REPORT

Interim Phase II Comprehensive Site Assessment

Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
RTN 3-0518

Lockheed Martin Corporation
6801 Rockledge Drive MP CCT 246
Bethesda, Maryland 20817

January 2012

CDM Smith

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Acronyms

Alpha	Alpha Analytical, Inc.
AMEC	AMEC Earth & Environmental, Inc.
AMETEK	AMETEK Aerospace Products, Inc.
AWQC	Ambient Water Quality Criteria
bgs	below ground surface
BTEX	sum of benzene, toluene, ethylbenzene and xylene isomers
CDM Smith	CDM Smith Inc.
COC	chemical of concern
CSA	Comprehensive Site Assessment
CVOC	chlorinated volatile organic compound
DO	dissolved oxygen
Eh	redox-potential
EPC	exposure point concentrations
EZVI	emulsified zero-valent iron
FIR	Final Inspection Report
GES	Groundwater & Environmental Services, Inc.
IWPA	Interim Wellhead Protection Area
LNAPL	light non-aqueous phase liquid
Lockheed Martin	Lockheed Martin Corporation
MassDEP	Massachusetts Department of Environmental Protection
MCP	Massachusetts Contingency Plan
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MTBE	methyl tert butyl ether
mV	millivolts

NRWQC CCC	National Recommended Water Quality Criteria Criterion Continuous Concentration
OHM	oil and/or hazardous materials
OMM	operation, monitoring, and maintenance
PEC	Probable Effects Concentrations
PIP	Public Involvement Plan
PWS	public water supply
RAM	Release Abatement Measure
RAO	Response Action Outcome
RAP	Response Action Plan
RIP	Remedy Implementation Plan
ROS	Remedy Operation Status
RSL	Regional Screening Level
RTN	Release Tracking Number
SVE	soil vapor extraction
TEA	terminal electron acceptor
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TRC	TRC Environmental Corporation
µg/L	micrograms per liter
URAM	Utility-Related Abatement Measure
USEPA	United States Environmental Protection Agency
UST	underground storage tanks
WWTF	wastewater treatment facility

Section 1
Introduction

CDM Smith Inc. (CDM Smith), serving as the environmental consultant for Lockheed Martin Corporation (Lockheed Martin), has prepared this Interim Phase II Comprehensive Site Assessment (CSA) for the former GE Facility (the Property) located at 50 Fordham Road, Wilmington, Massachusetts. CDM Smith prepared this report in accordance with 310 CMR 40.0830 of the Massachusetts Contingency Plan (MCP). Portions of the Phase II that do not meet the requirements of a complete Phase II/III submittal in accordance with the response action deadline requirements in 310 CMR 40.0500, the associated implications, and planned future actions are detailed in the conclusions section (Section 7) of this report.

In January 2009, the Massachusetts Department of Environmental Protection (MassDEP) was notified of a 120-day reporting condition regarding the detection of arsenic in groundwater above the applicable Reportable Concentration. In response, Release Tracking Number (RTN) 3-28282 was assigned for the condition. For the purposes of this report, the portion of the Property associated with arsenic detections in groundwater, will be herein referred to as "the Site." The Site has been classified as a Tier IC site (Permit number E283132) under the MCP

1.1 Purpose and Scope

The purpose of this Interim Phase II CSA is to further characterize the nature and extent of oil and/or hazardous materials (OHM) at the Site, and to evaluate the potential risk of harm to human health, safety, public welfare, and the environment. This submittal includes the following documents:

- Interim Phase II CSA and Interim Phase II Completion Statement;
- Comprehensive Response Action Transmittal Form & Phase I Completion Statement (BWSC 108) (transmitted electronically via eDEP).

The following objectives of the Interim Phase II CSA have been addressed:

- Assessment of the geologic and hydrogeologic characteristics of the Site;
- Investigation of the groundwater flow within the overburden and bedrock aquifers;
- Assessment and definition of the horizontal and vertical extent of oil and/or hazardous material released in the soil and groundwater at the Site;
- Assessment of potential migration pathways, potential exposure points, and potential exposure point concentrations; and
- Assessment of the risk of harm to human health, safety, public welfare, and the environment.
- Section 2 presents the physical characteristics of the Site including the subsurface stratigraphy and groundwater conditions. The Phase II CSA investigation activities are described in detail in Section 3. The data usability and representativeness evaluation is presented in Section 4. Laboratory results and the nature and extent of impacts are discussed in Section 5. Section 6

summarizes the results of the risk characterization. Section 7 presents a summary and conclusions from the Interim Phase II CSA. A list of references used in the preparation of this report is provided in Section 8.

1.2 Site and Surrounding Area Description

The Property is a 13 acre parcel located east of Fordham Road and north of Concord Street, within an industrial park at 50 Fordham Road, in the towns of Wilmington and North Reading, Massachusetts. The Site is at 42° 33' 39.14"N latitude and 71° 8' 9.88"W longitude; the UTM coordinates in meters are 324,654 E and 4,714,264 N. The Property is identified as Map 91, Parcel 131A on the Wilmington, Massachusetts Assessor's Maps. Fordham Road is located along the western property boundary, with industrial parcels located further to the west of Fordham Road. Commercial and industrial properties are located to the south. Wooded wetlands are located to the east and north. Residential properties are located beyond the wetlands further east and north. A site locus map is provided as **Figure 1-1**.

Three large buildings (designated Buildings 1, 1A, and 2) are situated on the western side of the Property; a paved parking area is located on the eastern side of the Property; a wastewater treatment facility (WWTF) is located north of the parking area, and a groundwater treatment system shed is located in the southern portion of the Property, near Building 1, as illustrated on **Figure 1-2**. AMETEK Aerospace Products, Inc. (AMETEK) currently occupies Building 2. Buildings 1 and 1A are presently vacant. The Wilmington Realty Trust currently owns the Property, with the Town of Wilmington, Massachusetts Assessor's property card, showing the owner of record as Rosemarie Staniech.

The Site is located within an Interim Wellhead Protection Area (IWPA) for the inactive North Reading Stickney public water supply (PWS) well and the Zone IIs for nine emergency backup PWS wells in Reading (Revay Well #1, Well #2, Well #3, B Line Well, Town Forest, Well # 82 20, Well # 66 8, Well #13, and Well #15). The nearest mapped MassDEP wetland and surface water bodies are collocated along the eastern edge of the Site. No other sensitive receptors exist on the Site. A map detailing the sensitive receptors in the area is provided as **Figure 1-3**.

1.3 Property History

1.3.1 Former Property Operations

Prior to 1968, the Property was used for gravel mining. Development of the Property occurred between 1968 and 1970. The buildings on the Property were used for manufacturing and supporting research and development by the GE Aerospace Instruments Control Systems Department from the time they were built in 1970 through August 1989. A portion of Building 2 was subleased to Converse, Inc. (Converse), a sports shoe manufacturer, from 1973 to 1986, and a portion of Building 1A was subleased to Hamilton Standard, a manufacturer of hydrogen generators, from 1983 to 1985. In August 1989, GE's operations at the facility were sold to AMETEK.

Martin Marietta Corporation acquired GE Aerospace on April 2, 1993. On March 15, 1995, Lockheed Corporation and Martin Marietta Corporation merged, forming Lockheed Martin Corporation. General Scanning was a tenant in Building 2 until 2008. AMETEK was a tenant in Buildings 1, 1A, and 3, until 2009, when the company moved to Building 2.

From 1969 through June 1987, four underground storage tanks (USTs); Tanks D, G, H and I, referred to as the Tank Farm; were located between Buildings 1 and 3 (see Figure 1-2). These tanks were located within a bedrock high, such that some of the bedrock had to be removed to install the tanks.



N

Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

Figure 1-1
Site Locus Map

Basemap: USGS 7.5-minute Topographic Quad.
Source: MassGIS
Datum: NAD 83
Coor. Sys.: Mass. State Plane Mainland (meters)

0 500 1,000 Feet

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TOWN OF NORTH READING
TOWN OF WILMINGTON

NORTH

NO. 1 (L)
STICKNEY WELL
W.E. 76.0
NO. 3 (C)
NO. 4 (L)
NO. 7A-3 (L)
MW-1
FURBISH POND
W.E. 77.0
NO. 7A-2 (C)
NO. 7A-1 (C)
MW-2
TRAIL
MW-5
GZA-14A
GZA-14
PS-1S
PS-1M
PS-1D
TRC-30IR
MW-13S
MW-13R
MW-1
MW-16
MW-16
MW-1
MW-11 (C)
MW-11A (C)
NO. 2 (C)
GZA-1
GZA-11
WETLANDS AREA
WETLANDS AREA
ROADWAY EX
MW
WASTE WATER TREATMENT PLANT
GZA-2
GZA-3
BASKETBALL CT.
GZA-6
GZA-10
GZA-106M,106D,106R
MW-7
OUTFALL 001
BRW-1R2,R3,R4
EMW-11R1,R2,R3
GZA-107
GZA-9
EMW-11S
EMW-11D
EMW-10R
EMW-10D
EMW-10S
IP-3R1,R2
TRC-202R
ORW-1
IP-4RI,R2,R3
OUTFALL 002
PZ-8S,8M,8D
PZ-8R (C)
FORMER METAL CHIP DISPOSAL AREA
TRC-105D
TRC-105S
TRC-104
GZA-108 (L)
WE-4SR
WE-4D
WE-4S
WE-4
WE-9
GZA-5
WE-7
SYSTEM PIPING
C-1* C-2 C-3 C-4 C-5* C-6*
B-1 B-2* B-3* B-4 B-5
A-1* A-2 A-3 A-4
K
WATER TANK
TANK "K" SHED PAD
WE-8
WE-2
TRC-106
WE-1
PZ-7
WE-3
(C) MW-3
SEWAGE TREATMENT PLANT
MW-8
TRAIL
PZ-9S,9D,9R
GZA-4
KEYTECH INSTRUMENT
'ARKING
TRAIL
MW-15
(C) PZ-6S,6M,6D,6R
GZA-104S
GZA-104D
GZA-104RI,R2
EASTERN PARKING LOT AREA
TRC-401R
TRC-102
TRC-101
IP-2R1,R2,R3,R4
GZA-105D
GZA-105R
GZA-105S
TRC-103
WE-105R2
WE-105R3
IP-1R1,R2,R3
GZA-102RI,R2
GZA-102
WE-6
WE-6R
CONVERSE
(C) GZA-8
GZA-7
CW-1CW-2
RW-1
PZ-2S
PZ-5S, 5D
WE-5R1
PZ-4S,4D,4R
GZA-15
GZA-103R1,R2
GZA-103S
2003 TREATMENT BUILDING
(C) PZ-1S,1M,1D,1R
TRC-201R
BUILDING 2
GENERAL SCANNING
AMETEK AEROSPACE PRODUCTS BUILDING 1A
PARKING AREA
TANK FARM AREA
AMETEK AEROSPACE PRODUCTS
BUILDING 1
GZA-101R
GZA-12
TANK F AREA
(C) GZA-13
FORDHAM ROAD
DYNAM RESEAR CORP

LEGEND

- BUILDING
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- APPROXIMATE EDGE OF WATER/STREAM
- WETLANDS
- FENCE LINE
- CULVERT WELL LOCATION
- WATER SUPPLY WELL LOCATION
- STM-5 — MULTI-LEVEL MONITORING WELL /PIEZOMETER LOCATION
- OFFSITE EXTRACTION WELL
- MW-4A — SINGLE-LEVEL MONITORING WELL /PIEZOMETER LOCATION
- RECOVERY WELL/ EXTRACTION WELL LOCATION
- WATER BODY
- TREE LINE
- BEDROCK WELL LOCATION
- INJECTION WELL LOCATION
- (C) CLOSED WELL LOCATION
- (L) LOST WELL LOCATION
- TRAIL
- TANK "K" SYSTEM PIPING
- B-2* — SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
- K — FORMER LOCATION OF TANK "K"

NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1929.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM: A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD PROPERTY, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG – ZOINO & ASSOCIATES, INC., DATED APRIL 1990; B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF THE 125:000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.
8. THE LOCATIONS OF WELLS TRC-401R THRU TRC-403, TRC-505 AND IP-5 THRU IP-15 ARE APPROXIMATE.
9. FIGURE GENERATED FROM: SITE PLAN, PREPARED BY TRC ENVIRONMENTAL CORPORATION, DATED 09/06, ORIGINAL SCALE: 1" = 200'.

SCALE: 1"= 200'

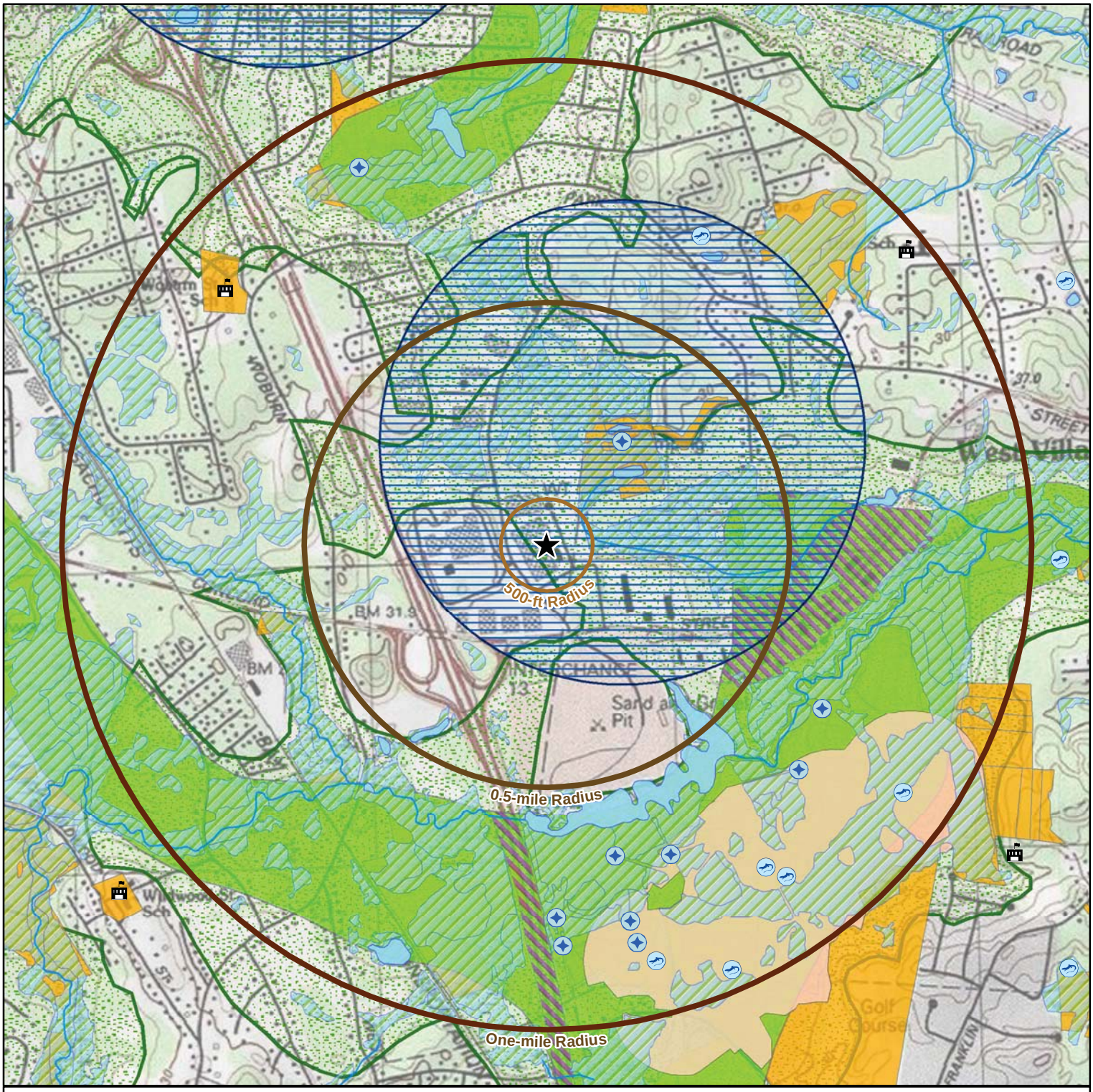
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LOCKHEED MARTIN CORPORATION (FORMER GE FACILITY)
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS

SITE PLAN

FIGURE 1-2



Legend

- DEP Wetlands
- Zone A
- Zone II
- Protected Open Space
- High Yield Aquifer
- Medium Yield Aquifer
- Living Waters Core Habitat
- Sole Source Aquifer
- Non-Potential Drinking Water Supply Area
- Interim Wellhead Protection Area (IWPA)
- Areas of Critical Environmental Concern
- NHESP Priority Habitats of Rare Species
- Public Water Supply (Wells)
- NHESP Certified Vernal Pools
- Hospitals
- Schools
- Colleges and Universities
- Long-term Care Facilities
- Prisons

Figure 1-3
Local Area Map with Sensitive Receptors
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

N

0 750 1,500 Feet

Basemap: USGS 7.5-minute Topographic Quad.
Source: MassGIS
Datum: NAD 83
Coor. Sys.: Mass. State Plane Mainland (meters)

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Tank D was a 10,000-gallon "waste fuel" tank receiving waste fuel and oil, thinners, and solvents from the facility. Tank G was a 10,000-gallon capacity tank for storing jet fuel and oil (also known as Stoddard fuel or Stoddard solvent). Tank H had a capacity of 1,000 gallons and contained JP-4 jet fuel. Tank I was a 500-gallon tank for storing methanol. According to GE personnel, Tank D did not receive any waste fluids after 1979; although it was available as a contingency to accept liquid if any overflow occurred from aboveground tanks in the Oil House (formerly referred to by GE as the Regulated Substance Storage Building).

Tanks G and H were drained of their contents in 1979 and were reportedly not used again. The four tanks in the former Tank Farm were removed in June 1987.

Liquid acid and caustic wastes from a former metal finishing room drained into a UST (Tank F) located southwest of Building 1. Tank F replaced an older butyl rubber-lined open-top steel tank, which was taken out of service in 1981 and removed from the Property in June 1987. Tank F was taken out of service before the summer of 1988 and was removed in February 1990.

Chemical liquid wastes generated by Hamilton Standard's "Direct Energy Conversion Operation," GE's former sublessee, discharged into a 5,000-gallon UST (referred to as Tank J) east of Building 1A; this UST was reported to have been taken out of service in 1981 and removed in 1987. GE's former sublessee, Converse, installed a 5,000-gallon gasoline UST (referred to herein as Tank K) east of Building 2 and a blowdown tank associated with the steam curing of rubber (Tank L) north of Building 2. Converse removed both tanks in 1986 before vacating the Property. Chemical wastes from sinks in the Liquid Crystal Division Laboratory, Materials Destruction Laboratory, and Liquid Crystal Division Clean Room flowed into Tank E, an underground butyl rubber-lined, open-top steel tank. Tank E was installed in 1981 and was located east of Building 1A, below the ground surface in a concrete secondary containment vault. Tank E was removed in December 1992.

The facility discharges sanitary wastewater to an on-property WWTF (operated by AMETEK) north of the main facility. Stormwater runoff and non-contact cooling waters are discharged into two drain lines extending under the parking area and leading to a drainage ditch/wetlands near the eastern edge of the Property. The discharge is routed to two outfalls (designated Outfalls 001 and 002).

1.3.2 Regulatory and Remedial Response History

1.3.2.1 Release Tracking Number 3-0518

Analytical data have shown that six primary types of organic and inorganic compounds are associated with RTN 3-0518. These include chlorinated volatile organic compounds (CVOCs), total petroleum hydrocarbons (TPH), BTEX compounds (sum of benzene, toluene, ethylbenzene and xylene isomers), methyl tert butyl ether (MTBE), metals, and light non-aqueous phase liquid (LNAPL) identified as Stoddard fuel. This RTN was divided into four separate Operable Units as follows:

1. Eastern Parking Lot: localized occurrence of trace amounts of LNAPL (Stoddard fuel) in soils under the water table, localized areas of TPH-impacted soil, and periodic occurrence of LNAPL in one monitoring well between the Tank Farm and Eastern Parking Lot;

2. Impacted Groundwater: CVOCs associated with a release in the Tank Farm area;

3. Outfall 001 and 002: possible remnant metals and petroleum hydrocarbons in sediments; and

4. Tank K: gasoline-related BTEX and MTBE compounds in shallow groundwater.

In 1994, MassDEP classified the Property as a Tier IA site and provided a permit to authorize comprehensive remedial response actions to meet the requirements of the MCP.

The Property is one of four MCP Tier IA sites in the Fordham Road and Concord Street portion of the towns of Wilmington and North Reading, Massachusetts. These four sites are part of a single Public

Involvement Plan (PIP), dated November 17, 2000. The three other sites include Roadway Express, MSM Industries, and Sterling Supply.

While each of the four Operable Units has proceeded on separate MCP response action courses between 2000 and 2006, a Remedy Operation Status (ROS) was submitted for the entirety of RTN 3-0518 in April 2006. Since that time, semi-annual Status Reports to Maintain ROS have been submitted to MassDEP.

Below is a summary of response actions conducted at each of the four Operable Units.

Eastern Parking Lot

A Phase IV Remedy Implementation Plan (RIP) for soil excavation and disposal in the Eastern Parking Lot was submitted to MassDEP on July 7, 2000, and was approved on August 31, 2000.

Soil excavation and disposal were conducted in the fall of 2000. Post-excavation confirmatory sampling results showed that the MCP Method 1 S-1/GW-1 standards were achieved for petroleum hydrocarbons. However, during excavation, small amounts of free-phase Stoddard fuel were observed to enter the excavation from the bedrock fractures on the side of the excavation closest to Building 1. This product was allowed to drain in the excavation and was subsequently removed, but it was unclear if similar product movement would occur in the future and possibly re-contaminate the remediated section of the Eastern Parking Lot. Therefore, TRC Environmental Corporation (TRC) installed two culvert wells in the area closest to where the product was detected. These wells would be utilized as Stoddard fuel monitoring wells and recovery wells, if necessary.

A Phase IV As-Built and Final Inspection Report (FIR) was submitted on January 19, 2001, and was approved by MassDEP on March 29, 2001. In addition, to close out administrative issues set forth in the original Tier IA permit, an Interim Measure Completion Report for the Eastern Parking Lot was submitted on January 22, 2001.

The Eastern Parking Lot was in Phase V Operation, Monitoring, and Maintenance (OMM) from 2001 until the ROS Opinion submittal in April 2006. Groundwater sampling continues on an annual basis for wells in the vicinity of the Stoddard fuel release area. When product thicknesses are greater than 1/8-inch, manual product recovery from impacted wells is conducted. No active groundwater remediation was performed for petroleum-related contamination.

A Release Abatement Measure (RAM) Plan and RAM Plan Addendum were submitted to MassDEP in June and August 2011, respectively, which established the procedures to be used for the management of contaminated soils, water, and building materials during demolition of Building 3 and the Oil House to eliminate a potential indoor air exposure pathway that had been identified. In addition to the demolition and removal of Building 3 and the Oil House, a total of approximately 340 cubic yards of impacted soil was removed as part of these RAM activities. A RAM Status Report was submitted for this work in October 2011.

The Building 3 and Oil House demolition work included the relocation of electrical utilities servicing the on-property treatment building and the Eastern Parking Lot lights. The utilities were relocated into a trench excavated to the north and east of Building 3. MassDEP was notified of the intention to manage contaminated soil encountered during trenching activities under a Utility-Related Abatement Measure (URAM) on April 25, 2011. The URAM was assigned RTN 3-29952. Approximately 35 cubic yards of petroleum-impacted soils were removed for off-property disposal associated with the URAM.

Site Groundwater

A Phase III Response Action Plan (RAP) Addendum was submitted to MassDEP on March 22, 2002, which recommended that source control measures for groundwater impacted by CVOCs be implemented, given that aquifer-wide remediation in bedrock is technically infeasible. The selected source control remedy would include a groundwater pump and treat system using well TRC-202R as the single pumping location. In addition, an *in situ* bedrock bioremediation system was also proposed, if proven feasible. The RAP Addendum recommended that the feasibility of the technology be evaluated using bench- and pilot-scale tests. MassDEP approved the RAP Addendum on July 12, 2002.

The Phase IV RIP for the groundwater system was submitted to MassDEP on December 1, 2002. The RIP was approved on March 12, 2003. The groundwater pumping system was installed during the summer of 2003, and a Phase IV As-Built and FIR was submitted to MassDEP on September 11, 2003. This report summarized the installation and startup of the groundwater pump and treat system. At the time of submission, the feasibility evaluation for the bioremediation system was incomplete. Final testing and feasibility evaluations were completed in August 2005. Based on these results, TRC determined that the bioremediation system would not effectively remediate the impacts at that time.

In accordance with 310 CMR 40.0893(6)(b) and with input from MassDEP, ROS was temporarily suspended on May 25, 2007, to evaluate additional remedial technologies that were not previously considered, to select a revised remedial action alternative, and to implement the alternative. A Phase III RAP Addendum II, Modified Phase IV RIP, and Modified Phase IV As-Built and FIR for impacted groundwater was submitted to MassDEP on September 26, 2007. The Modified Phase IV RIP was prepared to present engineering design changes to the remedial alternative previously implemented at the Property and documented in the 2003 RIP. The design changes were associated with the application of emulsified zero-valent iron (EZVI), the supplemental source area remedial technology selected in the Phase III RAP Addendum II. Following the submittals of these reports, ROS was resumed.

In September and October 2006, TRC injected 910 gallons of EZVI into bedrock fractures at the grave of the former tank farm between Building 1 and Building 3. By May 2007, gauging of EZVI in the injection wells and nearby wells indicated that additional EZVI was draining into the bedrock aquifer. The EZVI was observed to be separating into a layer of less-dense vegetable oil on top of remaining EZVI material. In June 2007, all residual EZVI and floating vegetable oil was removed from the bedrock injection wells (IP-12, IP-13, IP-14, and IP-15). The total volume recovered from these wells was approximately 70 gallons, thereby indicating that over 830 gallons of EZVI were successfully delivered to the original source area.

The groundwater pump and treat system had been operating in Phase V OMM until the ROS Opinion submittal in April 2006. As CVOC levels initially decreased significantly and then stabilized in the treatment area, the system was temporarily shut down in June 2008 to evaluate whether the system

had achieved its limits in further reducing contaminant concentrations. This evaluation, along with EZVI monitoring, remains ongoing, and the pump and treat system has not been restarted.

Outfalls 001 and 002

In December 1998, MassDEP issued a letter requiring that either a quantitative Stage II ecological risk assessment be completed or remediation of contaminated sediments be conducted. In February 1999, Lockheed Martin indicated the desire to proceed with the Stage II ecological risk assessment.

The Scope of Work for the Stage II Risk Assessment was submitted to MassDEP on January 1, 2002. A final Stage II Ecological Risk Characterization Report and a Phase IV RIP were submitted to MassDEP in January 2004. The remedial plan included the excavation and off-property disposal of the upper 12 inches of impacted wetland soil and sediment in two areas totaling 9,461.5 square feet, with subsequent backfill and restoration.

Remediation activities were conducted in August and September 2004, and restoration activities were completed in October 2004. A summary of these activities was presented in the Phase IV As-Built Construction and Final Inspection Report and Partial Class A Response Action Outcome (RAO) Statement (Permanent Solution), dated December 2004.

Monitoring and reporting was conducted until 2008 in accordance with the requirements of the United States Environmental Protection Agency Clean Water Act Section 401 Water Quality Certification. No additional MCP actions are required at this Operable Unit.

Tank K

Tank K was removed in 1986. In 1988, a property-wide investigation detected gasoline related compounds in the vicinity of Tank K. In 1989, a soil gas and groundwater investigation at Tank K was completed to refine the boundaries of impact. The results of this investigation were presented in the Phase II CSA prepared by Goldberg-Zoino & Associates, Inc., dated April 1990.

Additional data were gathered in the Tank K area in 1996 by EMCON to further determine the extent of impacted soil and groundwater. The field work included the installation of six new soil borings and two new groundwater wells, a soil vapor extraction pilot test, and an aquifer test. A report documenting field activities and results was submitted to MassDEP in January 1997.

The results of this investigation revealed that the soils above the water table did not exceed the S-

1/GW-1 cleanup standards (i.e., unrestricted or residential area soil). Therefore, soil was no longer considered to be a medium of concern in the Tank K Area. Groundwater results indicated that the contaminants of concern (i.e., above cleanup standards) were BTEX and MTBE.

TRC submitted a work plan to MassDEP for a biosparging/soil vapor extraction (SVE) pilot test in October 1999. The plan was approved by MassDEP on November 4, 1999, and the test was conducted between November and December 1999. A Phase III RAP Addendum detailing the results of the test was submitted on January 24, 2000, recommending that a full-scale system be implemented. MassDEP approved the RAP Addendum on June 9, 2000.

The Phase IV RIP for the Tank K system was submitted to MassDEP on July 25, 2000. A system modification that increased the depth of air injection from 5 feet below the water table to 10 feet below the water table was submitted to MassDEP on September 19, 2000. The RIP was approved on

October 31, 2000. The system was installed during the winter of 2000-2001, and a Phase IV As-Built and FIR was submitted to MassDEP on March 20, 2001. This report was approved by MassDEP on June 11, 2001. The Tank K system was started up in February 2001. In 2005, the system was put on a rotating cycling schedule in an attempt to disrupt established airflow pathways and re-direct air channeling that may have formed since system startup.

In February 2007, the Tank K cycling schedule was temporarily suspended to allow the groundwater system to equilibrate, in order to collect groundwater samples for the evaluation of groundwater chemistry to determine if groundwater was nutrient deficient and therefore limiting to biodegradation activity, as was suspected based on concentrations that had stabilized slightly above GW-1 standards.

Water quality data collected indicated that the groundwater was nutrient deficient in nitrogen, phosphorus, and potassium. It was determined that a nitrogen-phosphorus-potassium supplement of 100-10-1 could be beneficial in optimizing the biodegradation activity in the impacted areas. A nutrient supplement plan was developed and completed monthly for a period of six months beginning in June 2007.

Following the initial nutrient addition, the Tank K Biosparging/SVE venting operation resumed in July 2007. System cycling was re-initiated in November 2007 and continued through the end of June 2008.

On June 30, 2008, the system was placed in shutdown mode to assess sustainable conditions in accordance with the MCP under 310 CMR 40.0893(6)(d). Following the November 2008 groundwater sampling event, it was determined that the Tank K system had achieved its operational goal and performance monitoring ceased at that time.

Post remedial soil and groundwater samples were collected to assess the efficacy of the remediation. Soil samples were collected in May 2009, and groundwater samples were collected in June, September, and December 2009 and March and April 2010. Analytical results from all soil and groundwater samples collected during these events were below applicable MCP Method 1 Standards.

A Partial Class A-2 RAO (Permanent Solution) was filed for the Tank K Area in November 2010. This report documented that the Tank K Area does not pose a significant risk of harm to human health, safety, public welfare, or the environment under current property uses; and that the source of petroleum to soil and groundwater has been removed, and residual petroleum constituents detected in soil and groundwater have been shown to be limited in extent and decreasing in magnitude.

1.3.2.2 Release Tracking Number 3-28282

In November 2007, groundwater sampling and analysis for arsenic was conducted at the Site at the request of Lockheed Martin to evaluate emerging contaminants. Sample results from the November 2007 sampling event were transmitted to Lockheed Martin in a TRC report in September 2008. These results identified total arsenic concentrations in excess of the arsenic RCGW-1 Reportable Concentration in groundwater samples collected from four wells (GZA-10, GZA-103R1, WE-09, and TRC-102) at a maximum concentration of 84.4 micrograms per liter (µg/L), which constitutes a 120 day Reporting Condition. The groundwater collected from these four wells also exhibited mildly reducing groundwater chemistry, with redox potentials ranging from +3.9 to -83.5 millivolts (mV). These four wells are located in areas with historical petroleum hydrocarbon contamination from gasoline, Stoddard fuel, other fuels, and petroleum derived solvents.

On January 8, 2009, notification of this 120 day Reporting Condition was provided to MassDEP. In response, MassDEP issued a Notice of Responsibility to Lockheed Martin on February 26, 2009, and issued RTN 3-28282 to the condition.

In December 2009, groundwater samples were collected as part of the Phase I investigation.

On January 8, 2010, the Numerical Ranking Scoresheet identifying this RTN as a Tier IC site, the Tier IC Permit Application, the Phase I Initial Site Investigation Report and Completion Statement, and the Phase II Scope of Work were submitted to MassDEP.

The Phase II groundwater sampling event was conducted in December 2010. The results of the groundwater sampling at the Site are detailed in Section 5.

1.4 Soil and Groundwater Classification

1.4.1 Soil

The MCP establishes categories of soil and groundwater for use in characterizing risk, as described in 310 CMR 40.0930. The three soil categories (S-1, S-2, and S-3), described in 310 CMR 40.0933, were derived based on the potential for exposure. Factors such as the type of receptor, frequency of use, intensity of use, and the accessibility of the soil are considered in soil classification. Category S-1 is associated with the highest potential for exposure, and category S-3 is associated with the lowest potential for exposure.

The Site includes both paved and unpaved areas. Soil between 0 and 3 feet below ground surface (bgs) in unpaved areas is considered accessible soil. Receptors to this accessible soil include adults only at a low frequency with a high intensity use. Based on these receptor characteristics and soil accessibility, soil in unpaved locations at the Site between 0 and 3 feet bgs is considered to be Category S-2.

Potentially accessible soil at the Site includes soil from 3 to 15 feet bgs in unpaved locations and soil beneath pavement from 0 to 15 feet bgs. Receptors to potentially accessible soil beneath pavement would include adults at low frequency and high intensity usage. Therefore, paved areas at the Site with potentially accessible soil are classified as Category S-3 soil.

Isolated subsurface soils include soils below the footprints of building structures and all soils at the Site below 15 feet bgs. This soil is not considered to be accessible and as such is classified as Category S-3 soil.

1.4.2 Groundwater

The MCP recognizes three categories of groundwater as identified in 310 CMR 40.0932: GW-1, GW-2, and GW-3. The groundwater categories are associated with three distinct types of exposure including: (1) potential use of groundwater as a drinking water source (GW-1), (2) groundwater as a source of indoor air impacts (GW-2), and (3) groundwater as a source of surface water impacts (GW-3).

All site groundwater is considered to be GW-1, since the Site is located within Zone IIs and an IWPA for PWS wells located nearby the Site. Some groundwater at the Site is also considered to be GW-2, as this groundwater is located within 30 linear feet of buildings that are occupied, and groundwater at the Site has an average annual depth of less than 15 feet bgs. Furthermore, all site groundwater is classified as GW-3 based on the potential to eventually discharge to surface water.

Section 2

Site Physical Characteristics

2.1 Introduction

This section presents the stratigraphy and hydrogeology at the Site and in the general vicinity of the area. This description is based on information and existing data from previous investigations at the Site and the Property that were reviewed by CDM Smith.

2.2 Topography and Vegetation

The topography at the Site is generally flat and predominately covered with asphalt paving, with some areas of concrete, landscaping, wetlands, and surface water. Topography rises to the west and south of the Site. The Site is at an approximate elevation of 82 feet above mean sea level.

2.3 Surface Water Bodies and Surface Drainage

A tributary of the Ipswich River is located in the eastern portion of the Site. Wetlands surround this tributary. Furbish Pond is located approximately 340 feet east of the property boundary. Additional wetlands are located within the northern portion of the Site.

The watershed in the vicinity of the Site drains into the Ipswich River, the closest point of which is approximately 1,630 feet south of the Property. The Ipswich River flows northeast from the area toward its confluence with Plum Island Sound in Ipswich, Massachusetts.

