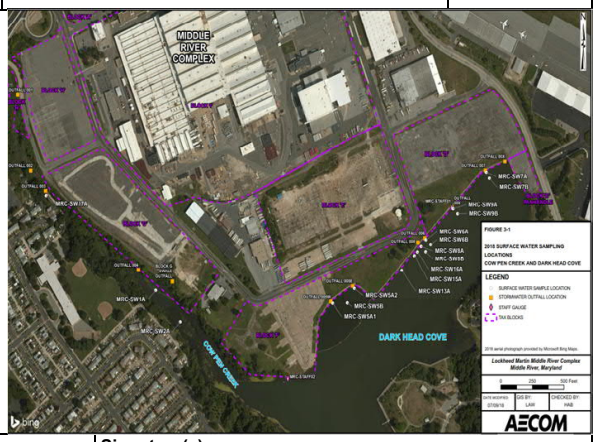
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
1,4-dioxane (8270D/SIM)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 367.5

MAP:



Circle if Applicable: N/A

MS/MSD	Duplicate ID No.:

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW5A1
Sample Location: MRC-SW5A1
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0912	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.03**	**8.074**	**12.82**	**8**	**9.18**	**1.4**	**161.3**

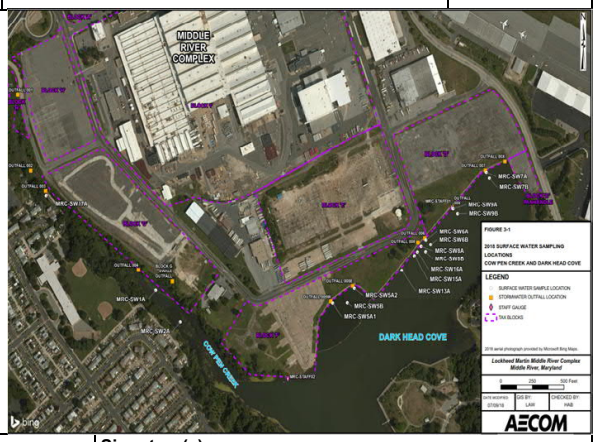
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 342

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s): Zachary Neigh

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SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW5A2
Sample Location: MRC-SW5A2
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0924	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.02**	**8.125**	**12.85**	**8.8**	**8.99**	**1.4**	**158.9**

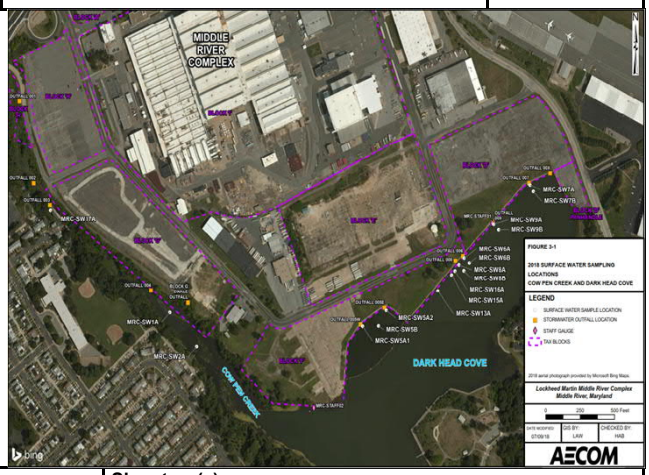
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 376.2

MAP:



Circle if Applicable: N/A

MS/MSD

Duplicate ID No.:

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW5B
Sample Location: MRC-SW5B
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0940	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.03**	**8.112**	**12.84**	**8.7**	**9.24**	**1.4**	**167.7**

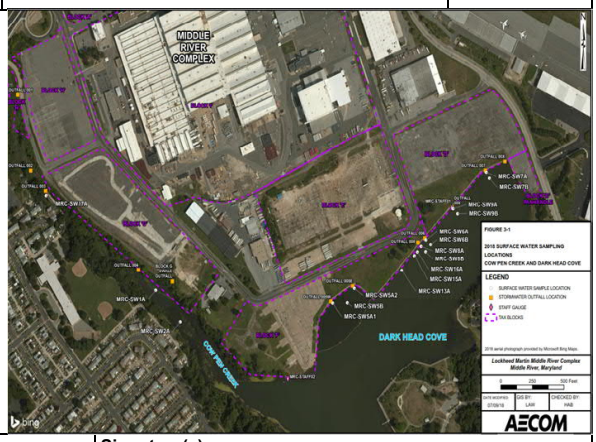
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.7

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s):

Zachy Neigh

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SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW6A
Sample Location: MRC-SW6A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1002	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.12**	**7.543**	**12.48**	**8.5**	**9.56**	**1.4**	**201.1**

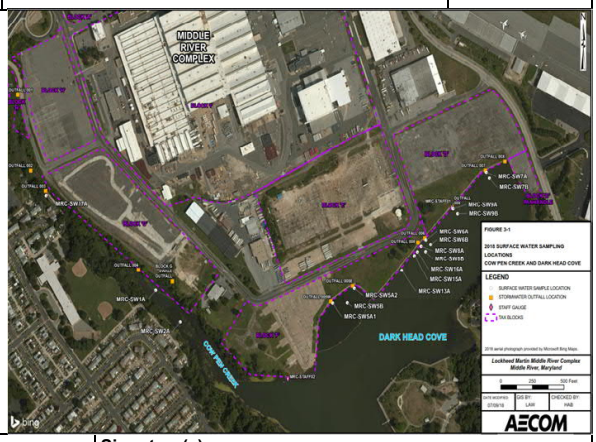
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1000 mL amber	Yes
1,4 Dioxane (6020A/7470)	None	1 - 1000 mL amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.1

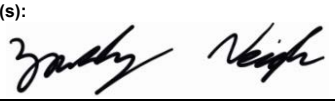
MAP:



Circle if Applicable: N/A

MS/MSD	Duplicate ID No.:

Signature(s):



AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW6B
Sample Location: MRC-SW6B
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1051	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.12**	**7.573**	**12.37**	**7.9**	**9.68**	**1.4**	**173.2**

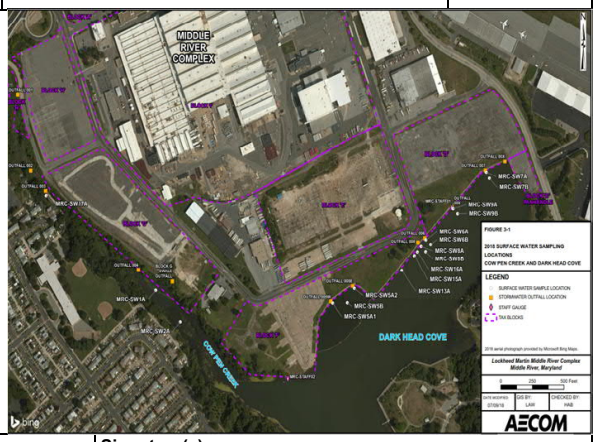
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1000 mL amber	Yes
1,4 Dioxane (6020A/7470)	None	1 - 1000 mL amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 367.5

MAP:



Circle if Applicable: N/A

MS/MSD

Duplicate ID No.:

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW7A
Sample Location: MRC-SW7A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0804	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**8.06**	**7.514**	**12.69**	**11**	**9.23**	**1.4**	**232.7**

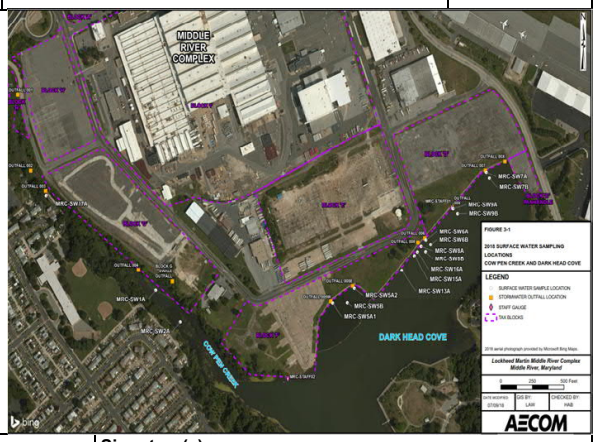
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 376.2

MAP:



Circle if Applicable: N/A

MS/MSD	Duplicate ID No.:

Signature(s): Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW7B
Sample Location: MRC-SW7B
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0837	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**8.24**	**7.51**	**12.65**	**10.2**	**8.28**	**1.4**	**226.5**

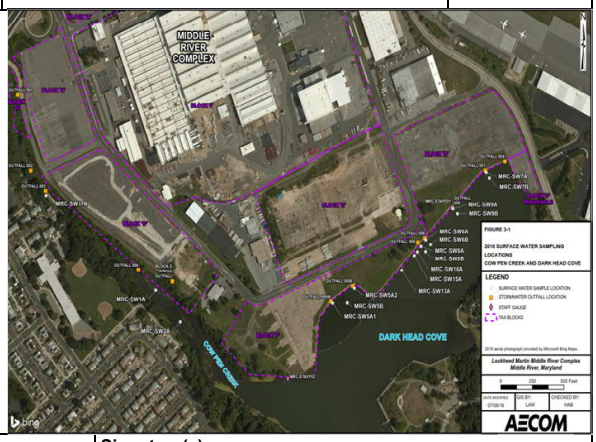
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.1

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW8A
Sample Location: MRC-SW8A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1016	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.08**	**7.724**	**12.73**	**10**	**9.26**	**1.4**	**159.8**

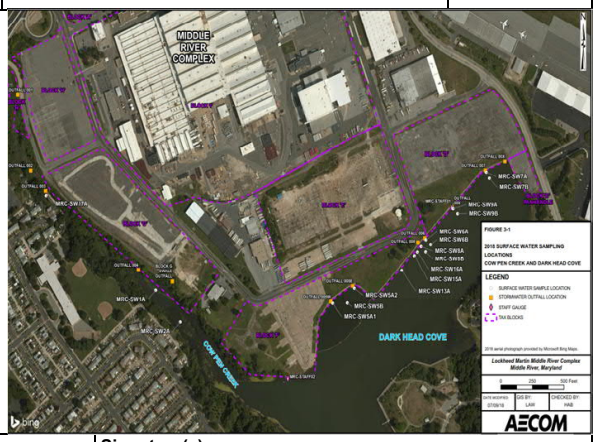
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1000 mL amber	Yes
1,4 Dioxane (6020A/7470)	None	1 - 1000 mL amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.7

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
	MRC-SW8A-D

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW8A-D
Sample Location: MRC-SW8A-D
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1030	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.08**	**7.724**	**12.73**	**10**	**9.26**	**1.4**	**159.8**

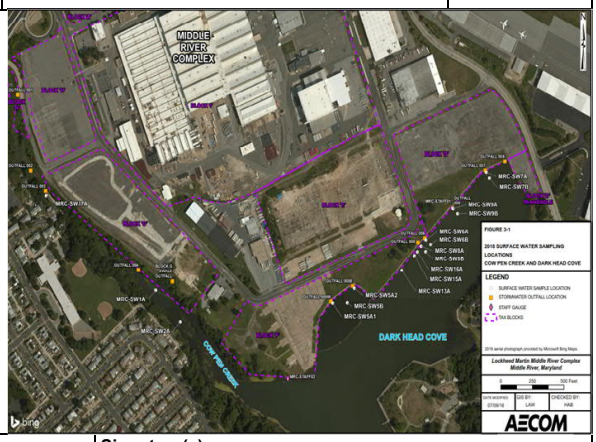
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1000 mL amber	Yes
1,4 Dioxane (6020A/7470)	None	1 - 1000 mL amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.7

MAP:



Circle if Applicable: N/A

MS/MSD **Duplicate ID No.:**

Signature(s): Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW8B
Sample Location: MRC-SW8B
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1104	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.11**	**7.612**	**12.4**	**7.6**	**9.67**	**1.4**	**171.7**

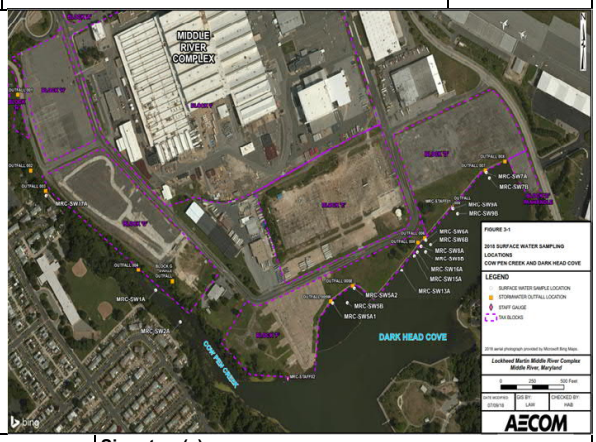
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1000 mL amber	Yes
1,4 Dioxane (6020A/7470)	None	1 - 1000 mL amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 366.6

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s):

Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW9A
Sample Location: MRC-SW9A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0842	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.01**	**7.62**	**12.66**	**8.5**	**9.39**	**1.4**	**187.2**

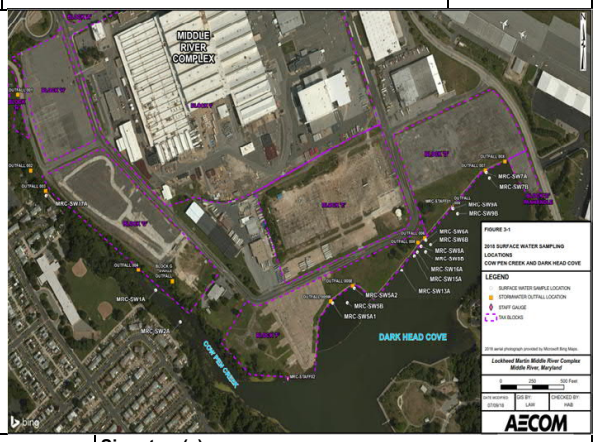
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 366.6

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s): Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW9B
Sample Location: MRC-SW9B
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 0806	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.05**	**7.628**	**12.56**	**8.9**	**9.58**	**1.4**	**196.6**

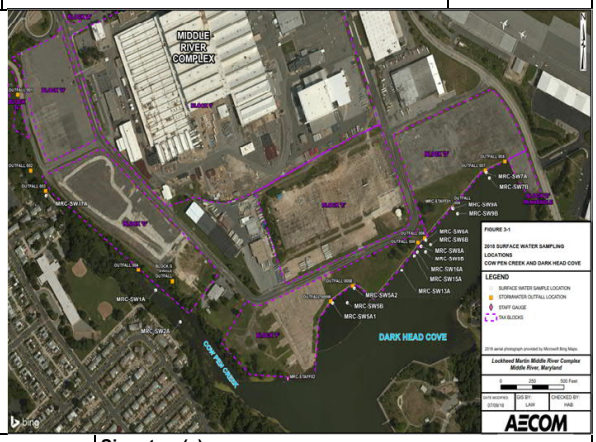
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 342.5

MAP:



Circle if Applicable: N/A

MS/MSD	Duplicate ID No.:

Signature(s):

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW13A
Sample Location: MRC-SW13A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1144	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt0	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.04**	**7.838**	**12.68**	**9.7**	**9.32**	**1.4**	**170.4**

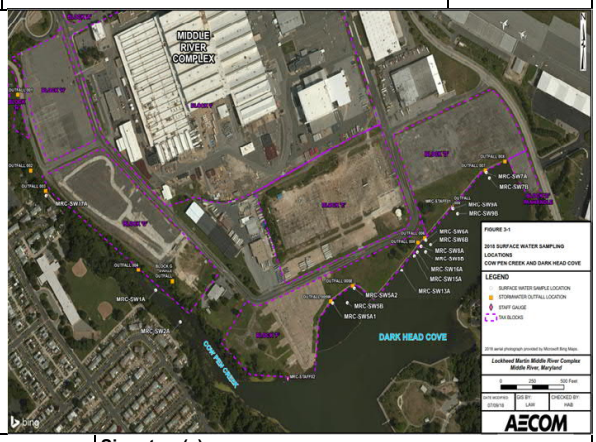
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 342.6

MAP:



Circle if Applicable: N/A

MS/MSD	Duplicate ID No.:

Signature(s):

Zachary Neigh

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SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW15A
Sample Location: MRC-SW15A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1140	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.07**	**7.77**	**12.58**	**8.1**	**9.3**	**1.4**	**171**

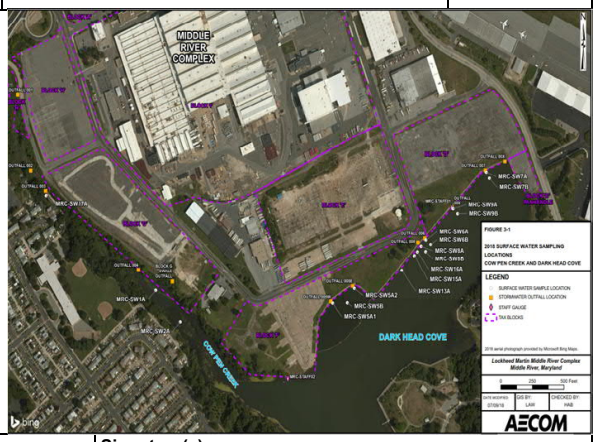
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 343.5

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s):

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SURFACE WATER SAMPLE LOG SHEET

Page 1 of 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW16A
Sample Location: MRC-SW16A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/17/2018 Time: 1120	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (ppt)	ORP (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 0830: 1.80 ft 1230: 1.35 ft	**clear**	**9.1**	**7.746**	**12.57**	**15.3**	**9.32**	**1.4**	**171.2**

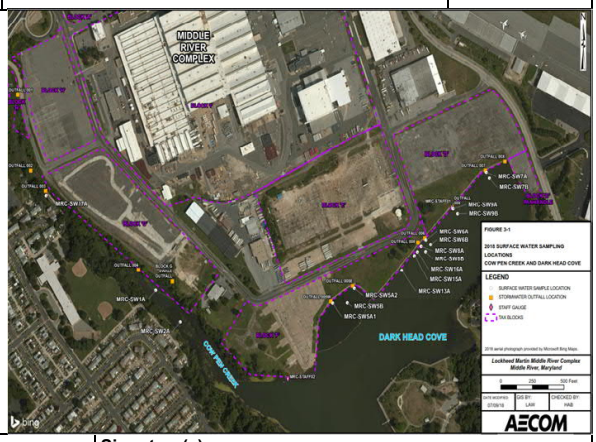
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
PCB Homologs (680/8260C)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 342.5

MAP:



Circle if Applicable: N/A

MS/MSD	Duplicate ID No.:

Signature(s): Zachary Neigh

AECOM

SURFACE WATER SAMPLE LOG SHEET

Page 1 **of** 1

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202

Sample ID No.: MRC-SW17A
Sample Location: MRC-SW17A
Sampled By: Zach Neigh

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

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

SAMPLING DATA:

Date: 04/16/2018 Time: 1507	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level (WL): 1500: 2.90 ft 1700: 2.80 ft	**clear**	**7.88**	**0.303**	**12.54**	**32.1**	**9.09**	**1.4**	**175.8**

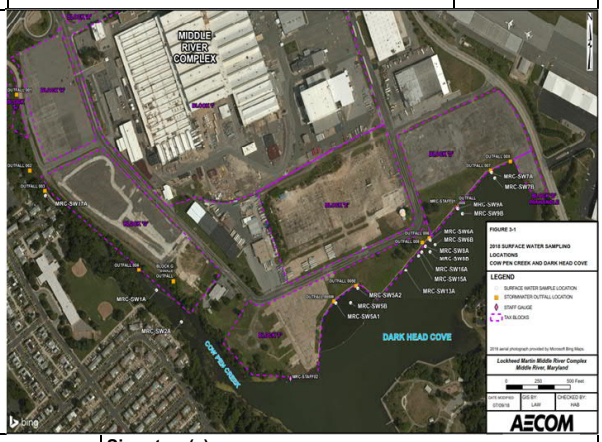
SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	1 - 40 mL glass vial	Yes
1,4-dioxane (8270D/SIM)	None	1 - 1 L amber	Yes

OBSERVATIONS / NOTES:

Hardness (mg/L CaCO3) = 359.1

MAP:



Circle if Applicable: N/A

MS/MSD	**Duplicate ID No.:**

Signature(s):

Zachary Neigh

APPENDIX B
Data Validation Report

AECOM

Data Validation and Usability Report

Lockheed Martin
Middle River Complex

April 2018 GW/SW Sampling
Project: 60555202

June 2018

IDENTIFICATION FORM

Data Validation and Data Usability Review

Zachary Neigh
Data Validator
AECOM
June 06, 2018

Naoum Tavantzis
Project Chemist
AECOM
June 06, 2018

Table of Contents

I. Executive Summary

Data validation was performed on 100% of the groundwater and surface water field investigative samples collected from April 4th, 2018 through April 30th, 2018 at the Lockheed Martin Middle River Complex located in Middle River, Maryland. The validation was performed to a United States Environmental Protection Agency (USEPA) Region III Inorganic Level I and Organic Level I based on the specifics of the analytical methods referenced and qualified according to the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic/Inorganic (January 2017) Superfund Data Review, with the exception of blank detections which were qualified according to the USEPA Region III modifications to the National Functional Guidelines defining the use of the "B" flag.

The review was assisted through the use of an electronic data management tool that compiles batch-level quality control (QC) data submitted with the laboratory deliverables and identifies anomalies for verification and qualification by the data reviewer. This information is provided in the form of a structured workbook that includes field sample analytical results, QC sample results, batch associations, and QC criteria. Prior to validation, the quality assurance procedures applied to this process include reviewing the output for data completeness based on laboratory deliverables and chain of custody reports, verification of QC criteria based on the aforementioned data validation guidelines and project-specific Quality Assurance Project Plan (QAPP), as well as strict control of data management permissions. The resulting data validation workbooks were evaluated and validated using the AECOM automated validation assistant (AVA) tool. The specific data elements that were reviewed include:

- Holding times and sample preservation
- Blanks (Method, Trip, Field, and Equipment)
- Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- Surrogate spike results
- Field duplicates
- Laboratory duplicates
- Sensitivity

Data validation qualifiers were applied to results where a QC nonconformance required qualification per USEPA guidance. All QC anomalies were assessed for their impact on data quality in regards to precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) as discussed in **II: PARCCS Data Quality**. A detailed list of the QC non-conformances can be found in **III: Data Validation Findings**. The associated field sample results that required qualification are listed in **IV: Qualified Field Sample Results**

II. PARCCS Data Quality

Precision

Precision is the degree of agreement among repeated measurements of the same characteristic on the same sample or on separate samples collected as close as possible in time and place. Field sampling precision is measured with the field duplicate relative percent differences; laboratory precision is measured with laboratory duplicate relative percent differences and/or laboratory control spike and matrix spike duplicate relative percent differences.

During the review, several matrix spike pairs displayed relative percent differences greater than the quality control limits. However, all associated field sample results were either non-detect or previously qualified due to matrix spike percent recovery anomalies; no data qualifying action was taken.

A limited number of field duplicate pairs displayed relative percent differences greater than the quality control limit of 35%. The positive associated field sample results and field duplicate results were qualified J,fd. These anomalies are considered minor and the qualified results should be considered usable as estimated values.

Accuracy

Accuracy is a measure of confidence in a measurement. The smaller the difference between the measurement of a parameter and its "true" or expected value, the more accurate the measurement. Accuracy in the field was monitored through the use of negative controls such as trip blanks, field blanks, and equipment blanks, along with adherence to the standard operating procedures and sampling plans. Analytical accuracy was assessed through the measurement of percent recoveries in the laboratory control spike pairs (LCS/LCSD) and the matrix spike pairs (MS/MSD).

Several method blanks, trip blanks, equipment blanks, and field blanks displayed detections greater than the method detection limit. Per the USEPA Region III guidelines on the qualification of blank detections, associated field sample results that displayed concentrations within five times of the blank detection were qualified “B”. The qualified field sample results should be considered usable as estimated values.

During the review, several MS/MSD displayed percent recoveries outside the quality control limits. The field sample results associated with positive biases were non-detect and did not require data qualifying action. The positive field sample results associated with negative biases were qualified J-,m. Non-detect results associated with percent recoveries less than the lower control limit, but greater than 20%, were qualified UJ,m. All qualified data should be considered usable as estimated values.

Several LCS/LCSD displayed percent recoveries outside the quality control limits. The field sample results associated with positive biases were non-detect and did not require data qualifying

action. The field sample results associated with negative biases were non-detect and were qualified UJ,l. These anomalies are considered minor since all percent recoveries less than the lower QC limits were greater than 10%. The qualified field sample results should be considered usable.

Representativeness

Representativeness qualitatively expresses the degree to which data accurately reflect site conditions. Factors that affect the representativeness of analytical data include appropriate sample population definitions, proper sample collection and preservation techniques, analytical holding times, use of standard analytical methods, and determination of matrix or analyte interferences.

A limited number of analyses and/or extractions were performed outside of the technical holding time but did not exceed twice the holding time (at which point non-detect sample results would have been rejected). These anomalies were considered minor, and the associated non-detect field sample results were qualified UJ,h while positive results were qualified J,h. These anomalies are considered minor and the qualified field sample results should be considered usable as estimated values.

Comparability

Comparability is the extent to which data from one study can be compared directly to either past data from the current project or data from another study. Using standardized sampling and analytical methods, units of reporting, and site selection procedures helps ensure comparability. Standard field sampling methods and current CLP analytical methods by an accredited laboratory were used in this investigation.

Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount of data expected under normal conditions. It is expected that laboratories will provide data meeting system quality control acceptance criteria for all samples tested. Project completeness is determined by evaluating the planned versus actual quantities of usable data. A total of 151 investigative field samples were validated, including 133 groundwater samples and 18 surface water samples. Additionally 14 field/equipment blanks and 2 investigation derived waste (IDW) samples were validated. Due to rejected data points associated with major anomalies, the overall data completeness was less than 100% at 99%.

Sensitivity

Sensitivity reflects the ability of the analytical method to detect analytes of interest below the level of concern. This goal is achieved by identifying the level of concern, choosing a method with appropriate method detection limits, and ensuring that the laboratory analyzes calibration

standards at or below the level of concern. The laboratory was able to achieve the lowest reporting limits based on the analytical methods employed and the variety of matrices encountered. Any analytes detected below the reporting limit and above the method detection limit were reported and qualified “J” as estimated values by the laboratory. The only field sample that displayed non-detect results at an elevated dilution factor (greater than 10 times) was MRC-MW27A, analyzed for Nitrite Nitrogen at a dilution factor of 25. This field sample result did not require qualification by the data reviewer and should be considered usable as reported.

Overall Impact on Data Usability

The bulk of the data was considered usable and met the completeness requirement outlined in the QAPP. During the course of the data validation, several minor anomalies were noted which is to be anticipated based on statistical predictability of standard analytical procedures. Several field sample results were qualified due to these minor anomalies. No major anomalies were identified over the course of data validation; therefore no field sample results were qualified as rejected. All data are considered usable, as qualified, for their intended purpose based on the data reviewed.