Stormwater runoff from the Site is captured by catch basins and directed to two stormwater outfalls located in the northeastern portion of the Site. These outfalls discharge along the western boundary of the wetlands area, located in the eastern portion of the Site.

2.4 Subsurface Stratigraphy

2.4.1 Overburden Geology

The understanding of the local and regional surficial geology is based on previously generated reports for the Site and a review of published literature and maps.

According to the United States Geological Survey publication by Stone, et. al. (2007), the surficial geology in the vicinity of the Site includes Pleistocene coarse glacial stratified deposits consisting of gravel, sand and gravel, and sand deposits and postglacial swamp deposits consisting of organic muck and peat, with minor amounts of sand, silt, and clay, which are stratified and poorly sorted, and located in kettle depressions or poorly drained areas.

Based on observations from activities conducted during the 2001 TRC groundwater investigation, the Property is underlain by soils including fill, very coarse to fine sand and gravel, boulders, glacial till, and organic deposits (peat). The overburden deposits range in

thickness from 3 feet (in the Drum Storage area), to over 45 feet in the eastern portion of the Property. The wetland area in the eastern portion of the Site is also underlain by peat, stratified glacial deposits

(fine sands and gravel), and till. These deposits are approximately 70 feet thick in the central portion of the wetland area (TRC, 2001).

2.4.2 Bedrock Geology

The understanding of bedrock geology for the Site is based on previously generated reports for the Property and a review of a Massachusetts Geologic Survey map. According to the draft Bedrock Geologic Map of the Wilmington Quadrangle, Massachusetts (Castle, et. al., 2005 in review), bedrock underlying the Site is part of the Sharpners Pond Diorite and Andover Granite of the Nashoba Terrane, which are of Silurian age. The Sharpners Pond Diorite underlying the Site consists of a biotite-hornblened tonalite facies with mainly medium-grained, massive to vaguely foliated, medium- to dark-gray tonalite, composed mainly of plagioclase, hornblende, quartz, and biotite, with accessory amounts of sphene, apatite, and magnetite. The Andover Granite underlying the Site consists of a binary granite facies with mainly medium-grained, massive to faintly foliated, pearly-white to light-gray monzogranite, composed mainly of microcline, plagioclase, quartz, muscovite, and biotite, with accessory garnet.

Based on observations made during the 2001 groundwater investigation conducted by TRC, high angle joints/faults at various orientations have been observed in rock cores collected and borehole geophysical logging conducted at the Property. Based on observations made during the groundwater investigation drilling activities, geophysical logging, and earlier drilling programs, the upper 10 to 20 feet of bedrock is more highly fractured and water-bearing. Bedrock becomes more competent with depth, thereby reducing its capacity to transmit water (TRC, 2001).

2.5 Hydrogeology

Groundwater at the Property flows through the overburden, ranging in thickness from 3 feet at the former Tank Farm area to 45 feet in the eastern portion of the Property, and fractured bedrock. The degree of interconnectedness between these units is discussed below. Groundwater elevation data for a comprehensive gauging round conducted in November 2011 is included in **Table 2-1**. An overburden aquifer groundwater contour plan and a bedrock aquifer groundwater contour plan using these groundwater elevation data are presented as **Figures 2-1 and 2-2**.

2.5.1 Overburden Aquifer

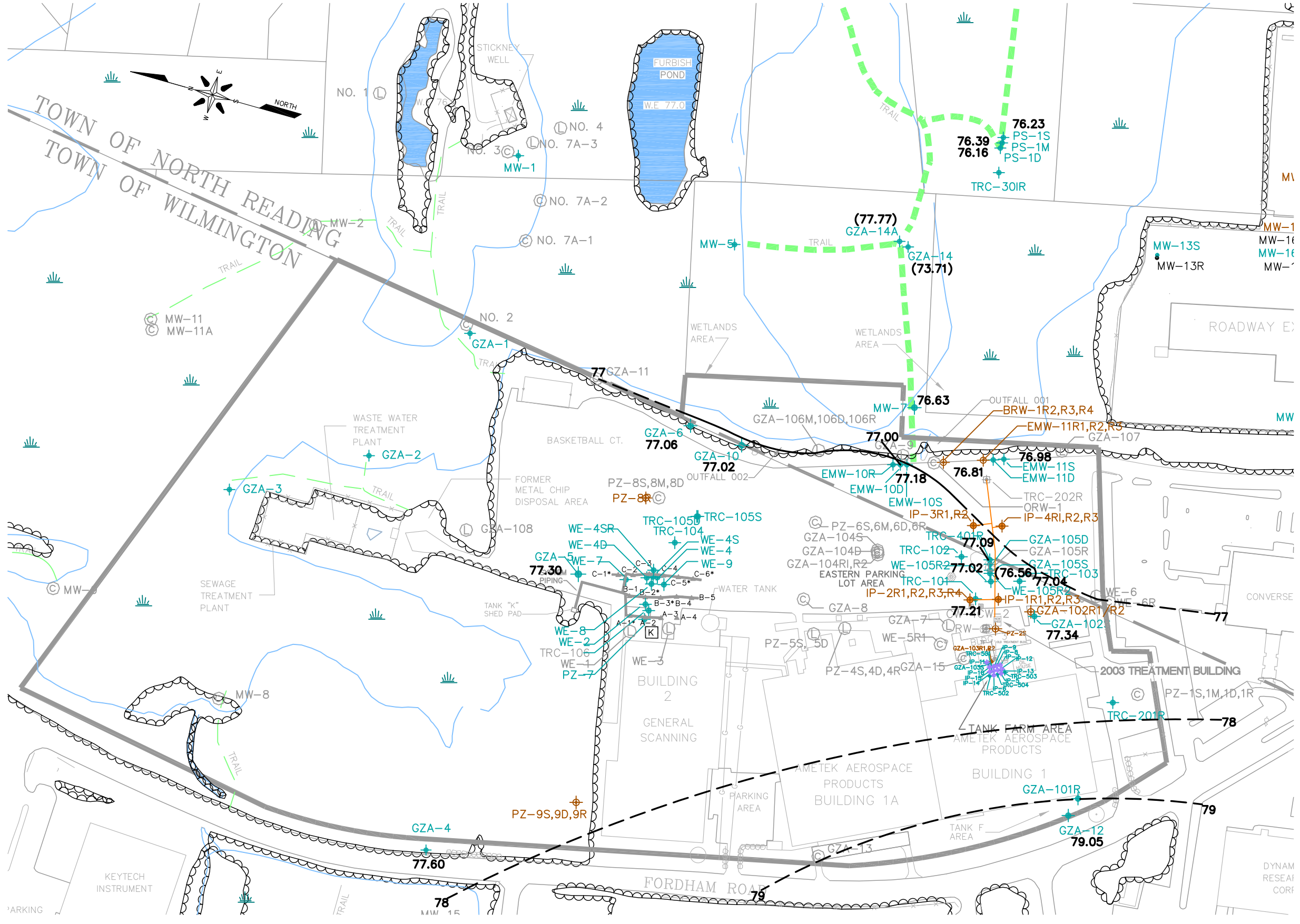
2.5.1.1 Shallow Overburden

Shallow overburden groundwater flows to the east. As the shallow groundwater flows into the wetlands, it is influenced by groundwater from the north, resulting in a southeast groundwater flow pathway through the wetlands. The horizontal gradient for groundwater in the shallow overburden is approximately 0.006 on the improved portion of the Property and 0.004 in the wetlands (TRC, 2000).

2.5.1.2 Deep Overburden

Water level measurements from the deep overburden groundwater indicate that groundwater flows to the east. The horizontal gradient for groundwater in the deep overburden is approximately 0.004 on the improved portion of the Property and 0.002 in the wetlands (TRC 2000).

At the eastern end of the off-property wetland area, the groundwater flow direction has been observed to deflect to the south.



LEGEND

- BUILDING
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- APPROXIMATE EDGE OF WATER/STREAM
- WETLANDS
- FENCE LINE
- CULVERT WELL LOCATION
- WATER SUPPLY WELL LOCATION
- STM-5 — MULTI-LEVEL MONITORING WELL /PIEZOMETER LOCATION
- **OFFSITE EXTRACTION WELL**
- MW-4A — SINGLE-LEVEL MONITORING WELL /PIEZOMETER LOCATION
- RECOVERY WELL/ EXTRACTION WELL LOCATION
- WATER BODY
- TREE LINE
- BEDROCK WELL LOCATION
- INJECTION WELL LOCATION
- CLOSED WELL LOCATION
- LOST WELL LOCATION
- TRAIL
- TANK "K" SYSTEM PIPING
- B-2* — SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
- K — FORMER LOCATION OF TANK "K"
- **GROUNDWATER CONTOUR (DASHED WHERE INFERRED)**
- (77.77) — **ELEVATION IN PARENTHESIS NOT USED IN GROUNDWATER CONTOUR**

NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1929.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM: A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD PROPERTY, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG – ZOINO & ASSOCIATES, INC., DATED APRIL 1990; B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF THE 125:000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.
8. THE LOCATIONS OF WELLS TRC-401R THRU TRC-403, TRC-505 AND IP-5 THRU IP-15 ARE APPROXIMATE.
9. FIGURE GENERATED FROM: SITE PLAN, PREPARED BY TRC ENVIRONMENTAL CORPORATION, DATED 09/06, ORIGINAL SCALE: 1" = 200'.

SCALE: 1"= 200'

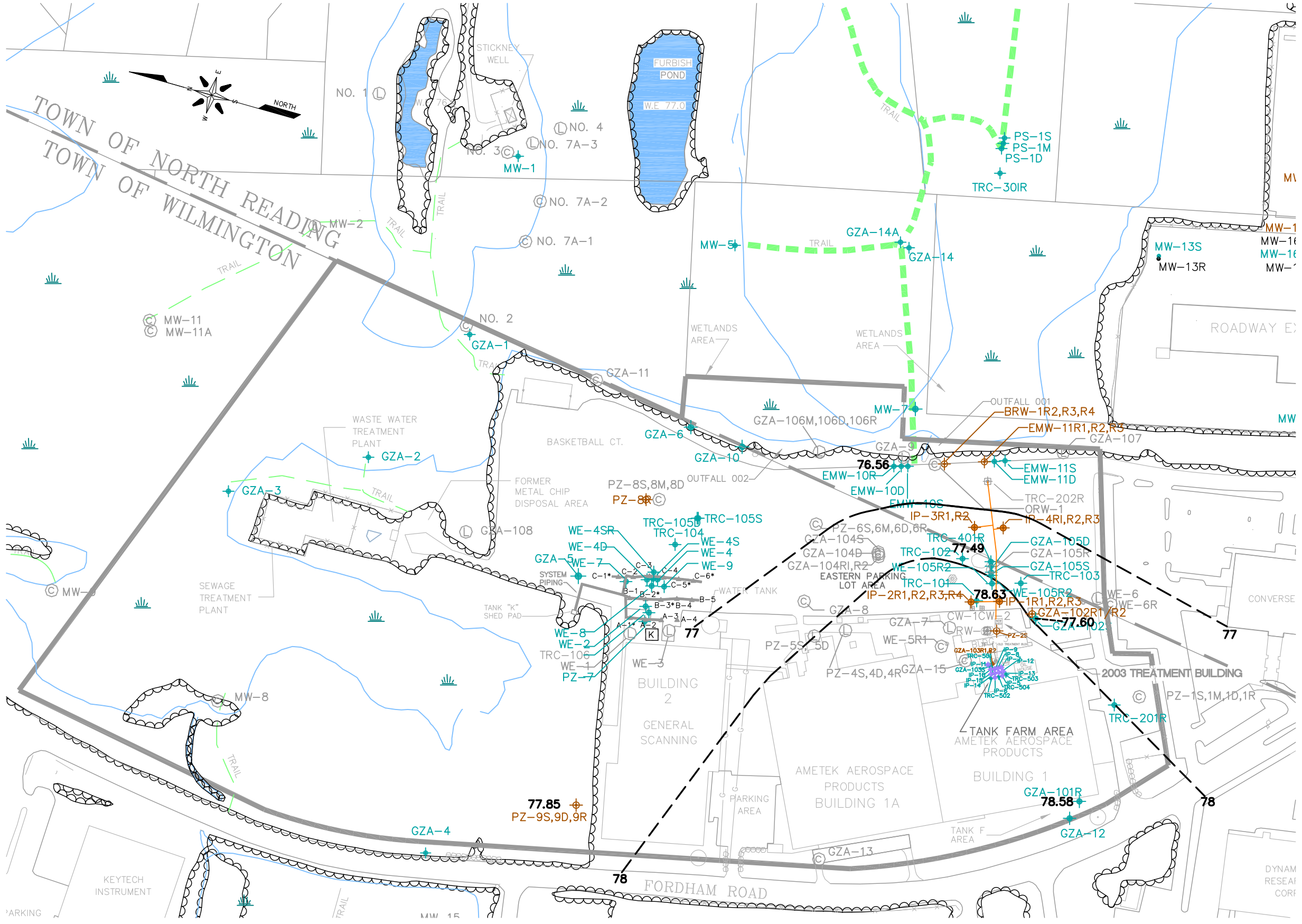
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CDM Smith

LOCKHEED MARTIN CORPORATION (FORMER GE FACILITY)
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS

OVERBURDEN GROUNDWATER CONTOUR PLAN

FIGURE 2-1



NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1929.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE.

   PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM: A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD PROPERTY, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG - ZOINO & ASSOCIATES, INC., DATED APRIL 1990; B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM
5. PRINTS OF THE 1:25:000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.
8. THE LOCATIONS OF WELLS TRC-401R THRU TRC-403, TRC-505 AND IP-5 THRU IP-15 ARE APPROXIMATE.

   FIGURE GENERATED FROM: SITE PLAN, PREPARED BY TRC ENVIRONMENTAL CORPORATION, DATED 09/06, ORIGINAL SCALE: 1" = 200'.

SCALE: 1"= 200'

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CDM Smith

LOCKHEED MARTIN CORPORATION (FORMER GE FACILITY)
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS

BEDROCK GROUNDWATER CONTOUR PLAN

FIGURE 2-2

TABLE 2-1
GROUNDWATER ELEVATION DATA - NOVEMBER 2011
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

Well ID	Reference Elevation	Depth to Groundwater	Groundwater Elevation
Overburden Monitoring Wells			
EMW-10S	78.58	1.40	77.18
EMW-10D	78.41	1.41	77.00
EMW-11S	79.38	2.40	76.98
EMW-11D	79.39	2.58	76.81
GZA-4	83.3	5.70	77.60
GZA-5	79.77	2.47	77.30
GZA-6	80.37	3.31	77.06
GZA-10	80.29	3.27	77.02
GZA-12	87.86	8.81	79.05
GZA-14	82.58	8.87	73.71
GZA-14A	83.33	5.56	77.77
GZA-102S	82.2	4.86	77.34
GZA-105S	81.39	4.85	76.54
GZA-105D	81.94	4.85	77.09
MW-4A	76.68	0.78	75.90
MW-7	80.04	3.41	76.63
PS-1S	79.12	2.89	76.23
PS-1M	77.51	1.12	76.39
PS-1D	76.73	0.57	76.16
PS-2S	78.24	3.16	75.08
PS-2M	77.78	3.23	74.55
PS-2D	77.07	0.97	76.10
PS-3	76.83	0.69	76.14
PS-4	78.85	2.71	76.14
PS-5S	80.64	4.47	76.17
PS-5D	79.84	10.61	69.23
PZ-2S	82.77	4.46	78.31
PZ-9S	82.17	4.08	78.09
PZ-9D	82.16	4.39	77.77
STM-8M	78.93	4.69	74.24
STM-8D	78.91	4.71	74.20
TRC-101	82.29	5.08	77.21
TRC-102	81.36	4.34	77.02
TRC-103	82.16	5.12	77.04
Bedrock Monitoring Wells			
EMW-10R	78.11	1.55	76.56
GZA-101R	87.34	8.76	78.58
GZA-102R1	85.18	7.58	77.60
GZA-102R2	85.18	7.52	77.66
GZA-105R	81.8	4.31	77.49
PZ-9R	82.27	4.42	77.85
STM-8R	78.83	4.57	74.26
STM-8BR	78.83	3.84	74.99
WE-105R2	82.05	3.42	78.63

2.5.1.3 Hydraulic Conductivity

In 1997, EMCON conducted a groundwater pumping test in two wells located along the eastern property boundary. One well (ORW-1) was constructed in the overburden portion of the aquifer, with a screened interval from 14 to 29 feet bgs. The second well (BRW-1) was constructed in the bedrock, with a screened interval from just below the bedrock-overburden interface at 30 feet bgs to 169 feet bgs.

The pumping test was conducted by pumping simultaneously from both the overburden and bedrock wells for a 6 hour period. Analysis of the pumping test data revealed an average hydraulic conductivity value of 78 feet/day for the overburden portion of the aquifer. MassDEP questioned the accuracy of these data (February 10, 2000 correspondence). However, this value is within the expected range of hydraulic conductivity values for the observed unconsolidated deposits (sands and gravel) in the area.

2.5.2 Bedrock Aquifer

The majority of bedrock wells on and near the Property are located within the upper 50 feet of the bedrock aquifer. In general, groundwater has the potential to flow to the east toward and under the wetlands area (TRC, 2000).

2.5.2.1 Hydraulic Conductivity

TRC conducted groundwater pumping tests in June 2001 in borehole TRC-202R in order to evaluate the maximum sustainable yield, transmissivity, and hydraulic conductivity of three targeted bedrock intervals (95-115 feet bgs, 140-170 feet bgs, and 300-320 feet bgs) (TRC, 2001).

The most conductive zone, based on a sustainable flow rate of approximately 3 gallons per minute, was the interval between 95 and 115 feet bgs. The least conductive zone was the interval between 300 and 320 feet bgs.

2.6 Flooding Potential

According to the Flood Insurance Rate Maps for Middlesex County (Panels 0284E and 0292E), the Site lies in an area of special flood hazard area subject to inundation by the 1% annual chance flood (100-year flood). No base flood elevations have been determined for the flood zone area at the Site.

Section 3

Interim Phase II Comprehensive Site Investigation Activities

The following section describes the rationale and approach that was implemented during the Interim Phase II CSA site investigation activities. Specific procedures are described below.

3.1 Rationale and Approach

Lockheed Martin had requested that TRC sample groundwater for arsenic and several other emerging contaminants at the Site. This sampling event was conducted at the Site in November 2007. The approach that was developed for subsequent site investigation was based on the results of the arsenic groundwater sampling data collected from the Site in 2007. Additional field investigation was conducted at the Site in December 2009 as part of Phase I activities. In December 2010 and November 2011, Interim Phase II sampling was conducted at the Site. The focus of the Interim Phase II investigation was to further define the nature and extent of arsenic impacts at the Site.

The field investigation program consisted of collecting groundwater, sediment, and surface water samples from the Site. TRC collected the groundwater samples, and CDM Smith collected the sediment and surface water samples. Alpha Analytical, Inc. (Alpha) of Westborough, Massachusetts, analyzed the groundwater, sediment, and surface water samples.

A literature review of publicly available documents for nearby RTNs was conducted to evaluate soil data in vicinity of the Site.

The collection of sediment and surface water samples and the evaluation of nearby RTNs were completed in addition to the proposed work outlined in the January 2010 Phase II Scope of Work. Modifications to the groundwater sampling from the Phase II Scope of Work are presented in Section 3.3.1.

Section 3.2 describes the soil investigation, including the methods for evaluating soil data for nearby RTNs. Section 3.3 describes the groundwater investigation, including the groundwater sampling procedures, and Section 3.4 describes the wetlands investigation, including sediment and surface water sampling procedures.

3.2 Evaluation of Nearby Release Tracking Numbers

In order to better assess and understand the relatively high concentrations of arsenic in groundwater at the Site, listed sites of release in Wilmington, Massachusetts, and in surrounding cities and towns nearby on the MassDEP Searchable Sites Database were reviewed for relevant information, analytical data tabulations, and related information.

In undertaking this review, it was considered likely that, although there appears to be elevated naturally occurring arsenic in groundwater, some of the high arsenic concentrations observed

onsite are related to changes in groundwater chemistry. These changes have been triggered by the presence and degradation of BTEX and Stoddard solvent plumes and the presence of EZVI applied to site groundwater in an effort to remediate the CVOC plume. In doing so, these constituents created reducing conditions in site groundwater, thus causing the subsequent dissolution of arsenic from soil and rock. The reviewed data set from Wilmington, Massachusetts, contains 319 soil samples and 331 groundwater samples. With data from adjacent municipalities, the total data set reviewed includes 535 soil samples and 418 groundwater samples.

A summary of this evaluation is discussed in Section 5.

3.3 Groundwater Investigation

TRC completed two rounds of groundwater sampling as part of this Interim Phase II investigation. The first round was completed in December 2009, as detailed in the January 2010 Phase II Scope of Work. The second round conducted in December 2010 was a more focused event conducted at targeted wells. All groundwater samples were collected via low flow sampling methods. Between December 7 and 11, 2009, monitoring wells EMW-11S, GZA-4, GZA-6, GZA-10, GZA-12, GZA-14, GZA-14A, GZA-101R, GZA-102S, GZA-103R1, GZA-105S, MW-5, MW-7, PZ-9D, PZ-9R, PZ-9S, TRC-102, TRC-103, TRC-104, TRC-105S, TRC-106, WE-7, WE-8, and WE-9 were sampled for total and dissolved arsenic. Between December 6 and 9, 2010, monitoring wells TRC-102, TRC-103, TRC-105S, WE-9, EMW-10S, EMW-11S, GZA-4, GZA-6, GZA-10, GZA-12, GZA-14, GZA-101R, GZA-102S, GZA-103R1, GZA-105S, and MW-7 were sampled for total and dissolved arsenic. Sample locations are presented on Figure 1-2. During both sampling events, groundwater field parameters, including dissolved oxygen (DO), redox-potential (Eh), and ferrous iron were measured. Samples collected in December 2009 were also submitted for laboratory analysis of total organic carbon (TOC), along with several other parameters not presented in this Phase II CSA. Samples collected in December 2010 were additionally analyzed for total and dissolved iron, TPH, and TOC, along with several other parameters not presented in this Phase II CSA. The results of the laboratory analyses and the field measured parameters are presented in Section 5.

3.3.1 Modifications from the Phase II Scope of Work

The following modifications were made with respect to the proposed groundwater sampling in the January 2010 Phase II Scope of Work:

- An additional round of groundwater sampling was conducted in December 2010. This sampling event was conducted on a subset of those wells identified in the Phase II Scope of Work and also included one additional well not identified in the Phase II Scope of Work (EMW-10S).
- The following wells proposed to be sampled were incorrectly identified in the Phase II Scope of work: GZA-9S, GZA-9D, and TRC-105. The correct well names are PZ-9S, PZ-9D, and TRC-105S, and these wells were sampled.
- Groundwater levels were not recorded for the wells sampled.
- Ferrous iron was not measured in the groundwater sample collected from WE-8.
- The analytical results of chemical oxygen demand and the field results for specific conductance, temperature, salinity, and turbidity were collected as proposed in the Phase II Scope of Work, but are not presented in this report.

3.4 Wetlands Investigation

If reducing conditions are present in an aquifer, this can serve to mobilize iron into solution. When this groundwater subsequently discharges to a wetland, the water becomes oxidized and iron is precipitated out as iron flocculent. These same reducing conditions that solubilize iron are also favorable for mobilizing arsenic and keeping it in solution. Therefore, when the groundwater discharges to a wetland and becomes oxidized, the arsenic could precipitate out.

In order to qualitatively evaluate if arsenic impacts exist in the wetland area, CDM Smith conducted an inspection of the onsite wetland area on November 4, 2011, to establish if any iron flocculent is present in the wetland area. As iron flocculent was identified in two limited areas in the wetland located in the southeastern portion of the Site, as depicted in the photographs presented in **Appendix A,** a follow-up sampling event for surface water and sediment in the wetland was conducted on November 9, 2011. Twelve sediment samples (SED-1A/B through SED-6A/B) were collected for laboratory analysis of iron and arsenic, and six surface water samples (SED-1 through SW-6) were collected for laboratory analysis of dissolved iron and dissolved arsenic. Sediment and surface water sample locations are presented on **Figure 3-1.**

Surface water samples were collected using a dipper and were field filtered. Sediment samples were collected from approximately the top six inches of sediment using a shovel and dedicated trowel. Organic matter (leaves and sticks) was removed from the sample prior to the transfer to sample jars.

The results of the wetlands investigation are presented in Section 5.



Legend

- Outfall
- Sediment and Surface Water Sampling Location

N

0 150 300 Feet

Basemap: USGS Color Ortho Imagery (2008); 30cm resolution
Source: MassGIS, USGS, and GPS
Coor. Sys.: NAD 83 Mass. State Plane Mainland (meters)

Figure 3-1
Sediment and Surface Water Sampling Locations Map
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

CDM Smith

\\CDMD38HG4D1\Project_bup\FormerGE-Wilmington\MXD\Sampling_Locations.mxd MB 11/2011

Section 4
Interim Data Usability Assessment and Representativeness Evaluation

In accordance with MassDEP Policy#WSC-07-350 MCP Representativeness and Data Usability Assessments dated September 2007, an evaluation of representativeness, and an assessment of data quality have been conducted for the data collected at this Site. The Representativeness Evaluation is an evaluation and demonstration of the adequacy of the spatial and temporal data sets used to support the Interim Phase II CSA. In evaluating the adequacy of such data, information such as the Site's historical use, hydrogeological and physical characteristics, and field observations are considered in addition to the analytical data. The Representativeness Evaluation determines whether the data set in total adequately characterizes conditions at the disposal site and supports a coherent conceptual site model. An Analytical Data Usability Assessment is used to evaluate whether analytical data points are scientifically valid and defensible and of a sufficient level of precision, accuracy, and sensitivity to support the Interim Phase II CSA. A Data Usability Assessment has both a laboratory analytical component and a field sampling component.

4.1 Representativeness Evaluation

The Representativeness Evaluation includes analysis of the conceptual site model, data collection approach, field screening data, selection of sampling locations and depths, number and spatial distribution of sampling locations, temporal distribution of data points, critical samples, uncertainty, and inconsistency. A discussion of the adequacy of these aspects is included in the following subsections.

4.1.1 Conceptual Site Model

The Property is a 13 acre parcel located east of Fordham Road and north of Concord Street, within an industrial park at 50 Fordham Road, in the towns of Wilmington and North Reading, Massachusetts. Three large buildings (designated Buildings 1, 1A, and 2) are situated on the western side of the Property; a paved parking area is located on the eastern side of the Property; a WWTF is located north of the parking area, and a groundwater treatment system shed is located in the southern portion of the Property, near Building 1, as illustrated on Figure 1-2. AMETEK currently occupies Building 2. Buildings 1 and 1A are presently vacant. Rosemarie Staniech currently owns the Property.

The Site, currently defined by notably high dissolved arsenic in shallow groundwater in excess of local background, is located within an IWPA for the inactive North Reading Stickney public water supply (PWS) well and the Zone IIs for nine emergency backup PWS wells in Reading (Revay Well #1, Well #2, Well #3, B Line Well, Town Forest, Well # 82 20, Well # 66 8, Well #13, and Well #15). The nearest mapped MassDEP wetland and surface water bodies are collocated along the eastern edge of the Site.

From 1969 through June 1987, four USTs; Tanks D, G, H and I, referred to as the Tank Farm; were located between Buildings 1 and 3 (see Figure 1-2). These tanks were located within a bedrock high, such that some of the bedrock had to be removed to install the tanks. Tank D was a 10,000-gallon "waste fuel" tank receiving waste fuel and oil, thinners, and solvents from the facility. Tank G was a

10,000-gallon capacity tank for storing jet fuel and oil (also known as Stoddard fuel or Stoddard solvent). Tank H had a capacity of 1,000 gallons and contained JP-4 jet fuel. Tank I was a 500-gallon tank for storing methanol. According to GE personnel, Tank D did not receive any waste fluids after 1979; although it was available as a contingency to accept liquid if any overflow occurred from aboveground tanks in the Oil House (formerly referred to by GE as the Regulated Substance Storage Building). Historic and current records do not indicate the use or storage of arsenic at the Property.

Based on observations from activities conducted during the 2001 TRC Groundwater Investigation, the Property is underlain by soils including fill, very coarse to fine sand and gravel, boulders, glacial till, and organic deposits (peat). The overburden deposits range in thickness from 3 feet (in the Drum Storage area), to over 45 feet in the eastern portion of the Property. The wetland area in the eastern portion of the Site is also underlain by peat, stratified glacial deposits (fine sands and gravel), and till. These deposits are approximately 70 feet thick in the central portion of the wetland area.

Shallow overburden groundwater at the Site flows to the east. As the shallow groundwater flows into the wetlands, it is influenced by groundwater from the north, resulting in a southeast groundwater flow pathway through the wetlands. Water level measurements from the deep overburden groundwater indicate that groundwater flows to the east.

Because arsenic was not used or stored at the Site, the high arsenic concentrations detected in groundwater samples collected from the Site is not thought to be were not simple due a release of arsenic containing material at the Site. Therefore, to better assess and understand the relatively high concentrations of arsenic in groundwater at the Site, listed sites of release in Wilmington, Massachusetts, and in surrounding cities and towns nearby on the MassDEP Searchable Sites Database were reviewed for relevant information, analytical data tabulations, and related information.

Based on the review, it appears that elevated arsenic is naturally occurring in groundwater throughout the area. Furthermore, some of the high arsenic concentrations observed onsite are likely related to changes in groundwater chemistry. These changes have been triggered by the presence and degradation of the BTEX and Stoddard solvent and the presence of EZVI applied to site groundwater in an effort to remediate the CVOC plume. These constituents created reducing conditions in site groundwater, thus causing the subsequent dissolution of arsenic from soil and rock. Section 5.2.2.1 further describes the evaluation of groundwater redox potential on the dissolution of arsenic into groundwater.

4.1.2 Use of Field/Screening Data

TRC conducted a total of three rounds of groundwater sampling for laboratory analysis of arsenic at the Site. Groundwater sampling was conducted in November 2007 (total arsenic) and December 2009 and December 2010 (total and dissolved arsenic). Groundwater samples were first collected in 2007 for the analysis of arsenic at Lockheed Martin's request, as an investigation of emerging contaminants. Field screening methods were not employed to aid in the sampling of groundwater at the site.

CDM Smith collected soil and sediment samples in November 2011. Twelve sediment samples were collected for laboratory analysis of iron and arsenic, and six surface water samples were collected for laboratory analysis of dissolved iron and dissolved arsenic. The groundwater contours developed for the Site demonstrate that groundwater flows from the site in an easterly direction, towards the wetlands. Therefore as illustrated on Figure 3-1, sampling locations SW-1 through SW-5 are

downgradient of the release area. The locations of the sampling in the wetlands were based on conditions observed during a previous investigation of the area. Iron flocculant was visible at locations SW-2 and SW-3, and because reducing conditions in Site groundwater may cause the subsequent dissolution of arsenic and iron from soil and rock, these locations were selected as sampling points for the collection of sediment and surface water samples to determine if arsenic is present in the wetlands. Additionally, groundwater recharge was visible at location SW-3, indicating that groundwater is directly discharging to the wetlands. These field screening methods were used to determine the appropriate locations for sampling.

4.1.3 Sampling Rationale

Analytical data evaluated to support this Interim Phase II include groundwater collected by TRC and sediment and surface water collected by CDM Smith between November 2007 and November 2011. As discussed in Section 4.1.1, it is the opinion of CDM Smith that arsenic is naturally occurring in the rock and soil at the Site, and that the dissolution of the arsenic from soil and rock into groundwater is a result of the reducing conditions. Groundwater samples were collected for the analysis of arsenic and field monitored parameters from selected monitoring wells located within and outside of the area downgradient of the Tank Farm area and Tank K.

As discussed in Section 4.1.2, the sediment and surface water sampling locations were co-located. The locations were selected based on the presence of iron floc visible in the surface water of the wetlands at locations SW-2 and SW-3, along with the visible groundwater recharge to the wetlands at location SW-3.

In general, the sampling locations were selected to determine the extent of impacted conditions and delineate the disposal site boundary, assess potential exposure pathways to receptors, and demonstrate source elimination or control.

4.1.4 Number, Spatial Distribution, and Handling of Samples

Forty-six groundwater samples and four duplicate samples collected between November 2007 and December 2010 were analyzed for total arsenic. Forty groundwater samples and three duplicate samples collected between December 2009 and December 2010 were analyzed for dissolved arsenic. Sixteen samples and one duplicate sample collected in December 2010 were analyzed for total and dissolved iron. Eight samples and one duplicate sample collected in December 2010 were analyzed for TPH. Collectively, the groundwater samples were spatially distributed around the Site and near its boundaries to identify elevated concentrations of arsenic in Site groundwater, including locations located upgradient of site activities in order to determine upgradient/background site conditions.

The groundwater samples were collected by TRC. According to the laboratory, the groundwater samples were preserved with the proper preservative supplied by the laboratory in sample collection vials and jars' samples were received at the laboratory within the acceptable temperature range and chain-of-custody record were maintained.

CDM Smith collected the sediment and surface water samples at the Site in November 2011. The samples were appropriately preserved using laboratory supplied bottleware. The samples were placed in a cooler of ice after collection and received at the laboratory within the acceptable temperature range. The chain-of-custody record was properly maintained.

The number and spatial distribution of groundwater sampling locations selected during investigations were appropriate for the size of the Site and for characterization of the impacts associated with Site

conditions. Groundwater samples employed in the risk characterization were appropriately selected to evaluate the current nature and extent of the impacts at the Site.

Soil samples were not collected for analysis of arsenic during the Phase II activities. Additional Site investigations are warranted to evaluate the current Site conditions and to determine if the arsenic concentration in the soil is consistent with the evaluation of background conditions based on results from surrounding RTNs (described in more detail in Section 5.2) or if a release occurred.

4.1.5 Temporal Distribution of Samples

Groundwater samples have been collected at the Site for analysis of arsenic a total of three times in four years. Additionally, surface water and sediment samples have been collected once at the Site. Seasonal fluctuations in the groundwater, sediment, and surface water conditions have not been evaluated.

4.1.6 Critical Samples

Samples identified as critical samples are those employed in the risk characterization (Section 6), and consist of groundwater samples collected between November 2007 and December 2010 from the Site, as well as surface water samples collected at the Site in November 2011. All groundwater and surface water samples collected at the Site and related to the arsenic have been used in the risk characterization.

Because the arsenic analytical results of the sediment samples were all below the applicable screening criteria (Section 5.2.3), it has been determined that sediment is not impacted by Site conditions. Therefore those data were not used further in the risk characterization.

4.1.7 Completeness

The full extent of arsenic impacts in all site media is currently unknown. As a result, further soil, groundwater, sediment, and surface water sampling must be completed to fully delineate the nature and extent of arsenic impacts in preparation for the selection of a remedial alternative for the Site.

Additional soil data is required above and within areas of elevated arsenic/iron in groundwater to provide a complete understanding of the nature and extent of the arsenic and iron in soil. Additional rounds of groundwater and surface water sampling events and observations from these events are required to better understand seasonal and other variability of the arsenic plume and associated potential impacts.

Additional sediment data is required to more fully evaluate the pathway of groundwater to surface water and any associated impacts to sediment. This will also help to assess any possible seasonal or other variability in contaminant concentrations in sediment.