III. Data Validation Findings

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	*No Anomalies*			
Method Blanks	**Detection > MDL**	2720310	Hexachloro-1,3-Butadiene	1.1 ug/l (1.0 ug/l)
		2721323	Chloroform	0.70 ug/l (0.21 ug/l)
		2721982	Chloroform	0.39 ug/l (0.21 ug/l)
		2722614	Hexachloro-1,3-Butadiene	1.1 ug/l (1.0 ug/l)
		2723836	Chloroform	0.66 ug/l (0.21 ug/l)
		2724316	Chloroform	0.31 ug/l (0.21 ug/l)
		2724316	Hexachloro-1,3-Butadiene	1.1 ug/l (1.0 ug/l)
		2724402	Chloroform	0.66 ug/l (0.21 ug/l)
		2724799	Chloroform	0.61 ug/l (0.21 ug/l)
		2725080	Chloroform	0.26 ug/l (0.21 ug/l)
		2725883	Hexachloro-1,3-Butadiene	1.3 ug/l (1.0 ug/l)
		2726611	Chloroform	0.24 ug/l (0.21 ug/l)
		2726758	Chloroform	0.35 ug/l (0.21 ug/l)
		2726758	TRICHLOROETHENE	0.59 ug/l (0.33 ug/l)
		2727495	Chloroform	0.34 ug/l (0.21 ug/l)
		2727844	Chloroform	0.28 ug/l (0.21 ug/l)
		2727879	Chloroform	0.44 ug/l (0.21 ug/l)
Trip Blanks	**Detection > MDL**	TB-041018-1	Acetone	4.6 ug/l (3.1 ug/l)
		TB-041018-2	Acetone	4.1 ug/l (3.1 ug/l)
		TB-041018-4	Acetone	5.7 ug/l (3.1 ug/l)
		TB-041018-4	Hexachloro-1,3-Butadiene	1.2 ug/l (1.0 ug/l)
		TB-041218-1	Bromoform	0.43 ug/l (0.40 ug/l)
		TB-041218-1	Acetone	9.2 ug/l (3.1 ug/l)
		TB-041718-1	Acetone	13.0 ug/l (3.1 ug/l)
		TB-041718-2	Acetone	15.5 ug/l (3.1 ug/l)
		TB-041718-2	TERT-BUTYL ALCOHOL	2.5 ug/l (2.2 ug/l)
		TB-041718-3	Acetone	11.5 ug/l (3.1 ug/l)
		TB-041718-3	Naphthalene	0.49 ug/l (0.34 ug/l)
		TB-041718-4	Acetone	13.6 ug/l (3.1 ug/l)
		TB-041718-4	TERT-BUTYL ALCOHOL	2.5 ug/l (2.2 ug/l)
		TB-041718-5	Acetone	8.3 ug/l (3.1 ug/l)
		TRIP BLANK	Dibromochloromethane	0.50 ug/l (0.45 ug/l)
		TRIP BLANK	Bromoform	0.97 ug/l (0.40 ug/l)

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
Trip Blanks	Detection > MDL	TRIP BLANK 1	Acetone	5.6 ug/l (3.1 ug/l)
		TRIP BLANK 2	Acetone	7.0 ug/l (3.1 ug/l)
		TRIP BLANK 4	Acetone	5.2 ug/l (3.1 ug/l)
		TRIP BLANK 5	Acetone	4.7 ug/l (3.1 ug/l)
		TB-041718-1	Acetone	13.0 ug/l (3.1 ug/l)
		TB-041718-2	Acetone	15.5 ug/l (3.1 ug/l)
		TB-041718-2	TERT-BUTYL ALCOHOL	2.5 ug/l (2.2 ug/l)
		TB-041718-3	Acetone	11.5 ug/l (3.1 ug/l)
		TB-041718-3	Naphthalene	0.49 ug/l (0.34 ug/l)
		TB-041718-4	Acetone	13.6 ug/l (3.1 ug/l)
		TB-041718-4	TERT-BUTYL ALCOHOL	2.5 ug/l (2.2 ug/l)
		TB-041718-5	Acetone	8.3 ug/l (3.1 ug/l)
		EB-040618-TK	TRICHLOROETHENE	0.90 ug/l (0.33 ug/l)
		EB-040618-ZN	Hexachloro-1,3-Butadiene	1.2 ug/l (1.0 ug/l)
		EB-041318-AD	Acetone	11.4 ug/l (3.1 ug/l)
LCS/LCSD	LCS % Recovery	2718917	1,2,3-Trichlorobenzene	60.4 % (61-126 %)
		2719844	Freon TF (Chlorinated fluorocarbon)	132 % (50-130 %)
		2719844	METHYLCYLOHEXANE	132 % (70-130 %)
		2720311	1,2,3-Trichlorobenzene	50.7 % (61-126 %)
		2720311	1,2,4-Trichlorobenzene	57.2 % (67-123 %)
		2720311	Freon TF (Chlorinated fluorocarbon)	131 % (50-130 %)
		2721324	METHYLCYLOHEXANE	140 % (70-130 %)
		2721780	METHYLCYLOHEXANE	133 % (70-130 %)
		2721962	1,1-Dichloroethylene	129 % (63-128 %)
		2721962	CYCLOHEXANE	135 % (66-130 %)
		2721962	Freon TF (Chlorinated fluorocarbon)	142 % (50-130 %)
		2721983	METHYLCYLOHEXANE	142 % (70-130 %)
		2722321	METHYLCYLOHEXANE	132 % (70-130 %)
		2723837	METHYLCYLOHEXANE	143 % (70-130 %)
		2723837	Naphthalene	55.2 % (56-134 %)
		2724317	1,2,3-Trichlorobenzene	143 % (61-126 %)
		2724317	Hexachloro-1,3-Butadiene	137 % (55-128 %)
		2724317	Methylene Chloride	122 % (76-121 %)
		2724317	Naphthalene	173 % (56-134 %)

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
		2724403	2-Hexanone	63.7 % (65-154 %)
		2724403	4-Methyl-2-Pentanone	69.8 % (71-146 %)
		2724403	METHYLCYLOHEXANE	150 % (70-130 %)
		2724403	Methylene Chloride	136 % (76-121 %)
		2724800	1,1-Dichloroethylene	135 % (63-128 %)
		2724800	Carbon Disulfide	148 % (57-131 %)
		2724800	CYCLOHEXANE	133 % (66-130 %)
		2724800	Freon TF (Chlorinated fluorocarbon)	147 % (50-130 %)
		2724800	METHYLCYLOHEXANE	148 % (70-130 %)
		2724800	Methylene Chloride	128 % (76-121 %)
		2725081	1,1-Dichloroethylene	134 % (63-128 %)
		2725081	Carbon Disulfide	133 % (57-131 %)
		2725081	CYCLOHEXANE	141 % (66-130 %)
		2725081	Freon TF (Chlorinated fluorocarbon)	165 % (50-130 %)
		2725884	Naphthalene	158 % (56-134 %)
		2726309	Naphthalene	140 % (56-134 %)
LCS/LCSD	**LCS % Recovery**	2726322	1,1-Dichloroethylene	129 % (63-128 %)
		2726322	CYCLOHEXANE	143 % (66-130 %)
		2726322	Freon TF (Chlorinated fluorocarbon)	157 % (50-130 %)
		2726759	Freon TF (Chlorinated fluorocarbon)	131 % (50-130 %)
		2726759	METHYLCYLOHEXANE	131 % (70-130 %)
		2726961	1,1-Dichloroethylene	130 % (63-128 %)
		2726961	CYCLOHEXANE	141 % (66-130 %)
		2726961	Freon TF (Chlorinated fluorocarbon)	161 % (50-130 %)
		2727496	1,1-Dichloroethylene	136 % (63-128 %)
		2727496	Carbon Disulfide	135 % (57-131 %)
		2727496	CYCLOHEXANE	143 % (66-130 %)
		2727496	Freon TF (Chlorinated fluorocarbon)	165 % (50-130 %)
		2727845	1,1-Dichloroethylene	141 % (63-128 %)
		2727845	2,2-Dichloropropane	130 % (64-129 %)
		2727845	Carbon Disulfide	141 % (57-131 %)
		2727845	CYCLOHEXANE	151 % (66-130 %)

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
LCS/LCSD	LCS % Recovery	2727845	Freon TF (Chlorinated fluorocarbon)	169 % (50-130 %)
		2727845	Trans-1,2-Dichloroethene	128 % (71-122 %)
		2728889	Carbon Disulfide	138 % (57-131 %)
		2728889	Freon TF (Chlorinated fluorocarbon)	134 % (50-130 %)
		2728889	Methylene Chloride	126 % (76-121 %)
		2730034	1,2,4-Trichlorobenzene	61.3 % (67-123 %)
		2730034	cis-1,3-Dichloropropene	75.3 % (81-121 %)
MS/MSD	MS % Recovery	2721513	2-Chloroethylvinylether	0 % (1-150 %)
		2721513	Bromomethane	42.6 % (45-148 %)
		2721513	METHYLCYLOHEXANE	138 % (70-130 %)
		2722135	1,1,1-Trichloroethane	141 % (66-130 %)
		2722135	1,1-Dichloroethane	132 % (78-124 %)
		2722135	1,1-Dichloroethylene	134 % (63-128 %)
		2722135	2-Chloroethylvinylether	0.46 % (1-150 %)
		2722135	2-Chlorotoluene	127 % (78-126 %)
		2722135	2-Hexanone	62.7 % (65-154 %)
		2722135	Benzene	129 % (80-124 %)
		2722135	Bromobenzene	124 % (81-119 %)
		2722135	Bromochloromethane	126 % (73-117 %)
		2722135	Carbon Tetrachloride	152 % (62-132 %)
		2722135	Chloroform	128 % (78-122 %)
		2722135	cis-1,3-Dichloropropene	71.2 % (81-121 %)
		2722135	CYCLOHEXANE	156 % (66-130 %)
		2722135	Dichloropropene, 1,3-	76.6 % (80-123 %)
		2722135	Freon TF (Chlorinated fluorocarbon)	145 % (50-130 %)
		2722135	Isopropylbenzene	130 % (73-129 %)
		2722135	Trans-1,2-Dichloroethene	124 % (71-122 %)
		2722664	1,1-Dichloroethane	126 % (78-124 %)
		2722664	1,1-Dichloroethylene	138 % (63-128 %)
		2722664	1,2-Dichloroethylene (total)	127 % (78-125 %)
		2722664	2-Chloroethylvinylether	0.31 % (1-150 %)
		2722664	Bromochloromethane	120 % (73-117 %)
		2722664	Carbon Disulfide	136 % (57-131 %)
		2722664	Carbon Tetrachloride	135 % (62-132 %)

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
		2722664	CYCLOHEXANE	136 % (66-130 %)
		2722664	Freon TF (Chlorinated fluorocarbon)	139 % (50-130 %)
		2722664	Trans-1,2-Dichloroethene	132 % (71-122 %)
		2724700	1,1-Dichloroethylene	131 % (63-128 %)
		2724700	2-Chloroethylvinylether	0.81 % (1-150 %)
		2724700	Carbon Disulfide	144 % (57-131 %)
		2724700	CYCLOHEXANE	133 % (66-130 %)
		2724700	Freon TF (Chlorinated fluorocarbon)	140 % (50-130 %)
		2724700	METHYLCYLOHEXANE	141 % (70-130 %)
		2724700	Methylene Chloride	134 % (76-121 %)
		2724700	Trans-1,2-Dichloroethene	126 % (71-122 %)
		2724873	1,1-Dichloroethane	125 % (78-124 %)
		2724873	1,1-Dichloroethylene	130 % (63-128 %)
		2724873	2-Chloroethylvinylether	0.5 % (1-150 %)
		2724873	Bromochloromethane	121 % (73-117 %)
		2724873	Carbon Disulfide	146 % (57-131 %)
MS/MSD	MS % Recovery	2724873	CYCLOHEXANE	144 % (66-130 %)
		2724873	Freon TF (Chlorinated fluorocarbon)	144 % (50-130 %)
		2724873	METHYLCYLOHEXANE	158 % (70-130 %)
		2724873	Methylene Chloride	128 % (76-121 %)
		2724873	Naphthalene	55.5 % (56-134 %)
		2726360	1,2-Dichlorobenzene	125 % (82-118 %)
		2726360	2-Chloroethylvinylether	0.36 % (1-150 %)
		2726360	cis-1,2-Dichloroethene	133 % (78-125 %)
		2726360	CYCLOHEXANE	136 % (66-130 %)
		2726360	Freon TF (Chlorinated fluorocarbon)	133 % (50-130 %)
		2726360	METHYLCYLOHEXANE	135 % (70-130 %)
		2726360	Naphthalene	206 % (56-134 %)
		2726445	Carbon Disulfide	141 % (57-131 %)
		2726445	CYCLOHEXANE	152 % (66-130 %)
		2726445	Freon TF (Chlorinated fluorocarbon)	175 % (50-130 %)
		2726445	METHYLCYLOHEXANE	152 % (70-130 %)
		2726445	Trans-1,2-Dichloroethene	129 % (71-122 %)

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
		2726827	2-Chloroethylvinylether	0.64 % (1-150 %)
		2726827	CYCLOHEXANE	133 % (66-130 %)
		2726827	Freon TF (Chlorinated fluorocarbon)	144 % (50-130 %)
		2726827	METHYLCYLOHEXANE	154 % (70-130 %)
		2726968	1,1-Dichloroethylene	135 % (63-128 %)
		2726968	1,3-Dichlorobenzene	119 % (81-118 %)
		2726968	2-Chlorotoluene	127 % (78-126 %)
		2726968	4-Chlorotoluene	126 % (78-125 %)
		2726968	Bromobenzene	121 % (81-119 %)
		2726968	CYCLOHEXANE	142 % (66-130 %)
		2726968	Freon TF (Chlorinated fluorocarbon)	146 % (50-130 %)
		2726968	Isopropylbenzene	132 % (73-129 %)
		2726968	METHYLCYLOHEXANE	140 % (70-130 %)
		2726968	Toluene	128 % (80-125 %)
		2726968	Trans-1,2-Dichloroethene	124 % (71-122 %)
		2726968	TRICHLOROETHENE	224 % (77-124 %)
MS/MSD	**MS % Recovery**	2727622	1,1-Dichloroethylene	133 % (63-128 %)
		2727622	2-Chloroethylvinylether	0.6 % (1-150 %)
		2727622	cis-1,3-Dichloropropene	80.6 % (81-121 %)
		2727622	CYCLOHEXANE	131 % (66-130 %)
		2727622	Freon TF (Chlorinated fluorocarbon)	136 % (50-130 %)
		2727622	Methyl acetate	61.4 % (70-130 %)
		2727622	METHYLCYLOHEXANE	146 % (70-130 %)
		2727622	o-Xylene	53.2 % (79-124 %)
		2727622	VINYL ACETATE	48.4 % (58-136 %)
		2727753	1,1-Dichloroethylene	139 % (63-128 %)
		2727753	2-Chloroethylvinylether	0.31 % (1-150 %)
		2727753	Carbon Disulfide	145 % (57-131 %)
		2727753	CYCLOHEXANE	148 % (66-130 %)
		2727753	Freon TF (Chlorinated fluorocarbon)	166 % (50-130 %)
		2727753	Trans-1,2-Dichloroethene	124 % (71-122 %)
		2728501	2-Chloroethylvinylether	0.56 % (1-150 %)
		2728501	CYCLOHEXANE	134 % (66-130 %)

Volatile Organic Compounds SW846-8260B	Description	Sample ID	Analyte	Value (Control Limit)
MS/MSD	**MS % Recovery**	2728501	Freon TF (Chlorinated fluorocarbon)	135 % (50-130 %)
		2728501	TRICHLOROETHENE	71.5 % (77-124 %)
		2728934	1,1-Dichloroethylene	129 % (63-128 %)
		2728934	2-Chloroethylvinylether	0.61 % (1-150 %)
		2728934	CYCLOHEXANE	134 % (66-130 %)
		2728934	Freon TF (Chlorinated fluorocarbon)	134 % (50-130 %)
		2728934	METHYLCYLOHEXANE	131 % (70-130 %)
		2728934	Trans-1,2-Dichloroethene	123 % (71-122 %)
		2728943	2-Chloroethylvinylether	0.63 % (1-150 %)
Surrogate Spike	**% Recovery**	MRC-MW123A	Toluene-d8	72.9 % (76-127 %)
		MRC-MW114A	Toluene-d8	73 % (76-127 %)
		MRC-MW96A	4-Bromofluorobenzene	115 % (79-114 %)
		MRC-MW74B	4-Bromofluorobenzene	116 % (79-114 %)
		MRC-MW74B	Toluene-d8	74.9 % (76-127 %)
		MRC-SEMW-7I	4-Bromofluorobenzene	115 % (79-114 %)
		MRC-MW72B	4-Bromofluorobenzene	115 % (79-114 %)
		MRC-SEMW-8I	4-Bromofluorobenzene	115 % (79-114 %)
		MRC-SEMW-9S	4-Bromofluorobenzene	116 % (79-114 %)
Laboratory Duplicates	No Anomalies			
Field Duplicates	**RPD > 35%**	MRC-MW98B-DUP	cis-1,2-Dichloroethene	42% (35%)
		MRC-MW98B-DUP	1,2-Dichloroethylene (total)	42% (35%)

1,4-Dioxane SW846-8270D-SIM	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	*No Anomalies*			
Method Blanks	**Detection > MDL**	2725743	1,4-Dioxane	0.021 ug/l (0.019 ug/l)
Field/Equipment Blanks	*No Anomalies*			
LCS/LCSD	*No Anomalies*			
MS/MSD	**MS % Recovery**	2721364	1,4-Dioxane	19% (22-75%)
Surrogate Spike	*No Anomalies*			
Laboratory Duplicates	*No Anomalies*			
Field Duplicates	**RPD > 35%**	MRC-MW111B-DUP	1,4-Dioxane	80% (35%)

PCB Homologs

USEPA 680	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	**Collection to Extraction**	2308120 017	Method List	8 Days (7 Days)
		2308280 001	Method List	8 Days (7 Days)
		2308280 019	Method List	8 Days (7 Days)
		2308280 021	Method List	8 Days (7 Days)
Method Blanks	*No Anomalies*			
Field/Equipment Blanks	**Detection > MDL**	2308280 002	Dichlorobiphenyls, Total	0.0090 ug/l (0.0016 ug/l)
		2308280 002	Dichlorobiphenyls, Total	0.0090 ug/l (0.0016 ug/l)
		2308280 002	Monochlorobiphenyls, Total	0.0045 ug/l (0.00059 ug/l)
		2308280 002	Monochlorobiphenyls, Total	0.0045 ug/l (0.00059 ug/l)
		2308280 002	Trichlorobiphenyls, Total	0.0055 ug/l (0.0022 ug/l)
		2308280 002	Trichlorobiphenyls, Total	0.0055 ug/l (0.0022 ug/l)
LCS/LCSD	**LCS % Recovery**	312299-BS	Heptachlorobiphenyls, Total	42% (53-120%)
		312299-BS	Octachlorobiphenyls, Total	38% (57%-125)
MS/MSD	N/A			
Surrogate Spike	*No Anomalies*			
Laboratory Duplicates	*No Anomalies*			
Field Duplicates	*No Anomalies*			

Metals

SW846-6010C, 6020A, 7470A	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	*No Anomalies*			
Method Blanks	**Detection > MDL**	2720287	Antimony	0.0011 mg/l (0.00074 mg/l)
		2720287	BERYLLIUM	0.0011 mg/l (0.00037 mg/l)
		2720287	Chromium	0.0018 mg/l (0.00074 mg/l)
		2720287	LEAD	0.0013 mg/l (0.00074 mg/l)
		2720928	ZINC	0.0035 mg/l (0.0019 mg/l)
		2728307	Calcium	0.040 mg/l (0.036 mg/l)
Field/Equipment Blanks	**Detection > MDL**	EB-040618-TK	Chromium	0.0027 mg/l (0.00074 mg/l)
		EB-040618-TK	COPPER	0.0028 mg/l (0.0019 mg/l)
		EB-040618-TK	ZINC	0.014 mg/l (0.0019 mg/l)
		EB-040618-ZN	Calcium	0.26 mg/l (0.036 mg/l)
		EB-040618-ZN	Chromium	0.0012 mg/l (0.00074 mg/l)
		EB-040618-ZN	COPPER	0.0038 mg/l (0.0019 mg/l)
		EB-040618-ZN	Manganese	0.0021 mg/l (0.0020 mg/l)
		EB-040618-ZN	NICKEL	0.0029 mg/l (0.0019 mg/l)
		EB-040618-ZN	Sodium	0.25 mg/l (0.18 mg/l)
		EB-040618-ZN	ZINC	0.0037 mg/l (0.0019 mg/l)
		EB-041318-AD	Chromium	0.0015 mg/l (0.00074 mg/l)

Metals

SW846-6010C, 6020A, 7470A	Description	Sample ID	Analyte	Value (Control Limit)
Field/Equipment Blanks	**Detection > MDL**	EB-041318-AD	ZINC	0.0033 mg/l (0.0019 mg/l)
LCS/LCSD	*No Anomalies*			
MS/MSD	*No Anomalies*			
Laboratory Duplicates	*No Anomalies*			
Field Duplicates	*No Anomalies*			

Hexavalent Chromium

USEPA Method 218.6	Description	Sample ID	Analyte	Result (Control Limit)
Holding Times	*No Anomalies*			
Method Blanks	*No Anomalies*			
Equipment/Field Blanks	**Detections > MDL**	EB-040618-AZ	Hexavalent Chromium	0.087 ug/l (0.047 ug/l)
LCS/LCSD	*No Anomalies*			
MS/MSD	*No Anomalies*			
Surrogate Spike	*No Anomalies*			

General Chemistry - MNA

Various Analytical Methods	Description	Sample ID	Analyte	Result (Control Limit)
Holding Times	**Collection to Analysis**	MRC-MW60B	Orthophosphate	5 days (2 days)
		MRC-MW21B	Orthophosphate	4 days (2 days)
		EB-040618-ZN	Orthophosphate	5 days (2 days)
Method Blanks	**Detection > MDL**	2719558	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2719566	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719570	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719574	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719578	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2719582	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719586	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719590	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719594	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2719794	ALKALINITY, TOTAL (AS CACO3)	1 mg/l (0.8 mg/l)
		2720414	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2720422	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720426	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720430	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720434	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)

General Chemistry - MNA

Various Analytical Methods	Description	Sample ID	Analyte	Result (Control Limit)
		2720438	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720442	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720446	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720454	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2720877	ALKALINITY, TOTAL (AS CACO3)	1 mg/l (0.8 mg/l)
		2721359	NITROGEN, AMMONIA (AS N)	0.014 mg/l (0.003 mg/l)
		2721997	ALKALINITY, TOTAL (AS CACO3)	5 mg/l (0.8 mg/l)
		2722005	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2722009	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2722013	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2722017	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2722021	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2722025	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2722029	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2722372	ALKALINITY, TOTAL (AS CACO3)	1 mg/l (0.8 mg/l)
		2722828	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2722837	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2722841	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
Method Blanks	**Detection > MDL**	2722845	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2722849	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2722853	ALKALINITY, TOTAL (AS CACO3)	2 mg/l (0.8 mg/l)
		2722885	ALKALINITY, TOTAL (AS CACO3)	1 mg/l (0.8 mg/l)
		2723200	NITROGEN, AMMONIA (AS N)	0.006 mg/l (0.003 mg/l)
		2723202	NITROGEN, AMMONIA (AS N)	0.004 mg/l (0.003 mg/l)
		2724157	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2724165	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2724169	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2724173	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2724177	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2724181	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2724185	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2724189	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2724193	ALKALINITY, TOTAL (AS CACO3)	4 mg/l (0.8 mg/l)
		2724197	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2724201	ALKALINITY, TOTAL (AS CACO3)	3 mg/l (0.8 mg/l)
		2724205	ALKALINITY, TOTAL (AS CACO3)	1 mg/l (0.8 mg/l)

General Chemistry - MNA

Various Analytical Methods	Description	Sample ID	Analyte	Result (Control Limit)
Method Blanks	**Detection > MDL**	2728584	NITROGEN, AMMONIA (AS N)	0.006 mg/l (0.003 mg/l)
		2728586	NITROGEN, AMMONIA (AS N)	0.004 mg/l (0.003 mg/l)
Equipment/Field Blanks	**Detections > MDL**	EB-040618-ZN	NITROGEN, AMMONIA (AS N)	0.477 mg/l (0.03 mg/l)
		EB-040618-ZN	Phosphorus	0.040 mg/l (0.017 mg/l)
		EB-040618-ZN	TDS	20 mg/l (5 mg/l)
		EB-040618-ZN	Total Organic Carbon	0.19 mg/l (0.18 mg/l)
LCS/LCSD	*No Anomalies*			
MS/MSD	**MS % Recovery**	2722241	Orthophosphate	89.8% (90-110%)
Laboratory Duplicates	**RPD > Control Limit**	MRC-MW34B	Methane	26.5% (20%)
		MRC-MW21B	TDS	8.5% (5%)
Field Duplicates	*No Anomalies*			

IV. Qualified Field Sample Results

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
EB-040618-ZN	A4500E	Orthophosphate	0.020	mg/l	**UJ**	**h**
FB-041018-ZN	A2320	ALKALINITY, TOTAL (AS CACO3)	2	mg/l	**B**	**bl**
FB-041018-ZN	E300.0	Chloride	0.18	mg/l	**B**	**bl**
MRC-MW111B	SW8270D-SIM	1,4-Dioxane	88.5	ug/l	**J**	**fd**
MRC-MW111B-DUP	SW8270D-SIM	1,4-Dioxane	37.9	ug/l	**J**	**fd**
MRC-MW124B-D	SW6020	Chromium	0.00084	mg/l	**B**	**be**
MRC-MW126A	SW6020	ZINC	0.015	mg/l	**B**	**bl**
MRC-MW127A	SW6020	Chromium	0.00082	mg/l	**B**	**be**
MRC-MW127A	SW6020	COPPER	0.0025	mg/l	**B**	**be**
MRC-MW127A	SW6020	ZINC	0.026	mg/l	**B**	**be**
MRC-MW127B	SW6020	Chromium	0.00086	mg/l	**B**	**be**
MRC-MW128A	SW6020	Chromium	0.0010	mg/l	**B**	**be**
MRC-MW128A	SW6020	COPPER	0.0038	mg/l	**B**	**be**
MRC-MW128B	SW6020	Chromium	0.0073	mg/l	**B**	**be**
MRC-MW128B	SW6020	ZINC	0.011	mg/l	**B**	**be**
MRC-MW12A	D6919-09	NITROGEN, AMMONIA (AS N)	0.230	mg/l	**B**	**be**
MRC-MW12A	E365.1	Phosphorus	0.056	mg/l	**B**	**be**
MRC-MW12A	SW6020	Chromium	0.0030	mg/l	**B**	**be**
MRC-MW12A	SW6020	COPPER	0.0031	mg/l	**B**	**be**
MRC-MW12A	SW6020	NICKEL	0.0038	mg/l	**B**	**be**
MRC-MW12A	SW6020	ZINC	0.0078	mg/l	**B**	**be**
MRC-MW12B	D6919-09	NITROGEN, AMMONIA (AS N)	0.237	mg/l	**B**	**be**
MRC-MW12B	E365.1	Phosphorus	0.032	mg/l	**B**	**be**
MRC-MW12B	SW6020	Chromium	0.0019	mg/l	**B**	**be**
MRC-MW12B	SW6020	ZINC	0.030	mg/l	**B**	**be**
MRC-MW12C	SW6020	COPPER	0.015	mg/l	**B**	**be**
MRC-MW21B	A4500E	Orthophosphate	0.020	mg/l	**UJ**	**h**
MRC-MW21B	SM2540C	TDS	296	mg/l	**J**	**ld**
MRC-MW25A	A4500E	Orthophosphate	0.020	mg/l	**UJ**	**m**
MRC-MW25A	D6919-09	NITROGEN, AMMONIA (AS N)	0.219	mg/l	**B**	**be**
MRC-MW25A	E365.1	Phosphorus	0.026	mg/l	**B**	**be**
MRC-MW27B	A2320	ALKALINITY, TOTAL (AS CACO3)	11	mg/l	**B**	**bl**
MRC-MW34B	A2320	ALKALINITY, TOTAL (AS CACO3)	5	mg/l	**B**	**bl**
MRC-MW34B	RSK175	Methane	37.0	ug/l	**J**	**ld**

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
MRC-MW37A	D6919-09	NITROGEN, AMMONIA (AS N)	0.289	mg/l	**B**	**bl**
MRC-MW37A	SW6020	Chromium	0.0068	mg/l	**B**	**be**
MRC-MW37B	A2320	ALKALINITY, TOTAL (AS CACO3)	14	mg/l	**B**	**bl**
MRC-MW48A	D6919-09	NITROGEN, AMMONIA (AS N)	0.029	mg/l	**B**	**bl**
MRC-MW48A	SW8270D-SIM	1,4-Dioxane	0.49	ug/l	**J-**	**m**
MRC-MW60B	A4500E	Orthophosphate	0.0030	mg/l	**J**	**h**
MRC-MW60B	D6919-09	NITROGEN, AMMONIA (AS N)	0.158	mg/l	**B**	**bl**
MRC-MW72B	A2320	ALKALINITY, TOTAL (AS CACO3)	8	mg/l	**B**	**bl**
MRC-MW72B	SW6020	Chromium	0.0020	mg/l	**B**	**be**
MRC-MW73A	SW6020	Chromium	0.0012	mg/l	**B**	**be**
MRC-MW73A	SW6020	ZINC	0.015	mg/l	**B**	**be**
MRC-MW73B	SW6020	Chromium	0.00091	mg/l	**B**	**be**
MRC-MW74A	SW6020	Chromium	0.0012	mg/l	**B**	**be**
MRC-MW74A	SW6020	ZINC	0.012	mg/l	**B**	**be**
MRC-MW74B	SW6020	Chromium	0.0013	mg/l	**B**	**be**
MRC-MW81A	SW6020	ZINC	0.016	mg/l	**B**	**bl**
MRC-MW98B	SW8260B	1,2-Dichloroethylene (total)	23.7	ug/l	**J**	**fd**
MRC-MW98B	SW8260B	cis-1,2-Dichloroethene	23.7	ug/l	**J**	**fd**
MRC-MW98B-DUP	SW8260B	1,2-Dichloroethylene (total)	36.3	ug/l	**J**	**fd**
MRC-MW98B-DUP	SW8260B	cis-1,2-Dichloroethene	36.3	ug/l	**J**	**fd**
2308120 017	E680	Decachlorobiphenyl	0.012	ug/l	**UJ**	**h**
2308120 017	E680	Dichlorobiphenyls, Total	0.0070	ug/l	**B**	**be**
2308120 017	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**h**
2308120 017	E680	Hexachlorobiphenyls, Total	0.0047	ug/l	**UJ**	**h**
2308120 017	E680	Monochlorobiphenyls, Total	0.019	ug/l	**B**	**be**
2308120 017	E680	Nonachlorobiphenyls, Total	0.0088	ug/l	**UJ**	**h**
2308120 017	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**h**
2308120 017	E680	Pentachlorobiphenyls, Total	0.0043	ug/l	**UJ**	**h**
2308120 017	E680	Tetrachlorobiphenyls, Total	0.0023	ug/l	**UJ**	**h**
2308120 017	E680	Total Polychlorinated biphenyls (PCBs)	0.026	ug/l	**J**	**h**
2308120 017	E680	Trichlorobiphenyls, Total	0.0022	ug/l	**UJ**	**h**
2308120 023	E680	Dichlorobiphenyls, Total	0.0050	ug/l	**B**	**be**
2308120 023	E680	Monochlorobiphenyls, Total	0.0035	ug/l	**B**	**be**
2308120 026	E680	Dichlorobiphenyls, Total	0.016	ug/l	**B**	**be**
2308120 026	E680	Monochlorobiphenyls, Total	0.017	ug/l	**B**	**be**
2308120 031	E680	Dichlorobiphenyls, Total	0.031	ug/l	**B**	**be**
2308120 031	E680	Trichlorobiphenyls, Total	0.019	ug/l	**B**	**be**
2308280 001	E680	Decachlorobiphenyl	0.012	ug/l	**UJ**	**h**