4.1.8 Inconsistency and Uncertainty

Overall, the samples employed in this Interim Phase II CSA characterize the nature and extent of impacts associated with the groundwater arsenic conditions at the Site. Hence, there is reasonable assurance that the sampling and analysis represents exposure point concentrations at the Site for use in the risk characterization.

However, while a limited number of shallow historical soil samples were collected to identify the presence of arsenic at the Site, soil samples have yet to be collected to characterize current Site

conditions with respect to the nature and extent of arsenic in subsurface soil. Thus, it is uncertain if there is a source of elevated arsenic in soil and rock that is being mobilized by reducing conditions in groundwater triggered by the petroleum (Stoddard fuel) and chlorinated solvent plumes in groundwater identified at the property. While no historical information is available to suggest a release to soil and groundwater of arsenic source material, this possibility cannot be ruled out with the existing information. Collection of soil data will assist to reduce this uncertainty and to assist in refining the site conceptual model. Regardless of the source of the arsenic that is being mobilized, the groundwater release as described herein is expected to remain the key parameter of this release condition.

4.1.9 Information Considered Unrepresentative

The data collected in November 2007 through November 2011 were used to support the Interim Phase II CSA and were determined to be representative of current conditions at the Site.

4.2 Data Usability Assessment

4.2.1 Analytical Data Usability Assessment

All soil samples collected at the Site meet Presumptive Certainty for satisfying the data quality requirements of the MCP defined by 310 CMR 40.0017 and 40.0191(2)(c). According to MassDEP guidance, Compendium of Analytical Methods (CAM) Compliant data (data with "Presumptive Certainty") are data of known accuracy, precision, and sensitivity. As such, the accuracy, precision, and sensitivity of CAM Compliant data do not require additional evaluation in the Analytical Data Usability Assessment.

All groundwater data collected by TRC in 2007, 2009, and 2010, as well as all surface water and sediment data collected by CDM Smith in November 2011 met Presumptive Certainty, and therefore were determined to be CAM Compliant. All data reports were independently validated in order to assess the quality assurance/quality control for these samples. CDM Smith conducted a review of TRC's data validation of the groundwater data. All surface water and sediment data was subsequently validated by CDM Smith. The validation results are discussed in Section 4.2.2.

4.2.2 Data Validation

CDM Smith reviewed the groundwater laboratory analytical reports data validation of performed by TRC. CDM Smith performed data validation of the surface water and sediment laboratory analytical report.

The validation process included a review of analytical holding times, surrogate spike recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSDs), and method blanks, as well as a review to determine if detection limits were sufficiently low for the identified exposure scenarios. Field duplicates and trip blank results were also evaluated. Validation determined that all of the data were acceptable for use in site characterization and none of the data required qualification. The data validation for groundwater is provided as **Appendix B,** and the data validation for soil and sediment is presented in the table in **Appendix C.** The data set employed in the risk characterization is considered usable, and the detection limits are sufficiently low to meet data quality objectives.

4.2.3 Field Quality Control Data Usability Assessment

The purpose of the field quality control program is to document that the data are of a quality suitable for the intended uses. Proper sampling techniques and procedures, sampling containers, holding times, and handling procedures were employed when sampling, as indicated on each available data package's laboratory data report narrative. All samples subject to validation were noted to be analyzed within the proper holding time. To document the quality of the laboratory and field data, additional samples, including duplicate samples, field blanks, and trip blanks, were collected. The trip blank was exposed to the same conditions as the field samples collected. The parent sample of each duplicate sample was not identified to the laboratory. The duplicate samples, field blanks, and trip blanks were analyzed along with other investigative samples.

4.2.4 Data Quality Objectives

Data Quality Objectives established for this project was to provide data of adequate quality to develop an Interim Phase II CSA under the MCP. The data were collected under Phase II activities to:

1. Define the nature of the contamination and the associated horizontal and vertical extent of arsenic impacts in groundwater, surface water, and sediment at the Site;
2. Assess potential migration pathways, potential exposure points, and exposure point concentrations (EPCs);
3. Establish the boundary of the disposal site based on sample collection from the site; and
4. Assess potential risks to human health, safety, public welfare, and the environment.

The data meets the quality objectives listed above.

Section 5

Nature and Extent

5.1 Introduction

This section presents, summarizes, and interprets the results of the comprehensive groundwater sampling and analysis and targeted soil and sediment sampling and analysis performed by other consultants conducted prior to and during the field sampling program described in Section 3. This section also summarizes the results of the sediment and surface water sampling conducted by CDM Smith, as described in Section 3. In addition, a summary of the review of nearby sites of release conducted is included in support of understanding local background values and release mechanisms and to bolster/supplement the limited amount of available site soil data. While soil data is available on the Site, it is not coincident with the subject arsenic impacted groundwater area.

5.2 Results of the Phase II Comprehensive Site Assessment Investigation

5.2.1 Soil Quality

5.2.1.1 Site Subsurface Soil

The historic soil data for the Site includes a total of six arsenic results for samples collected in 1989 as part of GZA's Phase II investigation of the Property: 7 millograms per kilogram (mg/kg) in the soil sample collected below floor sump 1 in the metal finishing room, 8 mg/kg in the sample collected below floor sump 2 in the metal finishing room, 4.7 mg/kg in the sample collected beneath the outer vault of Tank F, 7.6 mg/kg in the sample collected adjacent to the outer vault of Tank F, 44 mg/kg in the sample collected at DD-1 (soil just outside of Building 1A), and 13 mg/kg in the sample collected at DD-2 (soil just outside of Building 1A). Overall these results, while limited in number, are within the lower end of the range of findings at neighboring sites of release throughout Wilmington, Massachusetts, and in some bordering areas of other municipalities, as detailed below in Section 5.2.1.2. The results from soil samples collected under the floor may actually represent imported, subgrade material for placement of the floor, and the results from the two soil samples collected outside the building may be more representative of the overall Site. Even though arsenic in soil at some locations may be less than natural background (as detailed in Section 5.2.1.2), it is still considered possible that reducing conditions could induce an arsenic plume in the groundwater. In addition, there is no evidence in the record to suggest that arsenic was used or released at the Property.

5.2.1.2 Regional Subsurface Soil and Coincident Groundwater Data

A review of sites of release in Wilmington, Massachusetts, and in surrounding cities and towns was conducted using the MassDEP Searchable Sites Database. This review was conducted in order to evaluate regional arsenic levels with respect to better understanding arsenic impacts noted in groundwater at the Site, and ascertain if reducing conditions caused by organic plumes provides meaningful evidence of the ability to trigger the dissolution of arsenic in soil and rock into groundwater in the region. This review did not include any data collected at the Site itself. Arsenic in regional soil could be naturally-occurring or be anthropogenically-derived and is considered by CDM Smith to likely be a portion of the zone of relatively high concentrations of natural arsenic in soils and

rock present in central through northeastern Massachusetts. Relatively high refers to total arsenic in excess of 20 mg/kg, the 2002 MassDEP Technical Update maximum background value.

The data set reviewed for this evaluation includes a total of 535 soil samples and 418 groundwater samples from the region nearby the Site in summary tabulations presented as **Tables 5-1 and 5-2.**

TABLE 5-1
ARSENIC DATA FROM SITES IN WILMINGTON, MASSACHUSETTS

Release Tracking Number	Number of Arsenic Soil Samples	Maximum Arsenic Concentration in Soil (mg/kg)	Number of Arsenic Groundwater Samples	Maximum Arsenic Concentration in Groundwater (µg/L)	Lowest Redox Potential Value	Notes
3-1268	-	-	21	179 (in plume)	-	316 Lowell Street; fill is no more than 5 feet thick
3-26188	76	125 (10-12.5 feet bgs) (all high concentration deep)	197	179; background of 33 established	-188.6	316 Lowell Street; established groundwater background value for arsenic
3-24340	5	26	-	-	-	-
3-19809	7	41.8	3	<16	-	41.8 mg/kg (average of 29.1, 37.1, 45.2, and 55.7 mg/kg in one boring)
3-21094	1	8.84	-	-	-	Soil stockpile sample
3-20291	4	38.8				Maximum concentration in sample from 6 to 8 feet bgs
3-27245	27	33	7	4.1		Maximum concentration in sample from 8 to 10 feet bgs; site closed out with Class B-1 RAO

TABLE 5-1
ARSENIC DATA FROM SITES IN WILMINGTON, MASSACHUSETTS

Release Tracking Number	Number of Arsenic Soil Samples	Maximum Arsenic Concentration in Soil (mg/kg)	Number of Arsenic Groundwater Samples	Maximum Arsenic Concentration in Groundwater (µg/L)	Lowest Redox Potential Value	Notes
3-16717/ 3-16718	86	77; background of 75 established				Established soil background value for arsenic
3-16717/ 3-16718	27	57				Values included in above tabulation for 3-16717/ 3-16718
3-16717/ 3-16718	36	136 (2-4 feet bgs)				Values included in above tabulation for 3-16717/ 3-16718
3-16717/ 3-16718	24	76 (3 feet bgs)				Values included in above tabulation for 3-16717/ 3-16718
3-16717/ 3-16718	17	60				Values included in above tabulation for 3-16717/ 3-16718
3-16717/ 3-16718	4	19				Composite sample - values included in above tabulation for 3-16717/ 3-16718

TABLE 5-1
ARSENIC DATA FROM SITES IN WILMINGTON, MASSACHUSETTS

Release Tracking Number	Number of Arsenic Soil Samples	Maximum Arsenic Concentration in Soil (mg/kg)	Number of Arsenic Groundwater Samples	Maximum Arsenic Concentration in Groundwater (µg/L)	Lowest Redox Potential Value	Notes
3-18858	44	73	43 (dissolved) 9 (total)	146 (dissolved) 120 (total)		
3-28069	8	9	48	39.3	-156	
3-3958	2	5				Maximum concentration in soil sample from 10.5 to 12.5 feet bgs
3-15247	5	4				Maximum concentration in composite soil sample
3-22070	3	9.23				Maximum concentration in composite soil sample
3-22404	1	6				Maximum concentration in soil sample from 4 feet bgs
3-21510	1	5.14				
3-28762	18	13.7(0-4 feet bgs)	6	48.0		Site closed out with Class B-1 RAO
3-21761	1+	55 (surficial)				Waste?
3-21977	20	550				Waste material
3-13640	6	ND				
3-26745	2	9.6				
3-1787/3-12680	1+	11	6+	22		
Total	319+	4 to 550	331+	4.1 to 179	Two locations: -156 to -188.6	Totals do not include yellow highlighted samples

Notes: Yellow highlighted text not included in totals as these are already counted in other tabulations listed in this table. Blue highlighted text considered key/robust data sets. Pink highlighted text exhibited a maximum value less than the 2002 MassDEP Technical Update maximum background value of 20 mg/kg total arsenic and are generally small, shallow data sets. Green highlighted text includes arsenic background value information. Gray highlighted text represents possible waste material data.

TABLE 5-2
ARSENIC DATA FROM SITES IN PERIMETER TOWNS TO WILMINGTON, MASSACHUSETTS

Release Tracking Number in Perimeter Towns	Number of Arsenic Soil Samples	Maximum Arsenic Concentration in Soil (mg/kg)	Number of Arsenic Groundwater Samples	Maximum Arsenic Concentration in Groundwater (µg/L)	Lowest Redox Potential Value	Notes
3-20303	17	10	4	21.2	-192.9	
3-5933	5	7.55	3	16		
3-3187/ 3-25116/ 3-25308/ 3-27894	-	-	51	32.9	-227.1	
3-26263	16	45	13	79.6		
3-0957	62	93.6	16	134		
3-24456	116	380	-	-		Orchard area
Totals	216 (with Wilmington, 535)	7.55 to 380	87 (with Wilmington, 418)	16 to 134	Two locations: -192.9 to -227.1	

RTN 3-26188 is a gasoline release site, for which the Phase II investigation included a considerable amount of soil and groundwater quality data, as shown in Table 5-1. In order to address the high arsenic identified at this site, the site Licensed Site Professional Firm, Groundwater & Environmental Services, Inc. (GES), retained Dr. Gregory Miller of AMEC Earth & Environmental, Inc. (AMEC) to review the data and provide a memorandum, which was included in GES's Phase II report that may be viewed on the MassDEP website. Dr. Miller studied arsenic data for the site and for the Wilmington, Massachusetts PWS wells, and concluded that a value of 33 micrograms per liter (µg/L) could be considered as, "operationally defined as natural in origin, or 'background'." The highest arsenic concentration in the town PWS wells was 52 µg/L. Dr. Miller noted that reductive dissolution occurs alongside biodegradation in areas of high organic matter, such as in petroleum-impacted areas, as microbial degradation of the organic compounds results in consumption of oxygen and reduces iron oxides to dissolved ferrous iron, which releases arsenic associated with the iron oxides. Dr. Miller stated that as long as a supply of organic matter is present, regardless of the source, reductive dissolution can occur, which will result in elevated arsenic concentrations in groundwater in areas where naturally-occurring arsenic is present. Dr. Miller opined that, over time, the arsenic released to the groundwater from the gasoline station release would attenuate. This would occur as the organic carbon source was reduced in mass. The maximum soil arsenic value for that site was 125 mg/kg, in

what appeared to be a higher concentration arsenic layer at depth, while the maximum observed arsenic value in groundwater at that site was 179 µg/L.

As shown in Table 5-1, it is noted that a background value of 75 mg/kg was established for RTNs 3-16717/3-16718. These values are consistent with the highest value found in natural clay on the Central Artery/Tunnel project of 75 mg/kg. This value was cited a 1991 Camp Dresser & McKee Inc. (now CDM Smith) report prepared for the Boston Department of Public Works in reference to the use of Boston Blue Clay in landfill closure. In addition, RTN 3-27245 was closed with a Class B-1 RAO considering 33 mg/kg of arsenic as background in soil.

Based in the data set represented in Tables 5-1 and 5-2 and other findings in reports for the cited release tracking numbers, the following may be concluded:

1. Numerous soil samples in and near Wilmington, Massachusetts, exhibit arsenic in excess of the MassDEP 20 mg/kg background value for both natural and urban fill soils, as provided in the 2002 Technical Update, and these occurrences appear to be well documented as natural background at several locations. Given the considerable number of locations and range of depths with high arsenic concentrations, the data suggests naturally high arsenic in layers of soil, not a broad array of sites of release. In cases where releases are documented, they appear to be related to pesticide/herbicide use, albeit possibly spills rather than application according to the label.

2. At sites of release with documented low Eh due to organic compound degradation, arsenic has been released to the groundwater in concentrations well in excess of background, as established by AMEC and reviewed by CDM Smith.

3. The highest dissolved arsenic values in groundwater identified in the data set above, and associated with releases, are consistent with those found in the carbon-rich plumes at the Site associated with RTN 3-0518.

4. For all groundwater samples collected from the Site, as detailed below, the dissolved arsenic results for the samples collected in areas not impacted by the carbon-rich plumes at the Site are all less than the background value of 33 µg/L as established by AMEC/GES, and considered reasonable by CDM Smith. Therefore, it appears that the high groundwater arsenic values are very likely due to the carbon-rich plumes' associated chemical changes.

5.2.2 Groundwater Quality

TRC conducted a total of three rounds of groundwater sampling for laboratory analysis of arsenic at the Site. Groundwater sampling was conducted in November 2007 (total arsenic); December 2009 (total and dissolved arsenic); and December 2010 (total and dissolved arsenic). In order to evaluate potential reducing conditions in groundwater, during the December 2009 sampling event, groundwater samples were also collected for laboratory analysis of TOC, and during the December 2010 sampling event, groundwater samples were additionally analyzed for total and dissolved iron, TPH, and TOC. As a result of elevated arsenic concentrations detected in groundwater samples from the Site, an independent evaluation of the nature and extent of iron impacts in groundwater is included below. Groundwater samples were collected via low flow methods. Groundwater field parameters of DO, Eh, and ferrous iron were measured during the sampling events conducted in 2009 and 2010. Sampling locations are presented on Figure 1-2. **Table 5-3** presents these data, and the laboratory reports for these events are included in Appendix B.

Between November 27 and 29, 2007, samples were collected from monitoring wells: EMW-11R2, GZA-10, GZA-103R1, MW-7, TRC-102, and WE-9. Samples were collected at the Site between December 7 and 11, 2009, from wells: EMW-11S, GZA-4, GZA-6, GZA-10, GZA-12, GZA-14, GZA-14A, GZA-101R, GZA-102S, GZA-103R1, GZA-105S, MW-5, MW-7, PZ-9D, PZ-9R, PZ-9S, TRC-102, TRC-103, TRC-104, TRC-105S, TRC-106, WE-7, WE-8, and WE-9. Between December 6 and 9, 2010, samples were collected from monitoring wells: EMW-10S, EMW-11S, GZA-4, GZA-6, GZA-10, GZA-12, GZA-14, GZA-101R, GZA-102S, GZA-103R1, GZA-105S, MW-7, TRC-102, TRC-103, TRC-105S, and WE-9. The well locations are presented on Figure 1-2.

5.2.2.1 Evaluation of Groundwater Redox Conditions and the Effect on Dissolved Arsenic

Mobilization of arsenic in groundwater can occur under reducing conditions, where dissolution of iron oxides can lead to the release of arsenic from soil minerals. Furthermore, the reduced form of arsenic (+3 oxidation state) is generally much more water soluble than the oxidized form (+5 oxidation state). Reducing conditions in groundwater can be caused by natural or anthropogenic organic carbon sources. An evaluation of parameters related to groundwater redox chemistry can provide insight into the whether the groundwater is reducing, and subsequently the potential for elevated concentrations of dissolved arsenic in site groundwater. Such groundwater redox parameters include TPH, TOC, DO, Eh, and ferrous iron (Fe+2).

Natural microbial degradation of organic matter is an oxidation process, whereby the organic compounds are oxidized to smaller molecules and electrons are released. The bacteria harness the energy associated with the electrons by shuttling them through an electron transport chain ending with a terminal electron acceptor (TEA). Oxygen is the TEA under aerobic conditions and yields the greatest quantity of energy of any possible TEA. Thus, oxygen is used preferentially.

Following oxygen, microbes use other possible TEAs under conditions of greater and greater reducing potential. The most oxidizing electron acceptors yield the most energy, so these are used up first, then the next lower most oxidizing electron acceptors are used up, and so on. The following TEAs yield successively less energy and are used under increasingly reducing conditions in the following order: oxygen, nitrate, ferric iron (Fe+3), sulfate, and carbon dioxide. Thus, bioavailable organic matter in soil and groundwater, whether naturally occurring or anthropogenic, strongly influences redox conditions by consuming the available TEAs.

For evaluation of groundwater redox chemistry, TOC and TPH provide a measure of available organic carbon of natural and anthropogenic origin, respectively. Eh is redox potential reported in mV. Positive values of Eh typically indicate aerobic conditions. Slightly negative Eh is associated with nitrate-reducing conditions. More negative Eh (on the order of -50 to -100 mV) can indicate iron-reducing conditions, as can ferrous iron concentrations of 2 milligrams per liter (mg/L) or higher. Eh below -100 mV is indicative of still greater reducing conditions.

Site Redox Chemistry

Immediately upgradient of the buildings onsite, along Fordham Road, most tested groundwater samples indicated aerobic conditions. Only the groundwater from the bedrock well GZA-101R showed moderately reducing conditions from a sample collected along Fordham Road. Immediately downgradient (east) of Building 1, most groundwater samples were in the iron-reducing range, and also contained organic carbon levels in the slightly elevated 10 to 20 mg/L range. Immediately downgradient of Building 2, groundwater redox conditions ranged from aerobic to very slightly reducing. Most groundwater samples collected still further downgradient within the eastern

TABLE 5-3
GROUNDWATER DATA SUMMARY
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

Well ID	Sample Date	Total Arsenic (ug/L)	Dissolved Arsenic (ug/L)	Total Iron (mg/L)	Dissolved Iron (mg/L)	Total Petroleum Hydrocarbons (ug/L)	Total Organic Carbon (mg/L)	Dissolved Oxygen (mg/L)	Redox Potential (mV)	Ferrous Iron** (mg/L)
MCP Method 1 GW-1 Standard		*10*	*10*	*11**	*11**	*200*	*NE*	*NE*	*NE*	*NE*
MCP Method 1 GW-2 Standard		*NE*	*NE*	*NE*	*NE*	*5,000*	*NE*	*NE*	*NE*	*NE*
MCP Method 1 GW-3 Standard		*900*	*900*	*10**	*10**	*5,000*	*NE*	*NE*	*NE*	*NE*
EMW-10S	12/8/2010	9.9	9.6	7.37	8.07	NA	3.2	0.42	-20.6	3.5
EMW-11R2	11/29/2007	3.3	NA	NA	NA	NA	NA	NA	NA	NA
EMW-11S	12/11/2009	1.5	2.0	NA	NA	NA	2.3	5.11	128.4	1.4
	12/6/2010	1.6	1.0	0.804	0.5	73	2.9	2.13	68.3	0.6
GZA-4	12/10/2009	**15.2**	**15.3**	NA	NA	NA	16	31.27	56.6	3.2
	12/7/2010	**14.6**	**14.5**	**26.3**	**23.5**	NA	10	0.69	9	3.6
GZA-6	12/10/2009	7.9	8.5	NA	NA	NA	6.7	10.6	111.6	3.4
	12/8/2010	6.9	6.4	1	1.06	ND	4.5	0.61	123.3	0.9
GZA-10	11/28/2007	**84.4**	NA	NA	NA	NA	NA	0.83	-40.2	NA
	12/10/2009	**126.7**	**131.9**	NA	NA	NA	3	21.74	-49.6	3.8
	12/9/2010	**128.1**	**94.9**	**16.9**	**13.5**	70	4.2	1.11	-21	1.5
GZA-12	12/11/2009	<2.5	2.07 J	NA	NA	NA	3.4	2.92	95.3	2.7
	12/7/2010	<2.0	<2.0	1.8	0.522	NA	2.1	0.36	230.4	0.0
GZA-14	12/8/2009	**17.4**	**17.0**	NA	NA	NA	NA	0.59	234.3	1.2
	12/8/2009 Dup	**17.2**	**16.6**	NA	NA	NA	2.7	NA	NA	NA
	12/7/2010	**23.9**	**24.3**	**12.7**	**12.3**	ND	3.9	0.76	13.2	3.3
GZA-14A	12/8/2009	1.9	1.1	NA	NA	NA	21	0.83	246.4	ND
GZA-101R	12/11/2009	3.4	3.3	NA	NA	NA	0.76	2.06	-111.6	3.4
	12/7/2010	4.0	4.1	**12.3**	**12.2**	NA	1.2	1.01	-114.7	3.6
GZA-102S	12/7/2009	7.3	6.5	NA	NA	NA	1.7	0.88	47.4	3.7
	12/8/2010	8.3	7.5	7.27	7.12	**424**	3.6	0.86	-34.1	1.8
GZA-103R1	11/29/2007	**61.4**	NA	NA	NA	NA	NA	-0.1	-83.5	NA
	12/11/2009	**48.7**	**48.4**	NA	NA	NA	7.8	1.02	65.2	4.4
	12/8/2010	**51.9**	**51.9**	**13.1**	**13.6**	NA	10	1.36	-96.8	1.2
GZA-105S	12/7/2009	**171.2**	**168.2**	NA	NA	NA	18	7.85	-91	4.4
	12/6/2010	**199**	**196.8**	**47.2**	**46.5**	**1,570**	15	0.75	-85.3	6.4
	12/6/2010 Dup	**203.3**	**203.2**	**47.8**	**47.2**	**1,340**	15	NA	NA	NA
MW-5	12/8/2009	9.4	9.5	NA	NA	NA	4.2	0.28	-77.9	2.2
MW-7	11/28/2007	7.2	NA	NA	NA	NA	NA	0.23	48.6	NA
	12/8/2009	6.0	5.4	NA	NA	NA	1.1	10.2	49.8	1.2
	12/8/2009 Dup	5.5	5.7	NA	NA	NA	NA	NA	NA	NA
	12/7/2010	8.1	7.0	**16.9**	**15.2**	NA	1.8	1.12	18.5	3.0
PZ-9D	12/10/2009	0.29 J	0.34 J	NA	NA	NA	2.3	0.77	187.7	ND
PZ-9R	12/10/2009	1.5	1.6	NA	NA	NA	0.5	0.75	155.1	3.4
PZ-9S	12/10/2009	0.8	0.8	NA	NA	NA	14	0.83	187.2	3.8
TRC-102	11/28/2007	**36.1**	NA	NA	NA	NA	NA	0.15	3.9	NA
	12/7/2009	**44.2**	**44.5**	NA	NA	NA	14	0.51	102.5	4.6
	12/6/2010	**67.5**	**57.8**	**21.5**	**20.1**	NA	19	0.43	-33.4	1.1
TRC-103	12/7/2009	**103.5**	**88.8**	NA	NA	NA	4.4	8.89	-48.8	4.1
	12/6/2010	**79.1**	**73.7**	**28.9**	**27.1**	**249**	3.8	0.60	-108.3	3.8
TRC-104	12/8/2009	**12.7**	1.4	NA	NA	NA	0.88	0.15	116.3	ND
TRC-105S	12/11/2009	**11.6**	**12.2**	NA	NA	NA	2.9	2.76	42.2	0.6
	12/9/2010	**27.6**	**25.7**	2.91	2.94	ND	3.5	1.06	6.9	1.9
TRC-106	12/10/2009	3.3	3.9	NA	NA	NA	3.9	0.44	-28.8	0.6
WE-7	12/10/2009	0.48 J	0.6	NA	NA	NA	3.7	3.72	182.5	ND
WE-8	12/7/2009	3.8	2.7	NA	NA	NA	0.97	6.83	107.9	NA
WE-9	11/27/2007	**33.3**	NA	NA	NA	NA	NA	1.49	-40.9	NA
	11/27/2007 Dup	**27.2**	NA	NA	NA	NA	NA	NA	NA	NA
	12/7/2009	2.1	1.2	NA	NA	NA	6.5	1.29	-33.8	2.4
	12/8/2010	2.3	1.5	7.88	7.62	NA	9	0.98	-47.3	2.8

Notes:
ug/L: micrograms per liter
mg/L: milligrams per liter
mV: millivolts
NE: Not established
NA: Not analyzed
ND: Not detected
Data collected by TRC Environmental Corporation

Bolded values exceed GW-1 standard
Underlined values exceed GW-2 standard
Shaded values exceed GW-3 standard
* Method 2 GW-1 and GW-3 standards developed following 310 CMR 40.0983 (MassDEP, 2008).
J: estimated value below the quantitation limit
**Ferrous Iron analysis conducted with Hach field test kit #26672

wetlands appeared to be aerobic, even in the sample collected at GZA-14A, for which the observed TOC was slightly elevated at 21 mg/L in December 2009. The sample collected from the wetland well MW-5 was an exception, which indicated iron-reducing conditions.

5.2.2.2 Total Arsenic

Forty-six groundwater samples and four duplicate samples collected between November 2007 and December 2010 were analyzed for total arsenic. Of these samples, total arsenic was not detected above the laboratory reporting limit in the samples collected from GZA-12 in December 2009 and December 2010. All other samples collected contained detectable levels of total arsenic.

Total arsenic concentrations in all samples collected (2007, 2009, and/or 2010) from EMW-10S, EMW-11R2, EMW-11S, GZA-6, GZA-14A, GZA-101R, GZA-102S, MW-5, MW-7, PZ-9D, PZ-9R, PZ-9S, TRC-106, WE-7, and WE-8 contained concentrations of total arsenic above the laboratory reporting limit, but below the arsenic MCP Method 1 GW-1 Standard of 10 µg/L. The samples collected from WE-9 in December 2009 and December 2010 contained concentrations of total arsenic below GW-1 criterion.

Total arsenic concentrations in all the samples collected (2007, 2009, and/or 2010) from nine wells: GZA-4, GZA-10, GZA-14, GZA-103R1, GZA-105S, TRC-102, TRC-103, TRC-104, and TRC-105S exceeded the arsenic GW-1 criterion. The original sample and the duplicate sample collected from WE-9 in November 2007 also contained concentrations of total arsenic above the GW-1 criterion. Exceedances of the arsenic GW-1 standard in these samples collected from these 10 wells ranged from 11.6 µg/L (TRC-105S in December 2009) to 203.3 µg/L (duplicate sample from GZA-105S in December 2010).

5.2.2.3 Dissolved Arsenic

Forty groundwater samples and three duplicate samples collected between December 2009 and December 2010 were analyzed for dissolved arsenic. Of these samples, dissolved arsenic was not detected above the laboratory reporting limit in one sample collected from GZA-12 in December 2010. All other samples collected contained detectable levels of dissolved arsenic.

Dissolved arsenic concentrations in all samples collected (2007, 2009, and/or 2010) from EMW-10S, EMW-11S, GZA-6, GZA-14A, GZA-101R, GZA-102S, MW-5, MW-7, PZ-9D, PS-9S, TRC-104, TRC-106, WE-7, WE-8, and WE-9 contained concentrations of dissolved arsenic above the laboratory reporting limit, but below the arsenic GW-1 standard. The sample collected from GZA-12 in December 2009 also contained a dissolved arsenic concentration below the GW-1 criterion.

Dissolved arsenic concentrations in all the samples collected (2007, 2009, and/or 2010) from eight wells: GZA-4, GZA-10, GZA-14, GZA-103R1, GZA-105S, TRC-102, TRC-103, and TRC-105S exceeded the arsenic GW-1 criterion. Exceedances of the arsenic GW-1 standard in these samples collected from these eight wells ranged from 12.2 µg/L (TRC-105S in December 2009) to 203.2 µg/L (duplicate sample from GZA-105S in December 2010).

5.2.2.4 Total Iron

Fourteen groundwater samples and one duplicate sample collected in December 2010 were analyzed for total iron. All samples collected contained detectable levels of total iron.

Total iron concentrations in the samples collected from EMW-10S, EMW-11S, GZA-102S, TRC-105S, and WE-9 contained concentrations of total iron above the laboratory reporting limit, but below the iron MCP Method 2 GW-1 and GW-3 Standards of 11 mg/L and 10 mg/L, respectively.

Total iron concentrations in the samples collected from nine wells: GZA-4, GZA-10, GZA-14, GZA-101R, GZA-103R1, GZA-105S, MW-7, TRC-102, and TRC-103 exceeded the iron GW-1 and GW-3 criteria. Exceedances of the iron GW-1 and GW-3 standards in these samples collected from these nine wells ranged from 12.3 mg/L (GZA-101R) to 47.8 mg/L (duplicate sample from GZA-105S).

5.2.2.5 Dissolved Iron

Fourteen groundwater samples and one duplicate sample collected in December 2010 were analyzed for dissolved iron. All samples collected contained detectable levels of dissolved iron.

Dissolved iron concentrations in the samples collected from EMW-10S, EMW-11S, GZA-102S, TRC-105S, and WE-9 contained concentrations of dissolved iron above the laboratory reporting limit, but below the MCP GW-1 and GW-3 standards.

Dissolved iron concentrations in the samples collected from nine wells: GZA-4, GZA-10, GZA-14, GZA-101R, GZA-103R1, GZA-105S, MW-7, TRC-102, and TRC-103 exceeded the iron GW-1 and GW-3 criteria. Exceedances of the iron GW-1 and GW-3 standards in these samples collected from these nine wells ranged from 12.2 mg/L (GZA-101R) to 47.2 mg/L (duplicate sample from GZA-105S).

5.2.3 Sediment Quality

The limited historic sediment data for the Site includes one arsenic result for a sample collected in 1989 as part of GZA's Phase II investigation of the Property. This sediment sample was collected from Drainline Outfall 001. Arsenic was detected at a concentration of 5.4 mg/kg in this sample.

On November 9, 2011, CDM Smith collected sediment samples from the wetlands at the Site. A total of 12 sediment samples were collected at six locations, with two sediment samples collected from each location. Co-located surface water samples were collected at each of the six sediment sampling locations as well. Results from the surface water sampling are presented in Section 5.2.4. The samples were submitted to Alpha for laboratory analysis of total arsenic and total iron. The 2011 sediment sampling locations are presented on Figure 3-1, and the sediment sample results are presented in **Table 5-4.** The laboratory analytical report is included in Appendix C.

The sediment samples were collected from approximately the top six inches of sediment, using a shovel and dedicated trowel. Large pieces of organic matter (leaves and sticks) were removed from the sample prior to the transfer to sample jars.

SED-1A/SED-1B was collected from a wetland area at the southeast portion of the Site, in an area likely not impacted by site conditions. SED-2A/SED-2B and SED-3A/SED-3B were collected in areas where iron flocculent was visible on the surface water, in the wetlands located on the eastern property boundary. Groundwater discharge to the wetlands was visible after collecting the sediment samples at location SED-3A/SED-3B. SED-4A/SED-4B was collected along the eastern property line, and SED-5A/SED-5B was collected in the wetlands on the northeast portion of the Property, just off the pavement. SED-6A/SED-6B was collected at a location along Fordham Road, just north of monitoring well GZA-4. This location was selected as a background condition, as it is likely not impacted from conditions at the Site due to its upgradient location. The sediment samples from location SED-6A/SED-6B were collected from the bank below the water line of the wetlands, as sediment could not be collected from within the accessible wetlands as only cobbles, leaf, and organic debris were encountered.

TABLE 5-4
ARSENIC SEDIMENT DATA SUMMARY
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

	Location ID	SED-1A	SED-1B	SED-2A	SED-2B	SED-3A	SED-3B	SED-4A	SED-4B	SED-5A	SED-5B	SED-6A	SED-6B
	Sample Date	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011
	PEC												
General Chemistry													
Solids, Total (%)	*NE*	40	70	67	77	36	44	68	72	60	57	46	76
Total Metals (mg/kg)													
Arsenic, Total	*33*	5.2	1.7	1.5	5.9	9.4	8.2	4.9	6.8	0.83	10	6.4	20
Iron, Total	*NE*	7800	3300	4600	8700	11000	10000	7300	10000	1400	8000	10000	15000

Notes:
mg/kg: milligram per kilogram
NE: Not established
PEC: Probable Effects Concentration - Stage I Freshwater Sediment Screening Criteria for Metals (MassDEP, 2006)

The total arsenic and total iron results for the 12 sediment samples were compared to Probable Effects Concentrations (PEC) - Stage I Freshwater Sediment Screening Criteria for Metals (MassDEP, 2006). PECs represent concentrations in freshwater sediment at which plants or animals directly exposed, adverse effects are almost always observed. These concentrations include probable effect levels, medium value effects range, severe effect levels, and toxic effect thresholds. The consensus-based PECs were calculated by determining the geometric mean of these values. If chemical concentrations detected in sediment are equal to or less than the screening values, then further evaluation of this medium is not required (MassDEP, 2006).

Total arsenic was detected in all 12 sediment samples with concentrations ranging from 0.83 mg/kg in SED-5A to 20 mg/kg in SED-6B. None of the arsenic sediment results exceeded the arsenic PEC of 33 mg/kg. Iron was detected in all 12 sediment samples, with concentrations ranging from 1,400 mg/kg in SED-5A to 15,000 mg/kg in SED-6B. No PEC has been established for iron. The maximum and minimum arsenic concentrations detected in sediment samples correspond to samples at which the maximum and minimum iron concentrations were detected.

5.2.4 Surface Water Quality

On November 9, 2011, CDM Smith collected surface water samples from the wetlands at the Site. A total of six surface water samples were collected at six locations, coincident with the sediment samples described above. The surface water samples were submitted to Alpha for laboratory analysis of dissolved iron and dissolved arsenic. The surface water results are presented in **Table 5-5,** and the sample locations are presented on Figure 3-1. The laboratory analytical report is included in Appendix C.