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
2308280 001	E680	Dichlorobiphenyls, Total	0.010	ug/l	**J**	**h**
2308280 001	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**h**
2308280 001	E680	Hexachlorobiphenyls, Total	0.0047	ug/l	**UJ**	**h**
2308280 001	E680	Monochlorobiphenyls, Total	0.0085	ug/l	**J**	**h**
2308280 001	E680	Nonachlorobiphenyls, Total	0.0088	ug/l	**UJ**	**h**
2308280 001	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**h**
2308280 001	E680	Pentachlorobiphenyls, Total	0.0043	ug/l	**UJ**	**h**
2308280 001	E680	Tetrachlorobiphenyls, Total	0.0023	ug/l	**UJ**	**h**
2308280 001	E680	Total Polychlorinated biphenyls (PCBs)	0.025	ug/l	**UJ**	**h**
2308280 001	E680	Trichlorobiphenyls, Total	0.0022	ug/l	**UJ**	**h**
2308280 019	E680	Decachlorobiphenyl	0.012	ug/l	**UJ**	**h**
2308280 019	E680	Dichlorobiphenyls, Total	0.0065	ug/l	**J**	**h**
2308280 019	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**h**
2308280 019	E680	Hexachlorobiphenyls, Total	0.0047	ug/l	**UJ**	**h**
2308280 019	E680	Monochlorobiphenyls, Total	0.0050	ug/l	**J**	**h**
2308280 019	E680	Nonachlorobiphenyls, Total	0.0088	ug/l	**UJ**	**h**
2308280 019	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**h**
2308280 019	E680	Pentachlorobiphenyls, Total	0.0043	ug/l	**UJ**	**h**
2308280 019	E680	Tetrachlorobiphenyls, Total	0.0023	ug/l	**UJ**	**h**
2308280 019	E680	Total Polychlorinated biphenyls (PCBs)	0.025	ug/l	**UJ**	**h**
2308280 019	E680	Trichlorobiphenyls, Total	0.0022	ug/l	**UJ**	**h**
2308280 021	E680	Decachlorobiphenyl	0.012	ug/l	**UJ**	**h**
2308280 021	E680	Dichlorobiphenyls, Total	0.0016	ug/l	**UJ**	**h**
2308280 021	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**h**
2308280 021	E680	Hexachlorobiphenyls, Total	0.0047	ug/l	**UJ**	**h**
2308280 021	E680	Monochlorobiphenyls, Total	0.0020	ug/l	**J**	**h**
2308280 021	E680	Nonachlorobiphenyls, Total	0.0088	ug/l	**UJ**	**h**
2308280 021	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**h**
2308280 021	E680	Pentachlorobiphenyls, Total	0.0043	ug/l	**UJ**	**h**
2308280 021	E680	Tetrachlorobiphenyls, Total	0.0023	ug/l	**UJ**	**h**
2308280 021	E680	Total Polychlorinated biphenyls (PCBs)	0.025	ug/l	**UJ**	**h**
2308280 021	E680	Trichlorobiphenyls, Total	0.0022	ug/l	**UJ**	**h**
2308629 001	E680	Dichlorobiphenyls, Total	0.0080	ug/l	**B**	**be**
2308629 001	E680	Monochlorobiphenyls, Total	0.011	ug/l	**B**	**be**
2308629 002	E680	Dichlorobiphenyls, Total	0.0040	ug/l	**B**	**be**
2308629 002	E680	Monochlorobiphenyls, Total	0.010	ug/l	**B**	**be**
2308629 004	E680	Monochlorobiphenyls, Total	0.011	ug/l	**B**	**be**
2308943 001	E680	Dichlorobiphenyls, Total	0.0050	ug/l	**B**	**be**
2308943 001	E680	Monochlorobiphenyls, Total	0.0040	ug/l	**B**	**be**

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
2308943 004	E680	Dichlorobiphenyls, Total	0.026	ug/l	**B**	**be**
2308943 016	E680	Dichlorobiphenyls, Total	0.0020	ug/l	**B**	**be**
2308943 028	E680	Trichlorobiphenyls, Total	0.0065	ug/l	**B**	**be**
2308943 029	E680	Dichlorobiphenyls, Total	0.0038	ug/l	**B**	**be**
2308943 029	E680	Trichlorobiphenyls, Total	0.013	ug/l	**B**	**be**
2308943 030	E680	Dichlorobiphenyls, Total	0.0020	ug/l	**B**	**be**
2308943 031	E680	Dichlorobiphenyls, Total	0.0024	ug/l	**B**	**be**
2308943 032	E680	Dichlorobiphenyls, Total	0.0020	ug/l	**B**	**be**
2308943 034	E680	Dichlorobiphenyls, Total	0.0019	ug/l	**B**	**be**
2308943 035	E680	Dichlorobiphenyls, Total	0.0045	ug/l	**B**	**be**
2309395 004	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 004	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 006	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 006	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 007	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 007	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 008	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 008	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 009	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 009	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 011	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 011	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 012	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 012	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 013	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 013	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 014	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 014	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 016	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 016	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 017	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 017	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 018	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 018	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 020	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 020	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 021	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 021	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
2309395 023	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	**UJ**	**l**
2309395 023	E680	Octachlorobiphenyls, Total	0.0099	ug/l	**UJ**	**l**
MRC-SW17A	SW8260B	Acetone	11.2	ug/l	B	bf

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
MRC-SW2A	SW8260B	Acetone	13.6	ug/l	B	bf
MRC-SW1A	SW8260B	Acetone	13.2	ug/l	B	bf
MRC-SW9A	SW8260B	Acetone	12.8	ug/l	B	bf
MRC-SW5B	SW8260B	Acetone	8.3	ug/l	B	bf
MRC-SW7A	SW8260B	Acetone	4.5	ug/l	B	bf
MRC-SW7B	SW8260B	Acetone	13.4	ug/l	B	bf
MRC-SW5A1	SW8260B	Acetone	5.0	ug/l	B	bf
MRC-SW9B	SW8260B	Acetone	5.5	ug/l	B	bf
MRC-SW15A	SW8260B	Acetone	5.5	ug/l	B	bf
MRC-SW16A	SW8260B	Acetone	9.0	ug/l	B	bf
MRC-SW13A	SW8260B	Acetone	8.1	ug/l	B	bf
MRC-SW6B	SW8260B	Acetone	7.8	ug/l	B	bf
MRC-SW8B	SW8260B	Acetone	12.6	ug/l	B	bf
MRC-SW8A-D	SW8260B	Acetone	8.3	ug/l	B	bf
MRC-SW6A	SW8260B	Acetone	11.4	ug/l	B	bf
MRC-SW8A	SW8260B	Acetone	8.0	ug/l	B	bf
2309395 004	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 004	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 006	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 006	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 007	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 007	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 008	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 008	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 009	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 009	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 011	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 011	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 012	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 012	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 013	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 013	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 014	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 014	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 016	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 016	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 017	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 017	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 018	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 018	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 020	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
2309395 020	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 021	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 021	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2309395 023	E680	Heptachlorobiphenyls, Total	0.0090	ug/l	UJ	l
2309395 023	E680	Octachlorobiphenyls, Total	0.0099	ug/l	UJ	l
2308120 017	E680	Decachlorobiphenyl		ug/l	UJ	h
2308120 017	E680	Dichlorobiphenyls, Total	0.0070	ug/l	B	be
2308120 017	E680	Heptachlorobiphenyls, Total		ug/l	UJ	h
2308120 017	E680	Hexachlorobiphenyls, Total		ug/l	UJ	h
2308120 017	E680	Monochlorobiphenyls, Total	0.019	ug/l	B	be
2308120 017	E680	Nonachlorobiphenyls, Total		ug/l	UJ	h
2308120 017	E680	Octachlorobiphenyls, Total		ug/l	UJ	h
2308120 017	E680	Pentachlorobiphenyls, Total		ug/l	UJ	h
2308120 017	E680	Tetrachlorobiphenyls, Total		ug/l	UJ	h
2308120 017	E680	Total Polychlorinated biphenyls (PCBs)	0.026	ug/l	J	h
2308120 017	E680	Trichlorobiphenyls, Total		ug/l	UJ	h
2308120 023	E680	Dichlorobiphenyls, Total	0.0050	ug/l	B	be
2308120 023	E680	Monochlorobiphenyls, Total	0.0035	ug/l	B	be
2308120 026	E680	Dichlorobiphenyls, Total	0.016	ug/l	B	be
2308120 026	E680	Monochlorobiphenyls, Total	0.017	ug/l	B	be
2308120 031	E680	Dichlorobiphenyls, Total	0.031	ug/l	B	be
2308120 031	E680	Trichlorobiphenyls, Total	0.019	ug/l	B	be
2308280 001	E680	Decachlorobiphenyl		ug/l	UJ	h
2308280 001	E680	Dichlorobiphenyls, Total	0.010	ug/l	J	h
2308280 001	E680	Heptachlorobiphenyls, Total		ug/l	UJ	h
2308280 001	E680	Hexachlorobiphenyls, Total		ug/l	UJ	h
2308280 001	E680	Monochlorobiphenyls, Total	0.0085	ug/l	J	h
2308280 001	E680	Nonachlorobiphenyls, Total		ug/l	UJ	h
2308280 001	E680	Octachlorobiphenyls, Total		ug/l	UJ	h
2308280 001	E680	Pentachlorobiphenyls, Total		ug/l	UJ	h
2308280 001	E680	Tetrachlorobiphenyls, Total		ug/l	UJ	h
2308280 001	E680	Total Polychlorinated biphenyls (PCBs)		ug/l	UJ	h
2308280 001	E680	Trichlorobiphenyls, Total		ug/l	UJ	h
2308280 019	E680	Decachlorobiphenyl		ug/l	UJ	h
2308280 019	E680	Dichlorobiphenyls, Total	0.0065	ug/l	J	h
2308280 019	E680	Heptachlorobiphenyls, Total		ug/l	UJ	h
2308280 019	E680	Hexachlorobiphenyls, Total		ug/l	UJ	h
2308280 019	E680	Monochlorobiphenyls, Total	0.0050	ug/l	J	h
2308280 019	E680	Nonachlorobiphenyls, Total		ug/l	UJ	h
2308280 019	E680	Octachlorobiphenyls, Total		ug/l	UJ	h

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
2308280 019	E680	Pentachlorobiphenyls, Total		ug/l	UJ	h
2308280 019	E680	Tetrachlorobiphenyls, Total		ug/l	UJ	h
2308280 019	E680	Total Polychlorinated biphenyls (PCBs)		ug/l	UJ	h
2308280 019	E680	Trichlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Decachlorobiphenyl		ug/l	UJ	h
2308280 021	E680	Dichlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Heptachlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Hexachlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Monochlorobiphenyls, Total	0.0020	ug/l	J	h
2308280 021	E680	Nonachlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Octachlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Pentachlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Tetrachlorobiphenyls, Total		ug/l	UJ	h
2308280 021	E680	Total Polychlorinated biphenyls (PCBs)		ug/l	UJ	h
2308280 021	E680	Trichlorobiphenyls, Total		ug/l	UJ	h
MRC-MW121A	SW8260B	1,2,3-Trichlorobenzene		ug/l	UJ	l
MRC-MW121B	SW8260B	1,2,3-Trichlorobenzene		ug/l	UJ	l
MRC-MW123A	SW6020	BERYLLIUM	0.0013	mg/l	B	bl
MRC-MW123A	SW6020	Chromium	0.0014	mg/l	B	bl
MRC-MW123A	SW8260B	1,2,3-Trichlorobenzene	98.7	ug/l	J	l
MRC-MW14B	SW8260B	1,2,3-Trichlorobenzene		ug/l	UJ	l
MRC-MW14B	SW8260B	1,2,4-Trichlorobenzene		ug/l	UJ	l
MRC-MW14B	SW8260B	Acetone	7.2	ug/l	B	bf
MRC-MW48A	SW8260B	1,2,3-Trichlorobenzene		ug/l	UJ	l
MRC-MW48A	SW8270D-SIM	1,4-Dioxane	0.49	ug/l	J-	m
MRC-MW71B	SW8260B	1,2,3-Trichlorobenzene		ug/l	UJ	l
MRC-SW13A	SW8260B	Acetone	8.1	ug/l	B	bf
MRC-SW15A	SW8260B	Acetone	5.5	ug/l	B	bf
MRC-SW16A	SW8260B	Acetone	9.0	ug/l	B	bf
MRC-SW17A	SW8260B	Acetone	11.2	ug/l	B	bf
MRC-SW1A	SW8260B	Acetone	13.2	ug/l	B	bf
MRC-SW2A	SW8260B	Acetone	13.6	ug/l	B	bf
MRC-SW5A1	SW8260B	Acetone	5.0	ug/l	B	bf
MRC-SW5B	SW8260B	Acetone	8.3	ug/l	B	bf
MRC-SW6A	SW8260B	Acetone	11.4	ug/l	B	bf
MRC-SW6B	SW8260B	Acetone	7.8	ug/l	B	bf
MRC-SW7A	SW8260B	Acetone	4.5	ug/l	B	bf
MRC-SW7B	SW8260B	Acetone	13.4	ug/l	B	bf
MRC-SW8A	SW8260B	Acetone	8.0	ug/l	B	bf
MRC-SW8A-D	SW8260B	Acetone	8.3	ug/l	B	bf

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
MRC-SW8B	SW8260B	Acetone	12.6	ug/l	B	bf
MRC-SW9A	SW8260B	Acetone	12.8	ug/l	B	bf
MRC-SW9B	SW8260B	Acetone	5.5	ug/l	B	bf

Appendix A
Data Validation Qualifiers and Reason Codes

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (August 2014) Data Review and the USEPA Region III Guidelines for Organic (September 1994) for blank qualifications only.

Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
B	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J+	Reported value may not be accurate or precise, but the result may be biased high.
J-	Reported value may not be accurate or precise, but the result may be biased low.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD).
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by AECOM is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

Code	*Description*
a	Tracer recovery (radiochemical data only)
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
bm	Missing Blank Information
c	Calibration issue
cl	Clean-up standard recovery
cp	Insufficient in growth (radiochemical data only)
cr	Chromatographic resolution
d	Reporting limit raised due to chromatographic interference
e	Ether interference
fd	Field duplicate RPDs
g	Chromatographic pattern match issue
h	Holding times
i	Internal standard areas
ii	Injection internal standard area or retention time exceedance
k	Estimated Maximum Possible Concentrations
l	LCS recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs (matrix duplicate, MSD, LCSD)
m	Matrix spike recovery
nb	Negative laboratory blank contamination
p	Chemical preservation issue
pe	Post Extraction Spike
q	Quantitation issue
r	Dual column RPD
rp	Re-extraction precision issue [PAHs only]

APPENDIX C
Laboratory Analytical Reports

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 460157 , WV 343

May 1, 2018

Ms. Holly Brown
AECOM (fka URS) - Germantown MD
12420 Milestone Center Drive
Suite 150
Germantown, MD 20876

Certificate of Analysis

Project Name:	**2018-MIDDLE RIVER COMPLEX**	Workorder:	**2309395**
Purchase Order:	**95840ACM**	Workorder ID:	**LMC MRC 4/17/18**

Dear Ms. Brown:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, April 17, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

CC: Mr. Ravi Damera , Ms. Victoria Kirkpatrick , Mr. Naoum Tavantzis

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ALS Environmental

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SAMPLE SUMMARY

Workorder: 2309395 LMC MRC 4/17/18

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2309395001	MRC-SW17A	Water	4/16/2018 15:07	4/17/2018 22:00	Collected by Client
2309395002	MRC-SW2A	Water	4/16/2018 16:38	4/17/2018 22:00	Collected by Client
2309395003	MRC-SW1A	Water	4/16/2018 16:20	4/17/2018 22:00	Collected by Client
2309395004	MRC-SW9A	Water	4/17/2018 08:42	4/17/2018 22:00	Collected by Client
2309395005	TB-041718-1	Water	4/17/2018 22:00	4/17/2018 22:00	Collected by Client
2309395006	MRC-SW5A2	Water	4/17/2018 09:24	4/17/2018 22:00	Collected by Client
2309395007	MRC-SW5B	Water	4/17/2018 09:40	4/17/2018 22:00	Collected by Client
2309395008	MRC-SW7A	Water	4/17/2018 08:04	4/17/2018 22:00	Collected by Client
2309395009	MRC-SW7B	Water	4/17/2018 08:37	4/17/2018 22:00	Collected by Client
2309395010	TB-041718-2	Water	4/17/2018 22:00	4/17/2018 22:00	Collected by Client
2309395011	MRC-SW5A1	Water	4/17/2018 09:12	4/17/2018 22:00	Collected by Client
2309395012	MRC-SW9B	Water	4/17/2018 08:06	4/17/2018 22:00	Collected by Client
2309395013	MRC-SW15A	Water	4/17/2018 11:40	4/17/2018 22:00	Collected by Client
2309395014	MRC-SW16A	Water	4/17/2018 11:20	4/17/2018 22:00	Collected by Client
2309395015	TB-041718-3	Water	4/17/2018 22:00	4/17/2018 22:00	Collected by Client
2309395016	MRC-SW13A	Water	4/17/2018 11:44	4/17/2018 22:00	Collected by Client
2309395017	MRC-SW6B	Water	4/17/2018 10:51	4/17/2018 22:00	Collected by Client
2309395018	MRC-SW8B	Water	4/17/2018 11:04	4/17/2018 22:00	Collected by Client
2309395019	TB-041718-4	Water	4/17/2018 22:00	4/17/2018 22:00	Collected by Client
2309395020	MRC-SW8A-D	Water	4/17/2018 10:30	4/17/2018 22:00	Collected by Client
2309395021	MRC-SW6A	Water	4/17/2018 10:02	4/17/2018 22:00	Collected by Client
2309395022	TB-041718-5	Water	4/17/2018 22:00	4/17/2018 22:00	Collected by Client
2309395023	MRC-SW8A	Water	4/17/2018 10:16	4/17/2018 22:00	Collected by Client
2309395024	DM-1-4	Water	4/17/2018 13:20	4/17/2018 22:00	Collected by Client
2309395025	DM-5-8	Water	4/17/2018 13:35	4/17/2018 22:00	Collected by Client

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SAMPLE SUMMARY

Workorder: 2309395 LMC MRC 4/17/18

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”.
-- For microbiological analyses, the "Prepared" value is the date/time into the incurbator and the "Analyzed" value is the date/time out the incubator.

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
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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PROJECT SUMMARY

Workorder: 2309395 LMC MRC 4/17/18

Workorder Comments

Please see attached subcontracting report from ALS Rochester. VNB 4/30/18

Sample Comments

Lab ID: 2309395024 **Sample ID:** DM-1-4 **Sample Type:** SAMPLE

The percent dry solid per the EPA leaching procedure was less than 0.5%. The sample was filtered to form the leachate.

Lab ID: 2309395025 **Sample ID:** DM-5-8 **Sample Type:** SAMPLE

The percent dry solid per the EPA leaching procedure was less than 0.5%. The sample was filtered to form the leachate.

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395001** Date Collected: 4/16/2018 15:07 Matrix: Water

Sample ID: **MRC-SW17A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 22:29	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 22:29	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 22:29	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 22:29	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 22:29	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 22:29	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 22:29	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 22:29	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 22:29	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 22:29	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 22:29	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 22:29	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 22:29	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 22:29	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 22:29	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 22:29	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 22:29	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 22:29	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 22:29	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 22:29	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 22:29	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 22:29	CJG	B
Acetone	11.2		ug/L	10.0	3.1	SW846 8260B		4/24/18 22:29	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 22:29	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 22:29	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 22:29	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 22:29	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 22:29	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:29	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 22:29	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 22:29	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395001** Date Collected: 4/16/2018 15:07 Matrix: Water

Sample ID: **MRC-SW17A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 22:29	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:29	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 22:29	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:29	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 22:29	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 22:29	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 22:29	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 22:29	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 22:29	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 22:29	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 22:29	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 22:29	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 22:29	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 22:29	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 22:29	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 22:29	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 22:29	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 22:29	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 22:29	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 22:29	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:29	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 22:29	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 22:29	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 22:29	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:29	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:29	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:29	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 22:29	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 22:29	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 22:29	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395001** Date Collected: 4/16/2018 15:07 Matrix: Water

Sample ID: **MRC-SW17A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 22:29	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 22:29	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	118		%	62 - 133		SW846 8260B			4/24/18 22:29	CJG	B
4-Bromofluorobenzene (S)	93.6		%	79 - 114		SW846 8260B			4/24/18 22:29	CJG	B
Dibromofluoromethane (S)	98.6		%	78 - 116		SW846 8260B			4/24/18 22:29	CJG	B
Toluene-d8 (S)	98.1		%	76 - 127		SW846 8260B			4/24/18 22:29	CJG	B
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.094	0.018	8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	83.2		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C
Fluoranthene-d10 (S)	118		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/23/18 22:31	GEC	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395002** Date Collected: 4/16/2018 16:38 Matrix: Water

Sample ID: **MRC-SW2A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 22:52	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 22:52	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 22:52	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 22:52	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 22:52	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 22:52	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 22:52	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 22:52	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 22:52	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 22:52	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 22:52	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 22:52	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 22:52	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 22:52	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 22:52	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 22:52	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 22:52	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 22:52	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 22:52	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 22:52	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 22:52	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 22:52	CJG	B
Acetone	13.6		ug/L	10.0	3.1	SW846 8260B		4/24/18 22:52	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 22:52	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 22:52	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 22:52	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 22:52	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 22:52	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:52	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 22:52	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 22:52	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395002** Date Collected: 4/16/2018 16:38 Matrix: Water

Sample ID: **MRC-SW2A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 22:52	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:52	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 22:52	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:52	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 22:52	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 22:52	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 22:52	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 22:52	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 22:52	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 22:52	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 22:52	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 22:52	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 22:52	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 22:52	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 22:52	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 22:52	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 22:52	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 22:52	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 22:52	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 22:52	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:52	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 22:52	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 22:52	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 22:52	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 22:52	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 22:52	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 22:52	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 22:52	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 22:52	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 22:52	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395002** Date Collected: 4/16/2018 16:38 Matrix: Water

Sample ID: **MRC-SW2A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 22:52	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 22:52	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	116		%	62 - 133		SW846 8260B			4/24/18 22:52	CJG	B
4-Bromofluorobenzene (S)	94.5		%	79 - 114		SW846 8260B			4/24/18 22:52	CJG	B
Dibromofluoromethane (S)	96.6		%	78 - 116		SW846 8260B			4/24/18 22:52	CJG	B
Toluene-d8 (S)	96.6		%	76 - 127		SW846 8260B			4/24/18 22:52	CJG	B
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.093	0.018	8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	66.4		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C
Fluoranthene-d10 (S)	124		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/23/18 23:25	GEC	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395003** Date Collected: 4/16/2018 16:20 Matrix: Water

Sample ID: **MRC-SW1A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 23:15	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 23:15	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 23:15	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 23:15	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 23:15	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 23:15	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 23:15	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 23:15	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 23:15	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 23:15	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 23:15	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 23:15	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 23:15	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 23:15	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 23:15	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 23:15	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 23:15	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 23:15	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 23:15	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 23:15	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 23:15	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 23:15	CJG	B
Acetone	13.2		ug/L	10.0	3.1	SW846 8260B		4/24/18 23:15	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 23:15	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 23:15	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 23:15	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 23:15	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 23:15	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:15	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 23:15	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 23:15	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395003** Date Collected: 4/16/2018 16:20 Matrix: Water

Sample ID: **MRC-SW1A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 23:15	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:15	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 23:15	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:15	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 23:15	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 23:15	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 23:15	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 23:15	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 23:15	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 23:15	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 23:15	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 23:15	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 23:15	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 23:15	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 23:15	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 23:15	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 23:15	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 23:15	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 23:15	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 23:15	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:15	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 23:15	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 23:15	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 23:15	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:15	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:15	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:15	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 23:15	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 23:15	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 23:15	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395003** Date Collected: 4/16/2018 16:20 Matrix: Water

Sample ID: **MRC-SW1A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 23:15	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 23:15	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	62 - 133		SW846 8260B			4/24/18 23:15	CJG	B
4-Bromofluorobenzene (S)	93.3		%	79 - 114		SW846 8260B			4/24/18 23:15	CJG	B
Dibromofluoromethane (S)	94.7		%	78 - 116		SW846 8260B			4/24/18 23:15	CJG	B
Toluene-d8 (S)	95.5		%	76 - 127		SW846 8260B			4/24/18 23:15	CJG	B
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.099	0.019	8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	86.2		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C
Fluoranthene-d10 (S)	113		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/23/18 22:58	GEC	C

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395004** Date Collected: 4/17/2018 08:42 Matrix: Water

Sample ID: **MRC-SW9A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 23:37	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 23:37	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 23:37	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 23:37	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 23:37	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 23:37	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 23:37	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 23:37	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 23:37	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 23:37	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 23:37	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 23:37	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 23:37	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 23:37	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 23:37	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 23:37	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 23:37	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 23:37	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 23:37	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 23:37	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 23:37	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 23:37	CJG	B
Acetone	12.8		ug/L	10.0	3.1	SW846 8260B		4/24/18 23:37	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 23:37	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 23:37	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 23:37	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 23:37	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 23:37	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:37	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 23:37	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 23:37	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395004** Date Collected: 4/17/2018 08:42 Matrix: Water

Sample ID: **MRC-SW9A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 23:37	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:37	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 23:37	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:37	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 23:37	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 23:37	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 23:37	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 23:37	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 23:37	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 23:37	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 23:37	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 23:37	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 23:37	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 23:37	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 23:37	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 23:37	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 23:37	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 23:37	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 23:37	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 23:37	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:37	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 23:37	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 23:37	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 23:37	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 23:37	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 23:37	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 23:37	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 23:37	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 23:37	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 23:37	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395004** Date Collected: 4/17/2018 08:42 Matrix: Water

Sample ID: **MRC-SW9A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 23:37	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 23:37	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	117		%	62 - 133		SW846 8260B			4/24/18 23:37	CJG	B
4-Bromofluorobenzene (S)	92.5		%	79 - 114		SW846 8260B			4/24/18 23:37	CJG	B
Dibromofluoromethane (S)	97.2		%	78 - 116		SW846 8260B			4/24/18 23:37	CJG	B
Toluene-d8 (S)	95.7		%	76 - 127		SW846 8260B			4/24/18 23:37	CJG	B
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/26/18 23:08	SUB	C

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395005** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-1** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 00:00	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 00:00	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 00:00	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 00:00	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 00:00	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/25/18 00:00	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 00:00	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/25/18 00:00	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:00	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/25/18 00:00	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 00:00	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/25/18 00:00	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/25/18 00:00	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:00	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:00	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:00	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/25/18 00:00	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:00	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/25/18 00:00	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/25/18 00:00	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/25/18 00:00	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/25/18 00:00	CJG	B
Acetone	13.0		ug/L	10.0	3.1	SW846 8260B		4/25/18 00:00	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:00	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:00	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/25/18 00:00	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/25/18 00:00	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:00	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:00	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 00:00	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 00:00	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395005** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-1** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/25/18 00:00	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:00	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 00:00	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:00	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:00	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 00:00	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 00:00	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 00:00	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/25/18 00:00	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 00:00	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 00:00	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 00:00	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/25/18 00:00	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:00	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 00:00	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:00	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/25/18 00:00	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:00	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/25/18 00:00	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 00:00	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:00	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/25/18 00:00	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 00:00	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 00:00	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:00	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:00	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:00	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/25/18 00:00	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/25/18 00:00	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/25/18 00:00	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395005** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-1** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/25/18 00:00	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/25/18 00:00	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	117		%	62 - 133		SW846 8260B			4/25/18 00:00	CJG	B
4-Bromofluorobenzene (S)	93.2		%	79 - 114		SW846 8260B			4/25/18 00:00	CJG	B
Dibromofluoromethane (S)	98.4		%	78 - 116		SW846 8260B			4/25/18 00:00	CJG	B
Toluene-d8 (S)	94.1		%	76 - 127		SW846 8260B			4/25/18 00:00	CJG	B

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395006** Date Collected: 4/17/2018 09:24 Matrix: Water

Sample ID: **MRC-SW5A2** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 00:23	CJG	
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 00:23	CJG	
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 00:23	CJG	
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 00:23	CJG	
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 00:23	CJG	
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/25/18 00:23	CJG	
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 00:23	CJG	
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/25/18 00:23	CJG	
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:23	CJG	
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/25/18 00:23	CJG	
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 00:23	CJG	
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/25/18 00:23	CJG	
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/25/18 00:23	CJG	
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:23	CJG	
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:23	CJG	
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:23	CJG	
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/25/18 00:23	CJG	
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:23	CJG	
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/25/18 00:23	CJG	
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/25/18 00:23	CJG	
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/25/18 00:23	CJG	
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/25/18 00:23	CJG	
Acetone	ND		ug/L	10.0	3.1	SW846 8260B		4/25/18 00:23	CJG	
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:23	CJG	
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:23	CJG	
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/25/18 00:23	CJG	
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/25/18 00:23	CJG	
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:23	CJG	
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:23	CJG	
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 00:23	CJG	
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 00:23	CJG	

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395006** Date Collected: 4/17/2018 09:24 Matrix: Water

Sample ID: **MRC-SW5A2** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/25/18 00:23	CJG	
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:23	CJG	
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 00:23	CJG	
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:23	CJG	
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:23	CJG	
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 00:23	CJG	
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 00:23	CJG	
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 00:23	CJG	
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/25/18 00:23	CJG	
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 00:23	CJG	
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 00:23	CJG	
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 00:23	CJG	
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/25/18 00:23	CJG	
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:23	CJG	
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 00:23	CJG	
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:23	CJG	
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/25/18 00:23	CJG	
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:23	CJG	
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/25/18 00:23	CJG	
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 00:23	CJG	
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:23	CJG	
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/25/18 00:23	CJG	
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 00:23	CJG	
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 00:23	CJG	
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:23	CJG	
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:23	CJG	
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:23	CJG	
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/25/18 00:23	CJG	
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/25/18 00:23	CJG	
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/25/18 00:23	CJG	

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395006** Date Collected: 4/17/2018 09:24 Matrix: Water

Sample ID: **MRC-SW5A2** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/25/18 00:23	CJG	
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/25/18 00:23	CJG	
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	118		%	62 - 133		SW846 8260B			4/25/18 00:23	CJG	
4-Bromofluorobenzene (S)	95		%	79 - 114		SW846 8260B			4/25/18 00:23	CJG	
Dibromofluoromethane (S)	98.8		%	78 - 116		SW846 8260B			4/25/18 00:23	CJG	
Toluene-d8 (S)	98		%	76 - 127		SW846 8260B			4/25/18 00:23	CJG	
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/30/18 11:06	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395007** Date Collected: 4/17/2018 09:40 Matrix: Water

Sample ID: **MRC-SW5B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 00:46	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 00:46	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 00:46	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 00:46	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 00:46	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/25/18 00:46	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 00:46	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/25/18 00:46	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:46	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/25/18 00:46	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 00:46	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/25/18 00:46	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/25/18 00:46	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:46	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:46	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:46	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/25/18 00:46	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:46	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/25/18 00:46	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/25/18 00:46	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/25/18 00:46	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/25/18 00:46	CJG	B
Acetone	8.3J	J	ug/L	10.0	3.1	SW846 8260B		4/25/18 00:46	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:46	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 00:46	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/25/18 00:46	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/25/18 00:46	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:46	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:46	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 00:46	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 00:46	CJG	B

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395007** Date Collected: 4/17/2018 09:40 Matrix: Water

Sample ID: **MRC-SW5B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/25/18 00:46	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:46	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 00:46	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:46	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 00:46	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 00:46	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 00:46	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 00:46	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/25/18 00:46	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 00:46	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 00:46	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 00:46	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/25/18 00:46	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:46	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 00:46	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 00:46	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/25/18 00:46	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 00:46	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/25/18 00:46	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 00:46	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:46	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/25/18 00:46	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 00:46	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 00:46	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 00:46	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 00:46	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 00:46	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/25/18 00:46	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/25/18 00:46	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/25/18 00:46	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395007** Date Collected: 4/17/2018 09:40 Matrix: Water

Sample ID: **MRC-SW5B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/25/18 00:46	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/25/18 00:46	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	115		%	62 - 133		SW846 8260B			4/25/18 00:46	CJG	B
4-Bromofluorobenzene (S)	92		%	79 - 114		SW846 8260B			4/25/18 00:46	CJG	B
Dibromofluoromethane (S)	96		%	78 - 116		SW846 8260B			4/25/18 00:46	CJG	B
Toluene-d8 (S)	95.3		%	76 - 127		SW846 8260B			4/25/18 00:46	CJG	B
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 00:06	SUB	E

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395008** Date Collected: 4/17/2018 08:04 Matrix: Water

Sample ID: **MRC-SW7A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 01:09	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 01:09	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 01:09	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 01:09	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 01:09	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/25/18 01:09	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 01:09	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/25/18 01:09	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 01:09	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/25/18 01:09	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 01:09	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/25/18 01:09	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/25/18 01:09	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 01:09	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 01:09	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 01:09	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/25/18 01:09	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 01:09	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/25/18 01:09	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/25/18 01:09	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/25/18 01:09	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/25/18 01:09	CJG	B
Acetone	4.5J	J	ug/L	10.0	3.1	SW846 8260B		4/25/18 01:09	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 01:09	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 01:09	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/25/18 01:09	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/25/18 01:09	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 01:09	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:09	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 01:09	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 01:09	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395008** Date Collected: 4/17/2018 08:04 Matrix: Water

Sample ID: **MRC-SW7A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/25/18 01:09	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:09	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 01:09	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:09	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 01:09	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 01:09	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 01:09	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 01:09	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/25/18 01:09	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 01:09	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 01:09	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 01:09	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/25/18 01:09	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 01:09	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 01:09	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 01:09	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/25/18 01:09	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 01:09	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/25/18 01:09	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 01:09	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:09	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/25/18 01:09	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 01:09	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 01:09	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:09	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:09	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:09	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/25/18 01:09	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/25/18 01:09	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/25/18 01:09	CJG	B

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395008** Date Collected: 4/17/2018 08:04 Matrix: Water

Sample ID: **MRC-SW7A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/25/18 01:09	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/25/18 01:09	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	115		%	62 - 133		SW846 8260B			4/25/18 01:09	CJG	B
4-Bromofluorobenzene (S)	92.8		%	79 - 114		SW846 8260B			4/25/18 01:09	CJG	B
Dibromofluoromethane (S)	97.5		%	78 - 116		SW846 8260B			4/25/18 01:09	CJG	B
Toluene-d8 (S)	95.3		%	76 - 127		SW846 8260B			4/25/18 01:09	CJG	B
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 00:35	SUB	C

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395009** Date Collected: 4/17/2018 08:37 Matrix: Water

Sample ID: **MRC-SW7B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 01:32	CJG	B
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 01:32	CJG	B
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 01:32	CJG	B
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 01:32	CJG	B
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 01:32	CJG	B
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/25/18 01:32	CJG	B
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 01:32	CJG	B
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/25/18 01:32	CJG	B
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 01:32	CJG	B
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/25/18 01:32	CJG	B
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/25/18 01:32	CJG	B
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/25/18 01:32	CJG	B
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/25/18 01:32	CJG	B
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 01:32	CJG	B
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 01:32	CJG	B
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 01:32	CJG	B
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/25/18 01:32	CJG	B
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 01:32	CJG	B
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/25/18 01:32	CJG	B
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/25/18 01:32	CJG	B
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/25/18 01:32	CJG	B
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/25/18 01:32	CJG	B
Acetone	13.4		ug/L	10.0	3.1	SW846 8260B		4/25/18 01:32	CJG	B
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 01:32	CJG	B
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/25/18 01:32	CJG	B
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/25/18 01:32	CJG	B
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/25/18 01:32	CJG	B
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 01:32	CJG	B
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:32	CJG	B
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 01:32	CJG	B
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 01:32	CJG	B

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395009** Date Collected: 4/17/2018 08:37 Matrix: Water

Sample ID: **MRC-SW7B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/25/18 01:32	CJG	B
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:32	CJG	B
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/25/18 01:32	CJG	B
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:32	CJG	B
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/25/18 01:32	CJG	B
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/25/18 01:32	CJG	B
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/25/18 01:32	CJG	B
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 01:32	CJG	B
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/25/18 01:32	CJG	B
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/25/18 01:32	CJG	B
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 01:32	CJG	B
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/25/18 01:32	CJG	B
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/25/18 01:32	CJG	B
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 01:32	CJG	B
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/25/18 01:32	CJG	B
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/25/18 01:32	CJG	B
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/25/18 01:32	CJG	B
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/25/18 01:32	CJG	B
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/25/18 01:32	CJG	B
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/25/18 01:32	CJG	B
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:32	CJG	B
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/25/18 01:32	CJG	B
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/25/18 01:32	CJG	B
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/25/18 01:32	CJG	B
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/25/18 01:32	CJG	B
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/25/18 01:32	CJG	B
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/25/18 01:32	CJG	B
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/25/18 01:32	CJG	B
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/25/18 01:32	CJG	B
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/25/18 01:32	CJG	B

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395009** Date Collected: 4/17/2018 08:37 Matrix: Water

Sample ID: **MRC-SW7B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/25/18 01:32	CJG	B
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/25/18 01:32	CJG	B
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	119		%	62 - 133		SW846 8260B			4/25/18 01:32	CJG	B
4-Bromofluorobenzene (S)	93.2		%	79 - 114		SW846 8260B			4/25/18 01:32	CJG	B
Dibromofluoromethane (S)	99.4		%	78 - 116		SW846 8260B			4/25/18 01:32	CJG	B
Toluene-d8 (S)	95.6		%	76 - 127		SW846 8260B			4/25/18 01:32	CJG	B
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 01:03	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395010** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-2** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:38	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:38	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:38	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:38	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:38	DD	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 16:38	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:38	DD	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 16:38	DD	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:38	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 16:38	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:38	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 16:38	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 16:38	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:38	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:38	DD	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:38	DD	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 16:38	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:38	DD	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 16:38	DD	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 16:38	DD	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 16:38	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 16:38	DD	A
Acetone	15.5		ug/L	10.0	3.1	SW846 8260B		4/24/18 16:38	DD	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:38	DD	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:38	DD	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 16:38	DD	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 16:38	DD	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:38	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:38	DD	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:38	DD	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:38	DD	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395010** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-2** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 16:38	DD	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:38	DD	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:38	DD	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:38	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:38	DD	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:38	DD	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:38	DD	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:38	DD	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 16:38	DD	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:38	DD	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:38	DD	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:38	DD	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 16:38	DD	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:38	DD	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:38	DD	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:38	DD	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 16:38	DD	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:38	DD	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 16:38	DD	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:38	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:38	DD	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 16:38	DD	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:38	DD	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:38	DD	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:38	DD	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:38	DD	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:38	DD	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 16:38	DD	A
tert-Butyl Alcohol	2.5J	J	ug/L	10.0	2.2	SW846 8260B		4/24/18 16:38	DD	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 16:38	DD	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395010** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-2** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 16:38	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 16:38	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	92.1		%	62 - 133		SW846 8260B			4/24/18 16:38	DD	A
4-Bromofluorobenzene (S)	98.7		%	79 - 114		SW846 8260B			4/24/18 16:38	DD	A
Dibromofluoromethane (S)	91.6		%	78 - 116		SW846 8260B			4/24/18 16:38	DD	A
Toluene-d8 (S)	82.9		%	76 - 127		SW846 8260B			4/24/18 16:38	DD	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395011** Date Collected: 4/17/2018 09:12 Matrix: Water

Sample ID: **MRC-SW5A1** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 17:43	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 17:43	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 17:43	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 17:43	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 17:43	DD	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 17:43	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 17:43	DD	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 17:43	DD	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:43	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 17:43	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 17:43	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 17:43	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 17:43	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:43	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:43	DD	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:43	DD	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 17:43	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:43	DD	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 17:43	DD	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 17:43	DD	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 17:43	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 17:43	DD	A
Acetone	5.0J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 17:43	DD	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:43	DD	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:43	DD	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 17:43	DD	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 17:43	DD	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:43	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:43	DD	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 17:43	DD	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 17:43	DD	A

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395011** Date Collected: 4/17/2018 09:12 Matrix: Water

Sample ID: **MRC-SW5A1** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 17:43	DD	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:43	DD	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 17:43	DD	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:43	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:43	DD	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 17:43	DD	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 17:43	DD	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 17:43	DD	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 17:43	DD	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 17:43	DD	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 17:43	DD	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 17:43	DD	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 17:43	DD	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:43	DD	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 17:43	DD	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:43	DD	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 17:43	DD	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:43	DD	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 17:43	DD	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 17:43	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:43	DD	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 17:43	DD	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 17:43	DD	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 17:43	DD	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:43	DD	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:43	DD	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:43	DD	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 17:43	DD	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 17:43	DD	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 17:43	DD	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395011** Date Collected: 4/17/2018 09:12 Matrix: Water

Sample ID: **MRC-SW5A1** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 17:43	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 17:43	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	92.7		%	62 - 133		SW846 8260B			4/24/18 17:43	DD	A
4-Bromofluorobenzene (S)	94.1		%	79 - 114		SW846 8260B			4/24/18 17:43	DD	A
Dibromofluoromethane (S)	90.9		%	78 - 116		SW846 8260B			4/24/18 17:43	DD	A
Toluene-d8 (S)	80.7		%	76 - 127		SW846 8260B			4/24/18 17:43	DD	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/30/18 11:35	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395012** Date Collected: 4/17/2018 08:06 Matrix: Water

Sample ID: **MRC-SW9B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:05	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:05	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:05	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:05	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:05	DD	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 18:05	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:05	DD	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 18:05	DD	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:05	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 18:05	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:05	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 18:05	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 18:05	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:05	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:05	DD	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:05	DD	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 18:05	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:05	DD	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 18:05	DD	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 18:05	DD	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 18:05	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 18:05	DD	A
Acetone	5.5J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 18:05	DD	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:05	DD	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:05	DD	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 18:05	DD	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 18:05	DD	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:05	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:05	DD	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:05	DD	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:05	DD	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395012** Date Collected: 4/17/2018 08:06 Matrix: Water

Sample ID: **MRC-SW9B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 18:05	DD	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:05	DD	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:05	DD	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:05	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:05	DD	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:05	DD	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:05	DD	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:05	DD	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 18:05	DD	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:05	DD	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:05	DD	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:05	DD	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 18:05	DD	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:05	DD	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:05	DD	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:05	DD	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 18:05	DD	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:05	DD	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 18:05	DD	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:05	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:05	DD	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 18:05	DD	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:05	DD	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:05	DD	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:05	DD	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:05	DD	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:05	DD	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 18:05	DD	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 18:05	DD	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 18:05	DD	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395012** Date Collected: 4/17/2018 08:06 Matrix: Water

Sample ID: **MRC-SW9B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 18:05	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 18:05	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	93		%	62 - 133		SW846 8260B			4/24/18 18:05	DD	A
4-Bromofluorobenzene (S)	94.5		%	79 - 114		SW846 8260B			4/24/18 18:05	DD	A
Dibromofluoromethane (S)	95.3		%	78 - 116		SW846 8260B			4/24/18 18:05	DD	A
Toluene-d8 (S)	81.4		%	76 - 127		SW846 8260B			4/24/18 18:05	DD	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 02:01	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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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 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395013** Date Collected: 4/17/2018 11:40 Matrix: Water

Sample ID: **MRC-SW15A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:27	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:27	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:27	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:27	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:27	DD	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 18:27	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:27	DD	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 18:27	DD	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:27	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 18:27	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:27	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 18:27	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 18:27	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:27	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:27	DD	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:27	DD	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 18:27	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:27	DD	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 18:27	DD	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 18:27	DD	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 18:27	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 18:27	DD	A
Acetone	5.5J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 18:27	DD	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:27	DD	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:27	DD	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 18:27	DD	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 18:27	DD	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:27	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:27	DD	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:27	DD	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:27	DD	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395013** Date Collected: 4/17/2018 11:40 Matrix: Water

Sample ID: **MRC-SW15A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 18:27	DD	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:27	DD	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:27	DD	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:27	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:27	DD	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:27	DD	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:27	DD	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:27	DD	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 18:27	DD	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:27	DD	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:27	DD	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:27	DD	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 18:27	DD	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:27	DD	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:27	DD	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:27	DD	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 18:27	DD	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:27	DD	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 18:27	DD	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:27	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:27	DD	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 18:27	DD	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:27	DD	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:27	DD	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:27	DD	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:27	DD	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:27	DD	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 18:27	DD	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 18:27	DD	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 18:27	DD	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395013** Date Collected: 4/17/2018 11:40 Matrix: Water

Sample ID: **MRC-SW15A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 18:27	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 18:27	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.7		%	62 - 133		SW846 8260B			4/24/18 18:27	DD	A
4-Bromofluorobenzene (S)	93.8		%	79 - 114		SW846 8260B			4/24/18 18:27	DD	A
Dibromofluoromethane (S)	94.2		%	78 - 116		SW846 8260B			4/24/18 18:27	DD	A
Toluene-d8 (S)	81.5		%	76 - 127		SW846 8260B			4/24/18 18:27	DD	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 02:30	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395014** Date Collected: 4/17/2018 11:20 Matrix: Water

Sample ID: **MRC-SW16A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:48	DD	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:48	DD	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:48	DD	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:48	DD	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:48	DD	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 18:48	DD	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:48	DD	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 18:48	DD	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:48	DD	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 18:48	DD	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:48	DD	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 18:48	DD	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 18:48	DD	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:48	DD	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:48	DD	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:48	DD	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 18:48	DD	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:48	DD	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 18:48	DD	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 18:48	DD	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 18:48	DD	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 18:48	DD	A
Acetone	9.0J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 18:48	DD	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:48	DD	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:48	DD	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 18:48	DD	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 18:48	DD	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:48	DD	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:48	DD	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:48	DD	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:48	DD	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395014** Date Collected: 4/17/2018 11:20 Matrix: Water

Sample ID: **MRC-SW16A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 18:48	DD	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:48	DD	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:48	DD	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:48	DD	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:48	DD	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:48	DD	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:48	DD	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:48	DD	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 18:48	DD	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:48	DD	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:48	DD	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:48	DD	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 18:48	DD	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:48	DD	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:48	DD	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:48	DD	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 18:48	DD	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:48	DD	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 18:48	DD	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:48	DD	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:48	DD	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 18:48	DD	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:48	DD	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:48	DD	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:48	DD	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:48	DD	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:48	DD	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 18:48	DD	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 18:48	DD	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 18:48	DD	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395014** Date Collected: 4/17/2018 11:20 Matrix: Water

Sample ID: **MRC-SW16A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 18:48	DD	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 18:48	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	94.7		%	62 - 133		SW846 8260B			4/24/18 18:48	DD	A
4-Bromofluorobenzene (S)	92.9		%	79 - 114		SW846 8260B			4/24/18 18:48	DD	A
Dibromofluoromethane (S)	93.8		%	78 - 116		SW846 8260B			4/24/18 18:48	DD	A
Toluene-d8 (S)	80.4		%	76 - 127		SW846 8260B			4/24/18 18:48	DD	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 02:58	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395015** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-3** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 15:50	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 15:50	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 15:50	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 15:50	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 15:50	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 15:50	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 15:50	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 15:50	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 15:50	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 15:50	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 15:50	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 15:50	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 15:50	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 15:50	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 15:50	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 15:50	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 15:50	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 15:50	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 15:50	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 15:50	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 15:50	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 15:50	TMP	A
Acetone	11.5		ug/L	10.0	3.1	SW846 8260B		4/24/18 15:50	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 15:50	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 15:50	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 15:50	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 15:50	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 15:50	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 15:50	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 15:50	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 15:50	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395015** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-3** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 15:50	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 15:50	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 15:50	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 15:50	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 15:50	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 15:50	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 15:50	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 15:50	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 15:50	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 15:50	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 15:50	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 15:50	TMP	A
Naphthalene	0.49J	J	ug/L	2.0	0.34	SW846 8260B		4/24/18 15:50	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 15:50	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 15:50	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 15:50	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 15:50	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 15:50	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 15:50	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 15:50	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 15:50	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 15:50	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 15:50	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 15:50	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 15:50	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 15:50	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 15:50	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 15:50	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 15:50	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 15:50	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395015** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-3** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 15:50	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 15:50	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	62 - 133		SW846 8260B			4/24/18 15:50	TMP	A
4-Bromofluorobenzene (S)	96.5		%	79 - 114		SW846 8260B			4/24/18 15:50	TMP	A
Dibromofluoromethane (S)	96.7		%	78 - 116		SW846 8260B			4/24/18 15:50	TMP	A
Toluene-d8 (S)	99.6		%	76 - 127		SW846 8260B			4/24/18 15:50	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395016** Date Collected: 4/17/2018 11:44 Matrix: Water

Sample ID: **MRC-SW13A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:58	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:58	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:58	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:58	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:58	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 16:58	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:58	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 16:58	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:58	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 16:58	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:58	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 16:58	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 16:58	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:58	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:58	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:58	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 16:58	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:58	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 16:58	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 16:58	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 16:58	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 16:58	TMP	A
Acetone	8.1J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 16:58	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:58	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:58	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 16:58	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 16:58	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:58	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:58	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:58	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:58	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395016** Date Collected: 4/17/2018 11:44 Matrix: Water

Sample ID: **MRC-SW13A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 16:58	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:58	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:58	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:58	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:58	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:58	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:58	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:58	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 16:58	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:58	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:58	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:58	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 16:58	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:58	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:58	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:58	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 16:58	TMP	A
Trichloroethene	1.6		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:58	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 16:58	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:58	TMP	A
cis-1,2-Dichloroethene	0.37J	J	ug/L	1.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:58	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 16:58	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:58	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:58	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:58	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:58	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:58	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 16:58	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 16:58	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 16:58	TMP	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395016** Date Collected: 4/17/2018 11:44 Matrix: Water

Sample ID: **MRC-SW13A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 16:58	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 16:58	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	117		%	62 - 133		SW846 8260B			4/24/18 16:58	TMP	A
4-Bromofluorobenzene (S)	91.4		%	79 - 114		SW846 8260B			4/24/18 16:58	TMP	A
Dibromofluoromethane (S)	95.1		%	78 - 116		SW846 8260B			4/24/18 16:58	TMP	A
Toluene-d8 (S)	93.9		%	76 - 127		SW846 8260B			4/24/18 16:58	TMP	A
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 03:27	SUB	C

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395017** Date Collected: 4/17/2018 10:51 Matrix: Water

Sample ID: **MRC-SW6B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 17:21	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 17:21	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 17:21	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:21	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 17:21	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 17:21	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 17:21	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 17:21	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 17:21	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:21	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 17:21	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 17:21	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 17:21	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:21	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 17:21	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:21	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:21	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:21	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 17:21	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:21	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:21	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 17:21	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 17:21	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 17:21	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 17:21	TMP	A
Acetone	7.8J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 17:21	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:21	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:21	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:21	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:21	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 17:21	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 17:21	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:21	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:21	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 17:21	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 17:21	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395017** Date Collected: 4/17/2018 10:51 Matrix: Water

Sample ID: **MRC-SW6B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B			4/24/18 17:21	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B			4/24/18 17:21	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 17:21	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B			4/24/18 17:21	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B			4/24/18 17:21	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B			4/24/18 17:21	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B			4/24/18 17:21	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 17:21	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B			4/24/18 17:21	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B			4/24/18 17:21	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B			4/24/18 17:21	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B			4/24/18 17:21	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B			4/24/18 17:21	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B			4/24/18 17:21	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B			4/24/18 17:21	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B			4/24/18 17:21	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B			4/24/18 17:21	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B			4/24/18 17:21	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B			4/24/18 17:21	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B			4/24/18 17:21	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B			4/24/18 17:21	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B			4/24/18 17:21	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B			4/24/18 17:21	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B			4/24/18 17:21	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B			4/24/18 17:21	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 17:21	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B			4/24/18 17:21	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B			4/24/18 17:21	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B			4/24/18 17:21	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B			4/24/18 17:21	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B			4/24/18 17:21	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B			4/24/18 17:21	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395017** Date Collected: 4/17/2018 10:51 Matrix: Water

Sample ID: **MRC-SW6B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 17:21	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 17:21	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	116		%	62 - 133		SW846 8260B			4/24/18 17:21	TMP	A
4-Bromofluorobenzene (S)	93		%	79 - 114		SW846 8260B			4/24/18 17:21	TMP	A
Dibromofluoromethane (S)	95.4		%	78 - 116		SW846 8260B			4/24/18 17:21	TMP	A
Toluene-d8 (S)	94.4		%	76 - 127		SW846 8260B			4/24/18 17:21	TMP	A
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.093	0.018	8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	85.1		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
Fluoranthene-d10 (S)	128		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/23/18 23:53	GEC	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 03:56	SUB	E

Vanessa N. Badman

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Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395018** Date Collected: 4/17/2018 11:04 Matrix: Water

Sample ID: **MRC-SW8B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 17:44	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 17:44	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 17:44	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 17:44	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 17:44	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 17:44	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 17:44	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 17:44	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:44	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 17:44	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 17:44	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 17:44	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 17:44	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:44	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:44	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:44	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 17:44	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:44	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 17:44	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 17:44	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 17:44	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 17:44	TMP	A
Acetone	12.6		ug/L	10.0	3.1	SW846 8260B		4/24/18 17:44	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:44	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 17:44	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 17:44	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 17:44	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:44	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:44	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 17:44	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 17:44	TMP	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395018** Date Collected: 4/17/2018 11:04 Matrix: Water

Sample ID: **MRC-SW8B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 17:44	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:44	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 17:44	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:44	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 17:44	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 17:44	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 17:44	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 17:44	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 17:44	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 17:44	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 17:44	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 17:44	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 17:44	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:44	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 17:44	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 17:44	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 17:44	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 17:44	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 17:44	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 17:44	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:44	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 17:44	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 17:44	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 17:44	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 17:44	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 17:44	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 17:44	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 17:44	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 17:44	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 17:44	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395018** Date Collected: 4/17/2018 11:04 Matrix: Water

Sample ID: **MRC-SW8B** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 17:44	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 17:44	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	118		%	62 - 133		SW846 8260B			4/24/18 17:44	TMP	A
4-Bromofluorobenzene (S)	93		%	79 - 114		SW846 8260B			4/24/18 17:44	TMP	A
Dibromofluoromethane (S)	99.2		%	78 - 116		SW846 8260B			4/24/18 17:44	TMP	A
Toluene-d8 (S)	94.9		%	76 - 127		SW846 8260B			4/24/18 17:44	TMP	A
SEMIVOLATILE SIM											
1,4-Dioxane	0.049J	J	ug/L	0.093	0.018	8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	86.2		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
Fluoranthene-d10 (S)	117		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/24/18 00:19	GEC	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 04:25	SUB	E

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395019** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-4** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:13	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:13	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:13	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:13	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:13	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 16:13	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:13	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 16:13	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:13	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 16:13	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:13	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 16:13	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 16:13	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:13	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:13	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:13	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 16:13	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:13	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 16:13	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 16:13	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 16:13	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 16:13	TMP	A
Acetone	13.6		ug/L	10.0	3.1	SW846 8260B		4/24/18 16:13	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:13	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:13	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 16:13	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 16:13	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:13	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:13	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:13	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:13	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395019** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-4** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 16:13	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:13	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:13	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:13	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:13	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:13	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:13	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:13	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 16:13	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:13	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:13	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:13	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 16:13	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:13	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:13	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:13	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 16:13	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:13	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 16:13	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:13	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:13	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 16:13	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:13	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:13	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:13	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:13	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:13	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 16:13	TMP	A
tert-Butyl Alcohol	2.5J	J	ug/L	10.0	2.2	SW846 8260B		4/24/18 16:13	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 16:13	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395019** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-4** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 16:13	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 16:13	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	111		%	62 - 133		SW846 8260B			4/24/18 16:13	TMP	A
4-Bromofluorobenzene (S)	91.9		%	79 - 114		SW846 8260B			4/24/18 16:13	TMP	A
Dibromofluoromethane (S)	93.8		%	78 - 116		SW846 8260B			4/24/18 16:13	TMP	A
Toluene-d8 (S)	97.5		%	76 - 127		SW846 8260B			4/24/18 16:13	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395020** Date Collected: 4/17/2018 10:30 Matrix: Water

Sample ID: **MRC-SW8A-D** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:07	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:07	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:07	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:07	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:07	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 18:07	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:07	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 18:07	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:07	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 18:07	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:07	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 18:07	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 18:07	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:07	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:07	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:07	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 18:07	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:07	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 18:07	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 18:07	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 18:07	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 18:07	TMP	A
Acetone	8.3J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 18:07	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:07	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:07	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 18:07	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 18:07	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:07	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:07	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:07	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:07	TMP	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395020** Date Collected: 4/17/2018 10:30 Matrix: Water

Sample ID: **MRC-SW8A-D** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 18:07	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:07	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:07	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:07	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:07	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:07	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:07	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:07	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 18:07	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:07	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:07	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:07	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 18:07	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:07	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:07	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:07	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 18:07	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:07	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 18:07	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:07	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:07	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 18:07	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:07	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:07	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:07	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:07	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:07	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 18:07	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 18:07	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 18:07	TMP	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395020** Date Collected: 4/17/2018 10:30 Matrix: Water

Sample ID: **MRC-SW8A-D** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 18:07	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 18:07	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	62 - 133		SW846 8260B			4/24/18 18:07	TMP	A
4-Bromofluorobenzene (S)	91.9		%	79 - 114		SW846 8260B			4/24/18 18:07	TMP	A
Dibromofluoromethane (S)	94.8		%	78 - 116		SW846 8260B			4/24/18 18:07	TMP	A
Toluene-d8 (S)	95.2		%	76 - 127		SW846 8260B			4/24/18 18:07	TMP	A
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.093	0.018	8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	78.3		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
Fluoranthene-d10 (S)	113		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/24/18 00:48	GEC	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 04:53	SUB	E

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395021** Date Collected: 4/17/2018 10:02 Matrix: Water

Sample ID: **MRC-SW6A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:30	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:30	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:30	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:30	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:30	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 18:30	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:30	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 18:30	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:30	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 18:30	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:30	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 18:30	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 18:30	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:30	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:30	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:30	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 18:30	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:30	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 18:30	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 18:30	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 18:30	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 18:30	TMP	A
Acetone	11.4		ug/L	10.0	3.1	SW846 8260B		4/24/18 18:30	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:30	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:30	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 18:30	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 18:30	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:30	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:30	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:30	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:30	TMP	A

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395021** Date Collected: 4/17/2018 10:02 Matrix: Water

Sample ID: **MRC-SW6A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	*Cntr*
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 18:30	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:30	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:30	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:30	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:30	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:30	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:30	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:30	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 18:30	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:30	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:30	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:30	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 18:30	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:30	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:30	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:30	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 18:30	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:30	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 18:30	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:30	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:30	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 18:30	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:30	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:30	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:30	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:30	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:30	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 18:30	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 18:30	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 18:30	TMP	A

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395021** Date Collected: 4/17/2018 10:02 Matrix: Water

Sample ID: **MRC-SW6A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 18:30	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 18:30	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	62 - 133		SW846 8260B			4/24/18 18:30	TMP	A
4-Bromofluorobenzene (S)	92.3		%	79 - 114		SW846 8260B			4/24/18 18:30	TMP	A
Dibromofluoromethane (S)	96		%	78 - 116		SW846 8260B			4/24/18 18:30	TMP	A
Toluene-d8 (S)	94.5		%	76 - 127		SW846 8260B			4/24/18 18:30	TMP	A
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.094	0.018	8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	71.1		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
Fluoranthene-d10 (S)	116		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/24/18 01:15	GEC	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 05:22	SUB	E

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395022** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-5** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:36	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:36	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:36	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:36	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:36	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 16:36	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:36	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 16:36	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:36	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 16:36	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 16:36	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 16:36	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 16:36	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:36	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:36	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:36	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 16:36	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:36	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 16:36	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 16:36	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 16:36	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 16:36	TMP	A
Acetone	8.3J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 16:36	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:36	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 16:36	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 16:36	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 16:36	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:36	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:36	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:36	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:36	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395022** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-5** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 16:36	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:36	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 16:36	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:36	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 16:36	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 16:36	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 16:36	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:36	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 16:36	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 16:36	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:36	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 16:36	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 16:36	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:36	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 16:36	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 16:36	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 16:36	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 16:36	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 16:36	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 16:36	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:36	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 16:36	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 16:36	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 16:36	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 16:36	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 16:36	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 16:36	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 16:36	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 16:36	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 16:36	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395022** Date Collected: 4/17/2018 22:00 Matrix: Water