The surface water samples were collected using a dipper. The surface water was then poured through a bailer fitted with a 0.45 micron inline filter and into nitric acid preserved laboratory-supplied bottle ware.

SW-1 was collected from a wetland area at the southeast portion of the Site, in an area likely not impacted by release conditions. SW-2 and SW-3 were collected in areas where iron flocculent was visible on the surface water in the wetlands located on the eastern property boundary. SW-4 was collected along the eastern property line, and SW-5 was collected in the wetlands on the northeast portion of the Property, just off the pavement. Location SW-6 was collected at a location along Fordham Road, just north of monitoring well GZA-4. This location was selected as a background condition, as it is likely not impacted from conditions at the Site due to its upgradient location.

The surface water analytical results were compared to National Recommended Water Quality Criteria Criterion Continuous Concentration (NRWQC CCC) (United States Environmental Protection Agency [USEPA], 2009) for freshwater samples. The NRWQC were developed for use in screening surface water for risk of chronic effects to aquatic organisms. NRWQC CCC are based on lethal and sublethal effects (i.e., effects on survival, growth, and reproduction for a diverse aquatic community consisting of freshwater fish, benthic and water column invertebrates, and in some cases aquatic plants and larval amphibians). NRWQC are intended to protect 95 percent of aquatic species most of the time. Therefore, maintaining exposure concentrations of contaminants in surface water below NRWQC CCC should protect most species most of the time from sublethal effects (USEPA, 2009).

TABLE 5-5
ARSENIC SURFACE WATER DATA SUMMARY
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

		Location ID	SW-1	SW-2	SW-3	SW-4	SW-5	SW-6
		Sample Date	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011	11/9/2011
	Units	*NRWQC CCC*						
Arsenic, Dissolved	ug/L	*150*	5.3	21.2	11.1	3.3	1.6	17.9
Iron, Dissolved	ug/L	*1,000*	**4,100**	**7,150**	**6,570**	**6,770**	**1,970**	**7,930**

Notes:
ug/L: micrograms per liter
NRWQC CCC: National Recommended Water Quality Criteria - Criterion Continuous Concentration Freshwater (USEPA, 2009)
Bolded values exceed applicable NRWQC CCC

Dissolved arsenic and dissolved iron were detected in each of the samples. Dissolved arsenic concentrations in the samples ranged from 1.6 µµg/L in SW-5 to 21.2 µg/L in SW-2. All dissolved arsenic results were below the NRWQC CCC for arsenic of 150 µg/L. Dissolved iron concentrations

ranged from 1,970 µg/L in SW-5 to 7,930 µg/L in SW-6. All dissolved iron results were above the NRWQC CCC for iron of 1,000 µg/L.

5.3 Extent of Impact

Naturally occurring high concentration of arsenic in soil and rock have been identified in the general vicinity of the Site, as evidenced by limited onsite soil data and by nearby disposal site data. Arsenic- and iron-impacted groundwater has been identified at the Site. No arsenic impacts were noted in sediment or surface water samples collected from the Site. Iron impacts were noted in surface water samples collected. The extent of impact for each site medium is discussed separately in the subsections below. A site plan showing the site of release is included as **Figure 5-1**.

5.3.1 Impact to Soil

Soil samples collected in and around Wilmington, Massachusetts, contain arsenic in excess of the MCP Method 1 Soil Standard of 20 mg/kg. Many of the locations of these samples appear to be well documented as natural background locations/concentrations. Given the large array of locations and depths that high arsenic soil samples have been collected from, it is believed that soil in the general vicinity of the Site contains naturally high arsenic, and that these data are likely not representative of multiple arsenic releases in the region.

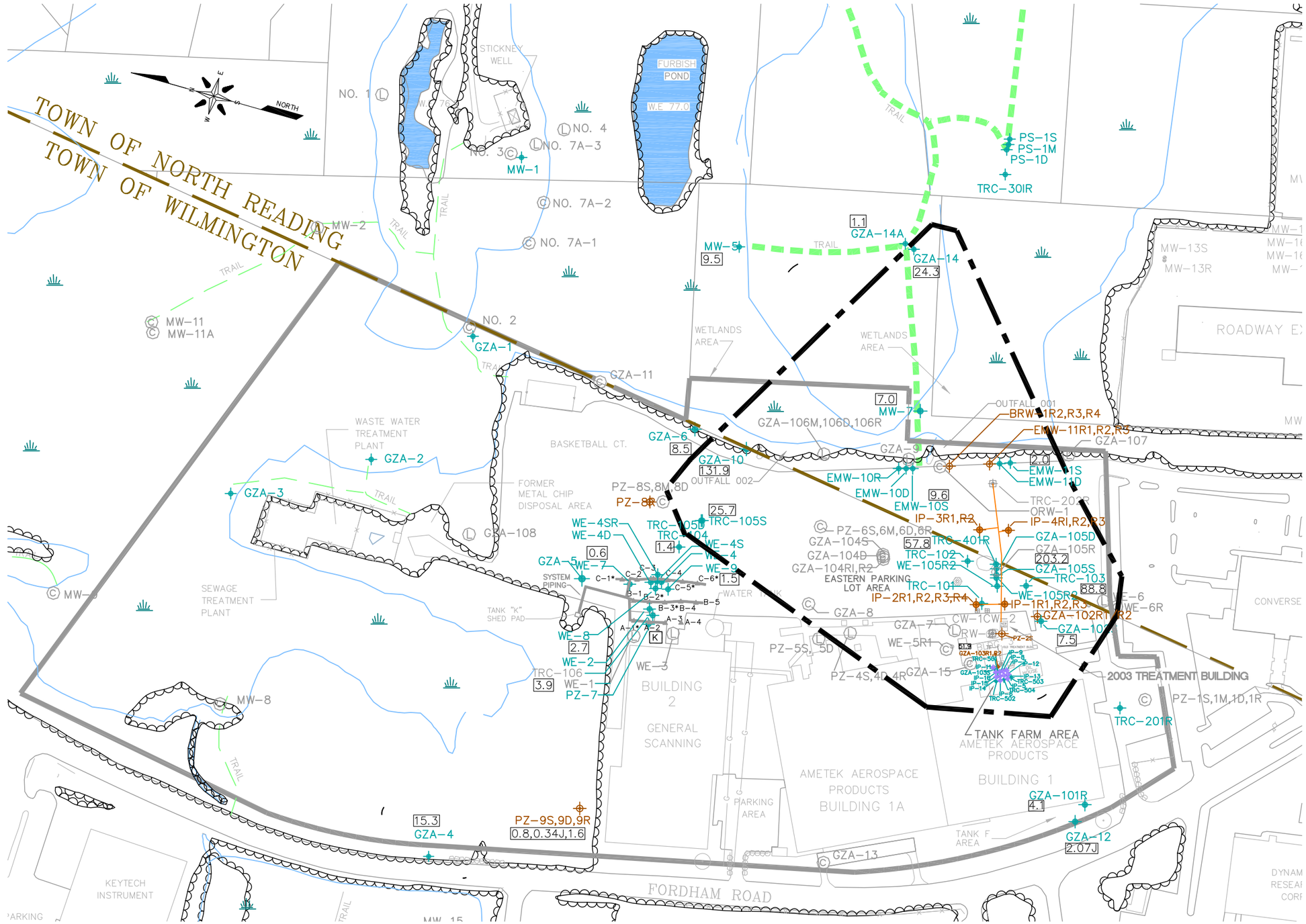
Arsenic concentrations in soil at the Site itself were identified in limited soil samples collected in 1989. Of the six soil samples collected, one of these samples (located just outside of Building 1A) contained an arsenic concentration above the MCP Method 1 Soil Standard.

5.3.2 Impact to Groundwater

GW-1 standard exceedances have been detected in the total and dissolved arsenic samples collected from GZA-4, GZA-10, GZA-14, GZA-103R1, GZA-105S, TRC-102, TRC-103, TRC-105S, and WE-9. GW-1 and GW-3 standard exceedances have been detected in the total and dissolved iron samples collected from GZA-4, GZA-10, GZA-14, GZA-101R, GZA-103R1, GZA-105S, MW-7, TRC-102, and TRC-103. With the exception of GZA-101R and GZA-103R1, all impacted locations are overburden wells. GZA-101R and GZA-103R1 are bedrock wells. The concentrations of total and dissolved arsenic in samples collected from each well in December 2009 and December 2010 were very similar, indicating that most of the arsenic present in the groundwater is in the dissolved state. In addition, the concentrations of total and dissolved iron in samples collected from each well in December 2010 were very similar, indicating that most of the iron present in the groundwater is in the dissolved state.

For the most part, iron impacts are noted in samples where arsenic impacts were also noted. For this reason, the below discussion is specific to arsenic only.

Based on the most recent arsenic groundwater data (December 2010), with reference to the arsenic groundwater data from 2007 and 2009, there appears to be a general background concentration at the Site of dissolved arsenic ranging from 0.34 µg/L to approximately 15.3 µg/L.



LEGEND

- BUILDING
- APPROXIMATE PROPERTY LINE
- APPROXIMATE TOWN LINE
- APPROXIMATE EDGE OF WATER/STREAM
- WETLANDS
- FENCE LINE
- APPROXIMATE SITE OF RELEASE
- CULVERT WELL LOCATION
- WATER SUPPLY WELL LOCATION
- STM-5 — MULTI-LEVEL MONITORING WELL /PIEZOMETER LOCATION
- OFF-PROPERTY WELLS
- MW-4A — SINGLE-LEVEL MONITORING WELL /PIEZOMETER LOCATION
- RECOVERY WELL/ EXTRACTION WELL LOCATION
- WATER BODY
- TREE LINE
- INJECTION WELL LOCATION
- © CLOSED WELL LOCATION
- Ⓛ LOST WELL LOCATION
- TRAIL
- TANK "K" SYSTEM PIPING
- B-2* — SPARGE POINT (* DENOTES POINTS REPLACED ON 12/2002)
- K — FORMER LOCATION OF TANK "K"
- 15.3 — HIGHEST DISSOLVED ARSENIC CONCENTRATION IN µg/L DETECTED IN SAMPLES COLLECTED FROM WELL BETWEEN NOVEMBER 2007 AND DECEMBER 2010.

NOTES

1. TOPOGRAPHIC AND PLANIMETRIC FEATURES SHOWN WERE COMPILED PHOTOGRAMMETRICALLY FROM AERIAL PHOTOGRAPHY DATED APRIL 16, 1992 BY EAST COAST MAPPING INC., CONCORD, NEW HAMPSHIRE. MAPPING GROUND CONTROL ESTABLISHED BY FIELD SURVEYS CONDUCTED IN APRIL 1992.
2. THE GRID SYSTEM DEPICTED ON THIS PLAN IS BASED ON THE MASSACHUSETTS STATE PLAN COORDINATE SYSTEM NORTH AMERICAN DATUM OF 1929.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM OF 1929.
4. MONITORING WELL LOCATIONS ARE APPROXIMATE.
5. PROPERTY AND TOWN LINE BOUNDARIES WERE ADAPTED FROM: A) "REGIONAL EXPLORATION PLAN", GENERAL ELECTRIC COMPANY, 50 FORDHAM ROAD PROPERTY, WILMINGTON/NORTH READING, MASSACHUSETTS, BY GOLDBERG – ZOINO & ASSOCIATES, INC., DATED APRIL 1990; B) MODIFIED PER NORTH READING GIS DATA, JUNE 2002; AND C) DIGITIZED BY MASSGIS FROM A SET OF STABLE BASED FILM PRINTS OF THE 125:000 7.5' QUADRANGLES PURCHASED FROM THE USGS BY THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS.
6. WELL LOCATIONS OF MSM AND STERLING SUPPLY ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
7. ROADWAY EXPRESS WELL LOCATIONS ARE FROM FINAL PHASE 2 COMPREHENSIVE SITE ASSESSMENT SUMMARY REPORT MAY 28, 2002.
8. THE LOCATIONS OF WELLS TRC-401R THRU TRC-403, TRC-505 AND IP-5 THRU IP-15 ARE APPROXIMATE.
9. FIGURE GENERATED FROM: SITE PLAN, PREPARED BY TRC ENVIRONMENTAL CORPORATION, DATED 09/06, ORIGINAL SCALE: 1" = 200'.

SCALE: 1"= 200'

\\CAMSVR01\CADDPASS\V:\68922-ENGR\CSTP2011-DISPOSALSITEBOUNDARY.DWG

CDM Smith

LOCKHEED MARTIN CORPORATION (FORMER GE FACILITY)
50 FORDHAM ROAD
WILMINGTON, MASSACHUSETTS

SITE OF RELEASE

FIGURE 5-1

Compared to the observed background, there is elevated dissolved arsenic in the Building 1 Tank Farm area and directly downgradient, ranging from 51.9 µg/L to 203.2 µg/L in December 2010. These results are consistent among all four monitoring wells tested in this area: GZA-105S, TRC-102, TRC-103, and GZA-103R1. This area is the location of an observed BTEX plume, Stoddard solvent, and a wide-spread sheen noted as recently as 2010. Samples from two of these four wells were also analyzed for TPH in December 2010. The TPH concentrations detected in these samples were elevated (249 µg/L and 1,570 µg/L). Eh values were also consistently mildly negative among these same four wells, ranging from -33.4 to -108.3 mV.

Samples collected from one well, GZA-102S, provide a seeming counter example to the trend of elevated arsenic concentrations described above. It is located immediately crossgradient (south of) and adjacent to the area of the aforementioned 2010-observed LNAPL sheen. The concentration of dissolved arsenic in the December 2010 sample collected from GZA-102S is below the GW-1 standard and within the site-specific background range at a concentration of 7.5 µg/L, while TPH is relatively elevated at 424 µg/L. Eh was -34 mV. Although groundwater chemistry here would be expected to favor arsenic dissolution, it is possible that the location falls within a heterogeneous area of lower background arsenic levels in soil.

The December 2010 data also show elevated dissolved arsenic in the samples collected from GZA-10 and TRC-105S, at concentrations of 95 µg/L and 25.7 µg/L, respectively. The highest dissolved arsenic concentration was detected in the sample collected from GZA-10 in December 2009 (131.9 µg/L). GZA-10 and TRC-105S are located along the downgradient portion of the Site, within and just adjacent to the eastern wetland area, respectively. Both wells are located just downgradient of the former Tank K impacted area. Former Tank K previously had a release of gasoline, which was subsequently closed out with a Partial Class A-2 RAO related to the Tank K impacted area only. Neither TPH nor TOC are elevated in samples collected from GZA-10 and TRC-105S, but the Eh is slightly negative in the sample collected from GZA-10 at -21.0 mV.

The sample collected from GZA-14 in December 2010 contained an elevated concentration of dissolved arsenic at 24.3 µg/L. This location is located at the most downgradient portion of the Site within the eastern wetland area. No evidence of reducing conditions was noted in TPH, TOC, or Eh in the sample collected from this location. There is no apparent evidence for a site-related cause of the elevated arsenic concentration here. However, this result is consistent with the 33 µg/L background value established by others and described above.

A cluster of elevated dissolved arsenic concentrations were observed in groundwater samples from the Building 1 Tank Farm area and directly downgradient. The same area is the location of previously reported LNAPL contamination, presumably associated with site operations in the past. Thus, it is reasonable to conclude that this elevated groundwater arsenic here is a result of its enhanced dissolution due to site-related releases. Observations of elevated arsenic concentrations at other locations may not be associated with site contaminant releases.

Figure 5-1 shows a general understanding of the disposal site boundary for RTN 3-28282, as based on groundwater arsenic impacts observed.

5.3.3 Impact to Sediment

Analytical results of the sediment samples indicated all 12 samples contained detectable concentrations of total arsenic and total iron. However, no applicable PEC exceedances were detected in sediment samples collected from the Site, and sediment is believed to be unimpacted by the Site.

5.3.4 Impact to Surface Water

Analytical results of the surface water samples showed that all six samples contained detectable concentrations of dissolved arsenic. No arsenic NRWQC CCC exceedances were detected in surface water samples collected from the Site.

All surface water samples collected in November 2011 contained concentrations of dissolved iron above the NRWQC CCC. This one sampling event, in conjunction with the identification of iron flocculent present in the wetland area, indicates that impacts to surface water from the Site exist; however a more comprehensive set of sampling events in surface water must be conducted to confirm the nature and extent of these potential impacts.

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Section 6

Method 2 Risk Characterization

6.1 Introduction

On behalf of Lockheed Martin, CDM Smith has prepared a Method 2 Risk Characterization for the former GE Facility (the Site) located at 50 Fordham Road, Wilmington, Massachusetts in support of the Interim Phase II CSA. The risk characterization evaluates the risk of harm to human health, public welfare, and the environment. Risks to public safety are evaluated separately. In a Method 2 risk characterization, the evaluation of risk is achieved by the direct comparison of Site conditions to promulgated standards as well as standards developed specifically for this risk characterization.

The risk characterization is based on current risk assessment guidance provided by the MassDEP in *Guidance for Disposal Site Risk Characterization – In Support of the Massachusetts Contingency Plan* (MassDEP, 1995) and Characterizing Risks Posed by Petroleum Contaminated Sites: *Implementation of the MADEP VPH/EPH Approach*, Final Policy (MassDEP, 2002). The risk characterization is limited to the evaluation of conditions associated with RTN 3-28282, which was assigned to the Site as a result of a 120-day reporting condition following the detection of total arsenic concentrations in excess of the arsenic RCGW-1 Reportable Concentration in groundwater samples collected from four wells (GZA-10, GZA-103R1, WE-09, and TRC-102) in November 2007. Thus, the risk characterization employs groundwater analytical data collected by TRC in November 2007, December 2009, and December 2010. The groundwater data included in this risk characterization, which is limited to results for total and dissolved arsenic, total and dissolved iron, and TPH, were initially collected to evaluate emerging contaminants and subsequently to evaluate the nature and extent of arsenic impacts to groundwater, to evaluate potential reducing conditions in groundwater, and to characterize human health risk. Iron was evaluated along with arsenic since the working conceptual site model (CSM) assumes that naturally occurring arsenic and iron bound together in soils and rock are being released together into groundwater under reducing conditions. TPH is included in this risk characterization, since it is associated with and likely contributing to the reducing conditions, although it is being regulated under a separate RTN (RTN 3-0518). Limited historical soil data collected from the Site as well as regional subsurface soil quality is described in Section 5 for a qualitative assessment of a potential naturally occurring source for arsenic and iron in groundwater. Soil analytical data has not yet been collected to characterize current conditions at the Site; therefore, this risk characterization does not evaluate soil quality using a Method 2 approach.

6.2 Method 2 Applicability

Three methods for risk characterization, as described in 310 CMR 40.0941(3) of the MCP (MassDEP, 2008) have been developed to provide a range of approaches to risk characterization. Method 1 was developed to streamline the risk characterization process by providing a comparison of Site conditions to promulgated conservative standards to evaluate the risk of harm to health, public welfare, and the environment. For Method 2, site-specific fate and transport factors and considerations may be used to modify certain Method 1 standards or develop new standards for chemicals without a Method 1 standard. When GW-2 standards have been exceeded, a multi-level screening program may be used to determine if an impact to indoor air is likely. Modification of groundwater EPCs is also acceptable using a Method 2 approach if GW-3 standards have been

exceeded. Method 3 quantitatively estimates cancer and noncancer health risks to determine the need for remedial action or to demonstrate that a condition of No Significant Risk exists or has been achieved at the Site.

For this Site, a Method 2 risk characterization approach is considered appropriate, since the contamination is primarily arsenic dissolved in shallow groundwater. The results of a single round of surface water and sediment sampling conducted in November 2011 as a screening level assessment of conditions indicate that these media have not been impacted by elevated arsenic identified in groundwater at the Site, as described in Section 5. Additional rounds of sampling will likely be required to confirm that these media are not impacted by arsenic and to further characterize iron, which is identified in potentially problematic concentrations in groundwater and surface water, likely resulting from the reducing conditions present at the Site. Although groundwater is classified as GW-2 in the vicinity of the site buildings, it is not expected that indoor air is impacted by groundwater quality, since the primary chemicals of concern (COCs) for this RTN (arsenic and iron) are not volatile and the TPH results from all wells are below the GW-2 standard. Since iron, selected as a COC along with arsenic and TPH, does not have promulgated Method 1 groundwater standards, Method 2 groundwater standards were developed to characterize the risk of harm to human health and the environment.

6.3 Current and Foreseeable Land Use

The MCP (MassDEP, 2008) requires that risks be characterized for any current or reasonably foreseeable uses of the Site and surrounding area. Knowledge about the current and foreseeable uses and activities at a Site is necessary to identify exposure points and exposure pathways, and to classify soil and groundwater in accordance with the MCP.

As depicted on Figure 1-2, the Site includes a portion of a 13 acre parcel (the Property) located east of Fordham Road and north of Concord Street, within an industrial park at 50 Fordham Road, in the towns of Wilmington and North Reading, Massachusetts. The Site includes portions of Building 1, 1A, and 2 as well as the footprint of the former Building 3, which has been demolished. AMETEK currently occupies Building 2, while Buildings 1 and 1A are presently vacant. It also includes paved parking areas of the industrial park and limited landscaped areas surrounding the existing buildings and in the former location of Building 3. A tributary of the Ipswich River, surrounded by wetlands, is located in the eastern portion of the Site. Additional wetlands are located within the northwestern portion of the Site. Furbish Pond is located approximately 340 feet east of the Property boundary.

Fordham Road is located along the western property boundary, which includes part of the Site, with industrial parcels located further to the west of Fordham Road. Commercial and industrial properties are located to the south. Wooded wetlands are located to the east and to the north beyond the Site boundary. Residential properties are located beyond the wetlands further east and north. A detailed description of the Site, Property, and the surrounding area is presented in Section 1.2.

6.4 Soil and Groundwater Classification

The MCP (MassDEP, 2008) establishes categories of soil and groundwater that should be utilized in characterizing risk posed by a Site. In accordance with MassDEP regulations, soil categories should be identified as described in 310 CMR 40.0933.

The three soil categories (S-1, S-2, and S-3) were derived by MassDEP based on the potential for exposure. Factors such as the type of receptor, frequency of use, intensity of use and the accessibility

of the soil are considered in soil categorization. Category S-1 is associated with the highest potential for exposure and Category S-3 is associated with the lowest potential for exposure. As described in Section 1.4, the Site currently includes both paved and unpaved areas. Surficial soil in the landscaped area from zero to three feet bgs is considered to be Category S-2, since it is accessible to adults only at a low frequency and is associated with a high intensity use, including landscaping and utility repairs. Subsurface soil from three to 15 feet bgs in landscaped areas, soil beneath paving, and soil beneath the footprint of the buildings is considered to be Category S-3, since adults are the only potential receptors.

The MCP (MassDEP, 2008) recognizes three categories of groundwater (GW-1, GW-2, and GW-3) as identified in 310 CMR 40.0932. The groundwater categories are associated with three distinct types of exposure including: (1) potential use of groundwater as a drinking water source (GW-1); (2) groundwater as a source of indoor air contamination (GW-2); and (3) groundwater as a source of surface water contamination (GW-3). All Site groundwater is considered to be GW-1, since the Site is located within Zone IIs and an IWPA for PWS wells located near the Site. Groundwater within 30 linear feet of Building 2 is considered to be GW-2, since the average annual depth to water is less than 15 feet below grade and the building is occupied. The remaining structures within the disposal site boundary are not occupied. All groundwater is classified as GW-3 based on the potential to eventually discharge to surface water. As described in Section 6.3, groundwater discharges to wetlands located in the eastern and northwestern areas of the Site.

6.5 Characterization of Groundwater Quality and Selection of COCs

As described in detail in Section 5, TRC conducted a total of three rounds of groundwater sampling for laboratory analysis of arsenic at the Site. Groundwater sampling was conducted in November 2007 (total arsenic), December 2009 (total and dissolved arsenic), and December 2010 (total and dissolved arsenic). In order to evaluate potential reducing conditions in groundwater, groundwater samples were analyzed for additional parameters, including total and dissolved iron and TPH during the December 2010 sampling event. The monitoring well locations sampled for these analytes are presented on Figure 1-2 and the analytical results are summarized in **Table 6-1**.

Forty-six groundwater samples and four duplicate samples collected between November 2007 and December 2010 were analyzed for total arsenic. Forty groundwater samples and three duplicate samples collected between December 2009 and December 2010 were analyzed for dissolved arsenic. Because the working CSM assumes that naturally occurring arsenic and iron bound in site soils and rock is being released into groundwater under reducing conditions, additional samples were collected for iron in order to determine if there is a correlation between these two metals that would support the CSM assumptions. Therefore, sixteen samples and one duplicate sample collected in December 2010 were analyzed for total and dissolved iron. Eight samples and one duplicate sample collected in December 2010 were analyzed for TPH. Groundwater was evaluated on a well-by-well basis and any chemical detected at least once in a well was selected as a COC in that well. Therefore, total and dissolved arsenic, total and dissolved iron, and TPH were selected as groundwater COCs, although TPH is regulated under RTN 3-0518.

TABLE 6-1
SUMMARY OF GROUNDWATER DATA EMPLOYED IN THE METHOD 2 RISK CHARACTERIZATION
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

Well ID	Sample Date	Total Arsenic (ug/L)	Dissolved Arsenic (ug/L)	Total Iron (ug/L)	Dissolved Iron (ug/L)	Total Petroleum Hydrocarbons (ug/L)
MCP Method 1 GW-1 Standard		**10**	**10**	**11,000***	**11,000***	**200**
MCP Method 1 GW-2 Standard		**NE**	**NE**	**NE**	**NE**	**5,000**
MCP Method 1 GW-3 Standard		**900**	**900**	**10,000***	**10,000***	**5,000**
EMW-10S	12/8/2010	9.9	9.6	7,370	8,070	NA
EMW-11R2	11/29/2007	3.3	NA	NA	NA	NA
EMW-11S	12/11/2009	1.5	2.0	NA	NA	NA
	12/6/2010	1.6	1.0	804	500	73
GZA-4	12/10/2009	**15.2**	**15.3**	NA	NA	NA
	12/7/2010	**14.6**	**14.5**	**26,300**	**23,500**	NA
GZA-6	12/10/2009	7.9	8.5	NA	NA	NA
	12/8/2010	6.9	6.4	1,000	1,060	ND
GZA-10	11/28/2007	**84.4**	NA	NA	NA	NA
	12/10/2009	**126.7**	**131.9**	NA	NA	NA
	12/9/2010	**128.1**	**94.9**	**16,900**	**13,500**	70
GZA-12	12/11/2009	<2.5	2.07 J	NA	NA	NA
	12/7/2010	<2.0	<2.0	1,800	522	NA
GZA-14	12/8/2009	**17.4**	**17.0**	NA	NA	NA
	12/8/2009 Dup	**17.2**	**16.6**	NA	NA	NA
	12/7/2010	**23.9**	**24.3**	**12,700**	**12,300**	ND
GZA-14A	12/8/2009	1.9	1.1	NA	NA	NA
GZA-101R	12/11/2009	3.4	3.3	NA	NA	NA
	12/7/2010	4.0	4.1	**12,300**	**12,000**	NA
GZA-102S	12/7/2009	7.3	6.5	NA	NA	NA
	12/8/2010	8.3	7.5	7,270	7,120	**424**
GZA-103R1	11/29/2007	**61.4**	NA	NA	NA	NA
	12/11/2009	**48.7**	**48.4**	NA	NA	NA
	12/8/2010	**51.9**	**51.9**	**13,100**	**13,600**	NA
GZA-105S	12/7/2009	**171.2**	**168.2**	NA	NA	NA
	12/6/2010	**199**	**196.8**	**47,200**	**46,500**	**1,570**
	12/6/2010 Dup	**203.3**	**203.2**	**47,800**	**47,200**	**1,340**
MW-5	12/8/2009	9.4	9.5	NA	NA	NA
MW-7	11/28/2007	7.2	NA	NA	NA	NA
	12/8/2009	6.0	5.4	NA	NA	NA
	12/8/2009 Dup	5.5	5.7	NA	NA	NA
	12/7/2010	8.1	7.0	**16,900**	**15,200**	NA
PZ-9D	12/10/2009	0.29 J	0.34 J	NA	NA	NA
PZ-9R	12/10/2009	1.5	1.6	NA	NA	NA
PZ-9S	12/10/2009	0.8	0.8	NA	NA	NA
TRC-102	11/28/2007	**36.1**	NA	NA	NA	NA
	12/7/2009	**44.2**	**44.5**	NA	NA	NA
	12/6/2010	**67.5**	**57.8**	**21,500**	**20,100**	NA
TRC-103	12/7/2009	**103.5**	**88.8**	NA	NA	NA
	12/6/2010	**79.1**	**73.7**	**28,900**	**27,100**	**249**
TRC-104	12/8/2009	**12.7**	1.4	NA	NA	NA
TRC-105S	12/11/2009	**11.6**	**12.2**	NA	NA	NA
	12/9/2010	**27.6**	**25.7**	2,910	2,940	ND
TRC-106	12/10/2009	3.3	3.9	NA	NA	NA
WE-7	12/10/2009	0.48 J	0.6	NA	NA	NA
WE-8	12/7/2009	3.8	2.7	NA	NA	NA

TABLE 6-1
SUMMARY OF GROUNDWATER DATA EMPLOYED IN THE METHOD 2 RISK CHARACTERIZATION
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts

Well ID	Sample Date	Total Arsenic (ug/L)	Dissolved Arsenic (ug/L)	Total Iron (ug/L)	Dissolved Iron (ug/L)	Total Petroleum Hydrocarbons (ug/L)
MCP Method 1 GW-1 Standard		**10**	**10**	**11,000***	**11,000***	**200**
MCP Method 1 GW-2 Standard		**NE**	**NE**	**NE**	**NE**	**5,000**
MCP Method 1 GW-3 Standard		**900**	**900**	**10,000***	**10,000***	**5,000**
WE-9	11/27/2007	**33.3**	NA	NA	NA	NA
	11/27/2007 Dup	**27.2**	NA	NA	NA	NA
	12/7/2009	2.1	1.2	NA	NA	NA
	12/8/2010	2.3	1.5	7,880	7,620	NA

Notes:
NE: Not established
NA: Not analyzed
ND: Not detected
ug/L: micrograms per liter
Bolded values exceed GW-1 standard
Underlined values exceed GW-2 standard
Shaded values exceed GW-3 standard
J: estimated value below the quantitation limit
Data collected by TRC Environmental Corporation
None of the monitoring wells is located within 30 feet of an occupied building; however, all results are below GW-2 standards.
* Method 2 GW-1 and GW-3 standards developed following 310 CMR 40.0983 (MassDEP, 2008).

6.6 Identification of Exposure Point Concentrations

EPCs are the concentrations of oil or hazardous material in groundwater that a human receptor may contact at a point of exposure. Generally, EPCs are arithmetic mean concentrations, which represent the average concentration that a receptor may contact over a period of exposure. For the comparison to groundwater standards, any detected concentration of TPH and a metal, including both total and dissolved arsenic and iron concentrations, was considered an EPC within each monitoring well. The groundwater analytical results are summarized in Table 6-1.

6.7 Development of Method 2 Groundwater Standards

One of the requirements for conducting a Method 2 risk characterization is that standards must be developed for selected COCs that do not have Method 1 standards. For this assessment, groundwater standards for iron were developed following a tiered approach, as presented in 310 CMR 40.0983 of the MCP. Both GW-1 and GW-3 standards were developed for iron. Both GW-1 and GW-3 groundwater standards are applicable to both dissolved and total iron results.

The USEPA Regional Screening Level (RSL) for iron in tap water of 11,000 µg/L was employed as the Method 2 GW-1 standard for iron (USEPA, 2011). The RSL for iron, which was last updated in November 2011, was used to evaluate risk associated with exposure to both the total and dissolved forms of iron, as presented in Table 6-1. A Method 2 GW-2 groundwater standard was not developed, since iron is not volatile. MassDEP GW-3 standards are generally concentrations that are ten times the lowest ecologically-based Ambient Water Quality Criteria (AWQC) value available for a particular chemical. Thus, the Method 2 GW-3 standard for dissolved and total iron was developed based on the USEPA National Recommended Water Quality Criteria (NRWQC) (USEPA, 2009) Criterion Continuous Concentration (CCC) value of 1,000 µg/L. That concentration was multiplied by a factor of 10 as directed 310 CMR 40.0983 (4)(b) of the MCP. Therefore, the Method 2 GW-3 standard developed for both dissolved and total iron was 10,000 µg/L.

6.8 Comparison to Groundwater Standards

Although the Method 1 groundwater standards were developed to evaluate the dissolved fraction of a chemical in the water column, total and dissolved results were comparable; therefore, the analytical results for both the total and dissolved fractions of arsenic and iron were compared to the groundwater standards developed for those metals. As presented in Table 6-1, detected concentrations of total arsenic were above the GW-1 standard of 10 µg/L in samples collected from ten monitoring wells, with concentrations exceeding the standard ranging from 11.6 µg/L (TRC-105S, December 2009) to 203.3 µg/L (duplicate from GZA-105S, December 2010). Detected concentrations of dissolved arsenic were above the GW-1 standard in samples collected from eight monitoring wells, with concentrations exceeding the standard ranging from 12.2 µg/L (TRC-105S, December 2009) to 203.2 µg/L (duplicate from GZA-105S, December 2010). None of the total or dissolved arsenic results was above the GW-3 standard of 900 µg/L.

The total and dissolved iron results were detected at concentrations above both the Method 2 derived GW-1 standard of 11,000 µg/L and Method 2 derived GW-3 standard of 10,000 µg/L in the samples collected from ten monitoring wells in December 2010. Total iron exceedances ranged from 12.3 µg/L (GZA-101R) to 47.8 µg/L (GZA-105S duplicate). Dissolved iron exceedances ranged from 12.2 µg/L (GZA-101R) to 47.2 µg/L (GZA-105S duplicate). Both GW-1 and GW-3 exceedances were coincident with all results that had exceedances. Finally, detected concentrations of TPH were above the GW-1

standard of 200 µg/L in samples collected from three monitoring wells in December 2010, with concentrations exceeding the standard ranging from 249 µg/L (TRC-103) to 1,570 µg/L (parent sample from GZA-105S).

According to 310 CMR 40.0973(7), a condition of No Significant Risk can exist if the EPCs of the aliphatic and aromatic hydrocarbon fractions associated with TPH are equal to or less than the applicable groundwater standards (MassDEP, 2008). Section 5.2.2 of Characterizing Risks Posed by Petroleum Contaminated Sites: *Implementation of the MADEP VPH/EPH Approach*, Final Policy (MassDEP, 2002) indicates that TPH is comprised of the three EPH fractions, C_9-C_{18} aliphatics, C_{19}-C_{36} aliphatics, and the C_{11}-C_{22} aromatics. It further states that for water data, TPH should be assumed to be the most conservative of the fractions for the groundwater category of interest. Thus, the TPH results still exceed the GW-1 standard of 200 µg/L for the C_{11}-C_{22} aromatic fraction in samples collected from three wells. Since the TPH results were below applicable GW-2 and GW-3 TPH standards, further evaluation is not required. As noted previously, the TPH results are presented to provide evidence of the reducing conditions; however, petroleum contamination is regulated under a separate RTN.

6.9 Risk of Harm to Safety

The purpose of evaluating the risk of harm to safety is to identify conditions that have resulted in or may result in the release of chemicals that may pose a threat of physical harm or bodily injury to people presently or in the foreseeable future. In accordance with 310 CMR 40.0960 of the MCP, there are no conditions currently at the former GE Facility Site that would constitute a risk of harm to public safety, such as the presence of uncontained materials that would exhibit the characteristics of corrosivity, flammability or are considered infectious materials. Therefore, in accordance with 310 CMR 40.0960 of the MCP, a level of No Significant Risk to safety exists at the Site.