Sample ID: **TB-041718-5** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 16:36	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 16:36	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	114		%	62 - 133		SW846 8260B			4/24/18 16:36	TMP	A
4-Bromofluorobenzene (S)	93		%	79 - 114		SW846 8260B			4/24/18 16:36	TMP	A
Dibromofluoromethane (S)	96.4		%	78 - 116		SW846 8260B			4/24/18 16:36	TMP	A
Toluene-d8 (S)	97.4		%	76 - 127		SW846 8260B			4/24/18 16:36	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395023** Date Collected: 4/17/2018 10:16 Matrix: Water

Sample ID: **MRC-SW8A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS										
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:53	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:53	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:53	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:53	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:53	TMP	A
1,2,3-Trichlorobenzene	ND		ug/L	2.0	0.93	SW846 8260B		4/24/18 18:53	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:53	TMP	A
1,2,4-Trichlorobenzene	ND		ug/L	2.0	0.82	SW846 8260B		4/24/18 18:53	TMP	A
1,2,4-Trimethylbenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:53	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	1.5	SW846 8260B		4/24/18 18:53	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	0.28	SW846 8260B		4/24/18 18:53	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	0.38	SW846 8260B		4/24/18 18:53	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
1,2-Dichloroethene, Total	ND		ug/L	2.0	0.45	SW846 8260B		4/24/18 18:53	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:53	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:53	TMP	A
1,3-Dichloropropane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:53	TMP	A
1,3-Dichloropropene, Total	ND		ug/L	2.0	0.47	SW846 8260B		4/24/18 18:53	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:53	TMP	A
2,2-Dichloropropane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
2-Butanone	ND		ug/L	10.0	1.8	SW846 8260B		4/24/18 18:53	TMP	A
2-Chloroethylvinyl ether	ND		ug/L	2.0	0.38	SW846 8260B		4/24/18 18:53	TMP	A
2-Hexanone	ND		ug/L	5.0	1.3	SW846 8260B		4/24/18 18:53	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	1.5	SW846 8260B		4/24/18 18:53	TMP	A
Acetone	8.0J	J	ug/L	10.0	3.1	SW846 8260B		4/24/18 18:53	TMP	A
Benzene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:53	TMP	A
Bromobenzene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
Bromochloromethane	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
Bromodichloromethane	ND		ug/L	1.0	0.27	SW846 8260B		4/24/18 18:53	TMP	A
Bromoform	ND		ug/L	1.0	0.40	SW846 8260B		4/24/18 18:53	TMP	A
Bromomethane	ND		ug/L	1.0	0.39	SW846 8260B		4/24/18 18:53	TMP	A
Carbon Disulfide	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:53	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:53	TMP	A
Chlorobenzene	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:53	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:53	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395023** Date Collected: 4/17/2018 10:16 Matrix: Water

Sample ID: **MRC-SW8A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared By	Analyzed	By	Cntr
Chloroethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
Chloroform	ND		ug/L	1.0	0.21	SW846 8260B		4/24/18 18:53	TMP	A
Chloromethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:53	TMP	A
Cyclohexane	ND		ug/L	1.0	0.29	SW846 8260B		4/24/18 18:53	TMP	A
Dibromomethane	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:53	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
Diisopropyl ether	ND		ug/L	1.0	0.25	SW846 8260B		4/24/18 18:53	TMP	A
Ethyl tert-butyl ether	ND		ug/L	1.0	0.19	SW846 8260B		4/24/18 18:53	TMP	A
Ethylbenzene	ND		ug/L	1.0	0.34	SW846 8260B		4/24/18 18:53	TMP	A
Freon 113	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:53	TMP	A
Hexachlorobutadiene	ND		ug/L	5.0	1.0	SW846 8260B		4/24/18 18:53	TMP	A
Isopropylbenzene	ND		ug/L	1.0	0.22	SW846 8260B		4/24/18 18:53	TMP	A
Methyl acetate	ND		ug/L	2.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
Methyl cyclohexane	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:53	TMP	A
Methyl t-Butyl Ether	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
Methylene Chloride	ND		ug/L	1.0	0.45	SW846 8260B		4/24/18 18:53	TMP	A
Naphthalene	ND		ug/L	2.0	0.34	SW846 8260B		4/24/18 18:53	TMP	A
Styrene	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:53	TMP	A
Tetrachloroethene	ND		ug/L	1.0	0.35	SW846 8260B		4/24/18 18:53	TMP	A
Toluene	ND		ug/L	1.0	0.23	SW846 8260B		4/24/18 18:53	TMP	A
Total Xylenes	ND		ug/L	3.0	0.66	SW846 8260B		4/24/18 18:53	TMP	A
Trichloroethene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	0.24	SW846 8260B		4/24/18 18:53	TMP	A
Vinyl Acetate	ND		ug/L	5.0	1.6	SW846 8260B		4/24/18 18:53	TMP	A
Vinyl Chloride	ND		ug/L	1.0	0.30	SW846 8260B		4/24/18 18:53	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:53	TMP	A
mp-Xylene	ND		ug/L	2.0	0.52	SW846 8260B		4/24/18 18:53	TMP	A
n-Butylbenzene	ND		ug/L	2.0	0.60	SW846 8260B		4/24/18 18:53	TMP	A
n-Propylbenzene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
o-Chlorotoluene	ND		ug/L	1.0	0.26	SW846 8260B		4/24/18 18:53	TMP	A
o-Xylene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
p-Chlorotoluene	ND		ug/L	1.0	0.33	SW846 8260B		4/24/18 18:53	TMP	A
p-Isopropyltoluene	ND		ug/L	1.0	0.32	SW846 8260B		4/24/18 18:53	TMP	A
sec-Butylbenzene	ND		ug/L	1.0	0.31	SW846 8260B		4/24/18 18:53	TMP	A
tert-Amyl methyl ether	ND		ug/L	1.0	0.20	SW846 8260B		4/24/18 18:53	TMP	A
tert-Butyl Alcohol	ND		ug/L	10.0	2.2	SW846 8260B		4/24/18 18:53	TMP	A
tert-Butylbenzene	ND		ug/L	2.0	0.44	SW846 8260B		4/24/18 18:53	TMP	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395023** Date Collected: 4/17/2018 10:16 Matrix: Water

Sample ID: **MRC-SW8A** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
trans-1,2-Dichloroethene	ND		ug/L	1.0	0.26	SW846 8260B			4/24/18 18:53	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	0.29	SW846 8260B			4/24/18 18:53	TMP	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	116		%	62 - 133		SW846 8260B			4/24/18 18:53	TMP	A
4-Bromofluorobenzene (S)	92.9		%	79 - 114		SW846 8260B			4/24/18 18:53	TMP	A
Dibromofluoromethane (S)	97.1		%	78 - 116		SW846 8260B			4/24/18 18:53	TMP	A
Toluene-d8 (S)	94.1		%	76 - 127		SW846 8260B			4/24/18 18:53	TMP	A
SEMIVOLATILE SIM											
1,4-Dioxane	ND		ug/L	0.093	0.018	8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
IS_Naphthalene-d8	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
IS_Perylene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
Acenaphthene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
Phenanthrene-d10	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
Chrysene-d12	0.0		ug/L			8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2-Methylnapthalene-d10 (S)	81.5		%	29 - 112		8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
Fluoranthene-d10 (S)	129		%	45 - 130		8270 SIM	4/20/18 09:35	MXL	4/24/18 01:42	GEC	C
SUBCONTRACTED ANALYSIS											
Subcontracted Analysis	See attached.					Subcontract			4/27/18 05:51	SUB	E

Vanessa N. Badman

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395024** Date Collected: 4/17/2018 13:20 Matrix: Water

Sample ID: **DM-1-4** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
Total Polychlorinated Biphenyl	ND		ug/L	1.8	1.8	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
TCLP VOLATILE ORGANICS											
Benzene	ND		ug/L	100	40.0	SW846 8260B			4/23/18 10:26	DD	A
2-Butanone	ND		ug/L	1000	300	SW846 8260B			4/23/18 10:26	DD	A
Carbon Tetrachloride	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
Chlorobenzene	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
Chloroform	38.7J	J	ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
1,2-Dichloroethane	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
1,1-Dichloroethene	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
Tetrachloroethene	ND		ug/L	100	40.0	SW846 8260B			4/23/18 10:26	DD	A
Trichloroethene	136		ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
Vinyl Chloride	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:26	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	79.4		%	62 - 133		SW846 8260B			4/23/18 10:26	DD	A
4-Bromofluorobenzene (S)	114		%	79 - 114		SW846 8260B			4/23/18 10:26	DD	A
Dibromofluoromethane (S)	76.5	1	%	78 - 116		SW846 8260B			4/23/18 10:26	DD	A
Toluene-d8 (S)	82.2		%	76 - 127		SW846 8260B			4/23/18 10:26	DD	A
PCBs											
Aroclor-1016	ND		ug/L	1.8	0.21	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1221	ND		ug/L	1.8	0.25	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1232	ND		ug/L	1.8	0.67	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1242	ND		ug/L	1.8	0.84	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1248	ND		ug/L	1.8	0.49	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1254	ND		ug/L	1.8	0.35	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1260	ND		ug/L	1.8	0.25	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1262	ND		ug/L	1.8	0.35	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Aroclor-1268	ND		ug/L	1.8	0.60	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	50.1		%	30 - 140		SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
Tetrachloro-m-xylene (S)	62.1		%	30 - 133		SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:43	EGO	A
WET CHEMISTRY											
Corrosivity as pH	7.33	4	pH_Units			SW846 9040C			4/19/18 14:17	MSA	A
Cyanide, Reactive	ND		ppm	10	0.011	SW-846 7.3CN	4/25/18 14:10	VXF	4/26/18 09:26	MNP	A
Flashpoint/Ignitability	See comment	2,3	Deg. F			SW-846 1010A			4/28/18 06:00	SDL	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395024** Date Collected: 4/17/2018 13:20 Matrix: Water

Sample ID: **DM-1-4** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
Sulfide, Reactive	3.2J	J	ppm	6.2	1.2	SW846 7.3	4/25/18 14:10	VXF	4/25/18 20:15	VXF	A
TCLP METALS											
Arsenic, Total	ND		mg/L	0.14	0.046	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
Barium, Total	ND		mg/L	2.8	0.94	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
Cadmium, Total	ND		mg/L	0.011	0.0037	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
Chromium, Total	ND		mg/L	0.028	0.010	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
Lead, Total	ND		mg/L	0.033	0.011	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
Mercury, Total	ND		mg/L	0.0020	0.00066	SW846 7470A	4/24/18 11:15	AXC	4/24/18 16:19	AXC	A1
Selenium, Total	ND		mg/L	0.11	0.037	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
Silver, Total	ND		mg/L	0.022	0.0070	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:11	SRT	A2
TCLP SEMI-VOLATILES											
mp-Cresol	ND		ug/L	60.0	3.2	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
o-Cresol	ND		ug/L	60.0	5.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
1,4-Dichlorobenzene	ND		ug/L	60.0	3.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
2,4-Dinitrotoluene	ND		ug/L	60.0	2.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Hexachlorobenzene	ND		ug/L	60.0	4.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Hexachlorobutadiene	ND		ug/L	60.0	3.8	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Hexachloroethane	ND		ug/L	60.0	6.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Nitrobenzene	ND		ug/L	60.0	5.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Pentachlorophenol	ND		ug/L	120	24.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Pyridine	ND		ug/L	60.0	14.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
2,4,5-Trichlorophenol	ND		ug/L	60.0	11.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
2,4,6-Trichlorophenol	ND		ug/L	60.0	11.4	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	85.5		%	47 - 128	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
2-Fluorobiphenyl (S)	80.7		%	52 - 118	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
2-Fluorophenol (S)	49.5		%	20 - 87	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Nitrobenzene-d5 (S)	78.4		%	27 - 139	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Phenol-d5 (S)	31.2		%	10 - 81	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A
Terphenyl-d14 (S)	95.5		%	46 - 133	SW846 8270D	4/23/18 14:25	TXC	4/25/18 16:42	DHF	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395025** Date Collected: 4/17/2018 13:35 Matrix: Water

Sample ID: **DM-5-8** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
Total Polychlorinated Biphenyl	ND		ug/L	1.7	1.7	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
TCLP VOLATILE ORGANICS											
Benzene	ND		ug/L	100	40.0	SW846 8260B			4/23/18 10:48	DD	A
2-Butanone	ND		ug/L	1000	300	SW846 8260B			4/23/18 10:48	DD	A
Carbon Tetrachloride	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
Chlorobenzene	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
Chloroform	47.6J	J	ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
1,2-Dichloroethane	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
1,1-Dichloroethene	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
Tetrachloroethene	ND		ug/L	100	40.0	SW846 8260B			4/23/18 10:48	DD	A
Trichloroethene	268		ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
Vinyl Chloride	ND		ug/L	100	20.0	SW846 8260B			4/23/18 10:48	DD	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
1,2-Dichloroethane-d4 (S)	81		%	62 - 133		SW846 8260B			4/23/18 10:48	DD	A
4-Bromofluorobenzene (S)	104		%	79 - 114		SW846 8260B			4/23/18 10:48	DD	A
Dibromofluoromethane (S)	85.7		%	78 - 116		SW846 8260B			4/23/18 10:48	DD	A
Toluene-d8 (S)	78		%	76 - 127		SW846 8260B			4/23/18 10:48	DD	A
PCBs											
Aroclor-1016	ND		ug/L	1.7	0.21	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1221	ND		ug/L	1.7	0.24	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1232	ND		ug/L	1.7	0.66	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1242	ND		ug/L	1.7	0.83	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1248	ND		ug/L	1.7	0.48	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1254	ND		ug/L	1.7	0.34	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1260	ND		ug/L	1.7	0.24	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1262	ND		ug/L	1.7	0.34	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Aroclor-1268	ND		ug/L	1.7	0.59	SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*		*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyls (S)	73.5		%	30 - 140		SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
Tetrachloro-m-xylene (S)	57.7		%	30 - 133		SW846 8082A	4/23/18 20:50	AXS	4/24/18 17:55	EGO	A
WET CHEMISTRY											
Corrosivity as pH	7.15	3	pH_Units			SW846 9040C			4/19/18 14:17	MSA	A
Cyanide, Reactive	ND		ppm	10	0.011	SW-846 7.3CN	4/25/18 14:10	VXF	4/26/18 09:26	MNP	A
Flashpoint/Ignitability	See comment	1,2	Deg. F			SW-846 1010A			4/28/18 06:00	SDL	A

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

Lab ID: **2309395025** Date Collected: 4/17/2018 13:35 Matrix: Water

Sample ID: **DM-5-8** Date Received: 4/17/2018 22:00

Parameters	Results	Flag	Units	RDL	MDL	Method	Prepared	By	Analyzed	By	Cntr
Sulfide, Reactive	4.4J	J	ppm	6.2	1.2	SW846 7.3	4/25/18 14:10	VXF	4/25/18 20:15	VXF	A
TCLP METALS											
Arsenic, Total	ND		mg/L	0.14	0.046	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
Barium, Total	ND		mg/L	2.8	0.94	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
Cadmium, Total	ND		mg/L	0.011	0.0037	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
Chromium, Total	ND		mg/L	0.028	0.010	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
Lead, Total	ND		mg/L	0.033	0.011	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
Mercury, Total	ND		mg/L	0.0020	0.00066	SW846 7470A	4/24/18 11:15	AXC	4/24/18 16:20	AXC	A1
Selenium, Total	ND		mg/L	0.11	0.037	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
Silver, Total	ND		mg/L	0.022	0.0070	SW846 6010C	4/24/18 22:14	DAG	4/25/18 03:15	SRT	A2
TCLP SEMI-VOLATILES											
mp-Cresol	ND		ug/L	60.0	3.2	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
o-Cresol	ND		ug/L	60.0	5.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
1,4-Dichlorobenzene	ND		ug/L	60.0	3.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
2,4-Dinitrotoluene	ND		ug/L	60.0	2.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Hexachlorobenzene	ND		ug/L	60.0	4.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Hexachlorobutadiene	ND		ug/L	60.0	3.8	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Hexachloroethane	ND		ug/L	60.0	6.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Nitrobenzene	ND		ug/L	60.0	5.6	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Pentachlorophenol	ND		ug/L	120	24.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Pyridine	ND		ug/L	60.0	14.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
2,4,5-Trichlorophenol	ND		ug/L	60.0	11.0	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
2,4,6-Trichlorophenol	ND		ug/L	60.0	11.4	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A

Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
2,4,6-Tribromophenol (S)	70		%	47 - 128	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
2-Fluorobiphenyl (S)	79.9		%	52 - 118	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
2-Fluorophenol (S)	48.9		%	20 - 87	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Nitrobenzene-d5 (S)	81.6		%	27 - 139	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Phenol-d5 (S)	35.5		%	10 - 81	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A
Terphenyl-d14 (S)	102		%	46 - 133	SW846 8270D	4/23/18 14:25	TXC	4/25/18 17:09	DHF	A

Vanessa N. Badman

Mrs. Vanessa N Badman
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2309395 LMC MRC 4/17/18

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2309395024	1	DM-1-4	SW846 8260B	Dibromofluoromethane
The surrogate Dibromofluoromethane for method SW846 8260B was outside of control limits. The % Recovery was reported as 76.5 and the control limits were 78 to 116. This result was reported at a dilution of 100.				
2309395024	2	DM-1-4	SW-846 1010A	Flashpoint/Ignitability
According to Pa/USEPA regulations, this sample is not considered to be ignitable. (Ref 40 CFR 261.21)				
2309395024	3	DM-1-4	SW-846 1010A	Flashpoint/Ignitability
Sample did not flash up to 200 degrees F				
2309395024	4	DM-1-4	SW846 9040C	Corrosivity as pH
The corrosivity analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2309395025	1	DM-5-8	SW-846 1010A	Flashpoint/Ignitability
According to Pa/USEPA regulations, this sample is not considered to be ignitable. (Ref 40 CFR 261.21)				
2309395025	2	DM-5-8	SW-846 1010A	Flashpoint/Ignitability
Sample did not flash up to 200 degrees F				
2309395025	3	DM-5-8	SW846 9040C	Corrosivity as pH
The corrosivity analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: EXTR/51837 **Analysis Method:** 8270 SIM

QC Batch Method: SW846 3510C

Associated Lab Samples: 2309395001, 2309395002, 2309395003, 2309395017, 2309395018, 2309395020, 2309395021, 2309395023

METHOD BLANK: 2726699

Parameter	Blank Result	Units	Reporting Limit
1,4-Dioxane	ND	ug/L	0.10
2-Methylnapthalene-d10 (S)	82.6	%	29 - 112
Fluoranthene-d10 (S)	123	%	45 - 130

LABORATORY CONTROL SAMPLE: 2726700

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
1,4-Dioxane	57.3	ug/L	1	0.57	22 - 75
2-Methylnapthalene-d10 (S)	96	%			29 - 112
Fluoranthene-d10 (S)	127	%			45 - 130

MATRIX SPIKE SAMPLE: 2726701 ORIGINAL: 2308943035

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MS % Rec	% Rec Limit
1,4-Dioxane	.13783	ug/L	1	.59422	44.7	22 - 75
2-Methylnapthalene-d10 (S)	78.6	%				29 - 112
Fluoranthene-d10 (S)	113	%				45 - 130

SAMPLE DUPLICATE: 2726702 ORIGINAL: 2308943036

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
1,4-Dioxane	.17347	ug/L	.15205	13.2	

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: EXTR/51862 **Analysis Method:** SW846 8270D

QC Batch Method: SW846 3510C

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2727634

Parameter	Blank Result	Units	Reporting Limit
mp-Cresol	ND	ug/L	3.0
o-Cresol	ND	ug/L	3.0
1,4-Dichlorobenzene	ND	ug/L	3.0
2,4-Dinitrotoluene	ND	ug/L	3.0
Hexachlorobenzene	ND	ug/L	3.0
Hexachlorobutadiene	ND	ug/L	3.0
Hexachloroethane	ND	ug/L	3.0
Nitrobenzene	ND	ug/L	3.0
Pentachlorophenol	ND	ug/L	6.0
Pyridine	ND	ug/L	3.0
2,4,5-Trichlorophenol	ND	ug/L	3.0
2,4,6-Trichlorophenol	ND	ug/L	3.0
2,4,6-Tribromophenol (S)	77.3	%	47 - 128
2-Fluorobiphenyl (S)	76.8	%	52 - 118
2-Fluorophenol (S)	51.4	%	20 - 87
Nitrobenzene-d5 (S)	84.9	%	27 - 139
Phenol-d5 (S)	37.8	%	10 - 81
Terphenyl-d14 (S)	96.2	%	46 - 133

LABORATORY CONTROL SAMPLE: 2727635

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
mp-Cresol	84.2	ug/L	100	84.2	28 - 128
o-Cresol	89.6	ug/L	100	89.6	34 - 136
1,4-Dichlorobenzene	63.6	ug/L	50	31.8	5 - 116
2,4-Dinitrotoluene	107	ug/L	50	53.5	49 - 138
Hexachlorobenzene	99.5	ug/L	50	49.7	59 - 109
Hexachlorobutadiene	55.6	ug/L	50	27.8	5 - 126
Hexachloroethane	50.4	ug/L	50	25.2	5 - 111
Nitrobenzene	92.3	ug/L	50	46.1	41 - 128
Pentachlorophenol	93.4	ug/L	100	93.4	41 - 149
Pyridine	65.3	ug/L	50	32.7	5 - 115
2,4,5-Trichlorophenol	98.5	ug/L	100	98.5	44 - 148
2,4,6-Trichlorophenol	98.7	ug/L	100	98.7	41 - 148
2,4,6-Tribromophenol (S)	101	%			47 - 128

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

2-Fluorobiphenyl (S)	80	%	52 - 118
2-Fluorophenol (S)	64.1	%	20 - 87
Nitrobenzene-d5 (S)	89.2	%	27 - 139
Phenol-d5 (S)	42.6	%	10 - 81
Terphenyl-d14 (S)	98.9	%	46 - 133

MATRIX SPIKE: 2727637 DUPLICATE: 2727636 ORIGINAL: 2309329002

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
mp-Cresol	0	ug/L	2000	1427.48	1563.2	71.4	78.2	28 - 128	9.08	20
o-Cresol	0	ug/L	2000	1536.46	1656.41	76.8	82.8	34 - 136	7.51	23
1,4-Dichlorobenzene	0	ug/L	1000	525.676	523.574	52.6	52.4	5 - 116	.4	30
2,4-Dinitrotoluene	0	ug/L	1000	967.011	1023.28	96.7	102	49 - 138	5.65	22
Hexachlorobenzene	0	ug/L	1000	930.028	959.56	93	96	59 - 109	3.13	21
Hexachlorobutadiene	0	ug/L	1000	468.304	482.438	46.8	48.2	5 - 126	2.97	30
Hexachloroethane	0	ug/L	1000	455.339	453.769	45.5	45.4	5 - 111	.35	30
Nitrobenzene	0	ug/L	1000	809.428	842.543	80.9	84.3	41 - 128	4.01	19
Pentachlorophenol	0	ug/L	2000	1382.13	1092.69	69.1	54.6	41 - 149	23.4	28
Pyridine	0	ug/L	1000	535.289	628.219	53.5	62.8	5 - 115	16	30
2,4,5-Trichlorophenol	0	ug/L	2000	1732.39	1573.64	86.6	78.7	44 - 148	9.6	23
2,4,6-Trichlorophenol	0	ug/L	2000	1616.51	1334.12	80.8	66.7	41 - 148	19.1	23
2,4,6-Tribromophenol (S)	88.7	%				88.7	83	47 - 128		
2-Fluorobiphenyl (S)	50.6	%				50.6*	64.8	52 - 118		
2-Fluorophenol (S)	46.2	%				46.2	50	20 - 87		
Nitrobenzene-d5 (S)	71.6	%				71.6	81.6	27 - 139		
Phenol-d5 (S)	30	%				30	39.2	10 - 81		
Terphenyl-d14 (S)	96.4	%				96.4	101	46 - 133		

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: EXTR/51866 **Analysis Method:** SW846 8082A

QC Batch Method: SW846 3510C

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2727803

Parameter	Blank Result	Units	Reporting Limit
Aroclor-1016	ND	ug/L	0.50
Aroclor-1221	ND	ug/L	0.50
Aroclor-1232	ND	ug/L	0.50
Aroclor-1242	ND	ug/L	0.50
Aroclor-1248	ND	ug/L	0.50
Aroclor-1254	ND	ug/L	0.50
Aroclor-1260	ND	ug/L	0.50
Aroclor-1262	ND	ug/L	0.50
Aroclor-1268	ND	ug/L	0.50
Decachlorobiphenyls (S)	75.6	%	30 - 140
Tetrachloro-m-xylene (S)	68.5	%	30 - 133

LABORATORY CONTROL SAMPLE: 2727804

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Aroclor-1016	86.3	ug/L	5	4.3	43 - 132
Aroclor-1260	78.8	ug/L	5	3.9	49 - 130
Decachlorobiphenyls (S)	71	%			30 - 140
Tetrachloro-m-xylene (S)	81.9	%			30 - 133

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QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: MDIG/71348 **Analysis Method:** SW846 7470A

QC Batch Method: SW846 7470A

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2728349

Parameter	Blank Result	Units	Reporting Limit
Mercury, Total	ND	mg/L	0.0020

LABORATORY CONTROL SAMPLE: 2728350

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Mercury, Total	97.5	mg/L	.002	0.0020J	85 - 115

MATRIX SPIKE: 2728353 DUPLICATE: 2728354 ORIGINAL: 2308943040

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Mercury, Total	0	mg/L	.005	.00492	.00496	98.4	99.2	70 - 130	.81	20

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QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: MDIG/71363 **Analysis Method:** SW846 6010C

QC Batch Method: SW846 3015

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2728713

Parameter	Blank Result	Units	Reporting Limit
Arsenic, Total	ND	mg/L	0.028
Barium, Total	ND	mg/L	0.56
Cadmium, Total	ND	mg/L	0.0022
Chromium, Total	ND	mg/L	0.0056
Lead, Total	ND	mg/L	0.0067
Selenium, Total	ND	mg/L	0.022
Silver, Total	ND	mg/L	0.0044

LABORATORY CONTROL SAMPLE: 2728714

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Arsenic, Total	104	mg/L	.11	0.12	80 - 120
Barium, Total	104	mg/L	1.1	1.2	80 - 120
Cadmium, Total	105	mg/L	.11	0.12	80 - 120
Chromium, Total	107	mg/L	.11	0.12	80 - 120
Lead, Total	106	mg/L	.11	0.12	80 - 120
Selenium, Total	102	mg/L	1.1	1.1	80 - 120
Silver, Total	98.8	mg/L	.11	0.11	80 - 120

MATRIX SPIKE: 2728715 DUPLICATE: 2728716 ORIGINAL: 2310174028

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Arsenic, Total	.00833	mg/L	5	5.12495	5.09495	102	102	50 - 150	.59	20
Barium, Total	.92666	mg/L	10	10.73878	10.81656	98.1	98.9	50 - 150	.72	20
Cadmium, Total	.01	mg/L	1	.99055	.98777	98.1	97.8	50 - 150	.28	20
Chromium, Total	.00056	mg/L	5	4.89717	4.91606	97.9	98.3	50 - 150	.38	20
Lead, Total	.24111	mg/L	5	5.24606	5.22495	100	99.7	50 - 150	.4	20
Selenium, Total	.00444	mg/L	1	1.0561	1.03888	105	103	50 - 150	1.64	20
Silver, Total	0	mg/L	1	1.01499	1.00777	101	101	50 - 150	.71	20

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: VOMS/46598 **Analysis Method:** SW846 8260B

QC Batch Method: SW846 8260B

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2727340

Parameter	Blank Result	Units	Reporting Limit
Benzene	ND	ug/L	1.0
2-Butanone	ND	ug/L	10.0
Carbon Tetrachloride	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
Chloroform	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Trichloroethene	ND	ug/L	1.0
Vinyl Chloride	ND	ug/L	1.0
1,2-Dichloroethane-d4 (S)	82.3	%	62 - 133
4-Bromofluorobenzene (S)	114	%	79 - 114
Dibromofluoromethane (S)	88.2	%	78 - 116
Toluene-d8 (S)	84.5	%	76 - 127

LABORATORY CONTROL SAMPLE: 2727341

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Benzene	104	ug/L	20	20.7	80 - 124
2-Butanone	102	ug/L	100	102	50 - 152
Carbon Tetrachloride	117	ug/L	20	23.4	62 - 132
Chlorobenzene	102	ug/L	20	20.5	85 - 117
Chloroform	102	ug/L	20	20.3	78 - 122
1,2-Dichloroethane	98.9	ug/L	20	19.8	70 - 133
1,1-Dichloroethene	116	ug/L	20	23.3	63 - 128
Tetrachloroethene	107	ug/L	20	21.4	72 - 124
Trichloroethene	101	ug/L	20	20.2	77 - 124
Vinyl Chloride	69.4	ug/L	20	13.9	27 - 138
1,2-Dichloroethane-d4 (S)	76	%			62 - 133
4-Bromofluorobenzene (S)	109	%			79 - 114
Dibromofluoromethane (S)	89.7	%			78 - 116
Toluene-d8 (S)	82.8	%			76 - 127

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QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

MATRIX SPIKE: 2728501 DUPLICATE: 2728502 ORIGINAL: 2308943013

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD
Benzene	0	ug/L	200	220.47	218.41	110	109	80 - 124	.94	26
2-Butanone	0	ug/L	1000	944.779	1046.68	94.5	105	50 - 152	10.2	16
Carbon Tetrachloride	0	ug/L	200	253.151	247.17	127	124	62 - 132	2.39	17
Chlorobenzene	0	ug/L	200	209.225	212.238	105	106	85 - 117	1.43	15
Chloroform	4.38989	ug/L	200	221.107	216.182	108	106	78 - 122	2.25	16
1,2-Dichloroethane	0	ug/L	200	203.508	207.901	102	104	70 - 133	2.14	19
1,1-Dichloroethene	195.054	ug/L	200	411.567	407.195	108	106	63 - 128	1.07	21
Tetrachloroethene	4.28829	ug/L	200	223.391	222.226	110	109	72 - 124	.52	38
Trichloroethene	413.674	ug/L	200	556.643	538.511	71.5*	62.4*	77 - 124	3.31	18
Vinyl Chloride	0	ug/L	200	148.678	151.645	74.3	75.8	27 - 138	1.98	40
1,2-Dichloroethane-d4 (S)	82.2	%				82.2	81.5	62 - 133		
4-Bromofluorobenzene (S)	85.7	%				85.7	87.5	79 - 114		
Dibromofluoromethane (S)	88.6	%				88.6	86.8	78 - 116		
Toluene-d8 (S)	73.4	%				73.4*	75.3*	76 - 127		

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QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: VOMS/46615 **Analysis Method:** SW846 8260B

QC Batch Method: SW846 8260B

Associated Lab Samples: 2309395015, 2309395016, 2309395017, 2309395018, 2309395019, 2309395020, 2309395021, 2309395022, 2309395023

METHOD BLANK: 2728332

Parameter	Blank Result	Units	Reporting Limit
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,2,3-Trichlorobenzene	ND	ug/L	2.0
1,2,3-Trichloropropane	ND	ug/L	2.0
1,2,4-Trichlorobenzene	ND	ug/L	2.0
1,2,4-Trimethylbenzene	ND	ug/L	1.0
1,2-Dibromo-3-chloropropane	ND	ug/L	7.0
1,2-Dibromoethane	ND	ug/L	1.0
1,2-Dichlorobenzene	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
1,2-Dichloroethene, Total	ND	ug/L	2.0
1,2-Dichloropropane	ND	ug/L	1.0
1,3-Dichlorobenzene	ND	ug/L	1.0
1,3-Dichloropropane	ND	ug/L	1.0
1,3-Dichloropropene, Total	ND	ug/L	2.0
1,4-Dichlorobenzene	ND	ug/L	1.0
2,2-Dichloropropane	ND	ug/L	1.0
2-Butanone	ND	ug/L	10.0
2-Chloroethylvinyl ether	ND	ug/L	2.0
2-Hexanone	ND	ug/L	5.0
4-Methyl-2-Pentanone(MIBK)	ND	ug/L	5.0
Acetone	ND	ug/L	10.0
Benzene	ND	ug/L	1.0
Bromobenzene	ND	ug/L	1.0
Bromochloromethane	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
Bromomethane	ND	ug/L	1.0
Carbon Disulfide	ND	ug/L	1.0
Carbon Tetrachloride	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
Chlorodibromomethane	ND	ug/L	1.0

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Chloroethane	ND	ug/L	1.0
Chloroform	ND	ug/L	1.0
Chloromethane	ND	ug/L	1.0
Cyclohexane	ND	ug/L	1.0
Dibromomethane	ND	ug/L	1.0
Dichlorodifluoromethane	ND	ug/L	1.0
Diisopropyl ether	ND	ug/L	1.0
Ethyl tert-butyl ether	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Freon 113	ND	ug/L	1.0
Hexachlorobutadiene	ND	ug/L	5.0
Isopropylbenzene	ND	ug/L	1.0
Methyl acetate	ND	ug/L	2.0
Methyl cyclohexane	ND	ug/L	1.0
Methyl t-Butyl Ether	ND	ug/L	1.0
Methylene Chloride	ND	ug/L	1.0
Naphthalene	ND	ug/L	2.0
Styrene	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Total Xylenes	ND	ug/L	3.0
Trichloroethene	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	1.0
Vinyl Acetate	ND	ug/L	5.0
Vinyl Chloride	ND	ug/L	1.0
cis-1,2-Dichloroethene	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
mp-Xylene	ND	ug/L	2.0
n-Butylbenzene	ND	ug/L	2.0
n-Propylbenzene	ND	ug/L	1.0
o-Chlorotoluene	ND	ug/L	1.0
o-Xylene	ND	ug/L	1.0
p-Chlorotoluene	ND	ug/L	1.0
p-Isopropyltoluene	ND	ug/L	1.0
sec-Butylbenzene	ND	ug/L	1.0
tert-Amyl methyl ether	ND	ug/L	1.0
tert-Butyl Alcohol	ND	ug/L	10.0
tert-Butylbenzene	ND	ug/L	2.0
trans-1,2-Dichloroethene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,2-Dichloroethane-d4 (S)	112	%	62 - 133
4-Bromofluorobenzene (S)	94.6	%	79 - 114
Dibromofluoromethane (S)	96.2	%	78 - 116
Toluene-d8 (S)	97.1	%	76 - 127

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

LABORATORY CONTROL SAMPLE: 2728333

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
1,1,1,2-Tetrachloroethane	99	ug/L	20	19.8	78 - 121
1,1,1-Trichloroethane	106	ug/L	20	21.2	66 - 130
1,1,2,2-Tetrachloroethane	95	ug/L	20	19.0	74 - 135
1,1,2-Trichloroethane	95.8	ug/L	20	19.2	82 - 126
1,1-Dichloroethane	107	ug/L	20	21.3	78 - 124
1,1-Dichloroethene	119	ug/L	20	23.7	63 - 128
1,2,3-Trichlorobenzene	91	ug/L	20	18.2	61 - 126
1,2,3-Trichloropropane	96	ug/L	20	19.2	75 - 132
1,2,4-Trichlorobenzene	94.5	ug/L	20	18.9	67 - 123
1,2,4-Trimethylbenzene	99.5	ug/L	20	19.9	76 - 125
1,2-Dibromo-3-chloropropane	98.9	ug/L	20	19.8	59 - 133
1,2-Dibromoethane	97.6	ug/L	20	19.5	80 - 124
1,2-Dichlorobenzene	96.4	ug/L	20	19.3	82 - 118
1,2-Dichloroethane	100	ug/L	20	20.0	70 - 133
1,2-Dichloroethene, Total	108	ug/L	40	43.3	78 - 125
1,2-Dichloropropane	102	ug/L	20	20.5	81 - 127
1,3-Dichlorobenzene	97.9	ug/L	20	19.6	81 - 118
1,3-Dichloropropane	97.9	ug/L	20	19.6	82 - 126
1,3-Dichloropropene, Total	103	ug/L	40	41.3	80 - 123
1,4-Dichlorobenzene	93.8	ug/L	20	18.8	81 - 116
2,2-Dichloropropane	96.4	ug/L	20	19.3	64 - 129
2-Butanone	108	ug/L	100	108	50 - 152
2-Chloroethylvinyl ether	93.7	ug/L	20	18.7	1 - 150
2-Hexanone	95.8	ug/L	100	95.8	65 - 154
4-Methyl-2-Pentanone(MIBK)	110	ug/L	100	110	71 - 146
Acetone	116	ug/L	100	116	40 - 151
Benzene	102	ug/L	20	20.4	80 - 124
Bromobenzene	99.3	ug/L	20	19.9	81 - 119
Bromochloromethane	96.8	ug/L	20	19.4	73 - 117
Bromodichloromethane	96.6	ug/L	20	19.3	79 - 126
Bromoform	99.2	ug/L	20	19.8	70 - 123
Bromomethane	101	ug/L	20	20.3	45 - 148
Carbon Disulfide	126	ug/L	20	25.1	57 - 131
Carbon Tetrachloride	110	ug/L	20	22.1	62 - 132
Chlorobenzene	99.2	ug/L	20	19.8	85 - 117
Chlorodibromomethane	98.9	ug/L	20	19.8	77 - 122
Chloroethane	99.8	ug/L	20	20.0	51 - 142
Chloroform	108	ug/L	20	21.5	78 - 122
Chloromethane	81.2	ug/L	20	16.2	38 - 156
Cyclohexane	120	ug/L	20	23.9	66 - 130
Dibromomethane	93.6	ug/L	20	18.7	81 - 125

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Dichlorodifluoromethane	69.4	ug/L	20	13.9	17 - 166
Diisopropyl ether	115	ug/L	20	23.0	74 - 131
Ethyl tert-butyl ether	112	ug/L	20	22.4	75 - 123
Ethylbenzene	100	ug/L	20	20.0	80 - 124
Freon 113	118	ug/L	20	23.6	50 - 130
Hexachlorobutadiene	94.6	ug/L	20	18.9	55 - 128
Isopropylbenzene	110	ug/L	20	22.1	73 - 129
Methyl acetate	112	ug/L	20	22.3	70 - 130
Methyl cyclohexane	110	ug/L	20	22.1	70 - 130
Methyl t-Butyl Ether	105	ug/L	20	21.1	69 - 115
Methylene Chloride	113	ug/L	20	22.5	76 - 121
Naphthalene	92.6	ug/L	20	18.5	56 - 134
Styrene	106	ug/L	20	21.2	79 - 123
Tetrachloroethene	101	ug/L	20	20.2	72 - 124
Toluene	106	ug/L	20	21.2	80 - 125
Total Xylenes	105	ug/L	60	62.8	79 - 125
Trichloroethene	108	ug/L	20	21.7	77 - 124
Trichlorofluoromethane	93.6	ug/L	20	18.7	38 - 123
Vinyl Acetate	104	ug/L	20	20.8	58 - 136
Vinyl Chloride	86.9	ug/L	20	17.4	27 - 138
cis-1,2-Dichloroethene	103	ug/L	20	20.6	78 - 125
cis-1,3-Dichloropropene	101	ug/L	20	20.1	81 - 121
mp-Xylene	104	ug/L	40	41.6	79 - 125
n-Butylbenzene	89.9	ug/L	20	18.0	71 - 130
n-Propylbenzene	106	ug/L	20	21.1	74 - 122
o-Chlorotoluene	104	ug/L	20	20.8	78 - 126
o-Xylene	106	ug/L	20	21.2	79 - 124
p-Chlorotoluene	104	ug/L	20	20.8	78 - 125
p-Isopropyltoluene	94.9	ug/L	20	19.0	72 - 123
sec-Butylbenzene	105	ug/L	20	21.1	72 - 127
tert-Amyl methyl ether	94.6	ug/L	20	18.9	75 - 121
tert-Butyl Alcohol	114	ug/L	100	114	17 - 168
tert-Butylbenzene	95.3	ug/L	20	19.1	72 - 124
trans-1,2-Dichloroethene	113	ug/L	20	22.6	71 - 122
trans-1,3-Dichloropropene	106	ug/L	20	21.2	78 - 126
1,2-Dichloroethane-d4 (S)	114	%			62 - 133
4-Bromofluorobenzene (S)	92.5	%			79 - 114
Dibromofluoromethane (S)	91.3	%			78 - 116
Toluene-d8 (S)	94.7	%			76 - 127

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: VOMS/46617 **Analysis Method:** SW846 8260B

QC Batch Method: SW846 8260B

Associated Lab Samples: 2309395010, 2309395011, 2309395012, 2309395013, 2309395014

METHOD BLANK: 2728421

Parameter	Blank Result	Units	Reporting Limit
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,2,3-Trichlorobenzene	ND	ug/L	2.0
1,2,3-Trichloropropane	ND	ug/L	2.0
1,2,4-Trichlorobenzene	ND	ug/L	2.0
1,2,4-Trimethylbenzene	ND	ug/L	1.0
1,2-Dibromo-3-chloropropane	ND	ug/L	7.0
1,2-Dibromoethane	ND	ug/L	1.0
1,2-Dichlorobenzene	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
1,2-Dichloroethene, Total	ND	ug/L	2.0
1,2-Dichloropropane	ND	ug/L	1.0
1,3-Dichlorobenzene	ND	ug/L	1.0
1,3-Dichloropropane	ND	ug/L	1.0
1,3-Dichloropropene, Total	ND	ug/L	2.0
1,4-Dichlorobenzene	ND	ug/L	1.0
2,2-Dichloropropane	ND	ug/L	1.0
2-Butanone	ND	ug/L	10.0
2-Chloroethylvinyl ether	ND	ug/L	2.0
2-Hexanone	ND	ug/L	5.0
4-Methyl-2-Pentanone(MIBK)	ND	ug/L	5.0
Acetone	ND	ug/L	10.0
Benzene	ND	ug/L	1.0
Bromobenzene	ND	ug/L	1.0
Bromochloromethane	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
Bromomethane	ND	ug/L	1.0
Carbon Disulfide	ND	ug/L	1.0
Carbon Tetrachloride	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
Chlorodibromomethane	ND	ug/L	1.0
Chloroethane	ND	ug/L	1.0

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Chloroform	ND	ug/L	1.0
Chloromethane	ND	ug/L	1.0
Cyclohexane	ND	ug/L	1.0
Dibromomethane	ND	ug/L	1.0
Dichlorodifluoromethane	ND	ug/L	1.0
Diisopropyl ether	ND	ug/L	1.0
Ethyl tert-butyl ether	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Freon 113	ND	ug/L	1.0
Hexachlorobutadiene	ND	ug/L	5.0
Isopropylbenzene	ND	ug/L	1.0
Methyl acetate	ND	ug/L	2.0
Methyl cyclohexane	ND	ug/L	1.0
Methyl t-Butyl Ether	ND	ug/L	1.0
Methylene Chloride	ND	ug/L	1.0
Naphthalene	ND	ug/L	2.0
Styrene	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Total Xylenes	ND	ug/L	3.0
Trichloroethene	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	1.0
Vinyl Acetate	ND	ug/L	5.0
Vinyl Chloride	ND	ug/L	1.0
cis-1,2-Dichloroethene	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
mp-Xylene	ND	ug/L	2.0
n-Butylbenzene	ND	ug/L	2.0
n-Propylbenzene	ND	ug/L	1.0
o-Chlorotoluene	ND	ug/L	1.0
o-Xylene	ND	ug/L	1.0
p-Chlorotoluene	ND	ug/L	1.0
p-Isopropyltoluene	ND	ug/L	1.0
sec-Butylbenzene	ND	ug/L	1.0
tert-Amyl methyl ether	ND	ug/L	1.0
tert-Butyl Alcohol	ND	ug/L	10.0
tert-Butylbenzene	ND	ug/L	2.0
trans-1,2-Dichloroethene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,2-Dichloroethane-d4 (S)	90.3	%	62 - 133
4-Bromofluorobenzene (S)	93.7	%	79 - 114
Dibromofluoromethane (S)	90.4	%	78 - 116
Toluene-d8 (S)	80.3	%	76 - 127

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

LABORATORY CONTROL SAMPLE: 2728422

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
1,1,1,2-Tetrachloroethane	110	ug/L	20	22.0	78 - 121
1,1,1-Trichloroethane	115	ug/L	20	23.0	66 - 130
1,1,2,2-Tetrachloroethane	105	ug/L	20	21.1	74 - 135
1,1,2-Trichloroethane	108	ug/L	20	21.6	82 - 126
1,1-Dichloroethane	112	ug/L	20	22.4	78 - 124
1,1-Dichloroethene	124	ug/L	20	24.8	63 - 128
1,2,3-Trichlorobenzene	87.7	ug/L	20	17.5	61 - 126
1,2,3-Trichloropropane	105	ug/L	20	21.0	75 - 132
1,2,4-Trichlorobenzene	74.7	ug/L	20	14.9	67 - 123
1,2,4-Trimethylbenzene	102	ug/L	20	20.5	76 - 125
1,2-Dibromo-3-chloropropane	74.6	ug/L	20	14.9	59 - 133
1,2-Dibromoethane	107	ug/L	20	21.5	80 - 124
1,2-Dichlorobenzene	106	ug/L	20	21.2	82 - 118
1,2-Dichloroethane	104	ug/L	20	20.7	70 - 133
1,2-Dichloroethene, Total	113	ug/L	40	45.2	78 - 125
1,2-Dichloropropane	113	ug/L	20	22.6	81 - 127
1,3-Dichlorobenzene	107	ug/L	20	21.3	81 - 118
1,3-Dichloropropane	107	ug/L	20	21.3	82 - 126
1,3-Dichloropropene, Total	88.7	ug/L	40	35.5	80 - 123
1,4-Dichlorobenzene	103	ug/L	20	20.5	81 - 116
2,2-Dichloropropane	83.3	ug/L	20	16.7	64 - 129
2-Butanone	98.5	ug/L	100	98.5	50 - 152
2-Chloroethylvinyl ether	61	ug/L	20	12.2	1 - 150
2-Hexanone	78.4	ug/L	100	78.4	65 - 154
4-Methyl-2-Pentanone(MIBK)	87.3	ug/L	100	87.3	71 - 146
Acetone	87.9	ug/L	100	87.9	40 - 151
Benzene	106	ug/L	20	21.2	80 - 124
Bromobenzene	114	ug/L	20	22.8	81 - 119
Bromochloromethane	106	ug/L	20	21.2	73 - 117
Bromodichloromethane	105	ug/L	20	21.1	79 - 126
Bromoform	87.9	ug/L	20	17.6	70 - 123
Bromomethane	70.6	ug/L	20	14.1	45 - 148
Carbon Disulfide	109	ug/L	20	21.8	57 - 131
Carbon Tetrachloride	120	ug/L	20	24.0	62 - 132
Chlorobenzene	103	ug/L	20	20.7	85 - 117
Chlorodibromomethane	95.8	ug/L	20	19.2	77 - 122
Chloroethane	69.7	ug/L	20	13.9	51 - 142
Chloroform	109	ug/L	20	21.8	78 - 122
Chloromethane	91.4	ug/L	20	18.3	38 - 156
Cyclohexane	130	ug/L	20	25.9	66 - 130
Dibromomethane	101	ug/L	20	20.3	81 - 125

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Dichlorodifluoromethane	68.6	ug/L	20	13.7	17 - 166
Diisopropyl ether	101	ug/L	20	20.3	74 - 131
Ethyl tert-butyl ether	91.3	ug/L	20	18.3	75 - 123
Ethylbenzene	110	ug/L	20	22.0	80 - 124
Freon 113	129	ug/L	20	25.9	50 - 130
Hexachlorobutadiene	100	ug/L	20	20.0	55 - 128
Isopropylbenzene	122	ug/L	20	24.3	73 - 129
Methyl acetate	94.8	ug/L	20	19.0	70 - 130
Methyl cyclohexane	120	ug/L	20	24.1	70 - 130
Methyl t-Butyl Ether	102	ug/L	20	20.4	69 - 115
Methylene Chloride	106	ug/L	20	21.2	76 - 121
Naphthalene	104	ug/L	20	20.8	56 - 134
Styrene	104	ug/L	20	20.8	79 - 123
Tetrachloroethene	112	ug/L	20	22.4	72 - 124
Toluene	118	ug/L	20	23.5	80 - 125
Total Xylenes	106	ug/L	60	63.7	79 - 125
Trichloroethene	103	ug/L	20	20.6	77 - 124
Trichlorofluoromethane	72.7	ug/L	20	14.5	38 - 123
Vinyl Acetate	78.9	ug/L	20	15.8	58 - 136
Vinyl Chloride	71.3	ug/L	20	14.3	27 - 138
cis-1,2-Dichloroethene	108	ug/L	20	21.6	78 - 125
cis-1,3-Dichloropropene	85.2	ug/L	20	17.0	81 - 121
mp-Xylene	113	ug/L	40	45.0	79 - 125
n-Butylbenzene	86.4	ug/L	20	17.3	71 - 130
n-Propylbenzene	105	ug/L	20	21.0	74 - 122
o-Chlorotoluene	118	ug/L	20	23.7	78 - 126
o-Xylene	93.4	ug/L	20	18.7	79 - 124
p-Chlorotoluene	118	ug/L	20	23.5	78 - 125
p-Isopropyltoluene	96.9	ug/L	20	19.4	72 - 123
sec-Butylbenzene	102	ug/L	20	20.3	72 - 127
tert-Amyl methyl ether	87.4	ug/L	20	17.5	75 - 121
tert-Butyl Alcohol	47.6	ug/L	100	47.6	17 - 168
tert-Butylbenzene	102	ug/L	20	20.5	72 - 124
trans-1,2-Dichloroethene	118	ug/L	20	23.6	71 - 122
trans-1,3-Dichloropropene	92.2	ug/L	20	18.4	78 - 126
1,2-Dichloroethane-d4 (S)	82.9	%			62 - 133
4-Bromofluorobenzene (S)	92.7	%			79 - 114
Dibromofluoromethane (S)	93.7	%			78 - 116
Toluene-d8 (S)	80.4	%			76 - 127

MATRIX SPIKE: 2728934 DUPLICATE: 2728935 ORIGINAL: 2308629006

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

1,1,1,2-Tetrachloroethane	0	ug/L	200	227.214	227.236	114	114	78 - 121	.01	16
1,1,1-Trichloroethane	0	ug/L	200	242.924	240.61	121	120	66 - 130	.96	20
1,1,2,2-Tetrachloroethane	0	ug/L	200	215.429	213.171	108	107	74 - 135	1.05	16
1,1,2-Trichloroethane	0	ug/L	200	217.44	218.916	109	109	82 - 126	.68	15
1,1-Dichloroethane	0	ug/L	200	231.837	229.585	116	115	78 - 124	.98	15
1,1-Dichloroethene	0	ug/L	200	258.616	254.213	129*	127	63 - 128	1.72	21
1,2,3-Trichlorobenzene	0	ug/L	200	196.48	212.093	98.2	106	61 - 126	7.64	36
1,2,3-Trichloropropane	0	ug/L	200	220.249	210.987	110	105	75 - 132	4.3	19
1,2,4-Trichlorobenzene	0	ug/L	200	162.396	181.906	81.2	91	67 - 123	11.3	22
1,2,4-Trimethylbenzene	8.30985	ug/L	200	228.199	240.462	110	116	76 - 125	5.23	24
1,2-Dibromo-3-chloropropane	0	ug/L	200	160.199	163.526	80.1	81.8	59 - 133	2.06	26
1,2-Dibromoethane	0	ug/L	200	214.091	215.077	107	108	80 - 124	.46	19
1,2-Dichlorobenzene	0	ug/L	200	214.611	222.493	107	111	82 - 118	3.61	15
1,2-Dichloroethane	0	ug/L	200	206.828	202.804	103	101	70 - 133	1.96	19
1,2-Dichloroethene, Total	11.0077	ug/L	400	486.346	480.68	119	117	78 - 125	1.17	40
1,2-Dichloropropane	0	ug/L	200	225.074	233.185	113	117	81 - 127	3.54	15
1,3-Dichlorobenzene	0	ug/L	200	222.346	228.485	111	114	81 - 118	2.72	16
1,3-Dichloropropane	0	ug/L	200	210.032	213.18	105	107	82 - 126	1.49	15
1,3-Dichloropropene, Total	0	ug/L	400	362.809	369.596	90.7	92.4	80 - 123	1.85	16
1,4-Dichlorobenzene	0	ug/L	200	213.457	220.415	107	110	81 - 116	3.21	15
2,2-Dichloropropane	0	ug/L	200	213.384	212.184	107	106	64 - 129	.56	18
2-Butanone	0	ug/L	1000	1013.77	958.345	101	95.8	50 - 152	5.62	16
2-Chloroethylvinyl ether	0	ug/L	200	1.22314	.86182	.61*	.43*	1 - 150	34.7	40
2-Hexanone	0	ug/L	1000	787.665	776.266	78.8	77.6	65 - 154	1.46	17
4-Methyl-2-Pentanone(MIBK)	0	ug/L	1000	875.069	864.491	87.5	86.4	71 - 146	1.22	16
Acetone	0	ug/L	1000	900.501	849.055	90.1	84.9	40 - 151	5.88	40
Benzene	526.573	ug/L	200	751.484	745.801	112	110	80 - 124	.76	26
Bromobenzene	0	ug/L	200	232.154	234.346	116	117	81 - 119	.94	17
Bromochloromethane	0	ug/L	200	208.37	204.364	104	102	73 - 117	1.94	19
Bromodichloromethane	0	ug/L	200	215.345	213.491	108	107	79 - 126	.86	16
Bromoform	0	ug/L	200	171.995	173.56	86	86.8	70 - 123	.91	16
Bromomethane	0	ug/L	200	139.041	136.539	69.5	68.3	45 - 148	1.82	26
Carbon Disulfide	0	ug/L	200	226.82	218.34	113	109	57 - 131	3.81	28
Carbon Tetrachloride	0	ug/L	200	253.045	253.625	127	127	62 - 132	.23	17
Chlorobenzene	0	ug/L	200	211.484	215.408	106	108	85 - 117	1.84	15
Chlorodibromomethane	0	ug/L	200	184.507	192.981	92.3	96.5	77 - 122	4.49	15
Chloroethane	0	ug/L	200	153.658	151.074	76.8	75.5	51 - 142	1.7	24
Chloroform	4.36504	ug/L	200	221.843	223.206	109	109	78 - 122	.61	16
Chloromethane	0	ug/L	200	210.817	207.81	105	104	38 - 156	1.44	27
Cyclohexane	6.92514	ug/L	200	275.874	281.448	134*	137*	66 - 130	2	20
Dibromomethane	0	ug/L	200	204.557	203.09	102	102	81 - 125	.72	16
Dichlorodifluoromethane	0	ug/L	200	166.091	165.2	83	82.6	17 - 166	.54	24
Diisopropyl ether	0	ug/L	200	200.587	201.359	100	101	74 - 131	.38	15
Ethyl tert-butyl ether	0	ug/L	200	178.742	179.56	89.4	89.8	75 - 123	.46	16
Ethylbenzene	4.90095	ug/L	200	231.96	241.086	114	118	80 - 124	3.86	19
Freon 113	0	ug/L	200	267.536	268.063	134*	134*	50 - 130	.2	26

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Hexachlorobutadiene	0	ug/L	200	227.952	225.087	114	113	55 - 128	1.26	35
Isopropylbenzene	7.8548	ug/L	200	265.349	276.009	129	134*	73 - 129	3.94	18
Methyl acetate	0	ug/L	200	184.323	177.989	92.2	89	70 - 130	3.5	18
Methyl cyclohexane	0	ug/L	200	262.023	275.72	131*	138*	70 - 130	5.09	18
Methyl t-Butyl Ether	24.9342	ug/L	200	226.37	227.109	101	101	69 - 115	.33	20
Methylene Chloride	0	ug/L	200	215.417	211.711	108	106	76 - 121	1.74	17
Naphthalene	0	ug/L	200	249.004	262.176	125	131	56 - 134	5.15	40
Styrene	0	ug/L	200	216.868	218.222	108	109	79 - 123	.62	16
Tetrachloroethene	0	ug/L	200	223.019	229.641	112	115	72 - 124	2.93	38
Toluene	0	ug/L	200	240.535	244.727	120	122	80 - 125	1.73	20
Total Xylenes	74.6573	ug/L	600	744.727	769.777	112	116	79 - 125	3.31	35
Trichloroethene	14.7491	ug/L	200	229.05	224.567	107	105	77 - 124	1.98	18
Trichlorofluoromethane	0	ug/L	200	167.007	165.226	83.5	82.6	38 - 123	1.07	23
Vinyl Acetate	0	ug/L	200	165.038	162.618	82.5	81.3	58 - 136	1.48	17
Vinyl Chloride	0	ug/L	200	163.096	163.185	81.5	81.6	27 - 138	.05	40
cis-1,2-Dichloroethene	11.0077	ug/L	200	240.345	236.848	115	113	78 - 125	1.47	21
cis-1,3-Dichloropropene	0	ug/L	200	171.664	175.712	85.8	87.9	81 - 121	2.33	16
mp-Xylene	23.2991	ug/L	400	491.393	505.957	117	121	79 - 125	2.92	21
n-Butylbenzene	0	ug/L	200	197.128	208.904	98.6	104	71 - 130	5.8	20
n-Propylbenzene	0	ug/L	200	226.673	242.556	113	121	74 - 122	6.77	20
o-Chlorotoluene	0	ug/L	200	247.008	254.613	124	127*	78 - 126	3.03	17
o-Xylene	51.3581	ug/L	200	253.334	263.821	101	106	79 - 124	4.06	19
p-Chlorotoluene	0	ug/L	200	244.327	248.621	122	124	78 - 125	1.74	16
p-Isopropyltoluene	0	ug/L	200	207.307	219.636	104	110	72 - 123	5.78	17
sec-Butylbenzene	0	ug/L	200	222.009	231.639	111	116	72 - 127	4.25	17
tert-Amyl methyl ether	0	ug/L	200	176.85	179.059	88.4	89.5	75 - 121	1.24	40
tert-Butyl Alcohol	0	ug/L	1000	549.856	491.124	55	49.1	17 - 168	11.3	40
tert-Butylbenzene	0	ug/L	200	218.449	233.33	109	117	72 - 124	6.59	17
trans-1,2-Dichloroethene	0	ug/L	200	246.001	243.832	123*	122	71 - 122	.89	22
trans-1,3-Dichloropropene	0	ug/L	200	191.145	193.884	95.6	96.9	78 - 126	1.42	18
1,2-Dichloroethane-d4 (S)	91.3	%				91.3	90.9	62 - 133		
4-Bromofluorobenzene (S)	92	%				92	92.9	79 - 114		
Dibromofluoromethane (S)	95.3	%				95.3	94.4	78 - 116		
Toluene-d8 (S)	79.9	%				79.9	81	76 - 127		

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 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: VOMS/46623 **Analysis Method:** SW846 8260B

QC Batch Method: SW846 8260B

Associated Lab Samples: 2309395001, 2309395002, 2309395003, 2309395004, 2309395005, 2309395006, 2309395007, 2309395008, 2309395009