6.10 Uncertainty Analysis

For a Method 1 risk characterization, possible sources of uncertainty generally relate to the adequacy of field sampling and characterization of the Site. While a limited number of historical soil samples were collected to identify the presence of arsenic at the Site, soil samples have yet to be collected to characterize current Site conditions with respect to the nature and extent of arsenic in subsurface soil proximate to the impacted groundwater. Thus, it is uncertain if naturally occurring arsenic in soil and rock is a source being mobilized by reducing conditions in groundwater triggered by the petroleum (Stoddard fuel) and chlorinated solvent plumes in groundwater identified at the property. Collection of soil data proximate to the wells with elevated arsenic will assist to reduce this uncertainty and to assist in refining the site conceptual model. A soil management approach may or may not be required depending on the findings.

Groundwater samples were submitted for laboratory analysis of both total and dissolved arsenic and iron. Typically, the dissolved fraction is used in the risk characterization to evaluate risks associated with groundwater exposures, since the Method 1 standards were developed for the dissolved fraction of a chemical in the water column. However, the total and dissolved results for both arsenic and iron were compared to Method 1 standards in this risk characterization, since the results of the dissolved fraction and total chemical concentrations were very similar. The relative percent differences between the total and dissolved results were low for both chemicals and between the duplicate pairs, suggesting that both analyses identified the chemicals primarily in their dissolved states and thus reducing uncertainty associated with inclusion of both the total arsenic and iron results in this evaluation.

6.11 Conclusions

The conclusions associated with current and foreseeable future Site use are summarized below.

- Since Site groundwater EPCs are above GW-1 and GW-3 standards, a condition of No Significant Risk to human health, public welfare, and the environment has not been achieved at the Site. The exceedences of these groundwater standards indicate that there is a risk to future human receptors exposed to groundwater as a source of drinking water and to ecological receptors exposed to groundwater that discharges to surface water, respectively.
- A level of No Significant Risk does exist for safety.
- Soil analytical data have not yet been collected to characterize current conditions at the Site; therefore, this risk characterization has not evaluated soil quality. It is recommended that soil samples be collected to evaluate the nature and extent of arsenic in surface and subsurface soil at this Site.
- The Site is not currently considered acceptable for unrestricted future use and additional actions should be evaluated to further characterize Site conditions and to achieve a permanent solution at this Site. Specifically, due to GW-3 exceedences of iron in groundwater, and that groundwater discharges to the downgradient wetlands, additional surface water and sediment sampling should be conducted.

Section 7

Summary and Conclusions

This section presents a summary of the Phase II CSA. Public involvement documentation, as required by 310 CMR 40.1403(3)(e), is included as **Appendix D** of this report. This report details the nature and extent of impacts of the site, addresses the potential current and future risks to human health and the environment, and provides recommendations for additional measures at the site.

7.1 Summary of the Interim Phase II Comprehensive Site Assessment Investigation

The following activities were conducted during the Interim Phase II CSA investigation conducted in 2010 and 2011:

- The sampling of 16 monitoring wells;
- The collection of 12 sediment samples;
- The collection of six surface water samples; and
- The evaluation of data from 32 nearby sites of release on the MassDEP searchable database.
- Review of numerous investigations conducted by others on the Site, including a limited soil metals data investigation.

7.1.1 Summary of Nature and Extent

The investigations conducted at the Site suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases covered under a separate RTN. The Interim Phase II CSA was completed to assess and define the horizontal and vertical extent of the OHM at the Site in groundwater, sediment, and surface water and in soil in the general vicinity of the Site.

Based on the Phase II activities listed above, CDM Smith observed the following:

- Limited site soil samples from 1989 indicate potential elevated arsenic at the Site. There is no information to suggest a release of arsenic from former or current facility operations.
- Based on the review of soil and groundwater data from 32 nearby sites of release, it is evident that soil and/or bedrock in the area in and around Wilmington, Massachusetts, contains naturally high arsenic concentrations in excess of the general 20 mg/kg established to be background by MassDEP. At these sites of release, documented low Eh due to high organic carbon content coincident with this high arsenic soil/bedrock can cause arsenic dissolution from the soil/bedrock into groundwater to increase the arsenic groundwater concentrations to above background.
- MCP Method 1 GW-1 Groundwater Standard exceedances for arsenic were found in groundwater samples collected onsite from eight monitoring wells. MCP Method 2 GW-1 and GW-3 Groundwater Standard exceedances for iron were found in groundwater samples

collected onsite from nine monitoring wells. For the most part, these arsenic and iron exceedances were detected in groundwater samples collected from monitoring wells in areas impacted by the releases associated with RTN 3-0518, and are considered to be most likely associated with chemical changes due to these primarily organic releases.

- Sediment samples indicated that sediment is not impacted by the Site.
- Surface water samples indicated that surface water is potentially impacted at the Site, with elevated concentrations of iron; however arsenic concentrations in surface water are below the applicable screening criterion. It is important to note that surface water samples collected in locations considered to be background and/or unimpacted by RTN 3-0518 plumes contained elevated concentrations of iron.
- The nature and extent of arsenic and iron in site soil has not yet been fully characterized or delineated at the Site.
- Additional soil data is required above and within the elevated arsenic/iron groundwater plume to provide a complete understanding of the nature and extent of the arsenic and iron in soil. However, the findings of this effort are unlikely to result in any change to the assessment and conclusions of this report; rather this is merely a matter of determining exact concentrations and can possibly lead to consideration of removal of any arsenic-laden soil that is not naturally occurring and/or background.
- Additional rounds of groundwater and surface water sampling events and observations from these events are required to better understand seasonal and other variability of the arsenic in groundwater and associated potential impacts.
- Even though sediment data collected did not indicate impacts from the Site, since GW-3 exceedances for iron in groundwater samples collected from the Site exist, additional sediment data is required to more fully evaluate the pathway of groundwater to surface water and any associated impacts to sediment. This will also help to assess any possible seasonal or other variability in contaminant concentrations in sediment.

7.1.2 Summary of Risk Assessment

A condition of No Significant Risk to human health, public welfare, and the environment does not currently exist at the Site, based on arsenic and iron groundwater standard exceedances in samples collected from the Site. A condition of No Significant Risk to safety does currently exist at the Site. As a result of the presence of the groundwater concentrations above the applicable standards, additional remedial action is required at the Site.

7.2 Reason for Interim Phase II Comprehensive Site Assessment

The nature and extent of the constituents of concern for RTN 3-28282 at Site have not yet been fully delineated. Additional site soil, groundwater, sediment, and surface water data is needed in order to obtain a complete understanding of the impacts at the Site, before Phase II can be completed and remedial alternatives can be evaluated.

In addition, as previously discussed, arsenic impacts observed in groundwater samples collected from the Site are believed to likely be attributed to elevated, naturally-occurring, background concentrations and dissolution of arsenic from natural local soil and bedrock, due to reducing conditions resulting from the presence of high organic concentrations from contamination (and possibly remediation) associated with RTN 3-0518. Therefore, without the elimination of the high organic content stemming from releases associated with RTN 3-0518, remediation of the arsenic impacts in groundwater alone will not serve to mitigate the probable cause of high arsenic concentrations in groundwater at the Site. Thus, CDM Smith concludes that it is most appropriate to determine a remedial alternative that would most effectively mitigate impacts due to both RTN 3-0518 and RTN 3-28282 as a whole, instead of separately.

Therefore, CDM Smith proposes to link RTN 3-28282 to parent RTN 3-0518 as soon as the Tier 1A permit for RTN 3-0518 has been transferred from TRC back to Lockheed Martin. Lockheed Martin transferred responsibility for RTN 3-0518 to TRC on October 22, 1999, as part of a contractual relationship that has recently been terminated. TRC is in the process of transferring the responsibility for the Property and RTN 3-0518 back to Lockheed Martin, and that transfer should be completed in the beginning of 2012. At that time, the two RTNs will be linked, and further evaluation of the operating remedy under ROS associated with RTN 3-0518 will be conducted. Therefore, no Phase III RAP has been completed as part of this Interim Phase II CSA for RTN 3-28282, as is required by 310 CMR 40.0500. Additional characterization of the linked RTNs will be performed under the parent RTN, and the adequacy of the existing remedies will be evaluated.

7.3 Recommendations

Since groundwater samples contain concentrations of arsenic above the GW-1 standard and iron above the GW-1 and GW-3 standards, it has been determined that (1) there is potential risk associated with the Site and (2) additional remedial activities will be necessary at the site to achieve a level of No Significant Risk.

However, the full extent of arsenic impacts in site media is currently unknown. As a result, further soil, groundwater, sediment, and surface water sampling must be completed to fully delineate the nature and extent of arsenic impacts in preparation for the selection of a remedial alternative for the Site.

In addition, as presented in Section 7.2, CDM Smith recommends linking RTN 3-28282 to parent RTN 3-0518 in order to evaluate impacts and remedial options at the Site and the Property as a whole. This further characterization and evaluation for the linked RTNs will be conducted under the parent RTN.

Section 8
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Appendix A

Wetlands Inspection Photographs

Wetlands Inspection Photographs









Wetlands Inspection Photographs









Appendix B

Groundwater Laboratory Analytical reports and Data Validation

TRC

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: January 21, 2008

Subject: Organic Data Validation Review for November 2007 Groundwater Samples; Former General Electric Site/Wilmington, Massachusetts Emerging Chemicals Investigation

SUMMARY

Limited validation was performed on the data for seven groundwater samples (including one field duplicate pair), three trip blanks, and one equipment blank collected at the Former General Electric Site in Wilmington, Massachusetts. The samples were collected on November 27, 28, and 29, 2007 and submitted to Alpha Woods Hole Labs (Alpha) in Westborough, Massachusetts for analysis. The samples were analyzed for the following parameters:

- Select volatile organic compounds (VOCs: chlorodifluoromethane, carbon disulfide, methyl ethyl ketone, methyl isobutyl ketone) and tentatively identified compounds (TICs) using SW-846 method 8260B (WSC-CAM-IIA);
- 1,4-Dioxane using SW-846 method 8270C with selective ion monitoring (SIM);
- TICs using SW-846 method 8270C;
- N-nitrosodimethylamine (NDMA) using EPA method 1625;
- Cyclonite (RDX) using SW-846 method 8330 (WSC-CAM-VIIIA); and
- Tributyl tin using a proprietary gas chromatography/flame photometric detection (GC/FPD) method.

Alpha reported the results under job numbers L0717592, L0717675, and L0717780. It should be noted that Alpha subcontracted analyses as follows:

- Analysis of n-nitrosodimethylamine was performed by Southwest Research Institute (SWRI) of San Antonio, Texas. SWRI reported the results under job numbers 071130 and 071203.
- Analysis of tributyl tin was performed by Bodycote Testing Group (West Coast Analytical Service, Inc) of Santa Fe Springs, California. Bodycote reported the results under job number 101135, 101170, and 101256.
- Analyses of VOCs and 1,4-dioxane were performed by Alpha Woods Hole Labs of Mansfield, Massachusetts. Alpha reported the results under job numbers 0711187, 0711188, and 0711194.

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99). Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies and requirements outlined in the Work Plan

for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater, dated October 2007.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Potential low bias exists for NDMA in all samples except GZA-10 due to low surrogate recoveries; since the affected results were approximately one order of magnitude below the project action level, data usability was not adversely affected by the low bias. Select results were reported which were below the lowest calibration standard level and quantitation limit; these results were qualified as estimated by the laboratory.

SAMPLES

Samples included in this review are listed below:

WE-09	WE-90 (field duplicate of WE-09)	GZA-10	MW-07
TRC-102	GZA-103R1	EMW-11R2	FB-01 (equipment blank)
TB-01 (trip blank)	TB-02 (trip blank)	TB-03 (trip blank)	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks/trip blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Tentatively identified compounds
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

All samples were prepared and analyzed within the method-specified holding time for all analyses. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks/Trip Blanks

VOCs

Target compounds and TICs were not detected in the laboratory method blanks, equipment blank (FB-01), or trip blanks.

SVOC TICs

TICs were not detected in the laboratory method blanks. One unknown TIC was detected in the SVOC analysis of the equipment blank (FB-01). Concentrations of unknown TICs in field samples were greater than 5x the concentration detected in the blank and therefore qualification of the data was not required.

1,4-Dioxane

1,4-Dioxane was not detected in the laboratory method blanks or equipment blank (FB-01).

RDX

RDX was not detected in the laboratory method blanks or equipment blank (FB-01).

Tributyl Tin

Tributyl tin was not detected in the laboratory method blanks or equipment blank (FB-01).

NDMA

NDMA was detected in the laboratory method blank and equipment blank (FB-01). The presence of blank contamination indicates that false positives may exist for this compound in the associated samples. An Action Level (AL) was established at 5x the concentration detected. The following table summarizes the AL.

Compound	Concentration Detected	Action Level
NDMA	0.4 ng/L	2.0 ng/L

Sample results were qualified as follows:

- If sample concentration was < the quantitation limit (QL) and ≤ the Action Level, qualify the result as a nondetect (U) at the QL.

- If sample concentration was > the QL and ≤ the Action Level, qualify the result as not detected (U) at the reported concentration.
- If the sample concentration was > the QL and > the Action Level, qualification of the data was not required.

The positive results for NDMA in samples WE-09, WE-90, MW-07, and GZA-103R1 were qualified as nondetects due to the blank contamination.

Surrogate Spike Recoveries

VOCs, SVOC TICs, 1,4-Dioxane, RDX, Tributyl Tin

All criteria were met.

NDMA

The laboratory used a different surrogate (n-nitrosodimethylamine-d6) than the surrogate listed in the Work Plan (n-nitroso-di-n-propylamine-d14). Although the surrogate used is appropriate for this analysis, the laboratory used acceptance limits of 10-100% to evaluate the recoveries rather than 40-140%, which were to be used for the planned surrogate. It was the opinion of the validator that the acceptance limits of 10-100% were too wide and therefore the acceptance limits listed in the Work Plan (40-140%) were used to evaluate all samples. Based on this evaluation, all samples except GZA-10 exhibited low recoveries. Positive and nondetect results for NDMA were qualified as estimated (J/UJ) in all samples except GZA-10. The following table summarizes the surrogate recoveries.

Sample ID	Surrogate Recovery
WE-09	17.5%
WE-90	14.6%
FB-01	16.5%
MW-07	15.2%
TRC-102	24.4%
GZA-103R1	16.9%
EMW-11R2	19.2%
Method Blank	34.0%
LCS	33.9%

MS/MSD Results

VOCs, NDMA, 1,4-Dioxane, RDX, Tributyl Tin

Sample WE-09 was submitted for MS/MSD analyses with this sample set. All recoveries and relative percent differences (RPDs) were within the acceptance limits in all analyses.

SVOC TICs

Sample WE-09 was submitted for MS/MSD analyses with this sample set. It should be noted that the MS/MSD results provided by the laboratory demonstrated acceptable recoveries of most target

SVOCs. Since this analysis was used strictly to report TICs, qualification on the basis of select target compound recovery or RPD nonconformances was not required.

LCS Results

VOCs, NDMA, 1,4-Dioxane, RDX, Tributyl Tin

An LCS and LCS Duplicate were prepared with each batch of samples for VOCs, RDX, and 1,4-Dioxane; all recovery and RPD criteria were met. An LCS and/or LCS Duplicate were prepared with samples for NDMA and tributyl tin; all criteria were met.

SVOC TICs

It should be noted that the LCS results provided by the laboratory demonstrated acceptable recoveries of most target SVOCs. Since this analysis was used strictly to report TICs, qualification on the basis of select target compound recovery or RPD nonconformances was not required.

Field Duplicate Results

Samples WE-09 and WE-90 were submitted as a field duplicate pair with this sample set. The following table summarizes the RPDs of the detected VOC and SVOC TICs. It should be noted that target compounds were not detected in the VOC, RDX, NDMA, tributyl tin, or 1,4-dioxane analyses. Qualification of TIC data on the basis of field duplicate results is not required.

Compound	WE-09 (µg/L)	WE-90 (µg/L)	RPD (%)
VOC TICs			
2,2,3,3-Tetramethylbutane	17	11	42.8
3-Ethylpentane	7	9	25.0
2,3-Dimethylpentane	ND	3	NC
2,3,3-Trimethylpentane	6	16	90.9
SVOC TICs			
Unknown	56.3	64.6	13.7
Unknown Alkane	10.9	ND	NC
Unknown C10H12 Isomer	4.5	13	97
Unknown Substituted Benzene	45	34.5	26.4
Indane	13	13	0

NC – Not calculable

Tentatively Identified Compounds

All criteria were met.

Quantitation Limits and Sample Results

VOCs

The VOC analysis of sample MW-07 was analyzed at a five-fold dilution due to the concentration of chlorodifluoromethane which exceeded the calibration range in the initial undiluted analysis. The results of both the diluted and undiluted analyses were combined during validation in order to report the lowest possible quantitation limits and all results within the calibration range.

1,4-Dioxane

It was noted during validation that sample MW-07 detected 1,4-dioxane at a concentration below the quantitation limit but had not been reported by the laboratory. Upon review, the laboratory realized this was an oversight and resubmitted the result for this sample.

RDX, NDMA, Tributyl Tin, SVOC TICs

The laboratory met the required quantitation limits for all samples and all analyses.

TRC

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: January 21, 2008

Subject: Inorganic Data Validation Review for November 2007 Groundwater Samples; Former General Electric Site/Wilmington, Massachusetts Emerging Chemicals Investigation

SUMMARY

Limited validation was performed on the data for seven groundwater samples (including one field duplicate pair) and one equipment blank collected at the Former General Electric Site in Wilmington, Massachusetts. The samples were collected on November 27, 28, and 29, 2007 and submitted to Alpha Woods Hole Labs (Alpha) in Westborough, Massachusetts for analysis. The samples were analyzed for the following parameters:

- Hexavalent chromium using SW-846 method 7196A (WSC-CAM-VIB);
- Perchlorate using EPA method 314.1 (also includes specific conductance using Standard Methods 2510B); and
- Select metals (arsenic, beryllium, cadmium, copper, and lead) using SW-846 method 6020 (WSC-CAM-IIID).

Alpha reported the results under job numbers L0717591, L0717592, L0717675, and L0717780.

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (07/02). Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies and requirements outlined in the Work Plan for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater, dated October 2007.

With the exception of perchlorate, the data appear to be valid as reported and may be used for decision-making purposes. Potential low bias exists for the hexavalent chromium result in sample GZA-10 due to low matrix spike recovery; since the affected result was approximately one order of magnitude below the project action level, data usability was not adversely affected by the low bias. Potential low bias and false negative results exist for perchlorate in all samples due to low matrix spike and pretreatment spike recoveries. The perchlorate result in sample GZA-103R1 is not usable for project objectives due to significantly low recovery (<10%) in the pretreatment spike. Based on the low perchlorate spike recoveries as well as interferences noted in the chromatography, resampling of groundwater for perchlorate is recommended with analysis of perchlorate using a method less susceptible to interferences (EPA method 332.0). Select results were reported which were below the lowest calibration standard level and quantitation limit; these results were qualified as estimated by the laboratory.

SAMPLES

Samples included in this review are listed below:

WE-09	WE-90 (field duplicate of WE-09)	GZA-10	MW-07
TRC-102	GZA-103R1	EMW-11R2	FB-01 (equipment blank)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Laboratory control sample (LCS) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

All samples were prepared and analyzed within the method-specified holding time for all analyses. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks

Hexavalent Chromium and Perchlorate

Target analytes were not detected in the laboratory method blanks and equipment blank (FB-01).

Metals

Cadmium and copper were detected in the laboratory method blanks. The presence of blank contamination indicates that false positives may exist for these metals in the associated samples. Action Levels (ALs) were established at 5x the maximum concentrations detected for each metal. The following table summarizes the ALs.

Metal	Maximum Concentration Detected	Action Level
Cadmium	0.07 ug/L	0.35 ug/L
Copper	0.08 ug/L	0.40 ug/L

Sample results were qualified as follows:

- If sample concentration was < the quantitation limit (QL) and ≤ the Action Level, qualify the result as a nondetect (U) at the QL.
- If sample concentration was > the QL and ≤ the Action Level, qualify the result as not detected (U) at the reported concentration.
- If the sample concentration was > the QL and > the Action Level, qualification of the data was not required.

The positive results for cadmium in samples FB-01, GZA-10, MW-07, TRC-102, GZA-103R1, WE-09, and WE-90 were qualified as nondetects due to the blank contamination. The positive results for copper in samples FB-01, GZA-10, MW-07, and EMW-11R2 were qualified as nondetects due to the blank contamination.

MS/MSD Results

Hexavalent Chromium

Matrix spike analyses were performed on samples WE-09, GZA-10, and EMW-11R2. The recoveries of hexavalent chromium in the matrix spike analyses performed on samples WE-09 and EMW-11R2 were within the acceptance limits. The recovery (14%) of hexavalent chromium in the matrix spike analysis performed on sample GZA-10 was below the acceptance limits. The nondetect result for hexavalent chromium in this sample was qualified as estimated (UJ).

Metals

Sample WE-09 was submitted for MS/MSD analyses with this sample set. The recoveries and relative percent differences (RPDs) of all metals were within the acceptance limits.

Perchlorate

Sample WE-09 was submitted for MS/MSD analyses with this sample set. The recoveries (66%/51%) and RPD (26) of perchlorate were outside of the acceptance limits in the MS/MSD analyses. The laboratory also performed a matrix spike analysis on sample EMW-11R2; the recovery (55%) of perchlorate was below the acceptance limits.

All samples with the exception of EMW-11R2 and FB-01 were pretreated by the laboratory due to the specific conductance measurements of these samples which exceeded 500 umhos/cm. A perchlorate spike analysis was performed on each sample that was pretreated. Several samples exhibited low recoveries of the perchlorate spike and are summarized below.

- GZA-103R1: 7%
- GZA-10: 53%
- MW-7: 62%
- WE-90: 68%

Based on the low matrix spike recoveries and the low pretreatment spike recoveries, it was the opinion of the validator to qualify the nondetect perchlorate results in all samples with the exception of sample GZA-103R1 as estimated (UJ). Due to a recovery of <10% in the pretreatment spike of sample GZA-103R1, the nondetect result for perchlorate was rejected (R) in this sample.

Laboratory Duplicate Results

Hexavalent Chromium

Laboratory duplicate analyses were performed on samples WE-09, MW-07, and GZA-103R1. Hexavalent chromium was not detected in the original or duplicate analyses.

Perchlorate

Laboratory duplicate analyses were performed on samples GZA-10 and EMW-11R2. Perchlorate was not detected in the original or duplicate analyses. In addition, laboratory duplicate analyses were performed on samples FB-01, MW-07, and EMW-11R2 for specific conductance; all criteria were met.

LCS Results

An LCS and LCS Duplicate were prepared with each batch of samples for hexavalent chromium and metals; all recovery and RPD criteria were met. An LCS was prepared with each batch of samples for perchlorate; all criteria were met.

Field Duplicate Results

Samples WE-09 and WE-90 were submitted as a field duplicate pair with this sample set. The following table summarizes the RPDs of the detected metals, all of which were within the acceptance criteria. It should be noted that target analytes were not detected in the hexavalent chromium or perchlorate analyses.

Metal	WE-09 (µg/L)	WE-90 (µg/L)	RPD (%)
Arsenic	33.3	27.2	20.2
Copper	0.9	1.2	28.6
Lead	0.17 J	0.21 J	21.0

Quantitation Limits and Sample Results

The laboratory met the required quantitation limits for all samples and all analyses.

It should be noted that the perchlorate analyses performed on these samples yielded questionable results due to the presence of interferences in the time frame where perchlorate elutes. In particular, samples GZA-103R1 and TRC-102 exhibited large peaks which completely masked the time frame in which perchlorate elutes. Based on the chromatography of these samples and the matrix spike/pretreatment spike data, it is the opinion of the validator that potential false negative results may exist in this data set. The groundwater samples in this data set should be resampled and reanalyzed for perchlorate using a method with less interferences (EPA method 332.0).

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-02
WE-09
Sample Matrix: WATER

Date Collected: 27-NOV-2007 13:00
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 12-Amber,2-Bacteria,2-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	1400	umhos/cm	10	30 2510B		1127 21:55	JO
Perchlorate by Method 314.0				58 314.0		1206 11:37	AJ
Perchlorate	ND U J	ug/l	1.00				
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0333	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Cadmium, Total	0.0005 U ~~0.000093~~	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Copper, Total	0.0009	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Lead, Total	0.00017J	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:21	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	55.0	%	15-110				
Phenol-d6	45.0	%	15-110				
Nitrobenzene-d5	100	%	30-130				
2-Fluorobiphenyl	96.0	%	30-130				
2,4,6-Tribromophenol	105	%	15-110				
4-Terphenyl-d14	109	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:21	RL
Tentatively Identified Compounds							
Unknown	4.3	ug/l					
Unknown Alkane	4.0	ug/l					
Unknown Alkane	6.9	ug/l					
Unknown Substituted Benzene	5.9	ug/l					
Indane	13	ug/l					
Unknown	52	ug/l					
Unknown Substituted Benzene	6.4	ug/l					
Unknown Substituted Benzene	20	ug/l					
Unknown Substituted Benzene	4.5	ug/l					
Unknown C10H12 Isomer	4.5	ug/l					
Unknown Substituted Benzene	8.2	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1204 20:59	AJ
RDX	ND	ug/l	0.263				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-03
WE-90
Sample Matrix: WATER

Date Collected: 27-NOV-2007 16:00
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory
Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,1-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	1500	umhos/cm	10	30 2510B		1127 21:55	JO
Perchlorate by Method 314.0				58 314.0		1206 11:54	AJ
Perchlorate	~~ND~~ 0.00 UJ	ug/l	1.00				
Arsenic, Total	0.0272	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Cadmium, Total	~~0.00005J~~ 0.0005 U	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Copper, Total	0.0012	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Lead, Total	0.00021J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	54.0	%	15-110				
Phenol-d6	44.0	%	15-110				
Nitrobenzene-d5	96.0	%	30-130				
2-Fluorobiphenyl	89.0	%	30-130				
2,4,6-Tribromophenol	99.0	%	15-110				
4-Terphenyl-d14	108	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:44	RL
Tentatively Identified Compounds							
Unknown	4.2	ug/l					
Unknown	5.4	ug/l					
Unknown	4.0	ug/l					
Unknown Substituted Benzene	5.5	ug/l					
Indane	13	ug/l					
Unknown	51	ug/l					
Unknown Substituted Benzene	5.8	ug/l					
Unknown Substituted Benzene	19	ug/l					
Unknown Substituted Benzene	4.2	ug/l					
Unknown C10H12 Isomer	5.2	ug/l					
Unknown C10H12 Isomer	7.8	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 00:07	AJ
RDX	ND	ug/l	0.272				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-04
FB-01
Sample Matrix: WATER

Date Collected: 27-NOV-2007 15:30
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,1-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	ND	umhos/cm	10	30 2510B		1127 21:55	JO
Perchlorate by Method 314.0				58 314.0		1206 18:17	AJ
Perchlorate	~~ND~~ UJ	ug/l	1.00				
Arsenic, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Cadmium, Total	0.0005U ~~0.00004J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Copper, Total	0.0005U ~~0.00005J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Lead, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM

Surrogate(s)	Recovery		QC Criteria
2-Fluorophenol	53.0	%	15-110
Phenol-d6	43.0	%	15-110
Nitrobenzene-d5	92.0	%	30-130
2-Fluorobiphenyl	84.0	%	30-130
2,4,6-Tribromophenol	98.0	%	15-110
4-Terphenyl-d14	106	%	30-130

Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 17:07	RL
Tentatively Identified Compounds							
Unknown	4.3	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 01:10	AJ
RDX	ND	ug/l	0.266				

Surrogate(s)	Recovery		QC Criteria
1,2-Dinitrobenzene	102	%	70-110

Comments: Complete list of References and Glossary of Terms found in Addendum I

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

SAMPLE RESULTS

Lab ID: L0717591-01
Client ID: WE-09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 11/27/07 13:00
Date Received: 11/27/07
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

SAMPLE RESULTS

Lab ID: L0717591-02
Client ID: WE-90
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 11/27/07 16:00
Date Received: 11/27/07
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

SAMPLE RESULTS

Lab ID: L0717591-03
Client ID: FB-01
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 11/27/07 15:30
Date Received: 11/27/07
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-02
GZA-10
Sample Matrix: WATER

Date Collected: 28-NOV-2007 10:30
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	520	umhos/cm	10	30 2510B		1128 21:40	LR
Perchlorate by Method 314.0				58 314.0		1206 12:12	AJ
Perchlorate	ND UJ	ug/l	1.00				
Hexavalent Chromium, WET							
Chromium, Hexavalent	ND UJ	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Total Metals							
Arsenic, Total	0.0844	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Cadmium, Total	0.0005 U ~~0.00018J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Copper, Total	0.0005 U ~~0.00026J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Lead, Total	0.00011J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Semivolatile Organics by MCP 8270C							
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	15-110				
Phenol-d6	25.0	%	15-110				
Nitrobenzene-d5	66.0	%	30-130				
2-Fluorobiphenyl	68.0	%	30-130				
2,4,6-Tribromophenol	77.0	%	15-110				
4-Terphenyl-d14	93.0	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 11:27	PS
Tentatively Identified Compounds							
No Tentatively Identified Compounds	ND	ug/l					
Explosives							
RDX	ND	ug/l	0.269				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-03
MW-07
Sample Matrix: WATER

Date Collected: 28-NOV-2007 14:00
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	900	umhos/cm	10	30 2510B		1128 21:40	LR
Perchlorate by Method 314.0				58 314.0		1206 12:29	AJ
Perchlorate	ND U J	ug/l	1.00				
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Arsenic, Total	0.0072	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Beryllium, Total	0.00016J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Cadmium, Total	0.0005U ~~0.00004J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Copper, Total	0.0005U ~~0.00026J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Lead, Total	0.00008J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	33.0	%	15-110				
Phenol-d6	26.0	%	15-110				
Nitrobenzene-d5	60.0	%	30-130				
2-Fluorobiphenyl	64.0	%	30-130				
2,4,6-Tribromophenol	82.0	%	15-110				
4-Terphenyl-d14	105	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 11:50	PS
Tentatively Identified Compounds							
No Tentatively Identified Compounds	ND	ug/l					
RDX	ND	ug/l	0.260				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-04
TRC-102
Sample Matrix: WATER

Date Collected: 28-NOV-2007 16:05
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	670	umhos/cm	10	30 2510B		1128 21:40	LR
Perchlorate by Method 314.0				58 314.0		1206 12:46	AJ
Perchlorate	ND UJ	ug/l	1.00				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0361	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Beryllium, Total	0.00005J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Cadmium, Total 0.0005 U	~~0.00004J~~	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Copper, Total	0.0007	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Lead, Total	0.00029J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:12	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	30.0	%	15-110				
Phenol-d6	24.0	%	15-110				
Nitrobenzene-d5	63.0	%	30-130				
2-Fluorobiphenyl	63.0	%	30-130				
2,4,6-Tribromophenol	98.0	%	15-110				
4-Terphenyl-d14	105	%	30-130				
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1130 14:00	1204 12:12	PS
Unknown	3.8	ug/l					
Unknown Substituted Benzene	4.8	ug/l					
Unknown C9H10	6.7	ug/l					
Unknown Substituted Benzene	4.3	ug/l					
Unknown	5.4	ug/l					
Unknown	4.2	ug/l					
Unknown	6.2	ug/l					
Unknown	8.4	ug/l					
Unknown	5.2	ug/l					
Unknown	3.9	ug/l					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717675-04
TRC-102

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Unknown	4.5	ug/l					
Unknown	6.3	ug/l					
Unknown	5.6	ug/l					
Unknown	4.9	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 06:24	AJ
RDX	ND	ug/l	0.266				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	82.0	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717780-02
GZA-103R1
Sample Matrix: WATER

Date Collected: 29-NOV-2007 11:30
Date Received : 29-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	750	umhos/cm	10	30 2510B		1129 23:35	JO
Perchlorate by Method 314.0				58 314.0		1206 14:13	AJ
Perchlorate	~~ND~~ R	ug/l	~~1.00~~				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1130 00:35	1130 00:35	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0614	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Beryllium, Total	0.00011J	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Cadmium, Total 0.0005 U	~~0.00009J~~	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Copper, Total	0.0008	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Lead, Total	0.0015	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:35	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	29.0	%	15-110				
Phenol-d6	23.0	%	15-110				
Nitrobenzene-d5	57.0	%	30-130				
2-Fluorobiphenyl	58.0	%	30-130				
2,4,6-Tribromophenol	90.0	%	15-110				
4-Terphenyl-d14	94.0	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:35	PS
Tentatively Identified Compounds							
Toluene	14	ug/l					
Ethylbenzene	8.8	ug/l					
m/p-Xylene	9.1	ug/l					
o-Xylene	14	ug/l					
Benzene, propyl-	6.1	ug/l					
Unknown Substituted Benzene	12	ug/l					
Unknown Substituted Benzene	26	ug/l					
Unknown Substituted Benzene	11	ug/l					
Indane	8.6	ug/l					
Unknown Substituted Benzene	6.0	ug/l					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717780-02
GZA-103R1

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Semivolatile Organics by MCP 8270C cont'd				64 8270C	1130 14:00	1204 12:35	PS
Unknown	4.2	ug/l					
Unknown	3.9	ug/l					
Unknown	4.1	ug/l					
Unknown	12	ug/l					
Unknown	6.7	ug/l					
Unknown	4.1	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 07:27	AJ
RDX	ND	ug/l	0.272				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	98.0	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717780-03
EMW-11R2
Sample Matrix: WATER

Date Collected: 29-NOV-2007 16:00
Date Received : 29-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	240	umhos/cm	10	30 2510B		1129 23:35	JO
Perchlorate by Method 314.0				58 314.0		1206 18:35	AJ
Perchlorate	~~ND~~ 0.00U	ug/l	1.00				
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1130 00:35	1130 00:35	HS
Arsenic, Total	0.0033	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Cadmium, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Copper, Total	0.0005U ~~0.00013~~	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Lead, Total	0.00003J	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	15-110				
Phenol-d6	26.0	%	15-110				
Nitrobenzene-d5	57.0	%	30-130				
2-Fluorobiphenyl	57.0	%	30-130				
2,4,6-Tribromophenol	68.0	%	15-110				
4-Terphenyl-d14	98.0	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:58	PS
Tentatively Identified Compounds							
Tetrachloroethylene	52	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 08:30	AJ
RDX	ND	ug/l	0.266				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	101	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **TB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-01**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result	
Carbon disulfide	2.0	U
2-Butanone (MEK)	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U
Chlorodifluoromethane	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	105	70-130
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	93	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Volatile Tentatively Identified Compounds (TIC)

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **TB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-01**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
No TICS were detected in this sample.			

N/A - Not Applicable

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Form I
Volatile Organics by 8260

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **WE-09**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-02**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result	
Carbon disulfide	2.0	U
2-Butanone (MEK)	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U
Chlorodifluoromethane	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	95	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Volatile Tentatively Identified Compounds (TIC)



Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **WE-09**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-02**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Butane, 2,2,3,3-tetramethyl-	6.71	17	000594-82-1
Pentane, 3-ethyl-	8.37	7	000617-78-7
Pentane, 2,3,3-trimethyl-	8.53	6	000560-21-4
Ethylbenzene	11.71	5	100-41-4
Benzene, 1,3-dimethyl-	11.9	3	000108-38-3
Benzene, 1-ethyl-4-methyl-	13.07	3	000622-96-8
Benzene, propyl-	13.72	6	000103-65-1
Benzene, 1,2,3-trimethyl-	14.62	9	000526-73-8
Indane	15.59	30	496-11-7
Benzene, 1,2-diethyl-	15.69	5	000135-01-3
Benzene, 4-ethyl-1,2-dimethyl-	16.26	12	000934-80-5
Benzene, 1-methyl-4-(2-propenyl)-	16.41	10	003333-13-9
Benzene, 1,2,4,5-tetramethyl-	16.8	4	000095-93-2
Benzene, (1-methyl-1-propenyl)-, (Z)-	17.22	4	000767-99-7
2,3-Dihydro-1-methylindene	17.44	13	027133-93-3

N/A - Not Applicable

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Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **WE-90**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-03**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	2.0 U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	99	70-130
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	94	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **WE-90**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-03**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Pentane, 2,3-dimethyl-	6.24	3	000565-59-3
Butane, 2,2,3,3-tetramethyl-	6.71	11	000594-82-1
Pentane, 3-ethyl-	8.36	9	000617-78-7
Pentane, 2,3,3-trimethyl-	8.53	16	000560-21-4
Ethylbenzene	11.71	4	100-41-4
Benzene, 1-ethyl-4-methyl-	13.07	3	000622-96-8
Benzene, propyl-	13.72	3	000103-65-1
Benzene, 1,2,3-trimethyl-	14.62	3	000526-73-8
Indane	15.59	34	496-11-7
Benzene, 1,2-diethyl-	15.69	6	000135-01-3
Benzene, 4-ethyl-1,2-dimethyl-	16.25	13	000934-80-5
Benzene, 1-methyl-2-(2-propenyl)-	16.41	12	001587-04-8
Benzene, 1,2,3,5-tetramethyl-	16.8	5	000527-53-7
Benzene, (1-methyl-1-propenyl)-, (E)-	17.22	5	000768-00-3
2,3-Dihydro-1-methylindene	17.44	15	027133-93-3

N/A - Not Applicable

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Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **FB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-04**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	2.0 U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	106	70-130
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	91	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Volatile Tentatively Identified Compounds (TIC)



Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **FB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711187**
Lab ID: **0711187-04**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
No TICS were detected in this sample.			

N/A - Not Applicable

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Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **TB-02**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-01**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/26/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	2.0 U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
1,2-Dichloroethane-d4	108	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	92	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **TB-02**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-01**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/26/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
No TICS were detected in this sample.			

N/A - Not Applicable

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Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **GZA-10**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-02**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	34

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	102	70-130
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	93	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **GZA-10**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-02**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Propane, 2-methoxy-2-methyl-	4.23	90	001634-04-4
Diisopropyl Ether (DIPE)	4.86	9	108-20-3

N/A - Not Applicable

Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **MW-07**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-03**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	~~530~~ E 640

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	99	70-130
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	92	70-130

N/A - Not Applicable
E - Estimated value, exceeds the upper limit of calibration.
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **MW-07**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-03**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Ethene, 1,2-dichloro-, (Z)-	5.66	22	000156-59-2
Trichloroethylene	7.64	6	000079-01-6

N/A - Not Applicable

Form I
Volatile Organics by 8260

DO NOT REPORT

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **MW-07**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-03E**
Associated Blank: **VW120607B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/06/07	5	5	5	ALM

Parameter	Result
Carbon disulfide	10 U
2-Butanone (MEK)	10 U
Methyl isobutyl ketone (MIBK)	10 U
Chlorodifluoromethane	640

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	101	70-130
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	93	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)

DO NOT REPORT

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **MW-07**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-03E**
Associated Blank: **VW120607B02**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/06/07	5	5	5	ALM

Parameter	RT	Result	CAS Number
Ethene, 1,2-dichloro-, (E)-	5.66	23	000156-60-5

N/A - Not Applicable

Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **TRC-102**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-04**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	76

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	100	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **TRC-102**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-04**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Benzene, 1-methyl-4-(1-methylethyl)-	14.52	6	000099-87-6
Indane	15.59	18	496-11-7
Benzene, 1,2-diethyl-	15.69	3	000135-01-3
Benzene, 1-methyl-4-(2-propenyl)-	16.42	3	003333-13-9
1H-Indene, 2,3-dihydro-5-methyl-	17.44	3	000874-35-1

N/A - Not Applicable

Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **TB-03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-01**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/30/07	12/05/07	5	5	1	ALM

Parameter	Result	
Carbon disulfide	2.0	U
2-Butanone (MEK)	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U
Chlorodifluoromethane	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	104	70-130
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	93	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)



Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **TB-03**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-01**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/30/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
No TICS were detected in this sample.			

N/A - Not Applicable

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Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 -TRC**
Client ID: **GZA-103R1**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-02**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/29/07	11/30/07	12/05/07	5	5	1	ALM

Parameter	Result	
Carbon disulfide	2.0	U
2-Butanone (MEK)	2.0	U
Methyl isobutyl ketone (MIBK)	2.0	U
Chlorodifluoromethane	2.0	U

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	99	70-130
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	105	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **GZA-103R1**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-02**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/29/07	11/30/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Ethene, trifluoro-	1.47	250	000359-11-5
Ethene, chlorotrifluoro-	1.55	17	000079-38-9
Ethene, 1,1-difluoro-	1.6	13	75-38-7
Cyclopentane, methyl-	5.31	6	000096-37-7
Cyclohexane	6.21	19	110-82-7
Toluene	9.46	65	108-88-3
Ethylbenzene	11.71	32	100-41-4
Benzene, 1,3-dimethyl-	11.9	32	000108-38-3
Benzene, 1,2-dimethyl-	12.52	44	000095-47-6
Benzene, 1-ethyl-4-methyl-	13.07	10	000622-96-8
Benzene, propyl-	13.72	18	000103-65-1
Benzene, 1-ethyl-2-methyl-	13.91	34	000611-14-3
Benzene, 1,3,5-trimethyl-	14.02	10	000108-67-8
Benzene, 1-ethyl-3-methyl-	14.34	68	000620-14-4
Benzene, 1,2,3-trimethyl-	14.62	75	000526-73-8
Benzene, 1,3,5-trimethyl-	15.3	31	000108-67-8
Indane	15.59	30	496-11-7
Benzene, 1-methyl-2-(2-propenyl)-	16.42	7	001587-04-8
Azulene	18.25	14	000275-51-4

N/A - Not Applicable

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Form I
Volatile Organics by 8260

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **EMW-11R2**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-03**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/29/07	11/30/07	12/05/07	5	5	1	ALM

Parameter	Result
Carbon disulfide	2.0 U
2-Butanone (MEK)	2.0 U
Methyl isobutyl ketone (MIBK)	2.0 U
Chlorodifluoromethane	11

Surrogate	% Recovery	Acceptance Range (%)
Dibromofluoromethane	98	70-130
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	92	70-130

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Volatile Tentatively Identified Compounds (TIC)

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **EMW-11R2**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-03**
Associated Blank: **VW120507B01**
Concentration Units: **µg/L**

Date Collected	Date Received	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/29/07	11/30/07	12/05/07	5	5	1	ALM

Parameter	RT	Result	CAS Number
Ethene, 1,2-dichloro-, (E)-	5.66	28	000156-60-5
Trichloroethylene	7.64	430	000079-01-6
Tetrachloroethylene	10.2	230	000127-18-4

N/A - Not Applicable

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Form I
Semi-Volatile Organics by 8270

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **WE-09**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711179**
Lab ID: **0711179-01**
Associated Blank: **SW112807B20**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/28/07	11/28/07	12/07/07	980	10	1	TLW

Parameter	Result
1,4-Dioxane	510 U

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	38	15-110

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Semi-Volatile Organics by 8270

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **WE-90**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711179**
Lab ID: **0711179-02**
Associated Blank: **SW112807B20**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/28/07	11/28/07	12/07/07	960	10	1	TLW

Parameter	Result
1,4-Dioxane	520 U

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	39	15-110

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Semi-Volatile Organics by 8270

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**
Client ID: **FB-01**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711179**
Lab ID: **0711179-03**
Associated Blank: **SW112807B20**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/27/07	11/28/07	11/28/07	12/07/07	960	10	1	TLW

Parameter	Result
1,4-Dioxane	520 U

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	43	15-110

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Semi-Volatile Organics by 8270

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **GZA-10**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-02**
Associated Blank: **SW120307B19**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/03/07	12/11/07	1000	10	1	TLW

Parameter	Result
1,4-Dioxane	500 U

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	38	15-110

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Semi-Volatile Organics by 8270

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **MW-07**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-03**
Associated Blank: **SW120307B19**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/03/07	12/11/07	1000	10	1	TLW

Parameter	Result
1,4-Dioxane	490 J

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	42	15-110

N/A - Not Applicable
J - Estimated value, below quantitation limit.

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Form I
Semi-Volatile Organics by 8270

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**
Client ID: **TRC-102**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711188**
Lab ID: **0711188-04**
Associated Blank: **SW120307B19**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/28/07	11/29/07	12/03/07	12/12/07	1000	10	1	TLW

Parameter	Result
1,4-Dioxane	500 U

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	41	15-110

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

Form I
Semi-Volatile Organics by 8270

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **GZA-103R1**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-02**
Associated Blank: **SW120307B19**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/29/07	11/30/07	12/03/07	12/12/07	920	10	1	TLW

Parameter	Result
1,4-Dioxane	540 U

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	37	15-110

N/A - Not Applicable
U - The analyte was analyzed for but not detected at the sample specific level reported.

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Form I
Semi-Volatile Organics by 8270

ALPHA WOODS HOLE LABS

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717780 - TRC**
Client ID: **EMW-11R2**
Case: **N/A** SDG: **N/A**
Matrix: **Water**

Lab Code: **MA00030**
ETR: **0711194**
Lab ID: **0711194-03**
Associated Blank: **SW120307B19**
Concentration Units: **ng/L**

Date Collected	Date Received	Date Extracted	Date Analyzed	Sample Amount (ml)	Final Volume (ml)	Dilution Factor	Analyst
11/29/07	11/30/07	12/03/07	12/12/07	1000	10	1	TLW

Parameter	Result
1,4-Dioxane	4000

Surrogate	% Recovery	Acceptance Range (%)
1,4-Dioxane-d8	40	15-110

N/A - Not Applicable

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010014

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717593-1** WE-09	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314397	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	1 U ~~0.3 ppt~~
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010017

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717593-2** WE-90	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314400	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	1 U J ~~0.5 ppt~~
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010018

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717593-3** FB-01	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314401	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.4 ppt** J
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010019

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717677-01** G2A-10	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-4/314437	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	11/30/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	**54.0 ppt**	
N-Nitrodimethylamine	4164-28-7	**56.4 ppt**	

010020

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717677-02** MW-07	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-4/314438	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	11/30/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	1 U ~~0.5 ppt~~
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010021

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717677-03** TRC-102	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-4/314438	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	11/30/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt UJ	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010022

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717782-01** G2A-103R1	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314465	Analytical Method:	TAP-01-0403-015
Collection Date:	11/29/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	**1.6 ppt**	J
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010023

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717782-02** EMW-11R2	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314466	Analytical Method:	TAP-01-0403-015
Collection Date:	11/29/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt UJ	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717594-1 WE-09	ND	57
L0717594-2 WE-90	ND	64
L0717594-3 FB-01	ND	91
Method Blank	ND	79
Detection Limit	0.1	50 - 150

Date extracted:	12-04-07
Dates analyzed:	12-06-07

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717679-1 GZA-10 MW-07 TRC-102	ND	70
L0717679-2	ND	67
L0717679-3	ND	78
Method Blank	ND	90
Detection Limit	0.1	50 - 150

Date extracted: 12-05-07
Dates analyzed: 12-07-07

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717783-1 GCA-103RI EMU-11R2	ND	62
L0717783-2	ND	78
Method Blank	ND	53
Detection Limit	0.1	50 - 150

Date extracted:	12-06-07
Dates analyzed:	12-07-07

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TESTING GROUP
www.bodycote.com
www.bodycotetesting.com

January 2, 2008

Alpha Woods Hole Labs
Westboro, MA
8 Walk Up Dr
Westborough, MA 01581-1019

Attn: Peter Henriksen

Job No: 101170 LO

LABORATORY REPORT

Samples Received: Six (6) Samples
Date Received: 11/30/2007
Purchase Order No: PAID IN FULL/CK# 73103

The samples were analyzed as follows:

Analysis	Page
Tributyltin by SOP 3200, Rev 6	2
Environmental Data Package	Enclosed*

*Enclosed with Bodycote Job Number 101135

Michael Shelton
Senior Staff Chemist

Greg R. Shaw, M.S.
Senior Chemist

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Bodycote

WEST COAST ANALYTICAL SERVICE, INC.

Alpha Woods Hole Labs
Attn: Peter Henriksen

Job No: 101170
January 2, 2008

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717679-1	ND	70
L0717679-2	ND	67
L0717679-3	ND	78
Method Blank	ND	90
Detection Limit	0.1	50 - 150

Date extracted: 12-05-07
Dates analyzed: 12-07-07

Quality Control Summary

Sample ID: 120507W

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Duplicate Result	Spike Duplicate % Rec	Spike RPD
Tributyltin	ND	0.521	0.395	76	0.426	82	7

QC Guidelines

Analyte	% Recovery	RPD Limit
Tributyltin	50 - 150	NMT 30

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Westcoast Analytical

CHAIN OF CUSTODY

PAGE _____ OF _____

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 1

ALPHA Job #:

Client Information

Client: Alpha Analytical Labs
Address: 8 Walkup Dr. Westboro, MA
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Peter Henriksen
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: TPH by 418.1 TPH

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TPH by 418.1	Sample Specific Comments	TOTAL # BOTTLES
*	L0717679-01	11/28/07	1030			X		2
	-02	↓	1400			X		2
	-03	↓	1605			X		2

* 11.30.07 jw: Samples all have -01A, -01B -03A, -03B -02A, -02B

Container Type: P
Preservative: A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
Kim Barley UPS	11/28/07 11.30.07	UPS Fairclin Body car	11.30.07 1145

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

101170

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Preparation Logbook	47-48

Narrative

Eight (8) samples were received in eighteen (18) containers according to the schedule given below. The shipping containers were sealed and the seals were intact for job numbers 101135 and 101256. The shipping containers assigned to job number 101170 were not sealed. None of the sample containers were sealed with either tape or custody seals. The temperatures of the samples were either at 3 or 5 °C at time of receipt.

The samples were analyzed for tributyltin according to WCAS SOP 3200 Rev 6.

Sample	Date Sampled	Date Received	WCAS Job No.
L0717594-1*	11-27-07	11-29-07	101135
L0717594-2*	11-27-07	11-29-07	101135
L0717594-3*	11-27-07	11-29-07	101135
L0717679-1**	11-28-07	11-30-07	101170
L0717679-2**	11-28-07	11-30-07	101170
L0717679-3**	11-28-07	11-30-07	101170
L0717783-1**	11-29-07	12-04-07	101256
L0717783-2**	11-29-07	12-04-07	101256

* - Sample containers received labeled: WE-09 L0717594-01A, B, C, D; WE -90 L0717594-02A, B; and Equipment Blank/FB-01 L0717594-03A, B.
** - Samples were received with A and B designations at end of sample identification number.

Sample L0717594-1 (Job number 101135) was designated by the client to be used as the matrix spike and matrix spike duplicate samples. Bodycote used a different Alpha Wood sample for the matrix spike and matrix spike duplicate sample in job numbers 101170 and 101256.

The samples, approximately 1 L, were acidified with HCl, added surrogate spike (tri-n-propyltin chloride/hexane), and extracted with 0.2% tropolone/hexane solution by shaking for approximately two minutes. The lower layer was drained and the organic layer was filtered through rinsed sodium sulfate. This process was repeated twice more and 30 mL of hexane was also passed through the rinsed sodium sulfate and added to the sample solutions. The sample solutions were concentrated to less than 2 mL, using a heated water bath, cooled, drained and diluted to a final volume of 2 mL with 0.2% tropolone/hexane. The diluted solutions were transferred to vials and analyzed using GC/FPD. Calibration standards were prepared using 0.2% tropolone/hexane, which were then put through the entire derivatization, extraction and analysis.

Injections 12 and 25 were not used due to bad injections. The injections were reanalyzed in injections 14 and 26. A different Alpha Woods job was used to report the quality summary data for job numbers 101170 and 101256.

Entries have been redacted to protect the confidential nature of other client's data. This data is not part of this study and will not be discussed further in this data package.

No other problems were encountered with the analysis.

Westcoast Analytical

CHAIN OF CUSTODY

PAGE _____ OF _____

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/27

ALPHA Job #:

Client Information

Client: Alpha Analytical

Address:

Phone:

Fax:

Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:

Project Location: MA

Project #:

Project Manager: Peter Henriksen

ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: Tributyl Tin

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
1	L0717594 - 1	11/27	1300	GW		MS/MSD	4
	2		1600				2
	3		1530				2
	11/28 CT RCP						
	* Sample Id. cs:						
	WF-01 L0717594-01 A, B, C, D						
	WF-02 L0717594-02 A, B						
	Equipment Blank/ FB-01 L0717594-03 A, B						

Container Type: A

Preservative: A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
UPS	11/27 11/28/07 1430	UPS	11/28/07 11/28/07 AM 44

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

101195

FORM NO: 01-01 (rev. 30-JUL-07)

Westcoast Analytical

CHAIN OF CUSTODY

PAGE_____ OF_____

Date Rec'd in Lab: 1

ALPHA Job #:

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Alpha Analytical Labs

Address: 8 Walkup Dr. Westboro, MA

Phone:

Fax:

Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:

Project Location: MA

Project #:

Project Manager: Peter Henriksen

ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements Report Limits

State /Fed Program	Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: Tetrahydrofuran (TIC)

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
*	L0717679-01	11/28/07	1030				2
	-02	↓	1400				2
	-03	↓	1605				2

* 11-30-07 10:00 samples will have -01A, -01B -03A, -03B -02A, -02B

Container Type	A
Preservative	A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
Kim Barley UPS	11/28/07 11:30-07	UPS Fedex Next day	11 30 07 11:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

West Coast Analytical

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA

Eight Walk Up Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: ALPHA WOODHOLE LABS
Address: 8 WALK UP DRIVE
WESTBORO, MA 01581
Phone: 508-898-9220
Fax:
Email:

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: Pete Henrickson
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 12/20/07 Time:

Other Project Specific Requirements/Comments/Detection Limits:

Full Data Deliverable Package Required. J-qualifiers needed.

Data Rec'd in Lab:

ALPHA Job #:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program Criteria

MCP PRESUMPTIVE CERTAINTY-THESE QUESTIONS MUST BE ANSWERED

☒ Yes	☐ No	Are MCP Analytical Methods Required?
☐ Yes	☒ No	Are Drinking Water Samples Submitted?
☐ Yes	☐ No	Have you met minimum field QC requirements?

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Tributyl Tin	Sample Specific Comments	TOTAL # BOTTLES
	L0717783-01	11/29/07	11:30	GW		x		2
	L0717783-02	11/29/07	16:00	GW		x		2

Container Type
Preservative

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP?

FORM NO: 01-01 Internal

Relinquished By:	Date/Time	Received By:	Date/Time
	11/29/07	UPS	
UPS	12.04.07 0413	Tori Allison Barycki	12.04.07 0443

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

#12 04 07 TO Samples are labeled A + B @ Mh 12.4.07
(also have A + B Sample ID ok)

101256

Bodycote TESTING GROUP — Environmental Receiving Form

Page 1 of 1

Company: Alpha Analytical Woods Hole @12901062 Sampler indicated: Y / (N)

Shipping container sealed? (Y) N / NA Tape / Custody Seal Intact / Broken Signed / Unsigned

Temperature 3 °C Avg. IR Scan / Temperature Blank ID: 167 Note:

Samples sealed? Y / (N) Tape / Custody Seal Intact / Broken Signed / Unsigned

Sampling Date(s) present? (Y) / N Sampling Time(s) present? (Y) / N Note:

All samples received within hold time? (Y) / N Note:

Sample Identification	Test(s)	Container Type*	Container Correct?	Preservation pH	Preservation Correct?	Notes
L0717594-1	TBT	(4) am gl	(Y) / N	Not tested	Y / N	
↓ -2	↓	(2) ↓	(Y) / N	↓	Y / N	
↓ -3		(2) ↓	(Y) / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	

Radioactivity Reading: 17 Avg. CPM ID: 50053 Note:

Notes:

FOR ANY PROBLEMS OR DISCREPANCIES - Client Contact Notes

Contact: _____ from _____ on ___ / ___ / ___ at _____ am / pm

Completed by [illegible] on 11 / 29 / 01 at 9:44 (am) / pm Job No. 101135

* Glass = G, Plastic = P, Amber = Amb, Clear = Cl, 40 mL VOA = VOA

Bodycote TESTING GROUP — Environmental Receiving Form

Company: Alpha Woods Hole Sampler indicated: Y / (N) _____

Shipping container sealed? Y / N / (NA) Tape / Custody Seal Intact / Broken Signed / Unsigned

Temperature 5 °C Avg. IR Scan / (Temperature Blank) ID: 167 Note: _____

Samples sealed? Y / (N) Tape / Custody Seal Intact / Broken Signed / Unsigned

Sampling Date(s) present? (Y) / N Sampling Time(s) present? (Y) / N Note: _____

All samples received within hold time? (Y) / N Note: _____

Sample Identification	Test(s)	Container Type*	Correct?	Preservation pH	Correct?	Notes
Lot 17679-01	TBT	(2) amge	(Y) / N	not tested	Y / N	
-02	↓	(2)	(Y) / N	↓	Y / N	
-03	↓	(2)	(Y) / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	

Radioactivity Reading: 13 Avg. CPM ID: 50353 Note: _____

Notes: _____

FOR ANY PROBLEMS OR DISCREPANCIES - Client Contact Notes

Contact: _____ from _____ on ___/___/___ at _____ am / pm

Completed by [signature] on 11/30/07 at 0948 (am) / pm Job No. 101170

* Glass = G, Plastic = P, Amber = Amb, Clear = Cl, 40 mL VOA = VOA

CD

Bodycote TESTING GROUP — Environmental Receiving Form

Company: Alpha Woods Hole Sampler indicated: Y / (N)

Shipping container sealed? (Y) / N / NA (Tape) / Custody Seal (Intact) / Broken Signed / (Unsigned)

Temperature 5 °C Avg. IR Scan / (Temperature Blank) ID: 44 Note:

Samples sealed? Y / (N) Tape / Custody Seal Intact / Broken Signed / Unsigned

Sampling Date(s) present? (Y) / N Sampling Time(s) present? (Y) / N Note:

All samples received within hold time? (Y) / N Note: Notify of arrival as 2 days left on HT

Sample Identification	Test(s)	Container Type*	Container Correct?	Preservation pH	Preservation Correct?	Notes
L0717783-01 A	TBI	am gl	(Y) / N	not tested	Y / N	
-01 B	↓	↓	(Y) / N	↓	Y / N	
-02 A			(Y) / N		Y / N	
-02 B			(Y) / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	

Radioactivity Reading: 16 Avg. CPM ID: 50853 Note:

Notes:

FOR ANY PROBLEMS OR DISCREPANCIES - Client Contact Notes

Contact: _____ from _____ on ___/___/___ at _____ am / pm

Completed by _____ on 12/04/07 at 943 (am) / pm Job No. 101256

* Glass = C[illegible] ... = Cl, 40 mL VOA = VOA

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/28/07

ALPHA Job #: L0717679

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell MA, 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: KCormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former GE Wilmington/LMK
Project Location: Wilmington MA
Project #: 107181
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/19/07 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: * Contact PM Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits: Special Project Emerging Chemicals
*Contact Ken Cormier for project Regulatory Requirements 978-656-3562
** Cr+6 is 24hr Holding time

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: VOCs 8260C	Metals	1,4 Dioxane 8270C	Hex Chrome 7196A	Perchlorate 314.1	N-nitrosodimethylamine 1625	Cyanide (POX) 9012	Tributyl Tin (GC/MS)	Sulfide TICs 3500/8270C	SAMPLE HANDLING: Filtration / Preservation	Sample Specific Comments	TOTAL # BOTTLES
	TB-02	11/26/07	0450 LAB	Aq	SLR	2									Not needed	SEE Project	2
L0717679.1	G2A-10	11/28/07	1030	Aq	CF	2	1	2	1	1	2	2	2	2	Not needed	table 2-2	15
.2	MW-07	11/28/07	1400	Aq	CF	2	1	2	1	1	2	2	2	2	Not needed	for ALL	15
.3	TRC-102	11/28/07	1605	Aq	CF	2	1	2	1	1	2	2	2	2	Not needed	Methods /	15
																Analyses Required	
	Cooler temperature			Blanks													

Container Type: V P A P P A A A A
Preservative: B C A A A A A A A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/28/07 0955 1955 CF	[signature]	11/28/07 19:55

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

January 2, 2008

Alpha Woods Hole Labs
Westboro, MA
8 Walk Up Dr
Westborough, MA 01581-1019

Attn: Peter Henriksen

Job No: 101256 LO

LABORATORY REPORT

Samples Received: Four (4) Samples
Date Received: 12/04/2007
Purchase Order No: PAID IN FULL/CK# 73103

The samples were analyzed as follows:

Analysis	Page
Tributyltin by SOP 3200, Rev 6	2
Environmental Data Package	Enclosed*

*Enclosed with Bodycote Job Number 101135

Michael Shelton
Senior Staff Chemist

Greg R. Shaw, M.S.
Senior Chemist

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Bodycote

WEST COAST ANALYTICAL SERVICE, INC.

Alpha Woods Hole Labs
Attn: Peter Henriksen

Job No: 101256
January 2, 2008

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717783-1	ND	62
L0717783-2	ND	78
Method Blank	ND	53
Detection Limit	0.1	50 - 150

Date extracted: 12-06-07
Dates analyzed: 12-07-07

Quality Control Summary

Sample ID: 120507W

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Duplicate Result	Spike Duplicate % Rec	Spike RPD
Tributyltin	ND	0.521	0.395	76	0.426	82	7

QC Guidelines

Analyte	% Recovery	RPD Limit
Tributyltin	50 - 150	NMT 30

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West Coast Analytical

CHAIN OF CUSTODY

PAGE 1 OF 1

Eight Walk Up Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Date Rec'd in Lab:

ALPHA Job #:

Client Information

Client: ALPHA WOODHOLE LABS
Address: 8 WALK UP DRIVE
WESTBORO, MA 01581
Phone: 508-898-9220
Fax:
Email:
☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: Pete Henrickson
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 12/20/07 Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-THESE QUESTIONS MUST BE ANSWERED

☒ Yes	☐ No	Are MCP Analytical Methods Required?
☐ Yes	☒ No	Are Drinking Water Samples Submitted?
☐ Yes	☐ No	Have you met minimum field QC requirements?

Other Project Specific Requirements/Comments/Detection Limits:

Full Data Deliverable Package Required. J-qualifiers needed.

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Tributyl Tin	Sample Specific Comments	TOTAL # BOTTLES
mw	L0717783-01	11/29/07	11:30	GW		X		2
mw	L0717783-02	11/29/07	16:00	GW		X		2

Container Type
Preservative

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP?

FORM NO: 01-01 Internal

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] UPS	11/29/07 12:04:07 0443	UPS [signature]	12:04:07 0443A

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

*12 04 07 pd ~~Samples are labeled A & B~~ (@ mh. 12-4-07)
(also have A & B Sample ID ok)

101256

L0717783

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 11/29

ALPHA Job #: ~~L0717780~~

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: TRC

Address: 650 Suffolk St
Lowell, MA 01854

Phone: 978-970-5600

Fax: 978-453-1995

Email: Kcormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC/Former QE

Project Location: Wilmington, MA

Project #: 607181

Project Manager: Ken Cormier

ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: 12/20/07 Time:

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager at 978-656-3582 for Specific Regulatory Criteria. * Hex Chrome 24hr Holding times

Report Information - Data Deliverables

☐ FAX ☒ EMAIL

☐ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: Contract PM

Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS: VOC's 8260 B | Metals 200.8/6020 | 1,4 Dioxane 8270C | *Hex Chrome 7196A | Perchlorate 314.1 | N-Nitrosodimethylamine 1625 | Cyanide (ADR) 8330 | Tributyltin (GC/FPD) | SVOC's HSL 3550C/8270C

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC's 8260 B	Metals 200.8/6020	1,4 Dioxane 8270C	*Hex Chrome 7196A	Perchlorate 314.1	N-Nitrosodimethylamine 1625	Cyanide (ADR) 8330	Tributyltin (GC/FPD)	SVOC's HSL 3550C/8270C	Sample Specific Comments	TOTAL # BOTTLES
~~17780-1~~	TB-03	11/28/07	1155	Aq	SER	1									See Project Table 2-2 for all Method References Required	1
17783.1	GZA-103R1	11/29/07	1130	Aq	CF	2	1	2	1	1	2	2	2	2		15
2	EMW-11R2	11/29/07	1600	Aq	CF	2	1	2	1	1	2	2	2	2		15

Cooler Temperature Blanks

Container Type	V	P	A	P	P	A	A	A	A
Preservative	B	C	A	A	A	A	A	A	A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/29/07 2000	[signature]	11/29 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

January 2, 2008

Alpha Woods Hole Labs
Westboro, MA
8 Walk Up Dr
Westborough, MA 01581-1019

Attn: Peter Henriksen

Job No: 101135 LO

LABORATORY REPORT

Samples Received: Eight (8) Samples
Date Received: 11/29/2007
Purchase Order No: PAID IN FULL/CK# 73103

The samples were analyzed as follows:

Analysis	Page
Tributyltin by SOP 3200, Rev 6	2
Environmental Data Package	Enclosed*

*Data Package Includes Bodycote Job Numbers 101170 and 101256

Michael Shelton
Senior Staff Chemist

Greg R. Shaw, M.S.
Senior Chemist

This report is to be reproduced in its entirety.

Bodycote

WEST COAST ANALYTICAL SERVICE, INC.

Alpha Woods Hole Labs
Attn: Peter Henriksen

Job No: 101135
January 2, 2008

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717594-1	ND	57
L0717594-2	ND	64
L0717594-3	ND	91
Method Blank	ND	79
Detection Limit	0.1	50 - 150

Date extracted: 12-04-07
Dates analyzed: 12-06-07

Quality Control Summary

Sample ID: L0717594-1

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Duplicate Result	Spike Duplicate % Rec	Spike RPD
Tributyltin	ND	0.475	0.330	69	0.336	71	2

Sample ID: 120407W

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec
Tributyltin	ND	0.470	0.356	76

QC Guidelines

Analyte	% Recovery	RPD Limit
Tributyltin	50 - 150	NMT 30

This report is to be reproduced in its entirety.

Westcoast Analytical

CHAIN OF CUSTODY

PAGE_____ OF _____

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Alpha Analytical
Address:
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Peter Henriksen
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Date Rec'd in Lab: 11/27

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements Report Limits

State /Fed Program	Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

ALPHA Job #:

ANALYSIS: Tributyl Tin

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
*	L0717594 - 1	11/27	1300	GW		MS/MSD	4
	2	↓	1600	↓			2
	3		1530				2
	11-29-07 0830						
	* samples rcvd. as:						
	WE-09 L0717594-01 A, B, C, D						
	WE-90 L0717594-02 A, B						
	Equipment Blank/ FB-01 L0717594-03 A, B						

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Container Type A
Preservative A

Relinquished By:	Date/Time	Received By:	Date/Time
UPS	11/27 11/28/07 1830	UPS	11/28/07
		Courier Baltimore Bicycle	11-29-07 A9:44

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

101135

FORM NO: 01-01 (rev. 30-JUL-07)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/27

ALPHA Job #: L0717594

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: Kcormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC
Project Location: Wilmington, MA
Project #:
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☒ RUSH (only confirmed if pre-approved!)
Date Due: Grab is 24hrs* Time: 12/8

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MASS
Criteria: Call PM

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager 978-656-3562 Ken Cormier to verify specific Regulatory Criteria

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs 8260B	MTBE by 8260B/6220	1,4 Dioxane 8270C	* Hex Chrome 7196A	Perchlorate 314.1	N-Nitrosodimethylamine 1625	Cyclonite (RDX) 8330	Tributyl Tin (GC/MS)	SVOCs TICs 8270C/8270C	SAMPLE HANDLING Filtration / Preservation	Sample Specific Comments	TOTAL # BOTTLES
	TB-01	11/27/07	0700	Aq	CF	2											2
7594.1	WE-09	11/27/07	1300	Aq	CF	4	2	4	2	2	4	4	4	4		MS/MSD/MS/Dupe vol	30
2	WE-90	11/27/07	1600	Aq	CF	2	1	2	1	1	2	2	2	2		SEE FAXED	15
3	FB-01	11/27/07	1530	Aq	CF	2	1	2	1	1	2	2	2	2		TABLE 2-2 FOR ALL METHODS REQUIRED	15
	COOLER TEMPERATURE BLANKS																

Container Type: V P A P P A A A A
Preservative: B C A A A A A A A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/27/07 2000		11/27/07 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com
MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: TRC Environmental Corporation	**Laboratory Job Number:** L0717780
Address: Wannalancit Mills 650 Suffolk Street Lowell, MA 01854	**Date Received:** 29-NOV-2007 **Date Reported:** 27-DEC-2007
Attn: Mr. Ken Cormier	**Delivery Method:** Client
Project Number: 107181	**Site:** LMC/FORMER GE

The following questions pertain only to MCP Analytical Methods

An affirmative response to questions A,B,C & D is required for "Presumptive Certainty" status

A. Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set?	YES
B. Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	YES
C. Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	YES
D. **VPH and EPH methods only:** Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	N/A

A response to questions E and F is required for "Presumptive Certainty" status

E. Were all QC performance standards and recommendations for the specified method(s) achieved?	NO
F. Were results for all analyte-list compounds/elements for the specified method(s) reported?	NO

Any answers of NO to the above questions are addressed in the case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: Technical Representative

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0717780
Date Reported: 27-DEC-2007

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0717780-01	TB-03	WILMINGTON, MA
L0717780-02	GZA-103R1	WILMINGTON, MA
L0717780-03	EMW-11R2	WILMINGTON, MA

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0717780

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Report Submission

The analyses of NDMA and Tributyl Tin were subcontracted, and the results will be issued under separate covers.

The analyses of Volatile Organics by Method 8260B and 1,4-Dioxane by method 8270-SIM isotope dilution were performed at the Alpha Woods Hole Mansfield facility. The sample results and report from the Mansfield facility are included as an addendum.

MCP Related Narratives

Metals

In reference to question F:

At the client's request, all submitted samples were not analyzed for the full MCP list of compounds specified for the Method.

Semivolatile Organics

In reference to question E:

The WG303985-2/3 LCS/LCSD % recoveries for Aniline and Phenol are below, and the LCS/LCSD % recoveries for 2,4-Dinitrophenol are above, the individual acceptance criteria for the compounds, but within the overall method allowances. The RPD for Aniline is above method acceptance criteria.

In reference to question F:

At the client's request, all submitted samples were not analyzed for the full MCP list of compounds specified for the Method.

Non-MCP Related Narratives

Perchlorate

L0717780-02 was pretreated for Perchlorate analysis to remove common anions that contribute to the conductance of the sample. As part of the treatment, a spike is performed. The % recovery for the spike is below acceptance criteria, and the sample is considered to have matrix interferences with the Perchlorate analysis.