METHOD BLANK: 2728888

Parameter	Blank Result	Units	Reporting Limit
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0
1,1,1-Trichloroethane	ND	ug/L	1.0
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0
1,1,2-Trichloroethane	ND	ug/L	1.0
1,1-Dichloroethane	ND	ug/L	1.0
1,1-Dichloroethene	ND	ug/L	1.0
1,2,3-Trichlorobenzene	ND	ug/L	2.0
1,2,3-Trichloropropane	ND	ug/L	2.0
1,2,4-Trichlorobenzene	ND	ug/L	2.0
1,2,4-Trimethylbenzene	ND	ug/L	1.0
1,2-Dibromo-3-chloropropane	ND	ug/L	7.0
1,2-Dibromoethane	ND	ug/L	1.0
1,2-Dichlorobenzene	ND	ug/L	1.0
1,2-Dichloroethane	ND	ug/L	1.0
1,2-Dichloroethene, Total	ND	ug/L	2.0
1,2-Dichloropropane	ND	ug/L	1.0
1,3-Dichlorobenzene	ND	ug/L	1.0
1,3-Dichloropropane	ND	ug/L	1.0
1,3-Dichloropropene, Total	ND	ug/L	2.0
1,4-Dichlorobenzene	ND	ug/L	1.0
2,2-Dichloropropane	ND	ug/L	1.0
2-Butanone	ND	ug/L	10.0
2-Chloroethylvinyl ether	ND	ug/L	2.0
2-Hexanone	ND	ug/L	5.0
4-Methyl-2-Pentanone(MIBK)	ND	ug/L	5.0
Acetone	ND	ug/L	10.0
Benzene	ND	ug/L	1.0
Bromobenzene	ND	ug/L	1.0
Bromochloromethane	ND	ug/L	1.0
Bromodichloromethane	ND	ug/L	1.0
Bromoform	ND	ug/L	1.0
Bromomethane	ND	ug/L	1.0
Carbon Disulfide	ND	ug/L	1.0
Carbon Tetrachloride	ND	ug/L	1.0
Chlorobenzene	ND	ug/L	1.0
Chlorodibromomethane	ND	ug/L	1.0

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Chloroethane	ND	ug/L	1.0
Chloroform	ND	ug/L	1.0
Chloromethane	ND	ug/L	1.0
Cyclohexane	ND	ug/L	1.0
Dibromomethane	ND	ug/L	1.0
Dichlorodifluoromethane	ND	ug/L	1.0
Diisopropyl ether	ND	ug/L	1.0
Ethyl tert-butyl ether	ND	ug/L	1.0
Ethylbenzene	ND	ug/L	1.0
Freon 113	ND	ug/L	1.0
Hexachlorobutadiene	ND	ug/L	5.0
Isopropylbenzene	ND	ug/L	1.0
Methyl acetate	ND	ug/L	2.0
Methyl cyclohexane	ND	ug/L	1.0
Methyl t-Butyl Ether	ND	ug/L	1.0
Methylene Chloride	ND	ug/L	1.0
Naphthalene	ND	ug/L	2.0
Styrene	ND	ug/L	1.0
Tetrachloroethene	ND	ug/L	1.0
Toluene	ND	ug/L	1.0
Total Xylenes	ND	ug/L	3.0
Trichloroethene	ND	ug/L	1.0
Trichlorofluoromethane	ND	ug/L	1.0
Vinyl Acetate	ND	ug/L	5.0
Vinyl Chloride	ND	ug/L	1.0
cis-1,2-Dichloroethene	ND	ug/L	1.0
cis-1,3-Dichloropropene	ND	ug/L	1.0
mp-Xylene	ND	ug/L	2.0
n-Butylbenzene	ND	ug/L	2.0
n-Propylbenzene	ND	ug/L	1.0
o-Chlorotoluene	ND	ug/L	1.0
o-Xylene	ND	ug/L	1.0
p-Chlorotoluene	ND	ug/L	1.0
p-Isopropyltoluene	ND	ug/L	1.0
sec-Butylbenzene	ND	ug/L	1.0
tert-Amyl methyl ether	ND	ug/L	1.0
tert-Butyl Alcohol	ND	ug/L	10.0
tert-Butylbenzene	ND	ug/L	2.0
trans-1,2-Dichloroethene	ND	ug/L	1.0
trans-1,3-Dichloropropene	ND	ug/L	1.0
1,2-Dichloroethane-d4 (S)	113	%	62 - 133
4-Bromofluorobenzene (S)	92.1	%	79 - 114
Dibromofluoromethane (S)	97.4	%	78 - 116
Toluene-d8 (S)	95.4	%	76 - 127

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

LABORATORY CONTROL SAMPLE: 2728889

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
1,1,1,2-Tetrachloroethane	95.6	ug/L	20	19.1	78 - 121
1,1,1-Trichloroethane	99.3	ug/L	20	19.9	66 - 130
1,1,2,2-Tetrachloroethane	91.2	ug/L	20	18.2	74 - 135
1,1,2-Trichloroethane	92.1	ug/L	20	18.4	82 - 126
1,1-Dichloroethane	98.6	ug/L	20	19.7	78 - 124
1,1-Dichloroethene	128	ug/L	20	25.6	63 - 128
1,2,3-Trichlorobenzene	82.6	ug/L	20	16.5	61 - 126
1,2,3-Trichloropropane	90.5	ug/L	20	18.1	75 - 132
1,2,4-Trichlorobenzene	88.6	ug/L	20	17.7	67 - 123
1,2,4-Trimethylbenzene	96.2	ug/L	20	19.2	76 - 125
1,2-Dibromo-3-chloropropane	89.5	ug/L	20	17.9	59 - 133
1,2-Dibromoethane	91.7	ug/L	20	18.3	80 - 124
1,2-Dichlorobenzene	93.3	ug/L	20	18.7	82 - 118
1,2-Dichloroethane	97.1	ug/L	20	19.4	70 - 133
1,2-Dichloroethene, Total	100	ug/L	40	40.1	78 - 125
1,2-Dichloropropane	96.9	ug/L	20	19.4	81 - 127
1,3-Dichlorobenzene	94.9	ug/L	20	19.0	81 - 118
1,3-Dichloropropane	92.3	ug/L	20	18.5	82 - 126
1,3-Dichloropropene, Total	100	ug/L	40	40.1	80 - 123
1,4-Dichlorobenzene	91.5	ug/L	20	18.3	81 - 116
2,2-Dichloropropane	105	ug/L	20	21.0	64 - 129
2-Butanone	101	ug/L	100	101	50 - 152
2-Chloroethylvinyl ether	88.2	ug/L	20	17.6	1 - 150
2-Hexanone	89.3	ug/L	100	89.3	65 - 154
4-Methyl-2-Pentanone(MIBK)	94.5	ug/L	100	94.5	71 - 146
Acetone	139	ug/L	100	139	40 - 151
Benzene	99.5	ug/L	20	19.9	80 - 124
Bromobenzene	97.2	ug/L	20	19.4	81 - 119
Bromochloromethane	93.9	ug/L	20	18.8	73 - 117
Bromodichloromethane	96.5	ug/L	20	19.3	79 - 126
Bromoform	90.4	ug/L	20	18.1	70 - 123
Bromomethane	83.3	ug/L	20	16.7	45 - 148
Carbon Disulfide	138*	ug/L	20	27.7	57 - 131
Carbon Tetrachloride	106	ug/L	20	21.3	62 - 132
Chlorobenzene	94.7	ug/L	20	18.9	85 - 117
Chlorodibromomethane	96.8	ug/L	20	19.4	77 - 122
Chloroethane	88.3	ug/L	20	17.7	51 - 142
Chloroform	103	ug/L	20	20.5	78 - 122
Chloromethane	78.5	ug/L	20	15.7	38 - 156
Cyclohexane	117	ug/L	20	23.3	66 - 130
Dibromomethane	90.4	ug/L	20	18.1	81 - 125

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Dichlorodifluoromethane	69.7	ug/L	20	13.9	17 - 166
Diisopropyl ether	106	ug/L	20	21.2	74 - 131
Ethyl tert-butyl ether	103	ug/L	20	20.6	75 - 123
Ethylbenzene	95.8	ug/L	20	19.2	80 - 124
Freon 113	134*	ug/L	20	26.7	50 - 130
Hexachlorobutadiene	95	ug/L	20	19.0	55 - 128
Isopropylbenzene	105	ug/L	20	21.0	73 - 129
Methyl acetate	94	ug/L	20	18.8	70 - 130
Methyl cyclohexane	109	ug/L	20	21.7	70 - 130
Methyl t-Butyl Ether	96.2	ug/L	20	19.2	69 - 115
Methylene Chloride	126*	ug/L	20	25.2	76 - 121
Naphthalene	82.4	ug/L	20	16.5	56 - 134
Styrene	101	ug/L	20	20.2	79 - 123
Tetrachloroethene	97.3	ug/L	20	19.5	72 - 124
Toluene	101	ug/L	20	20.2	80 - 125
Total Xylenes	99.6	ug/L	60	59.7	79 - 125
Trichloroethene	103	ug/L	20	20.5	77 - 124
Trichlorofluoromethane	85.8	ug/L	20	17.2	38 - 123
Vinyl Acetate	93.1	ug/L	20	18.6	58 - 136
Vinyl Chloride	76.8	ug/L	20	15.4	27 - 138
cis-1,2-Dichloroethene	95.4	ug/L	20	19.1	78 - 125
cis-1,3-Dichloropropene	98	ug/L	20	19.6	81 - 121
mp-Xylene	99.6	ug/L	40	39.9	79 - 125
n-Butylbenzene	88.3	ug/L	20	17.7	71 - 130
n-Propylbenzene	102	ug/L	20	20.5	74 - 122
o-Chlorotoluene	99.9	ug/L	20	20.0	78 - 126
o-Xylene	99.5	ug/L	20	19.9	79 - 124
p-Chlorotoluene	99.7	ug/L	20	19.9	78 - 125
p-Isopropyltoluene	90.7	ug/L	20	18.1	72 - 123
sec-Butylbenzene	101	ug/L	20	20.3	72 - 127
tert-Amyl methyl ether	88.7	ug/L	20	17.7	75 - 121
tert-Butyl Alcohol	87.2	ug/L	100	87.2	17 - 168
tert-Butylbenzene	91.2	ug/L	20	18.2	72 - 124
trans-1,2-Dichloroethene	105	ug/L	20	21.1	71 - 122
trans-1,3-Dichloropropene	102	ug/L	20	20.4	78 - 126
1,2-Dichloroethane-d4 (S)	108	%			62 - 133
4-Bromofluorobenzene (S)	90.6	%			79 - 114
Dibromofluoromethane (S)	94	%			78 - 116
Toluene-d8 (S)	93.7	%			76 - 127

MATRIX SPIKE: 2728943 DUPLICATE: 2728944 ORIGINAL: 2308943020

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Parameter	Original Result	Units	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

1,1,1,2-Tetrachloroethane	0	ug/L	20	19.804	19.8791	99	99.4	78 - 121	.38	16
1,1,1-Trichloroethane	0	ug/L	20	20.4502	20.1874	102	101	66 - 130	1.29	20
1,1,2,2-Tetrachloroethane	0	ug/L	20	19.7645	19.4404	98.8	97.2	74 - 135	1.65	16
1,1,2-Trichloroethane	0	ug/L	20	19.3824	19.1417	96.9	95.7	82 - 126	1.25	15
1,1-Dichloroethane	1.11124	ug/L	20	21.679	21.1496	103	100	78 - 124	2.47	15
1,1-Dichloroethene	.38634	ug/L	20	21.2526	19.8649	104	97.4	63 - 128	6.75	21
1,2,3-Trichlorobenzene	0	ug/L	20	17.8009	20.0233	89	100	61 - 126	11.8	36
1,2,3-Trichloropropane	0	ug/L	20	19.9673	19.6925	99.8	98.5	75 - 132	1.39	19
1,2,4-Trichlorobenzene	0	ug/L	20	18.3545	20.0129	91.8	100	67 - 123	8.64	22
1,2,4-Trimethylbenzene	0	ug/L	20	19.5649	19.8268	97.8	99.1	76 - 125	1.33	24
1,2-Dibromo-3-chloropropane	0	ug/L	20	19.2486	19.2299	96.2	96.1	59 - 133	.1	26
1,2-Dibromoethane	0	ug/L	20	19.5969	19.1475	98	95.7	80 - 124	2.32	19
1,2-Dichlorobenzene	0	ug/L	20	19.5548	19.5729	97.8	97.9	82 - 118	.09	15
1,2-Dichloroethane	0	ug/L	20	20.2115	19.874	101	99.4	70 - 133	1.68	19
1,2-Dichloroethene, Total	1.04477	ug/L	40	42.5345	42.0757	104	103	78 - 125	1.08	40
1,2-Dichloropropane	0	ug/L	20	20.6019	21.0575	103	105	81 - 127	2.19	15
1,3-Dichlorobenzene	0	ug/L	20	19.6525	19.8578	98.3	99.3	81 - 118	1.04	16
1,3-Dichloropropane	0	ug/L	20	19.4544	19.1872	97.3	95.9	82 - 126	1.38	15
1,3-Dichloropropene, Total	0	ug/L	40	40.7372	40.4682	102	101	80 - 123	.66	16
1,4-Dichlorobenzene	0	ug/L	20	19.118	19.3154	95.6	96.6	81 - 116	1.03	15
2,2-Dichloropropane	0	ug/L	20	19.5027	18.716	97.5	93.6	64 - 129	4.12	18
2-Butanone	0	ug/L	100	106.054	108.454	106	108	50 - 152	2.24	16
2-Chloroethylvinyl ether	0	ug/L	20	.12582	.08564	.63*	.43*	1 - 150	38	40
2-Hexanone	0	ug/L	100	99.5593	104.13	99.6	104	65 - 154	4.49	17
4-Methyl-2-Pentanone(MIBK)	0	ug/L	100	108.428	109.46	108	109	71 - 146	.95	16
Acetone	7.23321	ug/L	100	110.633	117.314	103	110	40 - 151	5.86	40
Benzene	0	ug/L	20	20.1779	20.047	101	100	80 - 124	.65	26
Bromobenzene	0	ug/L	20	19.7594	20.0698	98.8	100	81 - 119	1.56	17
Bromochloromethane	0	ug/L	20	19.8437	19.472	99.2	97.4	73 - 117	1.89	19
Bromodichloromethane	0	ug/L	20	20.2158	20.1284	101	101	79 - 126	.43	16
Bromoform	0	ug/L	20	19.5272	19.2934	97.6	96.5	70 - 123	1.2	16
Bromomethane	0	ug/L	20	17.309	11.743	86.5	58.7	45 - 148	38.3	26
Carbon Disulfide	0	ug/L	20	22.1844	20.2877	111	101	57 - 131	8.93	28
Carbon Tetrachloride	0	ug/L	20	21.5385	21.4685	108	107	62 - 132	.33	17
Chlorobenzene	0	ug/L	20	20.0955	19.6495	100	98.2	85 - 117	2.24	15
Chlorodibromomethane	0	ug/L	20	20.3144	19.7982	102	99	77 - 122	2.57	15
Chloroethane	0	ug/L	20	19.4635	14.0781	97.3	70.4	51 - 142	32.1	24
Chloroform	0	ug/L	20	21.0431	20.4965	105	102	78 - 122	2.63	16
Chloromethane	0	ug/L	20	16.935	14.3097	84.7	71.5	38 - 156	16.8	27
Cyclohexane	0	ug/L	20	21.4571	21.3828	107	107	66 - 130	.35	20
Dibromomethane	0	ug/L	20	19.4894	18.6052	97.4	93	81 - 125	4.64	16
Dichlorodifluoromethane	0	ug/L	20	13.7824	12.5034	68.9	62.5	17 - 166	9.73	24
Diisopropyl ether	0	ug/L	20	21.2732	21.5216	106	108	74 - 131	1.16	15
Ethyl tert-butyl ether	0	ug/L	20	21.2419	21.3919	106	107	75 - 123	.7	16
Ethylbenzene	0	ug/L	20	19.8015	19.6274	99	98.1	80 - 124	.88	19
Freon 113	0	ug/L	20	20.0899	19.5474	100	97.7	50 - 130	2.74	26

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Hexachlorobutadiene	0	ug/L	20	19.1198	19.0328	95.6	95.2	55 - 128	.46	35
Isopropylbenzene	0	ug/L	20	21.6226	21.644	108	108	73 - 129	.1	18
Methyl acetate	0	ug/L	20	16.8128	17.1224	84.1	85.6	70 - 130	1.82	18
Methyl cyclohexane	0	ug/L	20	20.091	23.6507	100	118	70 - 130	16.3	18
Methyl t-Butyl Ether	0	ug/L	20	19.5665	19.9155	97.8	99.6	69 - 115	1.77	20
Methylene Chloride	0	ug/L	20	20.6345	20.9205	103	105	76 - 121	1.38	17
Naphthalene	0	ug/L	20	17.9386	19.9877	89.7	99.9	56 - 134	10.8	40
Styrene	0	ug/L	20	21.1336	21.0213	106	105	79 - 123	.53	16
Tetrachloroethene	0	ug/L	20	19.7349	18.6285	98.7	93.1	72 - 124	5.77	38
Toluene	0	ug/L	20	20.8713	19.9655	104	99.8	80 - 125	4.44	20
Total Xylenes	0	ug/L	60	62.2308	61.4417	104	102	79 - 125	1.28	35
Trichloroethene	1.06609	ug/L	20	22.7875	21.6578	109	103	77 - 124	5.08	18
Trichlorofluoromethane	0	ug/L	20	17.4876	14.1272	87.4	70.6	38 - 123	21.3	23
Vinyl Acetate	0	ug/L	20	17.9898	16.9383	89.9	84.7	58 - 136	6.02	17
Vinyl Chloride	.37244	ug/L	20	16.7986	13.3553	82.1	64.9	27 - 138	22.8	40
cis-1,2-Dichloroethene	1.04477	ug/L	20	21.0542	20.7318	100	98.4	78 - 125	1.54	21
cis-1,3-Dichloropropene	0	ug/L	20	19.4878	19.3168	97.4	96.6	81 - 121	.88	16
mp-Xylene	0	ug/L	40	41.6616	40.9489	104	102	79 - 125	1.73	21
n-Butylbenzene	0	ug/L	20	17.8233	18.8399	89.1	94.2	71 - 130	5.55	20
n-Propylbenzene	0	ug/L	20	21.0389	21.4096	105	107	74 - 122	1.75	20
o-Chlorotoluene	0	ug/L	20	20.4998	20.6855	102	103	78 - 126	.9	17
o-Xylene	0	ug/L	20	20.5693	20.4928	103	102	79 - 124	.37	19
p-Chlorotoluene	0	ug/L	20	20.533	20.6703	103	103	78 - 125	.67	16
p-Isopropyltoluene	0	ug/L	20	18.2645	19.5715	91.3	97.9	72 - 123	6.91	17
sec-Butylbenzene	0	ug/L	20	20.4519	21.592	102	108	72 - 127	5.42	17
tert-Amyl methyl ether	0	ug/L	20	18.2452	18.2839	91.2	91.4	75 - 121	.21	40
tert-Butyl Alcohol	5.64563	ug/L	100	128.453	144.122	123	138	17 - 168	11.5	40
tert-Butylbenzene	0	ug/L	20	18.4525	19.3618	92.3	96.8	72 - 124	4.81	17
trans-1,2-Dichloroethene	0	ug/L	20	21.4803	21.3439	107	107	71 - 122	.64	22
trans-1,3-Dichloropropene	0	ug/L	20	21.2493	21.1515	106	106	78 - 126	.46	18
1,2-Dichloroethane-d4 (S)	110	%				110	107	62 - 133		
4-Bromofluorobenzene (S)	88.5	%				88.5	90.3	79 - 114		
Dibromofluoromethane (S)	93.4	%				93.4	92.4	78 - 116		
Toluene-d8 (S)	93.2	%				93.2	92.5	76 - 127		

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 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: WCPR/43365 **Analysis Method:** SW-846 7.3CN

QC Batch Method: SW-846 7.3CN

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2729578

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	ND	ppm	10

LABORATORY CONTROL SAMPLE: 2729579

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Cyanide, Reactive	12.3	ppm	10	1.2J	0 - 92

SAMPLE DUPLICATE: 2729580 ORIGINAL: 2310442001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Cyanide, Reactive	.01493	ppm	.01497	.25	20

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: WCPR/43366 **Analysis Method:** SW846 7.3

QC Batch Method: SW846 7.3

Associated Lab Samples: 2309395024, 2309395025

METHOD BLANK: 2729581

Parameter	Blank Result	Units	Reporting Limit
Sulfide, Reactive	4.0J	ppm	6.2

LABORATORY CONTROL SAMPLE: 2729582

Parameter	LCS % Rec	Units	Spike Conc.	LCS Result	% Rec Limit
Sulfide, Reactive	81.5	ppm	568	463	49 - 148

SAMPLE DUPLICATE: 2729583 ORIGINAL: 2310442001

Parameter	Original Result	Units	DUP Result	RPD	Max RPD
Sulfide, Reactive	1.99104	ppm	3.19361	46.4*	20

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: WETC/203549 **Analysis Method:** SW846 7.3

QC Batch Method: SW846 7.3

Associated Lab Samples:

METHOD BLANK: 2729677

Parameter	Blank Result	Units	Reporting Limit
Sulfide, Reactive	ND	ppm	6.3

METHOD BLANK: 2729679

Parameter	Blank Result	Units	Reporting Limit
Sulfide, Reactive	ND	ppm	6.3

METHOD BLANK: 2729681

Parameter	Blank Result	Units	Reporting Limit
Sulfide, Reactive	ND	ppm	6.3

METHOD BLANK: 2729683

Parameter	Blank Result	Units	Reporting Limit
Sulfide, Reactive	ND	ppm	6.3

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

QC Batch: WETC/203584 **Analysis Method:** SW-846 7.3CN

QC Batch Method: SW-846 7.3CN

Associated Lab Samples:

METHOD BLANK: 2730127

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	0.0010	mg/L	0.00010

METHOD BLANK: 2730129

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	0.0040	mg/L	0.00010

METHOD BLANK: 2730131

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	0.0030	mg/L	0.00010

METHOD BLANK: 2730133

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	0.0030	mg/L	0.00010

METHOD BLANK: 2730135

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	0.0020	mg/L	0.00010

METHOD BLANK: 2730137

Parameter	Blank Result	Units	Reporting Limit

QUALITY CONTROL DATA

Workorder: 2309395 LMC MRC 4/17/18

Cyanide, Reactive	0.0040	mg/L	0.00010

METHOD BLANK: 2730139

Parameter	Blank Result	Units	Reporting Limit
Cyanide, Reactive	0.0010	mg/L	0.00010

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA QUALIFIERS

Workorder: 2309395 LMC MRC 4/17/18

QUALITY CONTROL PARAMETER QUALIFIERS

Lab ID	#	Sample Type	Analytical Method	Analyte
2728889	1	Lab Control Standard	SW846 8260B	Methylene Chloride
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Methylene Chloride. The % Recovery was reported as 126 and the control limits were 76 to 121.				
2728889	2	Lab Control Standard	SW846 8260B	Carbon Disulfide
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Carbon Disulfide. The % Recovery was reported as 138 and the control limits were 57 to 131.				
2728889	3	Lab Control Standard	SW846 8260B	Freon 113
The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Freon 113. The % Recovery was reported as 134 and the control limits were 50 to 130.				
2731434	4	Duplicate	SW-846 1010A	Flashpoint/Ignitability
According to Pa/USEPA regulations, this sample is not considered to be ignitable. (Ref 40 CFR 261.21)				
2731434	5	Duplicate	SW-846 1010A	Flashpoint/Ignitability
Sample did not flash up to 200 degrees F				

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State Certifications: DE ID 11 , MA PA0102 , MD 128 , VA 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2309395 LMC MRC 4/17/18

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2309395024	DM-1-4			SW846 9040C	WETC/203183
2309395025	DM-5-8			SW846 9040C	WETC/203183
2309395001	MRC-SW17A	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395002	MRC-SW2A	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395003	MRC-SW1A	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395017	MRC-SW6B	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395018	MRC-SW8B	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395020	MRC-SW8A-D	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395021	MRC-SW6A	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395023	MRC-SW8A	SW846 3510C	EXTR/51837	8270 SIM	SVMS/30492
2309395024	DM-1-4			SW846 8260B	VOMS/46598
2309395025	DM-5-8			SW846 8260B	VOMS/46598
2309395024	DM-1-4	SW846 3510C	EXTR/51862	SW846 8270D	SVMS/30490
2309395025	DM-5-8	SW846 3510C	EXTR/51862	SW846 8270D	SVMS/30490
2309395024	DM-1-4	SW846 3510C	EXTR/51866	SW846 8082A	SVGC/48950
2309395025	DM-5-8	SW846 3510C	EXTR/51866	SW846 8082A	SVGC/48950
2309395015	TB-041718-3			SW846 8260B	VOMS/46615
2309395016	MRC-SW13A			SW846 8260B	VOMS/46615
2309395017	MRC-SW6B			SW846 8260B	VOMS/46615
2309395018	MRC-SW8B			SW846 8260B	VOMS/46615
2309395019	TB-041718-4			SW846 8260B	VOMS/46615
2309395020	MRC-SW8A-D			SW846 8260B	VOMS/46615
2309395021	MRC-SW6A			SW846 8260B	VOMS/46615
2309395022	TB-041718-5			SW846 8260B	VOMS/46615
2309395023	MRC-SW8A			SW846 8260B	VOMS/46615

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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 460157 , WV 343

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 2309395 LMC MRC 4/17/18

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
2309395024	DM-1-4	SW846 7470A	MDIG/71348	SW846 7470A	META/61764
2309395025	DM-5-8	SW846 7470A	MDIG/71348	SW846 7470A	META/61764
2309395010	TB-041718-2			SW846 8260B	VOMS/46617
2309395011	MRC-SW5A1			SW846 8260B	VOMS/46617
2309395012	MRC-SW9B			SW846 8260B	VOMS/46617
2309395013	MRC-SW15A			SW846 8260B	VOMS/46617
2309395014	MRC-SW16A			SW846 8260B	VOMS/46617
2309395024	DM-1-4	SW846 3015	MDIG/71363	SW846 6010C	META/61765
2309395025	DM-5-8	SW846 3015	MDIG/71363	SW846 6010C	META/61765
2309395001	MRC-SW17A			SW846 8260B	VOMS/46623
2309395002	MRC-SW2A			SW846 8260B	VOMS/46623
2309395003	MRC-SW1A			SW846 8260B	VOMS/46623
2309395004	MRC-SW9A			SW846 8260B	VOMS/46623
2309395005	TB-041718-1			SW846 8260B	VOMS/46623
2309395006	MRC-SW5A2			SW846 8260B	VOMS/46623
2309395007	MRC-SW5B			SW846 8260B	VOMS/46623
2309395008	MRC-SW7A			SW846 8260B	VOMS/46623
2309395009	MRC-SW7B			SW846 8260B	VOMS/46623
2309395024	DM-1-4	SW-846 7.3CN	WCPR/43365	SW-846 7.3CN	WETC/203584
2309395025	DM-5-8	SW-846 7.3CN	WCPR/43365	SW-846 7.3CN	WETC/203584
2309395024	DM-1-4	SW846 7.3	WCPR/43366	SW846 7.3	WETC/203549
2309395025	DM-5-8	SW846 7.3	WCPR/43366	SW846 7.3	WETC/203549

ALS Environmental
34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

2309395

Co. Name: AECom
Contact (Report to): Ravi Damera & Holly Brown Phone: 301-674-3199
Address: 12420 Milestone Center Drive, Suite 150
Germantown, MD 20876
Bill to (if different than Report to): Ravi Damera PO#: 95840AECm
Project Name/#: LMC MRC ALS Quote #:
TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:
Email? [X] Y ravi.damera@aecom.com
Fax? [ ] Y No.:

***Container Type	G	A	A
***Container Size	40mL	1L	1L
***Preservative	HCL		

ANALYSES/METHOD REQUESTED: VOCs (8260C) | 1,4-Dioxane | PCB Homologs

Enter Number of Containers Per Analysis

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	VOCs (8260C)	1,4-Dioxane	PCB Homologs
1 MRC-SW17A		4-16-18	1507	G		2	2	
2 MRC-SW2A		4/16/18	1638	G		2	2	
3 MRC-SW1A		4/16/18	1620	G		2	2	
4 MRC-SW9A		4/17/18	0812	G		2		2
5 TB-041718-1	trip blank	NA	NA	G		2		
6 MRC-SW5A2		4/17/18	0924	G		2		2
7 MRC-SW5B		4/17/18	0940	G		2		2 DNN 4/17/18
8 MRC-SW17A		4/17/18	0804	G		2		2

Receipt Information (completed by Sample Receiving)
Performed by: DNN
Cooler Temp: 1°C
Therm. ID: 318
No. of Coolers:
Notes:

Circle appropriate Y or N.

Correct containers?	(Y)	N
Correct sample volume?	(Y)	N
Correct preservation?	(Y)	N
Headspace/Volatiles?	Y	(N)
Custody seals Present?	(Y)	N
(if present) Seals Intact?	(Y)	N
Received on ice?	(Y)	N
COC/Labels complete/accurate?	(Y)	N
Container in good condition?	(Y)	N

SAMPLED BY (Please Print): Zach Neigh

Project Comments: email naam.quatris@aecom.com & holly.brown@aecom.com

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature] AECOM	4/17/18	1400	2	[signature] ALS	4/17	1400
3	[signature]			4			BSC
5			2200	6	[signature]	4/17/18	2200
7				8			
9				10			

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other
SDWA Forms?: yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In?: MD [ ] NJ [ ] NY [ ] PA [ ]
EDDs Required? [X] If yes, format type: Other: EQuIS 4 & 3 CSV / Enter FORMAT
DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY Rev 01-2013

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Middletown, PA 17057
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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Courier:
Tracking #:

COC# 28609 395

Co. Name: AECOM
Contact (Report to): Ravi Damera & Holly Brown **Phone:** 301-674-3407
Address: 12420 Milestone Center Drive, Suite 150
Germantown, MD 20876

Bill to (if different than Report to): Ravi Damera **PO#:** 95840 AECM

Project Name/#: LMC MRC **ALS Quote #:**

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? [X] -Y ravi.damera@aecom.com
Fax? [ ] -Y No.:

	***Container Type	G	A	A
	***Container Size	40mL	1L	1L
	***Preservative	HCL		

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	VOCs (8260C)	1,4-Dioxane	PCB Homologs
1 MRC-SW7B		4/17/18	0837	G	SW	2		2
2 TB-041718-2	trip blank	NA	NA	G	WQ	2		
3 MRC-SW5A1		4/17/18	0912	G	SW	2		2
4 MRC-SW9B		4/17/18	0856	G	SW	2		2
5 MRC-SW15A		4/17/18	1140	G	SW	2		2
6 MRC-SW16A		4/17/18	1120	G	SW	2		2
7 TB-041718-3 Head space	trip blank	NA	NA	G	WQ	2		
8 MRC-SW13A (DNM 4/17/18)		4/17/18	1144	G	SW	2		2

Receipt Information (completed by Sample Receiving)
Performed by: [illegible] INITIAL HERE
Cooler Temp: 1 °C
Therm. ID: 318
No. of Coolers:
Notes:

Circle appropriate Y or N.