The WG304719-4 MS % recovery is below acceptance criteria. The sample used for the Matrix Spike is considered to have matrix interferences with the Perchlorate analysis.

The WG304715-4 MS/MSD % recoveries are below acceptance criteria. The sample used for the MS/MSD is considered to have matrix interferences with the Perchlorate analysis.

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717780-01
TB-03
Sample Matrix: WATER

Condition of Sample: Satisfactory

Number & Type of Containers: 1-Vial

Date Collected: 28-NOV-2007 11:55
Date Received : 29-NOV-2007
Date Reported : 27-DEC-2007

Field Prep: None

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717780-02
GZA-103R1
Sample Matrix: WATER

Date Collected: 29-NOV-2007 11:30
Date Received : 29-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	750	umhos/cm	10	30 2510B		1129 23:35	JO
Perchlorate by Method 314.0				58 314.0		1206 14:13	AJ
Perchlorate	ND	ug/l	1.00				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1130 00:35	1130 00:35	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0614	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Beryllium, Total	0.00011J	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Cadmium, Total	0.00009J	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Copper, Total	0.0008	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Lead, Total	0.0015	mg/l	0.0005	64 6020A	1210 17:00	1211 20:52	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:35	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	29.0	%	15-110				
Phenol-d6	23.0	%	15-110				
Nitrobenzene-d5	57.0	%	30-130				
2-Fluorobiphenyl	58.0	%	30-130				
2,4,6-Tribromophenol	90.0	%	15-110				
4-Terphenyl-d14	94.0	%	30-130				
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1130 14:00	1204 12:35	PS
Toluene	14	ug/l					
Ethylbenzene	8.8	ug/l					
m/p-Xylene	9.1	ug/l					
o-Xylene	14	ug/l					
Benzene, propyl-	6.1	ug/l					
Unknown Substituted Benzene	12	ug/l					
Unknown Substituted Benzene	26	ug/l					
Unknown Substituted Benzene	11	ug/l					
Indane	8.6	ug/l					
Unknown Substituted Benzene	6.0	ug/l					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717780-02
GZA-103R1

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Semivolatile Organics by MCP 8270C cont'd				64 8270C	1130 14:00	1204 12:35	PS
Unknown	4.2	ug/l					
Unknown	3.9	ug/l					
Unknown	4.1	ug/l					
Unknown	12	ug/l					
Unknown	6.7	ug/l					
Unknown	4.1	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 07:27	AJ
RDX	ND	ug/l	0.272				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	98.0	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717780-03
EMW-11R2
Sample Matrix: WATER

Date Collected: 29-NOV-2007 16:00
Date Received : 29-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	240	umhos/cm	10	30 2510B		1129 23:35	JO
Perchlorate by Method 314.0				58 314.0		1206 18:35	AJ
Perchlorate	ND	ug/l	1.00				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1130 00:35	1130 00:35	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0033	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Cadmium, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Copper, Total	0.0001J	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Lead, Total	0.00003J	mg/l	0.0005	64 6020A	1210 17:00	1211 21:03	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:58	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	15-110				
Phenol-d6	26.0	%	15-110				
Nitrobenzene-d5	57.0	%	30-130				
2-Fluorobiphenyl	57.0	%	30-130				
2,4,6-Tribromophenol	68.0	%	15-110				
4-Terphenyl-d14	98.0	%	30-130				
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1130 14:00	1204 12:58	PS
Tetrachloroethylene	52	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 08:30	AJ
RDX	ND	ug/l	0.266				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	101	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0717780

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Specific Conductance for sample(s) 02-03 (L0717780-03, WG304062-1)					
Specific Conductance	240	240	umhos/cm	0	20
Perchlorate by Method 314.0 for sample(s) 02 (L0717675-02, WG304715-3)					
Perchlorate	ND	ND	ug/l	NC	15
Perchlorate by Method 314.0 for sample(s) 03 (L0717780-03, WG304719-3)					
Perchlorate	ND	ND	ug/l	NC	15
Hexavalent Chromium by MCP 7196A for sample(s) 02-03 (L0717780-02, WG303888-4)					
Chromium, Hexavalent	ND	ND	mg/l	NC	20

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0717780

Parameter	% Recovery	QC Criteria
Specific Conductance LCS for sample(s) 02-03 (WG304062-2)		
Specific Conductance	100	80-120
Perchlorate by Method 314.0 LCS for sample(s) 02 (WG304715-2)		
Perchlorate	99	85-115
Perchlorate by Method 314.0 LCS for sample(s) 03 (WG304719-2)		
Perchlorate	95	85-115
Perchlorate by Method 314.0 SPIKE for sample(s) 03 (L0717780-03, WG304719-4)		
Perchlorate	55	70-130
Hexavalent Chromium by MCP 7196A SPIKE for sample(s) 02-03 (L0717780-03, WG303888-5)		
Chromium, Hexavalent	100	75-125

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0717780

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Hexavalent Chromium by MCP 7196A for sample(s) 02-03 (WG303888-2, WG303888-3)					
Chromium, Hexavalent	96	97	1	20	80-120
Total Metals by MCP 6000/7000 series for sample(s) 02-03 (WG305206-2, WG305206-3)					
Arsenic, Total	98	96	2	20	80-120
Beryllium, Total	95	98	3	20	80-120
Cadmium, Total	105	101	4	20	80-120
Copper, Total	99	98	1	20	80-120
Lead, Total	100	98	2	20	80-120
Semivolatile Organics by MCP 8270C for sample(s) 02-03 (WG303985-2, WG303985-3)					
Acenaphthene	62	64	3	20	40-140
1,2,4-Trichlorobenzene	50	54	8	20	40-140
Hexachlorobenzene	88	88	0	20	40-140
Bis(2-chloroethyl)ether	48	53	10	20	40-140
2-Chloronaphthalene	59	61	3	20	40-140
1,2-Dichlorobenzene	44	48	9	20	40-140
1,3-Dichlorobenzene	44	47	7	20	40-140
1,4-Dichlorobenzene	42	45	7	20	40-140
3,3'-Dichlorobenzidine	64	64	0	20	40-140
2,4-Dinitrotoluene	130	139	7	20	40-140
2,6-Dinitrotoluene	105	104	1	20	40-140
Azobenzene	68	72	6	20	40-140
Fluoranthene	93	102	9	20	40-140
4-Bromophenyl phenyl ether	81	83	2	20	40-140
Bis(2-chloroisopropyl)ether	53	57	7	20	40-140
Bis(2-chloroethoxy)methane	55	55	0	20	40-140
Hexachlorobutadiene	50	51	2	20	40-140
Hexachloroethane	42	45	7	20	40-140
Isophorone	58	60	3	20	40-140
Naphthalene	52	55	6	20	40-140
Nitrobenzene	62	62	0	20	40-140
Bis(2-Ethylhexyl)phthalate	84	93	10	20	40-140
Butyl benzyl phthalate	86	93	8	20	40-140
Di-n-butylphthalate	100	105	5	20	40-140
Di-n-octylphthalate	85	93	9	20	40-140
Diethyl phthalate	90	93	3	20	40-140
Dimethyl phthalate	79	82	4	20	40-140
Benzo(a)anthracene	88	97	10	20	40-140
Benzo(a)pyrene	84	89	6	20	40-140
Benzo(b)fluoranthene	92	101	9	20	40-140
Benzo(k)fluoranthene	83	92	10	20	40-140
Chrysene	82	90	9	20	40-140
Acenaphthylene	63	67	6	20	40-140
Anthracene	77	84	9	20	40-140
Benzo(ghi)perylene	77	88	13	20	40-140
Fluorene	70	71	1	20	40-140
Phenanthrene	77	82	6	20	40-140
Dibenzo(a,h)anthracene	84	91	8	20	40-140

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0717780

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Semivolatile Organics by MCP 8270C for sample(s) 02-03 (WG303985-2, WG303985-3)					
Indeno(1,2,3-cd)Pyrene	81	91	12	20	40-140
Pyrene	89	97	9	20	40-140
Aniline	25	18	33	20	40-140
4-Chloroaniline	49	42	15	20	40-140
Dibenzofuran	66	70	6	20	40-140
2-Methylnaphthalene	52	54	4	20	40-140
Acetophenone	57	59	3	20	40-140
2,4,6-Trichlorophenol	71	74	4	20	30-130
2-Chlorophenol	50	54	8	20	30-130
2,4-Dichlorophenol	59	67	13	20	30-130
2,4-Dimethylphenol	33	30	10	20	30-130
2-Nitrophenol	69	72	4	20	30-130
4-Nitrophenol	48	51	6	20	30-130
2,4-Dinitrophenol	170	184	8	20	30-130
Pentachlorophenol	86	95	10	20	30-130
Phenol	22	24	9	20	30-130
2-Methylphenol	42	43	2	20	30-130
3-Methylphenol/4-Methylphenol	41	40	2	20	30-130
2,4,5-Trichlorophenol	69	72	4	20	30-130
Surrogate(s)					
2-Fluorophenol	32	32	0		15-110
Phenol-d6	28	27	4		15-110
Nitrobenzene-d5	66	61	8		30-130
2-Fluorobiphenyl	72	69	4		30-130
2,4,6-Tribromophenol	95	89	7		15-110
4-Terphenyl-d14	107	105	2		30-130
MCP Explosives by EPA 8330 - Primary Column for sample(s) 02-03 (WG304322-2, WG304322-3)					
RDX	98	100	2	25	70-110
Surrogate(s)					
1,2-Dinitrobenzene	98	101	3		70-110

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0717780

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
Perchlorate by Method 314.0 for sample(s) 02 (L0717592-02, WG304715-5)					
Perchlorate	66	51	26	15	70-130
MCP Explosives by EPA 8330 - Primary Column for sample(s) 02-03 (L0717592-02, WG304322-5)					
RDX	90	88	2	30	70-110
Surrogate(s)					
1,2-Dinitrobenzene	98	96	2		70-110

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717780

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02 (WG304715-1)							
Perchlorate by Method 314.0				58 314.0		1206 11:02	AJ
Perchlorate	ND	ug/l	1.00				
Blank Analysis for sample(s) 03 (WG304719-1)							
Perchlorate by Method 314.0				58 314.0		1206 17:42	AJ
Perchlorate	ND	ug/l	1.00				
Blank Analysis for sample(s) 02-03 (WG303888-1)							
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1130 00:35	1130 00:35	HS
Blank Analysis for sample(s) 02-03 (WG305206-1)							
Total Metals by MCP 6000/7000 series							
Arsenic, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 20:30	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 20:30	BM
Cadmium, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 20:30	BM
Copper, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 20:30	BM
Lead, Total	ND	mg/l	0.0005	64 6020A	1210 17:00	1211 20:30	BM
Blank Analysis for sample(s) 02-03 (WG303985-1)							
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 10:19	PS
Acenaphthene	ND	ug/l	5.0				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl)ether	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	5.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	10.				
2,4-Dinitrotoluene	ND	ug/l	5.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0				
Bis(2-chloroethoxy)methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
Bis(2-Ethylhexyl)phthalate	ND	ug/l	5.0				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717780

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02-03 (WG303985-1)							
Semivolatile Organics by MCP 8270C cont'd				64 8270C	1130 14:00	1204 10:19	PS
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	5.0				
Pyrene	ND	ug/l	5.0				
Aniline	ND	ug/l	20.				
4-Chloroaniline	ND	ug/l	5.0				
Dibenzofuran	ND	ug/l	5.0				
2-Methylnaphthalene	ND	ug/l	5.0				
Acetophenone	ND	ug/l	20.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	5.0				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	30.				
Pentachlorophenol	ND	ug/l	10.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				

Surrogate(s)	Recovery		QC Criteria
2-Fluorophenol	33.0	%	15-110
Phenol-d6	25.0	%	15-110
Nitrobenzene-d5	62.0	%	30-130
2-Fluorobiphenyl	62.0	%	30-130
2,4,6-Tribromophenol	71.0	%	15-110
4-Terphenyl-d14	96.0	%	30-130

Blank Analysis for sample(s) 02-03 (WG303985-1)							
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 10:19	PS
Tentatively Identified Compounds							

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717780

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02-03 (WG303985-1)							
Semivolatile Organics by MCP 8270C cont'd				64 8270C	1130 14:00	1204 10:19	PS
No Tentatively Identified Compounds	ND						
Blank Analysis for sample(s) 02-03 (WG304322-1)							
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1204 17:50	AJ
RDX	ND	ug/l	0.250				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	102	%	70-110				

REFERENCES

30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

58. Determination of Perchlorate in Drinking Water Using Ion Chromatography. NERL-ORD, U.S. EPA, Cincinnati, OH. Revision 1.0, November 1999. (Additional requirements as defined in MA DEP letter dated February 18, 2004.)

64. Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
J	Analyte concentration is below quantitation limit (RDL), but above the Method Detection Limit (MDL). Value is estimated.
H	The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

ALPHA ANALYTICAL LABORATORIES
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0717780

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0717780-01A	Vial HCl preserved	A	N/A	4C	Y	Absent	SUB-MAN-8260
L0717780-02A	Vial HCl preserved	A	N/A	4C	Y	Absent	SUB-MAN-8260
L0717780-02B	Vial HCl preserved	A	N/A	4C	Y	Absent	SUB-MAN-8260
L0717780-02C	Amber 1000ml unpreserved	A	7	4C	Y	Absent	SUB-MAN-8270SIM
L0717780-02D	Amber 1000ml unpreserved	A	7	4C	Y	Absent	SUB-MAN-8270SIM
L0717780-02E	Amber 1000ml unpreserved	A	7	4C	Y	Absent	MCP-8270-04
L0717780-02F	Amber 1000ml unpreserved	A	7	4C	Y	Absent	MCP-8270-04
L0717780-02G	Amber 250ml unpreserved	A	7	4C	Y	Absent	MCP-8330-HRP
L0717780-02H	Amber 250ml unpreserved	A	7	4C	Y	Absent	MCP-8330-HRP
L0717780-02I	Plastic 250ml HNO3 preserved	A	<2	4C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717780-02J	Plastic 250ml unpreserved	A	7	4C	Y	Absent	COND-2510, MCP-HEXCR7196-04
L0717780-02K	Bacteria Cup unpreserved	A	N/A	4C	Y	Absent	PERC-314
L0717780-03A	Vial HCl preserved	B	N/A	5.8C	Y	Absent	SUB-MAN-8260
L0717780-03B	Vial HCl preserved	B	N/A	5.8C	Y	Absent	SUB-MAN-8260
L0717780-03C	Amber 1000ml unpreserved	B	7	5.8C	Y	Absent	SUB-MAN-8270SIM
L0717780-03D	Amber 1000ml unpreserved	B	7	5.8C	Y	Absent	SUB-MAN-8270SIM
L0717780-03E	Amber 1000ml unpreserved	B	7	5.8C	Y	Absent	MCP-8270-04
L0717780-03F	Amber 1000ml unpreserved	B	7	5.8C	Y	Absent	MCP-8270-04
L0717780-03G	Amber 250ml unpreserved	B	7	5.8C	Y	Absent	MCP-8330-HRP
L0717780-03H	Amber 250ml unpreserved	B	7	5.8C	Y	Absent	MCP-8330-HRP
L0717780-03I	Plastic 250ml HNO3 preserved	B	<2	5.8C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717780-03J	Plastic 250ml unpreserved	B	7	5.8C	Y	Absent	COND-2510, MCP-HEXCR7196-04
L0717780-03K	Bacteria Cup unpreserved	B	N/A	5.8C	Y	Absent	PERC-314

Container Comments

Container ID	Comments
L0717780-01A	Temp Probe
L0717780-02A	Temp Probe
L0717780-02B	Temp Probe
L0717780-02C	Temp Probe
L0717780-02D	Temp Probe
L0717780-02E	Temp Probe
L0717780-02F	Temp Probe

ALPHA ANALYTICAL LABORATORIES
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0717780

Continued

Container ID	Comments
L0717780-02G	Temp Probe
L0717780-02H	Temp Probe
L0717780-02I	Temp Probe
L0717780-02J	Temp Probe
L0717780-02K	Temp Probe

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 11/29

ALPHA Job #: L0717780

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: kcormier@trcsolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC/Former GE
Project Location: Wilmington, MA
Project #: 67181
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/3 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: Contract PM
Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager at 978-656-3562 For Specific Regulatory Criteria. * Hex Chrome 24hr Holding Times

SAMPLE HANDLING
Filtration
☐ Done ☒ Not needed ☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC's 8260 B	Metals 200.8 / 6020	1,4 Dioxane 8270C	* Hex Chrome 7196A	Perchlorate 314.1	N-nitrosodimethylamine 1625	Cyanide (CNT) 9330	Tributyltin (GC/MS)	Silica 350C / 6020C	Sample Specific Comments	TOTAL # BOTTLES
17780-1	TB-03	11/28/07	1155	Aq	SLR	1									See Project Table 2-2 for all Method References Required	1
2	GZA-103R1	11/29/07	1130	Aq	CF	2	1	2	1	1	2	2	2	2		15
3	EMW-11R2	11/29/07	1600	Aq	CF	2	1	2	1	1	2	2	2	2		15

Cooler Temperature Blanks

Container Type	V	P	A	P	P	A	A	A	A		
Preservative	B	C	A	A	A	A	A	A	A		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/29/07 2000		11/29 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

ALPHA
WOODS HOLE LABS

ANALYTICAL REPORT

Prepared for:
Alpha Woods Hole Labs - Westborough
8 Walkup Drive
Westborough, MA 01581

Project:	L0717780 - TRC
ETR:	0711194
Report Date:	December 27, 2007

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Sample ID Cross Reference

Client: **Alpha Woods Hole Labs - Westborough** Lab Code: **MA00030**
Project: **L0717780 - TRC** ETR: **0711194**

Lab Sample ID	Client Sample ID
0711194-01	TB-03
0711194-02	GZA-103R1
0711194-03	EMW-11R2

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Alpha Woods Hole Labs

Project Number: 0711194

Project Location: **MCP RTN #[1]:**

This Form provides certifications for the following data set: [Laboratory Sample ID Number(s)]:

0711194-01 through 0711194-03

Sample Matrices: [Groundwater] **Soil/Sediment** Drinking Water Other:

MCP SW-846 Methods used (as specified in MADEP Compendium of Analytical Methods)
Check all that apply:

8260B (X)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
8270C (X)	8081A ( )	VPH ( )	6020 ( )	9014M[2] ( )
8082 ( )	8021B ( )	EPH ( )	7000 S[3] ( )	Other:

[1] – List Release Tracking Number (RTN), if known.
[2]M – SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method.
[3]S – SW-846 Methods 7000 Series. List individual method and analyte.

	An affirmative response to question A, B, C and D is required for "Presumptive Certainty" status.		
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	[Yes]	No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	[Yes]	No[1]
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data"?	[Yes]	No[1]
D	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective Methods)?	Yes	No[1]
	A response to questions E and F below is required for "Presumptive Certainty" status.		
E	Were all analytical QC performance standards and recommendations for the specified methods achieved?	[Yes]	**No[1]**
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	**Yes**	[No[1]]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: [signature] **Position:** Technical Representative

Printed Name: Kathleen O'Brien **Date** 12/27/07

CASE NARRATIVE
Alpha Woods Hole Labs

ETR: 0711194
Project: L0717780 – TRC

All analyses were performed according to Alpha Woods Hole Labs quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Woods Hole Labs certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Volatile Organics by 8260

1. Per client request, only a subset of the MCP analyte list for SW-846 Method 8260B Volatile Organic Compounds by GC/MS were reported.

2. The initial calibration had values for compounds outside of the 15% RSD QC advisory limit. Refer to the Form VI Initial Calibration Summary report for specific outliers. This initial calibration meets the acceptability criteria.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Woods Hole Labs makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Woods Hole Labs. To the best of my knowledge, the information contained in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: _____ Title: Technical Representative Date: 12/27/07
Kathleen O'Brien

Chain of Custody Records

AWHL

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd In Lab:

ALPHA Job #: 0711194

Client Information

Client: Alpha Analytical
Address:
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: P. Henrickson
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/13 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: MCP-8260-04 1,4 Dioxane (8270)

SAMPLE HANDLING
Filtration
☐ Done ☐ Not needed ☐ Lab to do
Preservation
☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	MCP-8260-04	1,4 Dioxane (8270)	Sample Specific Comments	TOTAL # BOTTLES
-1	L0711780-01	11/28	1155	GW		X			
-2	-02	11/29	1130	↓		X	X		
-3	-03	11/29	1600			X	X		

Container Type
Preservative

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	11/29/07	[illegible]	11/30/07 0930
[illegible]	11/30/07 1030	[illegible]	11/30/07 1030

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

CHAIN OF CUSTODY PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/29 ALPHA Job #: L0717780

Client Information
Client: TRC
Address: 650 Suffolk St Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: kcormier@trcsolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information
Project Name: UMC/Former GE
Project Location: Wilmington, MA
Project #: 107181
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time
☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/13 Time:

Report Information - Data Deliverables
☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information
☐ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program: Contract PM Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS
☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager at 978-656-3562 For Specific Regulatory Criteria. * Hex Chrome 24hr Holding Times

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC's 8260 B	Metals 3005A/6020	1,4 Dioxane 8270C *	Hex Chrome 7196A	Perchlorate 314.1	N-nitrosodimethylamine 1625	Cyanide (ORP) 9030	Tributyltin (GC/MS)	Select Hits 625C/8270C	SAMPLE HANDLING: Filtration (☐ Done ☒ Not needed ☐ Lab to do) Preservation (☐ Lab to do) (Please specify below)	Sample Specific Comments	TOTAL # BOTTLES
17780 1	TB-03	11/28/07	1155	Aq	SER	1											
2	GZA-103R1	11/29/07	1130	Aq	CF	2	1	2	1	1	2	2	2	2		See Project Note 2-2 for all Method References Required	15
3	EMW-11R2	11/29/07	1600	Aq	CF	2	1	2	1	1	2	2	2	2			15

Cooler Temperature Blanks

Container Type	V	P	A	P	P	A	A	A	A
Preservative	B	C	A	A	A	A	A	A	A

PLEASE ANSWER QUESTIONS ABOVE!
IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/29/07 2000		11/29 2000

FORM NO: 01-01 (rev. 30-JUL-07)

All samples must be clearly, legibly and completely labeled. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

Sample Delivery Group Form

Laboratory Job No: L6717780 **Client:** TR e-Lou-M
Receipt Date/Time: 11/29/07 20:00 **SDG Reviewer:** WM

Samples Delivered By:
[ ] Alpha Courier [✓] Client [ ] UPS [ ] FedEx [ ] Other _____
Bill of Laden: [ ]Yes [ ] Unavailable Tracking #: _____

Chain of Custody: [✓] Present [ ] Absent: _____
Custody Seals: [✓] Absent [ ] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:
Is Ice/Blue Ice present? [✓] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank:(a) 6.4° (b) 5.8° (c)_____ (d)_____ (e)_____
IR Gun: (a) 4° (b)_____ (c)_____ (d)_____ (e)_____
Was Temp: [✓] 2-6 Celsius
[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No
[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [✓] Intact
[ ] Broken/Leaking Sample IDs: _____
Sample IDs: _____

All Containers Accounted For? [✓] Yes
[ ] No: _____
Extra Samples Received? [✓] No
[ ] Yes: _____
Do Sample Labels and COC agree? [✓] Yes
[ ] No: _____

Are Samples in Appropriate Containers? [✓] Yes
[ ] No: _____
Are samples rec'd within holding time? [✓] Yes
[ ] No: _____
* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [ ] N/A [✓] <2 [ ] >12 and/or [✓] 7
Are samples properly preserved? [✓] Yes [ ] No If No then.....
Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 <<Final pH = _____>>
Other Issues: _____
Chlorine Check: [✓] N/A [ ] Present [ ] Absent

VOA/VPH vials: [✓] Yes [ ] No
Aqueous: vials contain head space? [✓] No [ ] Yes : _____
Soils: MeOH covering soil? [ ] Yes [ ] No : _____
Reagent H_2O Preserved vials Frozen @ date/time: _____
Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [ ] N/A
If Yes: Call Tracker # _____

Sample Receipt Checklist

Client:	~~ESS~~ ACDHO	**Receipt Date:**	11/20/07
Project:	L07/1780 - TRC	**Log-in Date:**	
ETR #:	0711194	**Inspection by:**	**Login by:**

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
(No, WHG Courier pick-up) / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / (NA)

Number of coolers received for this project delivery: _____

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 5° IR Gun, 5° Temp. Blank, / NA

Were samples received on ice? (Yes) / No

Chain-of-Custody present? (Yes) / No

Complete? (Yes) / No

Custody seals present on Cooler? Yes / (No)

on Bottles? Yes / (No)

Intact? Yes / No / ~~NA~~

Note: Affix custody seals to back of this page.

Were sample containers intact? (Yes) / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / (No) / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA)
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
(Yes) / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? (Yes) / No / NA

☒ C=HCl ☐ M=MeOH ☐ $S=H_2SO4$
☐ H=NaOH ☐ $N=HNO_3$ ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO NA
If No, why?:

Were samples received within hold time? (Yes) / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / (No) If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: C3

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?

Yes / No / N/A

If No, list samples below:

Please use back for any additional notes!

Certificate/Approval Program Summary



Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

ALPHA
WOODS HOLE LABS

ANALYTICAL REPORT

Lab Number:	L0717591
Client:	TRC Environmental Consultants Wannalancit Mills 650 Suffolk Street Lowell, MA 01854
ATTN:	Ken Cormier
Project Name:	LMC
Project Number:	Not Specified
Report Date:	11/30/07

Certifications & Approvals: MA (M-MA086), NY NELAC (11148), CT (PH-0574), NH (200305), NJ (MA935), RI (LAO00065), ME (2006012), PA (Registration #68-03671), USDA (Permit #S-72578), US Army Corps of Engineers, Naval FESC.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

Alpha Sample ID	Client ID	Sample Location
L0717591-01	WE-09	WILMINGTON, MA
L0717591-02	WE-90	WILMINGTON, MA
L0717591-03	FB-01	WILMINGTON, MA

Project Name: LMC **Lab Number:** L0717591

Project Number: Not Specified **Report Date:** 11/30/07

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A, B, C & D is required for "Presumptive Certainty" status		
A	Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set?	YES
B	Were all QA/QC procedures required for the specified analytical methods(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	YES
C	Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	YES
D	VPH and EPH methods only: Was the VPH or EPH method run without significant modifications, as specified in Section 11.3?	N/A

A response to questions E and F is required for "Presumptive Certainty" status		
E	Were all QC performance standards and recommendations for the specified method(s) achieved?	YES
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	YES

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name:	LMC	**Lab Number:**	L0717591
Project Number:	Not Specified	**Report Date:**	11/30/07

Case Narrative

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Report Submission

Only the results for Hexavalent Chromium are contained in this report. The results for all other analyses will follow under separate cover.

MCP Related Narratives

Hexavalent Chromium

Due to a laboratory oversight, an MSD was not performed on L0717591-01. Re-analysis could not be performed due to holding time exceedence.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kristen L. Westerman

Title: Technical Director/Representative Date: 11/30/07

INORGANICS
&
MISCELLANEOUS

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

SAMPLE RESULTS

Lab ID: L0717591-01
Client ID: WE-09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 11/27/07 13:00
Date Received: 11/27/07
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

SAMPLE RESULTS

Lab ID: L0717591-02
Client ID: WE-90
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 11/27/07 16:00
Date Received: 11/27/07
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

SAMPLE RESULTS

Lab ID: L0717591-03
Client ID: FB-01
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 11/27/07 15:30
Date Received: 11/27/07
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Hexavalent Chromium by MCP 7196A for sample(s): 01-03 Batch: WG303541-1									
Chromium, Hexavalent	ND		mg/l	0.01	1	11/27/07 21:15	11/27/07 21:15	64,7196A	HS

Lab Control Sample Analysis

Batch Quality Control

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Hexavalent Chromium by MCP 7196A Associated sample(s): 01-03 Batch: WG303541-2 WG303541-3					
Chromium, Hexavalent			80-120		20

Matrix Spike Analysis
Batch Quality Control

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Hexavalent Chromium by MCP 7196A Associated sample(s): 01-03 QC Batch ID: WG303541-5 QC Sample: L0717591-01 Client ID: WE-09									
Chromium, Hexavalent	ND	0.1	0.09	88	-	-	75-125	-	20

Lab Duplicate Analysis
Batch Quality Control

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Hexavalent Chromium by MCP 7196A Associated sample(s): 01-03 QC Batch ID: WG303541-4 QC Sample: L0717591-02 Client ID: WE-90					
Chromium, Hexavalent	ND	ND	mg/l	NC	20

Project Name: LMC
Project Number: Not Specified

Lab Number: L0717591
Report Date: 11/30/07

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0717591-01A	Plastic 250ml unpreserved	A	=7	4.6 C	Y	Absent	MCP-HEXCR7196-04
L0717591-01B	Plastic 250ml unpreserved	D	=7	3.9 C	Y	Absent	MCP-HEXCR7196-04
L0717591-02A	Plastic 250ml unpreserved	B	=7	4.4 C	Y	Absent	MCP-HEXCR7196-04
L0717591-03A	Plastic 250ml unpreserved	C	=7	3.6 C	Y	Absent	MCP-HEXCR7196-04

Project Name:	LMC	**Lab Number:**	L0717591
Project Number:	Not Specified	**Report Date:**	11/30/07

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NI - Not Ignitable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

ND - Not detected at the reported detection limit for the sample.

RDL - Reported Detection Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

The following data qualifiers have been identified for use under the CT DEP Reasonable Confidence Protocols.

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

J - Estimated value. The analyte was tentatively identified; the quantitation is an estimation. (Tentatively identified compounds only.)

Standard Qualifiers

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

Report Format: Data Usability Report

Project Name:	LMC	**Lab Number:**	L0717591
Project Number:	Not Specified	**Report Date:**	11/30/07

REFERENCES

64 Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

LIMITATION OF LIABILITIES

Alpha Woods Hole Labs performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Woods Hole Labs shall be to re-perform the work at it's own expense. In no event shall Alpha Woods Hole Labs be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Woods Hole Labs.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

11300720:53

CHAIN OF CUSTODY PAGE 1 OF 1

Date Rec'd in Lab: 11/27

ALPHA Job #: L0717591

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: Kcormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC
Project Location: Wilmington MA
Project #:
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☒ RUSH (only confirmed if pre-approved!)
Date Due: Crtb is 24hrs* 11/28 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MASS
Criteria: Call PM

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager 978-656-3562 Ken Cormier to verify specific Regulatory Criteria

ANALYSIS: VOCs 8260C; MAVPH 310.5 ft/1020; 1,4 Dioxane 8270C; *Hex Chrome 7196A; Perchlorate 314.1; N-nitrosodimethylamine 1625; Cyclonite (RDX) 8330; Tributyltin (Bt, PP) 8270C SIM; Sulfides 376.1/376.2

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
	TB-01	11/27/07	0700	Aq	CF		2
7591.1	WE-09	11/27/07	1300	Aq	CF	MS/MSD/MS/Dupe vol	30
2	WE-90	11/27/07	1600	Aq	CF	SBB FAXED	15
3	FB-01	11/27/07	1530	Aq	CF	TABLE 2-2 FOR ALL METHODS REQUIRED	15

COOLER TEMPERATURE BLANKS

Container Type	V	P	A	P	P	A	A	A	A	
Preservative	B	C	A	A	A	A	A	A	A	

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/27/07 2000		11/27/07 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com
MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: TRC Environmental Corporation

Address: Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854

Attn: Mr. Ken Cormier

Project Number:

Laboratory Job Number: L0717592

Date Received: 27-NOV-2007

Date Reported: 27-DEC-2007

Delivery Method: Client

Site: LMC

The following questions pertain only to MCP Analytical Methods

An affirmative response to questions A,B,C & D is required for "Presumptive Certainty" status

A. Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set? YES

B. Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines? YES

C. Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? YES

D. **VPH and EPH methods only:** Was the VPH or EPH method run without significant modifications, as specified in Section 11.3? N/A

A response to questions E and F is required for "Presumptive Certainty" status

E. Were all QC performance standards and recommendations for the specified method(s) achieved? NO

F. Were results for all analyte-list compounds/elements for the specified method(s) reported? NO

Any answers of NO to the above questions are addressed in the case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: Priscilla L. Westerman
Technical Representative

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0717592
Date Reported: 27-DEC-2007

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0717592-01	TB-01	WILMINGTON, MA
L0717592-02	WE-09	WILMINGTON, MA
L0717592-03	WE-90	WILMINGTON, MA
L0717592-04	FB-01	WILMINGTON, MA

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0717592

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Report Submission

The analysis of Hexavalent Chromium will be reported under a separate cover.

The analyses of NDMA and Tributyl Tin were subcontracted, and the results will be issued under separate covers.

The analyses of Volatile Organics by Method 8260B and 1,4-Dioxane by method 8270-SIM isotope dilution were performed at the Alpha Woods Hole Mansfield facility. The sample results and report from the Mansfield facility are included as an addendum.

MCP Related Narratives:

Metals

In reference to question F:

At the client's request, all submitted samples were not analyzed for the full MCP list of compounds specified for the Method.

Semi-Volatile Organics

Extraction Method 3510C

In reference to question E:

The WG303698 LCS/LCSD % recoveries for Aniline are below and the LCS % recoveries for 2,4-Dinitrotoluene and 2,4-Dinitrophenol are above the individual acceptance criteria for the compounds, but within the overall method allowances. The LCS also has high surrogate % recovery for 2,4,6-Tribromophenol but was within method allowances.

The WG303698 LCS/LCSD RPDs for Bis (2-Chloroethyl) ether, 2,4-Dinitrotoluene, 2,6-Dinitrotoluene, 2,4-Dimethylphenol, 4-Nitrophenol, 2,4-Dinitrophenol, Pentachlorophenol and 2,4,5-Trichlorophenol are above method acceptance criteria.

The WG303698 MS has low % recoveries for 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, Hexachlorobutadiene, Hexachloroethane, Aniline and 4-Chloroaniline and high % recovery for 2,4-Dinitrophenol.

The WG303698 MSD has low % recoveries for 3,3-Dichlorobenzidine, Hexachloroethane and Aniline and high % recovery for 2,4-Dinitrophenol.

The MS/MSD have high RPDs for 1,2,4-Trichlorobenzene, Bis (2-Chloroethyl) ether, 2-Chloronaphthalene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 3,3-Dichlorobenzidine, Bis (2-Chloroisopropyl) ether, Bis (2-chloroethoxy) methane, Hexachlorobutadiene, Hexachloroethane, Isophorone, Naphthalene, Nitrobenzene, Aniline, 4-

Chloroaniline, 2-Methylnaphthalene, Acetophenone, 2-Chlorophenol, 2,4-Dichlorophenol, 2-Nitrophenol, 2-Methylphenol and 3-Methylphenol/4-Methylphenol.

In reference to question F:

At the client's request, all submitted samples were not analyzed for the full MCP list of compounds specified for the Method.

Non-MCP Related Narratives:

Perchlorate by Method 314

L0717592-03 was pretreated for Perchlorate analysis to remove common anions that contribute to the conductance of the sample. As part of the treatment, a spike is performed. The % recovery for the spike is below acceptance criteria, and the sample is considered to have matrix interferences with the Perchlorate analysis.

The WG304719-4 MS % recovery is below acceptance criteria. The sample used for the Matrix Spike is considered to have matrix interferences with the Perchlorate analysis.

The WG304715-4 MS/MSD % recoveries are below acceptance criteria. The sample used for the MS/MSD is considered to have matrix interferences with the Perchlorate analysis.