Item	Y/N
Correct containers?	Y
Correct sample volume?	Y
Correct preservation?	Y
Headspace/Volatiles?	Y
Custody seals Present?	Y
(if present) Seals intact?	Y
Received on ice?	Y
COC/Labels complete/accurate?	Y
Container in good condition?	Y

SAMPLED BY (Please Print): Zach Neigh

Project Comments: email: holly.brown@aecom.com & naam-tawatzis@aecom.com

	Relinquished By / Company Name	Date	Time		Received By / Company Name	Date	Time
1	[signature] / AECOM	4-17-18	1403	2	[signature] / ALS	4/17/18	1403
3	[signature] / ALS			4	[signature]		1550
5	[signature]		2220	6	[signature]	4/17/18	2200
7				8			
9				10			

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

EDDs Required? [X] If yes, format type: EQuIS & .CSV

DOD Criteria Required?

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ] Other

State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY Rev 01-2013

ALS Environmental

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F. 717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 3 of 4

Courier:

Tracking #:

COC# 2309395

Co. Name: AECOM

Contact (Report to): Ravi Damera & Holly Brown Phone: 301-674-3199

Address: 12420 Milestone Center Drive, Suite 150
Germantown, MD 20876

Bill to (if different than Report to): Ravi Damera PO#: 95840AECOM

Project Name/#: LMC MRC ALS Quote #:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:

Email? [X] Y ravi.damera@aecom.com
Fax? Y No.:

**Container Type						G	A	A	G	
**Container Size						40mL	1L	1L	32oz	
***Preservative						HCL				
ANALYSES/METHOD REQUESTED						VOCs	1,4-Dioxane	EB Handouts	TCLP-RCRA Analyses	
Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	Enter Number of Containers Per Analysis				
1 MRC-SW6B		4/17/18	1051	G	SW	2	2	2		
2 MRC-SW8B		4/11/18	1104	G	SW	2	2	2		
3 TB-041718-4 Head space DNW 4/17/18	trip blank	NA	NA	G	WQ	2				
4 MRC-SW8A-D	dup.	4/11/18	1030	G	SW	2	2	2		
5 MRC-SW6A		4/17/18	1002	G	SW	2	2	2		
6 TB-041718-5 Head space DNW 4/17/18	trip blank	NA 4/17/18	NA	G	WQ	2				
7 MRC-SW8A		4/17/18	1016	G	SW	2	2	2		
8 DM-1-4	drums	4/17/18	1320	C	GW				10	

SAMPLED BY (Please Print): Zach Neigh

Project Comments: email naomi.travantis@aecom.com & holly.brown@aecom.com

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] AECOM	4/17/18	1400	2 [signature] ALS	4/17	1400
3 [signature] ALS			4		1930
5		TCW	6 [signature]	4/17/18	2200
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other:

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]

State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

EDDs Required? [X] If yes, format type: Other: EQuIS & CSV

DOD Criteria Required?

Receipt Information (completed by Sample Receiving)
Performed by: / INITIAL HERE
Cooler Temp: 1°C
Therm. ID: 318
No. of Coolers:
Notes:

Correct containers? (Y) N
Correct sample volume? (Y) N
Correct preservation? (Y) N
Headspace/Volatiles? (Y) N
Circle appropriate Y or N.

Custody seals Present? Y (N)
(if present) Seals intact? Y (N)
Received on Ice? (Y) N
COC/Labels complete/accurate? (Y) N
Container in good condition? (Y) N

ALS FIELD SERVICES
[ ] Pickup
[ ] Labor
[ ] Composite Sampling
[ ] Rental Equipment
[ ] Other:

* G=Grab; C=Composite

**Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY

Rev 01-2013

ALS Environmental

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F.717-944-1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

Page 4 of 4
Courier:
Tracking #:

COC# 2309395

Co. Name: AECom
Contact (Report to): Ravi Danera & Holly Brown Phone: 301-674-3199
Address: 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876
Bill to (if different than Report to): Ravi Danera PO#: 95846Aem
Project Name/#: LMC MRC ALS Quote #:
TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges. Date Required: Approved By:
Email? [X] Y Ravi.Danera@aecom.com
Fax? Y No:

Sample Description/Location (as it will appear on the lab report)	COC Comments	Sample Date	Military Time	*G or C	**Matrix	TCLP + RIC Analyses
***Container Type						G
***Container Size						32oz
***Preservative						
1 DM-5-8	drums	4-17-18	1335	C	Sol	10
2						
3						
4						
5						
6						
7						
8						

ANALYSES/METHOD REQUESTED — Enter Number of Containers Per Analysis

Receipt Information (completed by Sample Receiving)
Performed by: DNN
Cooler Temp: 1°C
Therm. ID: 318
No. of Coolers:
Notes:

Correct containers?	(Y)	N
Correct sample volume?	(Y)	N
Correct preservation?	(Y)	N
Headspace/Volatiles?		
Custody seals Present?	Y	(N)
(If present) Seals intact?	Y	(N)
Received on ice?	(Y)	N
COC/Labels complete/accurate?	(Y)	N
Container in good condition?	(Y)	N

Circle appropriate Y or N.

SAMPLED BY (Please Print): Zach Neigh

Project Comments: Also email data to holly.brown@aecom.com & [illegible].tavantzis@aecom.com

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [signature] / AECom	4-17-18	1400	2 [signature]	4/17	1400
3 [signature]			4 [signature]		1820
5		1820	6 [signature]	4/17/18	2000
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] NJ-Reduced [ ] NJ-Full [ ] other

SDWA Forms? yes [ ] yes [ ] yes [ ] yes [ ]
State Samples Collected In? MD [ ] NJ [ ] NY [ ] PA [ ]

EDDs Required? [X] If yes, format type: EQuIS 4-csv Other

DOD Criteria Required?

ALS FIELD SERVICES: [ ] Pickup [ ] Labor [ ] Composite Sampling [ ] Rental Equipment [ ] Other:

* G=Grab; C=Composite **Matrix: AI=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater

***Container Type: AG-Amber Glass; CG-Clear Glass, PL-Plastic. Container Size: 250ml, 500ml, 1L, 8oz., etc. Preservative: HCl, HNO3, NaOH, etc.

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY Rev 01-2013

April 30, 2018 Service Request No:R1803542

Vanessa Badman
ALS Environmental
34 Dogwood Lane
Middletown, PA 17057

Laboratory Results for: UR115: 2309395

Dear Vanessa,

Enclosed are the results of the sample(s) submitted to our laboratory April 19, 2018
For your reference, these analyses have been assigned our service request number **R1803542.**

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 7472. You may also contact me via email at Janice.Jaeger@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Janice Jaeger
Project Manager

ADDRESS 1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
PHONE +1 585 288 5380 | FAX +1 585 288 8475
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

ALS Environmental

Client: ALS Environmental - US
Project: UR115: 2309395
Sample Matrix: Water

Service Request: R1803542
Date Received: 04/19/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables, including results of QC samples analyzed from this delivery group. Analytical procedures performed by the lab are validated in accordance with NELAC standards. Any parameters that are not included in the lab's NELAC accreditation are identified on a "Non-Certified Analytes" report in the Miscellaneous Forms Section of this report. Individual analytical results requiring further explanation are flagged with qualifiers and/or discussed below. The flags are explained in the Report Qualifiers and Definitions page in the Miscellaneous Forms section of this report.

Sample Receipt:

Fifteen water samples were received for analysis at ALS Environmental on 04/19/2018. Any discrepancies noted upon initial sample inspection are noted on the cooler receipt and preservation form included in this data package. The samples were received in good condition and consistent with the accompanying chain of custody form. Samples are refrigerated at 6°C upon receipt at the lab except for aqueous samples designated for metals analyses, which are stored at room temperature.

Semivolatiles by GC/MS:

Method 680, 04/27/2018: The control limit was exceeded for one or more surrogates in the Continuing Calibration Verification (CCV). The surrogates were within acceptance limits for the associated field samples. The data quality was not significantly affected and no further corrective action was taken.

Method 680, 04/27/2018: The lower control limit for the spike recovery of the Laboratory Control Sample (LCS) was exceeded for one or more analyte. There were no detections of the analyte(s) in the associated field samples. The discrepancy associated with reduced recovery equates to a potential low bias. The analytes affected are flagged in the LCS Summary.

Method 680, 04/27/2018: The control limits were exceeded for analytes in the closing Continuing Calibration Verification (CCV). The QC failure was most likely due to the composition of the sample(s) immediately preceding the failing CCV. Samples run multiple times with the same result.

Approved by _____ Date 04/30/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: 2309395 004			Lab ID: R1803542-001			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0042	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 006			Lab ID: R1803542-002			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0033	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 007			Lab ID: R1803542-003			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0042	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 008			Lab ID: R1803542-004			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0066		0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 009			Lab ID: R1803542-005			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0038	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 011			Lab ID: R1803542-006			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0028	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 012			Lab ID: R1803542-007			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0028	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 013			Lab ID: R1803542-008			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0047		0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 014			Lab ID: R1803542-009			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0042	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 016			Lab ID: R1803542-010			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0019	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 017			Lab ID: R1803542-011			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0042	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 018			Lab ID: R1803542-012			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0038	J	0.0016	0.0047	ug/L	680

SAMPLE DETECTION SUMMARY

CLIENT ID: 2309395 020			Lab ID: R1803542-013			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0047		0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 021			Lab ID: R1803542-014			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0038	J	0.0016	0.0047	ug/L	680

CLIENT ID: 2309395 023			Lab ID: R1803542-015			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Dichlorobiphenyls, Total	0.0033	J	0.0016	0.0047	ug/L	680

Sample Receipt Information

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
R1803542-001	2309395 004	4/17/2018	0842
R1803542-002	2309395 006	4/17/2018	0924
R1803542-003	2309395 007	4/17/2018	0940
R1803542-004	2309395 008	4/17/2018	0804
R1803542-005	2309395 009	4/17/2018	0837
R1803542-006	2309395 011	4/17/2018	2200
R1803542-007	2309395 012	4/17/2018	0912
R1803542-008	2309395 013	4/17/2018	1140
R1803542-009	2309395 014	4/17/2018	1120
R1803542-010	2309395 016	4/17/2018	1144
R1803542-011	2309395 017	4/17/2018	1051
R1803542-012	2309395 018	4/17/2018	1104
R1803542-013	2309395 020	4/17/2018	1030
R1803542-014	2309395 021	4/17/2018	1002
R1803542-015	2309395 023	4/17/2018	1016

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax: 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	1 of 2
ALS Quote #:	

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2309395

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 4/30/2018 * Approved By: _____

Email? [ ] -Y _____

Fax? [ ] -Y No.: _____

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: _____

No. of Coolers: _____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	680 (PCB Homologs)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Sample/COC Comments
					Enter Number of Containers Per Sample or Field Results Below.		
1 2309395 004	4/17/18	0842	G	WT	2	*	
2 2309395 006	4/17/18	0924	G	WT	2	*	Sub to ALS Rochester
3 2309395 007	4/17/18	0940	G	WT	2	*	
4 2309395 008	4/17/18	0804	G	WT	6	*	
5 2309395 009	4/17/18	0837	G	WT	2	*	
6 2309395 011	4/17/18	2200	G	WT	2	*	
7 2309395 012	4/17/18	0912	G	WT	2	*	
8 2309395 013	4/17/18	1140	G	WT	2	*	
9 2309395 014	4/17/18	1120	G	WT	2	*	
10 2309395 016	4/17/18	1144	G	WT	2	*	

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other: _____

Project Comments:

LOGGED BY(signature): _____ DATE _____ TIME _____

REVIEWED BY(signature): _____ DATE _____ TIME _____

Data Deliverables: [X] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ] [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

Reportable to PADEP? Yes [ ] PWSID # _____

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type- _____

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 (mx) ALS	4/18/18	1630	2	4/19/18	0900
3			4		
5			6		
7			8		
9			10		

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=

R1803542 5
ALS Environmental
US115: 2309395

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

ALS Environmental

34 Dogwood Lane • Middletown, PA 17057 • 717.944.5541 • Fax 717.944.1430

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Generated by ALS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #:	2 of
ALS Quote #:	2

Client Name: ALS Environmental

Address: 34 Dogwood Lane
Middletown, PA 17057

Contact: Vanessa Badman

Phone#: (717) 944-5541

Project Name/#: UR115: 2309395

Bill To: ALS Environmental

TAT [ ] Normal-Standard TAT is 10-12 business days.
[X] Rush-Subject to ALS approval and surcharges.

Date Required: 4/30/2018 Approved By:

Email? [ ] Y

Fax? [ ] Y No.:

Receipt Information (completed by Receiving Lab)

Cooler Temp: ____ Therm ID: ____

No. of Coolers: ____

	Y	N	Initial
Custody Seals Present?			
(if present) Seals Intact?			
Received on Ice?			
COC/Labels Complete/Accurate?			
Cont. in Good Cond.?			
Correct Containers?			
Correct Sample Volumes?			
Correct Preservation?			
Headspace/Volatiles?			

Courier/Tracking #:

ANALYSES/METHOD REQUESTED

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	*G or C	**Matrix	Container Type: AN	Container Size: 1L	Preservative: None	680 (PCB Homologs)	*Report to the MDL, QC lab report needed, EQUIS EDD.	Enter Number of Containers Per Sample or Field Results Below.	Sample/COC Comments
11 2309395 017	4/17/18	1051	G	WT	1	1		2	*		
12 2309395 018	4/17/18	1104	G	WT	1	1		2	*		Sub to ALS Rochester
13 2309395 020	4/17/18	1030	G	WT	1	1		2	*		
14 2309395 021	4/17/18	1002	G	WT	1	1		2	*		
15 2309395 023	4/17/18	1016	G	WT	1	1		2	*		
16											
17											
18											
19											
20											

ALS Field Services: ☐Pickup ☐Labor ☐Composite_Sampling ☐Rental_Equipment ☐Other:

Project Comments:

LOGGED BY(signature): Date: Time:

REVIEWED BY(signature): Date: Time:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
1 [illegible]	4/18/18	1630	2 [illegible]	4/18/18	0900
3			4		
5			6		
7			8		
9			10		

Data Deliverables: [X] Standard [ ] CLP-like [ ] USACE [ ]

Special Processing: USACE [ ] Navy [ ]

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] NC [X] MD

Reportable to PADEP? Yes [ ]

PWSID #

Sample Disposal: Lab [X] Special [ ]

EDDS: Format Type- EQUIS EDD

* G=Grab; C=Composite **Matrix - Al=Air; DW=Drinking Water; GW=Groundwater; Ol=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Waste

ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057

R1803542 5

ALS Environmental
UR115: 2309395

Miscellaneous Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

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% 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 LOQ	Method Reporting Limit. Also known as: 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]

Connecticut ID # PH0556	Maine ID #NY0032	New Hampshire ID # 294100 A/B
Delaware Approved	New Jersey ID # NY004	
DoD ELAP #65817	New York ID # 10145	Pennsylvania ID# 68-786
Florida ID # E87674	North Carolina #676	Rhode Island ID # 158
		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 case narrative. Since not all analyte/method/matrix combinations are offered for state/NELAC accreditation, this report may contain results which are not accredited. For a specific list of accredited analytes, contact the laboratory or go to https://www.alsglobal.com/locations/americas/north-america/usa/new-york/rochester-environmental

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: ALS Environmental - US
Project: UR115: 2309395
Service Request: R1803542

Sample Name: 2309395 004
Lab Code: R1803542-001
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 006
Lab Code: R1803542-002
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 007
Lab Code: R1803542-003
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 008
Lab Code: R1803542-004
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 009
Lab Code: R1803542-005
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Client: ALS Environmental - US
Project: UR115: 2309395
Service Request: R1803542

Sample Name: 2309395 011
Lab Code: R1803542-006
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 012
Lab Code: R1803542-007
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 013
Lab Code: R1803542-008
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 014
Lab Code: R1803542-009
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 016
Lab Code: R1803542-010
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Client: ALS Environmental - US
Project: UR115: 2309395
Service Request: R1803542

Sample Name: 2309395 017
Lab Code: R1803542-011
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 018
Lab Code: R1803542-012
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 020
Lab Code: R1803542-013
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 021
Lab Code: R1803542-014
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

Sample Name: 2309395 023
Lab Code: R1803542-015
Sample Matrix: Water
Date Collected: 04/17/18
Date Received: 04/19/18

Analysis Method	Extracted/Digested By	Analyzed By
680	MPEDRO	JMISIUREWICZ

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	200.2
200.8	200.2
6010C	3005A/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	3005A/3010A
6010 SPLP (1312) extract	3005A/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.

Sample Results

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC/MS

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 08:42
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 004	**Units:**	ug/L
Lab Code:	R1803542-001	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/26/18 23:08	4/20/18	
Dichlorobiphenyls, Total	**0.0042 J**	0.0047	0.0016	1	04/26/18 23:08	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/26/18 23:08	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/26/18 23:08	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/26/18 23:08	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/26/18 23:08	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/26/18 23:08	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/26/18 23:08	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/26/18 23:08	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/26/18 23:08	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/26/18 23:08	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	80	58 - 125	04/26/18 23:08	
4,4'-DDT	86	37 - 166	04/26/18 23:08	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 09:24
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 006	**Units:**	ug/L
Lab Code:	R1803542-002	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/30/18 11:06	4/20/18	
Dichlorobiphenyls, Total	**0.0033 J**	0.0047	0.0016	1	04/30/18 11:06	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/30/18 11:06	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/30/18 11:06	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/30/18 11:06	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/30/18 11:06	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/30/18 11:06	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/30/18 11:06	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/30/18 11:06	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/30/18 11:06	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/30/18 11:06	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	63	58 - 125	04/30/18 11:06	
4,4'-DDT	56	37 - 166	04/30/18 11:06	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 09:40
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 007	**Units:**	ug/L
Lab Code:	R1803542-003	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 00:06	4/20/18	
Dichlorobiphenyls, Total	**0.0042 J**	0.0047	0.0016	1	04/27/18 00:06	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 00:06	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 00:06	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 00:06	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 00:06	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 00:06	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 00:06	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 00:06	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 00:06	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 00:06	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	73	58 - 125	04/27/18 00:06	
4,4'-DDT	77	37 - 166	04/27/18 00:06	

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 08:04
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 008	**Units:**	ug/L
Lab Code:	R1803542-004	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 00:35	4/20/18	
Dichlorobiphenyls, Total	**0.0066**	0.0047	0.0016	1	04/27/18 00:35	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 00:35	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 00:35	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 00:35	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 00:35	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 00:35	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 00:35	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 00:35	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 00:35	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 00:35	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	70	58 - 125	04/27/18 00:35	
4,4'-DDT	61	37 - 166	04/27/18 00:35	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 08:37
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 009	**Units:**	ug/L
Lab Code:	R1803542-005	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 01:03	4/20/18	
Dichlorobiphenyls, Total	**0.0038 J**	0.0047	0.0016	1	04/27/18 01:03	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 01:03	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 01:03	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 01:03	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 01:03	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 01:03	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 01:03	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 01:03	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 01:03	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 01:03	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	62	58 - 125	04/27/18 01:03	
4,4'-DDT	57	37 - 166	04/27/18 01:03	

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 22:00
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 011	**Units:**	ug/L
Lab Code:	R1803542-006	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/30/18 11:35	4/20/18	
Dichlorobiphenyls, Total	**0.0028 J**	0.0047	0.0016	1	04/30/18 11:35	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/30/18 11:35	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/30/18 11:35	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/30/18 11:35	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/30/18 11:35	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/30/18 11:35	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/30/18 11:35	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/30/18 11:35	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/30/18 11:35	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/30/18 11:35	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	77	58 - 125	04/30/18 11:35	
4,4'-DDT	66	37 - 166	04/30/18 11:35	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 09:12
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 012	**Units:**	ug/L
Lab Code:	R1803542-007	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 02:01	4/20/18	
Dichlorobiphenyls, Total	**0.0028 J**	0.0047	0.0016	1	04/27/18 02:01	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 02:01	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 02:01	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 02:01	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 02:01	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 02:01	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 02:01	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 02:01	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 02:01	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 02:01	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	59	58 - 125	04/27/18 02:01	
4,4'-DDT	48	37 - 166	04/27/18 02:01	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 11:40
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 013	**Units:**	ug/L
Lab Code:	R1803542-008	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 02:30	4/20/18	
Dichlorobiphenyls, Total	**0.0047**	0.0047	0.0016	1	04/27/18 02:30	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 02:30	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 02:30	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 02:30	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 02:30	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 02:30	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 02:30	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 02:30	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 02:30	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 02:30	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	58	58 - 125	04/27/18 02:30	
4,4'-DDT	50	37 - 166	04/27/18 02:30	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 11:20
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 014	**Units:**	ug/L
Lab Code:	R1803542-009	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 02:58	4/20/18	
Dichlorobiphenyls, Total	**0.0042 J**	0.0047	0.0016	1	04/27/18 02:58	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 02:58	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 02:58	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 02:58	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 02:58	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 02:58	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 02:58	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 02:58	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 02:58	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 02:58	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	61	58 - 125	04/27/18 02:58	
4,4'-DDT	38	37 - 166	04/27/18 02:58	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 11:44
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 016	**Units:**	ug/L
Lab Code:	R1803542-010	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 03:27	4/20/18	
Dichlorobiphenyls, Total	**0.0019 J**	0.0047	0.0016	1	04/27/18 03:27	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 03:27	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 03:27	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 03:27	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 03:27	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 03:27	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 03:27	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 03:27	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 03:27	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 03:27	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	58	58 - 125	04/27/18 03:27	
4,4'-DDT	47	37 - 166	04/27/18 03:27	

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 10:51
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 017	**Units:**	ug/L
Lab Code:	R1803542-011	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 03:56	4/20/18	
Dichlorobiphenyls, Total	**0.0042 J**	0.0047	0.0016	1	04/27/18 03:56	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 03:56	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 03:56	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 03:56	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 03:56	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 03:56	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 03:56	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 03:56	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 03:56	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 03:56	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	64	58 - 125	04/27/18 03:56	
4,4'-DDT	66	37 - 166	04/27/18 03:56	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 11:04
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 018	**Units:**	ug/L
Lab Code:	R1803542-012	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 04:25	4/20/18	
Dichlorobiphenyls, Total	**0.0038 J**	0.0047	0.0016	1	04/27/18 04:25	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 04:25	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 04:25	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 04:25	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 04:25	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 04:25	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 04:25	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 04:25	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 04:25	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 04:25	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	63	58 - 125	04/27/18 04:25	
4,4'-DDT	51	37 - 166	04/27/18 04:25	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 10:30
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 020	**Units:**	ug/L
Lab Code:	R1803542-013	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 04:53	4/20/18	
Dichlorobiphenyls, Total	**0.0047**	0.0047	0.0016	1	04/27/18 04:53	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 04:53	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 04:53	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 04:53	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 04:53	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 04:53	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 04:53	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 04:53	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 04:53	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 04:53	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	63	58 - 125	04/27/18 04:53	
4,4'-DDT	41	37 - 166	04/27/18 04:53	

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 10:02
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 021	**Units:**	ug/L
Lab Code:	R1803542-014	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 05:22	4/20/18	
Dichlorobiphenyls, Total	**0.0038 J**	0.0047	0.0016	1	04/27/18 05:22	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 05:22	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 05:22	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 05:22	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 05:22	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 05:22	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 05:22	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 05:22	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 05:22	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 05:22	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	70	58 - 125	04/27/18 05:22	
4,4'-DDT	43	37 - 166	04/27/18 05:22	

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	04/17/18 10:16
Sample Matrix:	Water	**Date Received:**	04/19/18 09:00
Sample Name:	2309395 023	**Units:**	ug/L
Lab Code:	R1803542-015	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.024	0.012	1	04/27/18 05:51	4/20/18	
Dichlorobiphenyls, Total	**0.0033 J**	0.0047	0.0016	1	04/27/18 05:51	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.014	0.0090	1	04/27/18 05:51	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.0094	0.0047	1	04/27/18 05:51	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0047	0.00059	1	04/27/18 05:51	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.019	0.0088	1	04/27/18 05:51	4/20/18	
Octachlorobiphenyls, Total	ND U	0.014	0.0099	1	04/27/18 05:51	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.0094	0.0043	1	04/27/18 05:51	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.0094	0.0023	1	04/27/18 05:51	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0047	0.0022	1	04/27/18 05:51	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.024	-	1	04/27/18 05:51	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	59	58 - 125	04/27/18 05:51	
4,4'-DDT	46	37 - 166	04/27/18 05:51	

QC Summary Forms

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Semivolatile Organic Compounds by GC/MS

ALS Environmental Rochester Laboratory
1565 Jefferson Road, Building 300, Suite 360, Rochester, NY 14623
Phone (585) 288-5380 Fax (585) 288-8475
www.alsglobal.com

Client: ALS Environmental - US **Service Request:** R1803542

Project: UR115: 2309395

Sample Matrix: Water

SURROGATE RECOVERY SUMMARY

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680

Extraction Method: EPA 3510C

Sample Name	Lab Code	4,4'-DDT 37 - 166	gamma-BHC (Lindane) 58 - 125
2309395 004	R1803542-001	86	80
2309395 006	R1803542-002	56	63
2309395 007	R1803542-003	77	73
2309395 008	R1803542-004	61	70
2309395 009	R1803542-005	57	62
2309395 011	R1803542-006	66	77
2309395 012	R1803542-007	48	59
2309395 013	R1803542-008	50	58
2309395 014	R1803542-009	38	61
2309395 016	R1803542-010	47	58
2309395 017	R1803542-011	66	64
2309395 018	R1803542-012	51	63
2309395 020	R1803542-013	41	63
2309395 021	R1803542-014	43	70
2309395 023	R1803542-015	46	59
Method Blank	RQ1803678-01	112	85
Lab Control Sample	RQ1803678-02	96	75
Duplicate Lab Control Sample	RQ1803678-03	103	82

Analytical Report

Client:	ALS Environmental - US	**Service Request:**	R1803542
Project:	UR115: 2309395	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	RQ1803678-01	**Basis:**	NA

PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Analysis Method: 680
Prep Method: EPA 3510C

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Decachlorobiphenyl	ND U	0.025	0.012	1	04/30/18 09:22	4/20/18	
Dichlorobiphenyls, Total	ND U	0.0050	0.0016	1	04/30/18 09:22	4/20/18	
Heptachlorobiphenyls, Total	ND U	0.015	0.0090	1	04/30/18 09:22	4/20/18	
Hexachlorobiphenyls, Total	ND U	0.010	0.0047	1	04/30/18 09:22	4/20/18	
Monochlorobiphenyls, Total	ND U	0.0050	0.00059	1	04/30/18 09:22	4/20/18	
Nonachlorobiphenyls, Total	ND U	0.020	0.0088	1	04/30/18 09:22	4/20/18	
Octachlorobiphenyls, Total	ND U	0.015	0.0099	1	04/30/18 09:22	4/20/18	
Pentachlorobiphenyls, Total	ND U	0.010	0.0043	1	04/30/18 09:22	4/20/18	
Tetrachlorobiphenyls, Total	ND U	0.010	0.0023	1	04/30/18 09:22	4/20/18	
Trichlorobiphenyls, Total	ND U	0.0050	0.0022	1	04/30/18 09:22	4/20/18	
Total PCBs as Sum of Homologs	ND U	0.025	-	1	04/30/18 09:22	4/20/18	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Q
gamma-BHC (Lindane)	85	58 - 125	04/30/18 09:22	
4,4'-DDT	112	37 - 166	04/30/18 09:22	

Client: ALS Environmental - US
Project: UR115: 2309395
Sample Matrix: Water

Service Request: R1803542
Date Analyzed: 04/30/18

Duplicate Lab Control Sample Summary
PCB Homologs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry

Units:ug/L
Basis:NA

		Lab Control Sample			Duplicate Lab Control Sample					
		RQ1803678-02			RQ1803678-03					
Analyte Name	**Analytical Method**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Decachlorobiphenyl	680	0.361	1.25	29	0.383	1.25	31	29-162	6	30
Dichlorobiphenyls, Total	680	0.159	0.250	64	0.187	0.250	75	37-139	16	30
Heptachlorobiphenyls, Total	680	0.317	0.750	42 *	0.397	0.750	53	53-120	23	30
Hexachlorobiphenyls, Total	680	0.247	0.500	49	0.312	0.500	62	11-160	23	30
Monochlorobiphenyls, Total	680	0.152	0.250	61	0.177	0.250	71	34-137	15	30
Octachlorobiphenyls, Total	680	0.288	0.750	38 *	0.345	0.750	46 *	57-125	18	30
Pentachlorobiphenyls, Total	680	0.293	0.500	59	0.354	0.500	71	10-180	19	30
Tetrachlorobiphenyls, Total	680	0.288	0.500	58	0.339	0.500	68	14-153	16	30
Trichlorobiphenyls, Total	680	0.159	0.250	63	0.185	0.250	74	10-173	15	30