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-01
TB-01
Sample Matrix: WATER

Condition of Sample: Satisfactory

Number & Type of Containers: 2-Vial

Date Collected: 27-NOV-2007 07:00
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Field Prep: None

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-02
WE-09
Sample Matrix: WATER

Date Collected: 27-NOV-2007 13:00
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 12-Amber,2-Bacteria,2-Plastic,4-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	1400	umhos/cm	10	30 2510B		1127 21:55	JO
Perchlorate by Method 314.0				58 314.0		1206 11:37	AJ
Perchlorate	ND	ug/l	1.00				
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0333	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Cadmium, Total	0.00009J	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Copper, Total	0.0009	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Lead, Total	0.00017J	mg/l	0.0005	64 6020A	1206 15:20	1207 19:58	BM
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:21	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	55.0	%	15-110				
Phenol-d6	45.0	%	15-110				
Nitrobenzene-d5	100	%	30-130				
2-Fluorobiphenyl	96.0	%	30-130				
2,4,6-Tribromophenol	105	%	15-110				
4-Terphenyl-d14	109	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:21	RL
Tentatively Identified Compounds							
Unknown	4.3	ug/l					
Unknown Alkane	4.0	ug/l					
Unknown Alkane	6.9	ug/l					
Unknown Substituted Benzene	5.9	ug/l					
Indane	13	ug/l					
Unknown	52	ug/l					
Unknown Substituted Benzene	6.4	ug/l					
Unknown Substituted Benzene	20	ug/l					
Unknown Substituted Benzene	4.5	ug/l					
Unknown C10H12 Isomer	4.5	ug/l					
Unknown Substituted Benzene	8.2	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1204 20:59	AJ
RDX	ND	ug/l	0.263				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717592-02
WE-09

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
MCP Explosives by EPA 8330 - Primary Column cont'd				64 8330A	1204 08:30	1204 20:59	AJ
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	107	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-03
WE-90
Sample Matrix: WATER

Date Collected: 27-NOV-2007 16:00
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,1-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	1500	umhos/cm	10	30 2510B		1127 21:55	JO
Perchlorate by Method 314.0				58 314.0		1206 11:54	AJ
Perchlorate	ND	ug/l	1.00				
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0272	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Cadmium, Total	0.00005J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Copper, Total	0.0012	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Lead, Total	0.00021J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:20	BM
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:44	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	54.0	%	15-110				
Phenol-d6	44.0	%	15-110				
Nitrobenzene-d5	96.0	%	30-130				
2-Fluorobiphenyl	89.0	%	30-130				
2,4,6-Tribromophenol	99.0	%	15-110				
4-Terphenyl-d14	108	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 16:44	RL
Tentatively Identified Compounds							
Unknown	4.2	ug/l					
Unknown	5.4	ug/l					
Unknown	4.0	ug/l					
Unknown Substituted Benzene	5.5	ug/l					
Indane	13	ug/l					
Unknown	51	ug/l					
Unknown Substituted Benzene	5.8	ug/l					
Unknown Substituted Benzene	19	ug/l					
Unknown Substituted Benzene	4.2	ug/l					
Unknown C10H12 Isomer	5.2	ug/l					
Unknown C10H12 Isomer	7.8	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 00:07	AJ
RDX	ND	ug/l	0.272				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717592-03
WE-90

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
MCP Explosives by EPA 8330 - Primary Column cont'd				64 8330A	1204 08:30	1205 00:07	AJ
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	98.0	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717592-04
FB-01
Sample Matrix: WATER

Date Collected: 27-NOV-2007 15:30
Date Received : 27-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,1-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	ND	umhos/cm	10	30 2510B		1127 21:55	JO
Perchlorate by Method 314.0				58 314.0		1206 18:17	AJ
Perchlorate	ND	ug/l	1.00				
Total Metals by MCP 6000/7000 series							
Arsenic, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Cadmium, Total	0.00004J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Copper, Total	0.00005J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Lead, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:26	BM
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 17:07	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	53.0	%	15-110				
Phenol-d6	43.0	%	15-110				
Nitrobenzene-d5	92.0	%	30-130				
2-Fluorobiphenyl	84.0	%	30-130				
2,4,6-Tribromophenol	98.0	%	15-110				
4-Terphenyl-d14	106	%	30-130				
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1128 16:00	1204 17:07	RL
Unknown	4.3	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 01:10	AJ
RDX	ND	ug/l	0.266				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	102	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0717592

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Specific Conductance for sample(s) 02-04 (L0717592-04, WG303553-1)					
Specific Conductance	ND	ND	umhos/cm	NC	20
Perchlorate by Method 314.0 for sample(s) 02-03 (L0717675-02, WG304715-3)					
Perchlorate	ND	ND	ug/l	NC	15
Perchlorate by Method 314.0 for sample(s) 04 (L0717780-03, WG304719-3)					
Perchlorate	ND	ND	ug/l	NC	15

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0717592

Parameter	% Recovery	QC Criteria
Specific Conductance LCS for sample(s) 02-04 (WG303553-2)		
Specific Conductance	100	80-120
Perchlorate by Method 314.0 LCS for sample(s) 02-03 (WG304715-2)		
Perchlorate	99	85-115
Perchlorate by Method 314.0 LCS for sample(s) 04 (WG304719-2)		
Perchlorate	95	85-115
Perchlorate by Method 314.0 SPIKE for sample(s) 04 (L0717780-03, WG304719-4)		
Perchlorate	55	70-130

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0717592

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Total Metals by MCP 6000/7000 series for sample(s) 02-04 (WG304750-4, WG304750-5)					
Arsenic, Total	98	100	2	20	80-120
Beryllium, Total	82	82	6	20	80-120
Cadmium, Total	105	107	6	20	80-120
Copper, Total	96	98	3	20	80-120
Lead, Total	97	99	4	20	80-120
Semivolatile Organics by MCP 8270C for sample(s) 02-04 (WG303698-2, WG303698-3)					
Acenaphthene	80	74	8	20	40-140
1,2,4-Trichlorobenzene	64	61	5	20	40-140
Hexachlorobenzene	102	90	13	20	40-140
Bis(2-chloroethyl)ether	70	90	25	20	40-140
2-Chloronaphthalene	76	68	11	20	40-140
1,2-Dichlorobenzene	57	64	12	20	40-140
1,3-Dichlorobenzene	55	60	9	20	40-140
1,4-Dichlorobenzene	52	61	16	20	40-140
3,3'-Dichlorobenzidine	52	49	6	20	40-140
2,4-Dinitrotoluene	148	94	45	20	40-140
2,6-Dinitrotoluene	126	93	30	20	40-140
Azobenzene	92	88	4	20	40-140
Fluoranthene	107	98	9	20	40-140
4-Bromophenyl phenyl ether	99	88	12	20	40-140
Bis(2-chloroisopropyl)ether	74	76	3	20	40-140
Bis(2-chloroethoxy)methane	77	85	10	20	40-140
Hexachlorobutadiene	58	56	4	20	40-140
Hexachloroethane	52	54	4	20	40-140
Isophorone	83	86	4	20	40-140
Naphthalene	69	72	4	20	40-140
Nitrobenzene	85	84	1	20	40-140
Bis(2-Ethylhexyl)phthalate	101	96	5	20	40-140
Butyl benzyl phthalate	100	98	2	20	40-140
Di-n-butylphthalate	116	101	14	20	40-140
Di-n-octylphthalate	102	94	8	20	40-140
Diethyl phthalate	110	97	13	20	40-140
Dimethyl phthalate	103	91	12	20	40-140
Benzo(a)anthracene	103	94	9	20	40-140
Benzo(a)pyrene	95	95	0	20	40-140
Benzo(b)fluoranthene	101	96	5	20	40-140
Benzo(k)fluoranthene	97	90	7	20	40-140
Chrysene	94	92	2	20	40-140
Acenaphthylene	86	77	11	20	40-140
Anthracene	92	89	3	20	40-140
Benzo(ghi)perylene	94	91	3	20	40-140
Fluorene	92	84	9	20	40-140
Phenanthrene	91	93	2	20	40-140
Dibenzo(a,h)anthracene	98	92	6	20	40-140
Indeno(1,2,3-cd)Pyrene	95	92	3	20	40-140
Pyrene	104	98	6	20	40-140
Aniline	31	28	10	20	40-140

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0717592

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Semivolatile Organics by MCP 8270C for sample(s) 02-04 (WG303698-2, WG303698-3)					
4-Chloroaniline	52	46	12	20	40-140
Dibenzofuran	88	73	19	20	40-140
2-Methylnaphthalene	68	68	0	20	40-140
Acetophenone	81	92	13	20	40-140
2,4,6-Trichlorophenol	99	81	20	20	30-130
2-Chlorophenol	73	71	3	20	30-130
2,4-Dichlorophenol	89	79	12	20	30-130
2,4-Dimethylphenol	44	33	29	20	30-130
2-Nitrophenol	93	81	14	20	30-130
4-Nitrophenol	59	40	38	20	30-130
2,4-Dinitrophenol	199	75	91	20	30-130
Pentachlorophenol	104	74	34	20	30-130
Phenol	37	34	8	20	30-130
2-Methylphenol	61	62	2	20	30-130
3-Methylphenol/4-Methylphenol	61	61	0	20	30-130
2,4,5-Trichlorophenol	100	80	22	20	30-130
Surrogate(s)					
2-Fluorophenol	49	46	6		15-110
Phenol-d6	44	37	17		15-110
Nitrobenzene-d5	89	82	8		30-130
2-Fluorobiphenyl	92	80	14		30-130
2,4,6-Tribromophenol	112	84	29		15-110
4-Terphenyl-d14	119	101	16		30-130
MCP Explosives by EPA 8330 - Primary Column for sample(s) 02-04 (WG304322-2, WG304322-3)					
RDX	98	100	2	25	70-110
Surrogate(s)					
1,2-Dinitrobenzene	98	101	3		70-110

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0717592

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
Perchlorate by Method 314.0 for sample(s) 02-03 (L0717592-02, WG304715-5)					
Perchlorate	66	51	26	15	70-130
Total Metals by MCP 6000/7000 series for sample(s) 02-04 (L0717592-02, WG304750-2)					
Arsenic, Total	104	99	5	20	75-125
Beryllium, Total	99	87	13	20	75-125
Cadmium, Total	106	103	3	20	75-125
Copper, Total	98	93	5	20	75-125
Lead, Total	100	96	4	20	75-125
Semivolatile Organics by MCP 8270C for sample(s) 02-04 (L0717592-02, WG303698-5)					
Acenaphthene	60	73	20	20	40-140
1,2,4-Trichlorobenzene	35	50	35	20	40-140
Hexachlorobenzene	88	93	6	20	40-140
Bis(2-chloroethyl)ether	50	66	28	20	40-140
2-Chloronaphthalene	50	69	32	20	40-140
1,2-Dichlorobenzene	35	46	27	20	40-140
1,3-Dichlorobenzene	34	44	26	20	40-140
1,4-Dichlorobenzene	34	44	26	20	40-140
3,3'-Dichlorobenzidine	33	36	9	20	40-140
2,4-Dinitrotoluene	130	140	7	20	40-140
2,6-Dinitrotoluene	110	120	9	20	40-140
Azobenzene	73	81	10	20	40-140
Fluoranthene	93	100	7	20	40-140
4-Bromophenyl phenyl ether	84	88	5	20	40-140
Bis(2-chloroisopropyl)ether	51	70	31	20	40-140
Bis(2-chloroethoxy)methane	53	70	28	20	40-140
Hexachlorobutadiene	30	41	31	20	40-140
Hexachloroethane	30	38	24	20	40-140
Isophorone	59	74	23	20	40-140
Naphthalene	44	63	36	20	40-140
Nitrobenzene	59	81	31	20	40-140
Bis(2-Ethylhexyl)phthalate	86	93	8	20	40-140
Butyl benzyl phthalate	88	94	7	20	40-140
Di-n-butylphthalate	98	110	12	20	40-140
Di-n-octylphthalate	90	95	5	20	40-140
Diethyl phthalate	93	98	5	20	40-140
Dimethyl phthalate	84	94	11	20	40-140
Benzo(a)anthracene	90	96	6	20	40-140
Benzo(a)pyrene	80	85	6	20	40-140
Benzo(b)fluoranthene	90	96	6	20	40-140
Benzo(k)fluoranthene	83	88	6	20	40-140
Chrysene	81	86	6	20	40-140
Acenaphthylene	64	75	16	20	40-140
Anthracene	78	84	7	20	40-140
Benzo(ghi)perylene	81	86	6	20	40-140
Fluorene	75	85	13	20	40-140
Phenanthrene	75	84	11	20	40-140
Dibenzo(a,h)anthracene	81	89	9	20	40-140

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0717592

Continued

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
Semivolatile Organics by MCP 8270C for sample(s) 02-04 (L0717592-02, WG303698-5)					
Indeno(1,2,3-cd)Pyrene	83	88	6	20	40-140
Pyrene	88	94	7	20	40-140
Aniline	23	31	30	20	40-140
4-Chloroaniline	36	45	22	20	40-140
Dibenzofuran	70	79	12	20	40-140
2-Methylnaphthalene	41	60	38	20	40-140
Acetophenone	55	80	37	20	40-140
2,4,6-Trichlorophenol	84	89	6	20	30-130
2-Chlorophenol	53	71	29	20	30-130
2,4-Dichlorophenol	64	84	27	20	30-130
2,4-Dimethylphenol	34	38	11	20	30-130
2-Nitrophenol	69	89	25	20	30-130
4-Nitrophenol	75	80	6	20	30-130
2,4-Dinitrophenol	180	200	11	20	30-130
Pentachlorophenol	93	100	7	20	30-130
Phenol	38	46	19	20	30-130
2-Methylphenol	48	59	21	20	30-130
3-Methylphenol/4-Methylphenol	48	60	22	20	30-130
2,4,5-Trichlorophenol	80	88	10	20	30-130
Surrogate(s)					
2-Fluorophenol	46	58	23		15-110
Phenol-d6	46	59	25		15-110
Nitrobenzene-d5	61	81	28		30-130
2-Fluorobiphenyl	65	84	26		30-130
2,4,6-Tribromophenol	94	102	8		15-110
4-Terphenyl-d14	100	106	6		30-130
MCP Explosives by EPA 8330 - Primary Column for sample(s) 02-04 (L0717592-02, WG304322-5)					
RDX	90	88	2	30	70-110
Surrogate(s)					
1,2-Dinitrobenzene	98	96	2		70-110

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717592

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02-03 (WG304715-1)							
Perchlorate by Method 314.0				58 314.0		1206 11:02	AJ
Perchlorate	ND	ug/l	1.00				
Blank Analysis for sample(s) 04 (WG304719-1)							
Perchlorate by Method 314.0				58 314.0		1206 17:42	AJ
Perchlorate	ND	ug/l	1.00				
Blank Analysis for sample(s) 02-04 (WG304750-3)							
Total Metals by MCP 6000/7000 series							
Arsenic, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 19:19	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 19:19	BM
Cadmium, Total	0.00007J	mg/l	0.0005	64 6020A	1206 15:20	1207 19:19	BM
Copper, Total	0.00006J	mg/l	0.0005	64 6020A	1206 15:20	1207 19:19	BM
Lead, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 19:19	BM
Blank Analysis for sample(s) 02-04 (WG303698-1)							
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 14:27	RL
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	35.0	%	15-110				
Phenol-d6	28.0	%	15-110				
Nitrobenzene-d5	65.0	%	30-130				
2-Fluorobiphenyl	57.0	%	30-130				
2,4,6-Tribromophenol	81.0	%	15-110				
4-Terphenyl-d14	96.0	%	30-130				
Blank Analysis for sample(s) 02-04 (WG303698-1)							
Semivolatile Organics by MCP 8270C				64 8270C	1128 16:00	1204 14:27	RL
Tentatively Identified Compounds							
No Tentatively Identified Compounds	ND						
Blank Analysis for sample(s) 02-04 (WG304322-1)							
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1204 17:50	AJ
RDX	ND	ug/l	0.250				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	102	%	70-110				

REFERENCES

30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

58. Determination of Perchlorate in Drinking Water Using Ion Chromatography. NERL-ORD, U.S. EPA, Cincinnati, OH. Revision 1.0, November 1999. (Additional requirements as defined in MA DEP letter dated February 18, 2004.)

64. Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
J	Analyte concentration is below quantitation limit (RDL), but above the Method Detection Limit (MDL). Value is estimated.
H	The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

ALPHA ANALYTICAL LABORATORIES
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0717592

Were project specific reporting limits specified? NO

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0717592-01A	Vial HCl preserved	A	N/A	4.6 C	Y	Absent	SUB-MAN-8260
L0717592-01B	Vial HCl preserved	A	N/A	4.6 C	Y	Absent	SUB-MAN-8260
L0717592-02A	Vial HCl preserved	A	N/A	4.6 C	Y	Absent	SUB-MAN-8260
L0717592-02B	Vial HCl preserved	A	N/A	4.6 C	Y	Absent	SUB-MAN-8260
L0717592-02C	Vial HCl preserved	D	N/A	3.9 C	Y	Absent	SUB-MAN-8260
L0717592-02D	Vial HCl preserved	D	N/A	3.9 C	Y	Absent	SUB-MAN-8260
L0717592-02E	Plastic 250ml HNO3 preserved	A	<2	4.6 C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717592-02F	Plastic 250ml HNO3 preserved	C	<2	3.6 C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717592-02G	Bacteria Cup unpreserved	D	N/A	3.9 C	Y	Absent	PERC-314
L0717592-02H	Bacteria Cup unpreserved	A	N/A	4.6 C	Y	Absent	PERC-314
L0717592-02I	Amber 1000ml unpreserved	D	=7	3.9 C	Y	Absent	MCP-8270-04
L0717592-02J	Amber 1000ml unpreserved	D	=7	3.9 C	Y	Absent	MCP-8270-04
L0717592-02K	Amber 1000ml unpreserved	D	=7	3.9 C	Y	Absent	MCP-8270-04
L0717592-02L	Amber 1000ml unpreserved	D	=7	3.9 C	Y	Absent	MCP-8270-04
L0717592-02M	Amber 1000ml unpreserved	A	=7	4.6 C	Y	Absent	LEVEL5+CLP, MCP-8330-HRP
L0717592-02N	Amber 1000ml unpreserved	A	=7	4.6 C	Y	Absent	LEVEL5+CLP, MCP-8330-HRP
L0717592-02O	Amber 1000ml unpreserved	A	=7	4.6 C	Y	Absent	LEVEL5+CLP, MCP-8330-HRP
L0717592-02P	Amber 1000ml unpreserved	A	=7	4.6 C	Y	Absent	COND-2510, LEVEL5+CLP
L0717592-02Q	Amber 1000ml unpreserved	D	=7	3.9 C	Y	Absent	SUB-MAN-8270SIM
L0717592-02R	Amber 1000ml unpreserved	D	=7	3.9 C	Y	Absent	SUB-MAN-8270SIM
L0717592-02S	Amber 1000ml unpreserved	A	=7	4.6 C	Y	Absent	SUB-MAN-8270SIM
L0717592-02T	Amber 1000ml unpreserved	A	=7	4.6 C	Y	Absent	SUB-MAN-8270SIM
L0717592-03A	Vial HCl preserved	B	N/A	4.4 C	Y	Absent	SUB-MAN-8260
L0717592-03B	Vial HCl preserved	B	N/A	4.4 C	Y	Absent	SUB-MAN-8260
L0717592-03C	Plastic 250ml HNO3 preserved	B	<2	4.4 C	Y	Absent	MCP, MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717592-03D	Bacteria Cup unpreserved	B	N/A	4.4 C	Y	Absent	PERC-314
L0717592-03E	Amber 1000ml unpreserved	B	=7	4.4 C	Y	Absent	MCP-8330-HRP
L0717592-03F	Amber 1000ml unpreserved	B	=7	4.4 C	Y	Absent	COND-2510
L0717592-03G	Amber 1000ml unpreserved	B	=7	4.4 C	Y	Absent	MCP-8270-04
L0717592-03H	Amber 1000ml unpreserved	B	=7	4.4 C	Y	Absent	MCP-8270-04
L0717592-03I	Amber 1000ml unpreserved	B	=7	4.4 C	Y	Absent	SUB-MAN-8270SIM
L0717592-03J	Amber 1000ml unpreserved	B	=7	4.4 C	Y	Absent	SUB-MAN-8270SIM

ALPHA ANALYTICAL LABORATORIES
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0717592

Continued

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0717592-04A	Vial HCl preserved	C	N/A	3.6 C	Y	Absent	SUB-MAN-8260
L0717592-04B	Vial HCl preserved	C	N/A	3.6 C	Y	Absent	SUB-MAN-8260
L0717592-04C	Plastic 250ml HNO3 preserved	C	<2	3.6 C	Y	Absent	MCP, MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717592-04D	Bacteria Cup unpreserved	C	N/A	3.6 C	Y	Absent	PERC-314
L0717592-04E	Amber 1000ml unpreserved	C	=7	3.6 C	Y	Absent	MCP-8330-HRP
L0717592-04F	Amber 1000ml unpreserved	C	=7	3.6 C	Y	Absent	COND-2510
L0717592-04G	Amber 1000ml unpreserved	C	=7	3.6 C	Y	Absent	MCP-8270-04
L0717592-04H	Amber 1000ml unpreserved	C	=7	3.6 C	Y	Absent	MCP-8270-04
L0717592-04I	Amber 1000ml unpreserved	C	=7	3.6 C	Y	Absent	SUB-MAN-8270SIM
L0717592-04J	Amber 1000ml unpreserved	C	=7	3.6 C	Y	Absent	SUB-MAN-8270SIM

Container Comments

Container ID	Comments

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 11/27

ALPHA Job #: L0717592

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: Kcormier@trcsolutionsCom

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC
Project Location: Wilmington MA
Project #:
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☒ RUSH (only confirmed if pre-approved!)
Date Due: Gtd is 24hrs ✱ Time: 12/11

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MASS Criteria: Call PM

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager 978-656-3562 Ken Cormier to verify specific Regulatory Criteria

SAMPLE HANDLING

Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: VOCs 8260B	Methyl 2045A/6020	1,4 Dioxane 8270C	✱ Hex Chrome 7196A	Perchlorate 314.1	N-Nitrosodimethylamine 625	Cyclonite (RDX) 8330	Tributyl Tin (GC/MS) SVOCs HEX 3510C/8270C	Sample Specific Comments	TOTAL # BOTTLES
7592.1	TB-01	11/27/07	0700	Aq	CF	2									2
2	WE-09	11/27/07	1300	Aq	CF	4	2	4	2	2	4	4	4	4	MS/MSD/MS/Dupe vol 30
3	WE-90	11/27/07	1600	Aq	CF	2	1	2	1	1	2	2	2	2	SEE FAXED 15
4	FB-01	11/27/07	1530	Aq	CF	2	1	2	1	1	2	2	2	2	TABLE 2-2 FOR ALL METHODS REQUIRED 15

COOLER TEMPERATURE BLANKS

Container Type	V	P	A	P	P	A	A				
Preservative	B	C	A	A	A	F	F				

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	11/27/07 2000	[illegible]	11/27/07 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

ALPHA
WOODS HOLE LABS

ANALYTICAL REPORT

Prepared for:
Alpha Woods Hole Labs - Westborough
8 Walkup Drive
Westborough, MA 01581

Project:	L0717592 - TRC
ETR:	0711187
Report Date:	December 12, 2007

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

320 Forbes Blvd, Mansfield, MA 02048, (508) 822-9300, Fax (508) 822-3288

Sample ID Cross Reference

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717592 - TRC**

Lab Code: **MA00030**
ETR: **0711187**

Lab Sample ID	Client Sample ID
0711187-01	TB-01
0711187-02	WE-09
0711187-03	WE-90
0711187-04	FB-01

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Alpha Woods Hole Labs

Project Number: 0711187

Project Location: _____ **MCP RTN #[1]:** _____

This Form provides certifications for the following data set: [Laboratory Sample ID Number(s)]:

0711187-01 through 0711187-04

Sample Matrices: [Groundwater] **Soil/Sediment** Drinking Water Other:

MCP SW-846 Methods used (as specified in MADEP Compendium of Analytical Methods)
Check all that apply:

8260B (X)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
8270C ( )	8081A ( )	VPH ( )	6020 ( )	9014M[2] ( )
8082 ( )	8021B ( )	EPH ( )	7000 S[3] ( )	Other:

[1] – List Release Tracking Number (RTN), if known.
[2]M – SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method.
[3]S – SW-846 Methods 7000 Series. List individual method and analyte.

	An affirmative response to question A, B, C and D is required for "Presumptive Certainty" status.		
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	[Yes]	No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	[Yes]	No[1]
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data"?	[Yes]	No[1]
D	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective Methods)?	Yes	No[1]
	A response to questions E and F below is required for "Presumptive Certainty" status.		
E	Were all analytical QC performance standards and recommendations for the specified methods achieved?	[Yes]	**No[1]**
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	**Yes**	[No[1]]

[1] *All Negative responses must be addressed in an attached Environmental Laboratory case narrative.*

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: _____ **Position:** Technical Representative

Printed Name: Kathleen O'Brien **Date** 12/12/07

CASE NARRATIVE
Alpha Woods Hole Labs

ETR: 0711187
Project: L0717592

All analyses were performed according to Alpha Woods Hole Labs quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Woods Hole Labs certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Volatile Organics by 8260

1. In reference to question F
Only a subset of the MCP analyte list for SW-846 Method 8260B Volatile Organic Compounds by GC/MS were reported.

2. The initial calibration had values for compounds outside of the 15% RSD QC advisory limit. Refer to the Form VI Initial Calibration Summary report for specific outliers. This initial calibration meets the acceptability criteria.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Woods Hole Labs makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Woods Hole Labs. To the best of my knowledge, the information contained in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: _____ Title: Technical Representative Date: 12/12/07
Kathleen O'Brien

Chain of Custody Records

MANSFIELD

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/27

ALPHA Job #: 0711179

Client Information

Client: Alpha Analytical
Address:
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: Peter Hendriksen
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS: 1,4 Dioxane - 8270

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
-1	L0717592-2	11/27	1300	GW		MS/MSD	4
-2	3		1600				2
-3	4		1530				2

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

	Container Type																							
	Preservative																							

Relinquished By:	Date/Time	Received By:	Date/Time
	11/27		11/28/07 1030
	11/28/07 1200		11/28/07 1450

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

CHAIN OF CUSTODY PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/27

ALPHA Job #: L0717592

Client Information
Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: Kcormier@trcsolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information
Project Name: LMC
Project Location: Wilmington MA
Project #:
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time
☒ Standard ☒ RUSH (only confirmed if pre-approved!)
Date Due: Crab is 24hrs * Time:

Report Information - Data Deliverables
☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information
☒ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program: MASS
Criteria: CAM IX M

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS
☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Contact Project Manager 978-656-3562 Ken Cormier to verify specific Regulatory Criteria

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Vocs 8260	Methyl 2ethyl Hexan 8260	1,4 Dioxane 8270C	* Hex Chrome 7196A Perchlorate 314.1	N-Nitrosodimethylamine 1625	Cyclonite (RDX) 8330	Tributyl-tin (Sn) (RDL) Sulfide TICs 8260/8270	Sample Specific Comments	TOTAL # BOTTLES
7592.1	TB-01	11/27/07	0700	Aq	CF	2								2
2	WE-09	11/27/07	1300	Aq	CF	4	2	4	2	2	4	4	4	4	MS/MSD/MS/Dupe vol	30
3	WE-90	11/27/07	1600	Aq	CF	2	1	2	1	1	2	2	2	2	SEE FAXED	15
4	FB-01	11/27/07	1530	Aq	CF	2	1	2	1	1	2	2	2	2	TABLE 2-2	15
															FOR ALL	
	COOLER TEMPERATURE BLANKS														METHODS	
															REQUIRED	

Container Type: V P A P P A A A A
Preservative: B C A A A A A A A

PLEASE ANSWER QUESTIONS ABOVE!
IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/27/07 2000		11/27/00 2000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

Sample Delivery Group Form

Laboratory Job No: L0717592 **Client:** TRC

Receipt Date/Time: 11/27/07 2000 **SDG Reviewer:** CT

Samples Delivered By:
[ ] Alpha Courier [✓] Client [ ] UPS [ ] FedEx [ ] Other _____
Bill of Laden: [ ] Yes [ ] Unavailable Tracking #: _____

Chain of Custody: [✓] Present [ ] Absent: _____
Custody Seals: [✓] Absent [ ] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:
Is Ice/Blue Ice present? [✓] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank: (a) 4.6°C (b) 4.4 (c) 3.6°C (d) 3.9 (e) _____
IR Gun: (a) _____ (b) _____ (c) _____ (d) _____ (e) _____

Was Temp: [✓] 2-6 Celsius
[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No
[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [✓] Intact
[ ] Broken/Leaking Sample IDs: _____
Sample IDs: _____

All Containers Accounted For? [✓] Yes
[ ] No: _____
Extra Samples Received? [✓] No
[ ] Yes: _____
Do Sample Labels and COC agree? [✓] Yes
[ ] No: _____

Are Samples In Appropriate Containers? [✓] Yes
[ ] No: _____
Are samples rec'd within holding time? [✓] Yes
[ ] No: _____
* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [ ] N/A [✓] <2 [ ] >12 and/or [✓] 7
Are samples properly preserved? [✓] Yes [ ] No If No then.....
Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 <<Final pH = _____>>
Other Issues: _____
Chlorine Check: [✓] N/A [ ] Present [ ] Absent

VOA/VPH vials: [✓] Yes [ ] No
Aqueous: vials contain head space? [✓] No [ ] Yes : _____
Soils: MeOH covering soil? [ ] Yes [ ] No : _____
Reagent H_2O Preserved vials Frozen @ date/time: _____
Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [ ] N/A
If Yes: Call Tracker # _____

Sample Receipt Checklist

Client: ALPHA		**Receipt Date:** 11/28/07	
Project: L0717592 - TRC		**Log-in Date:**	
ETR #: 071179	**Inspection by:** hr	**Login by:** hr	

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, FedEx / UPS / Other:_____
~~No, WHG Courier pick-up~~ / Hand delivered

Is bill of lading retained? Yes, Tracking #:_____
No, Unavailable / (NA)

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 3° IR Gun, _____ Temp. Blank, / NA

Were samples received on ice? (Yes) / No

Chain-of-Custody present? (Yes) / No
Complete? (Yes) / No

Custody seals present on Cooler? Yes / (No)
on Bottles? Yes / (No)
Intact? Yes / No / (NA)
Note: Affix custody seals to back of this page.

Were sample containers intact? (Yes) / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / ~~NA~~ (NA) If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA)
If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC?
(Yes) / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / (NA)
☐C=HCl ☐ M=MeOH ☐ S=H_2SO4
☐H=NaOH ☐ N=HNO_3 ☐ Other:_____ ☐ U= Unknown

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)
YES: <2 or >12 (CN) or NO (NA)
If No, why?:

Were samples received within hold time? (Yes) / No If No, list samples: →

Discrepancy between samples rec'd & COC ? Yes / (No) If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: E2

Sample storage freezer #:_____

Cooler 2:_____ Cooler 3:_____

Cooler 4:_____ Cooler 5:_____

Cooler 6:_____ Cooler 7:_____

More:_____

Chemical preservation OK for ALL samples?
Yes / No / (N/A)

If No, list samples below:

Please use back for any additional notes!

Certificate/Approval Program Summary



Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

ALPHA ANALYTICAL LABORATORIES

Eight Walkup Drive
Westborough, Massachusetts 01581-1019
(508) 898-9220 www.alphalab.com
MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

CERTIFICATE OF ANALYSIS

Client: TRC Environmental Corporation

Address: Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854

Attn: Mr. Ken Cormier

Project Number: 107181

Laboratory Job Number: L0717675

Date Received: 28-NOV-2007

Date Reported: 27-DEC-2007

Delivery Method: Client

Site: FORMER GE WILMINGTON/LMR

The following questions pertain only to MCP Analytical Methods

An affirmative response to questions A,B,C & D is required for "Presumptive Certainty" status

A. Were all samples received by the laboratory in a condition consistent with those described on their Chain-of-Custody documentation for the data set? YES

B. Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines? YES

C. Does the analytical data included in this report meet all the requirements for "Presumptive Certainty", as described in section 2.0 of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? YES

D. **VPH and EPH methods only:** Was the VPH or EPH method run without significant modifications, as specified in Section 11.3? N/A

A response to questions E and F is required for "Presumptive Certainty" status

E. Were all QC performance standards and recommendations for the specified method(s) achieved? NO

F. Were results for all analyte-list compounds/elements for the specified method(s) reported? NO

Any answers of NO to the above questions are addressed in the case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized by: Phil L. Western
Technical Representative

ALPHA ANALYTICAL LABORATORIES

Laboratory Job Number: L0717675
Date Reported: 27-DEC-2007

ALPHA SAMPLE NUMBER	CLIENT IDENTIFICATION	SAMPLE LOCATION
L0717675-01	TB-02	WILMINGTON, MA
L0717675-02	GZA-10	WILMINGTON, MA
L0717675-03	MW-07	WILMINGTON, MA
L0717675-04	TRC-102	WILMINGTON, MA

ALPHA ANALYTICAL LABORATORIES
NARRATIVE REPORT

Laboratory Job Number: L0717675

The samples were received in accordance with the chain of custody and no significant deviations were encountered during preparation or analysis unless otherwise noted below.

Report Submission

The analyses of NDMA and Tributyl Tin were subcontracted, and the results will be issued under separate covers.

The analyses of Volatile Organics by Method 8260B and 1,4-Dioxane by method 8270-SIM isotope dilution were performed at the Alpha Woods Hole Mansfield facility. The sample results and report from the Mansfield facility are included as an addendum.

MCP Related Narratives

Hexavalent Chromium

The MS % recovery is below acceptance criteria for the method. The LCS/LCSD % recoveries are within criteria; therefore, no further action was taken.

Metals

In reference to question F:

At the client's request, all submitted samples were not analyzed for the full MCP list of compounds specified for the Method.

Semi-Volatile Organics

Extraction Method 3510C

In reference to question E:

The WG303985-2/3 LCS/LCSD % recoveries for Aniline and Phenol are below, and the LCS/LCSD % recoveries for 2,4-Dinitrophenol are above, the individual acceptance criteria for the compounds, but within the overall method allowances. The RPD for Aniline is above method acceptance criteria.

In reference to question F:

At the client's request, all submitted samples were not analyzed for the full MCP list of compounds specified for the Method.

Non-MCP Related Narratives:

Perchlorate

L0717675-02 and -03 were pretreated for the Perchlorate analysis to remove common anions that contribute to the conductance of the sample. As part of the treatment, a spike is performed. The % recovery for the spikes were below acceptance criteria, and the samples are considered to have matrix interferences with the Perchlorate analysis.

The WG304715 % recoveries for the batch MS/MSD are below acceptance criteria. The sample used for the MS/MSD is considered to have matrix interferences with the Perchlorate analysis.

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-01
TB-02
Sample Matrix: WATER

Date Collected: 26-NOV-2007 17:50
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-02
GZA-10
Sample Matrix: WATER

Date Collected: 28-NOV-2007 10:30
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	520	umhos/cm	10	30 2510B		1128 21:40	LR
Perchlorate by Method 314.0				58 314.0		1206 12:12	AJ
Perchlorate	ND	ug/l	1.00				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0844	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Cadmium, Total	0.00018J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Copper, Total	0.00026J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Lead, Total	0.00011J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:15	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 11:27	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	32.0	%	15-110				
Phenol-d6	25.0	%	15-110				
Nitrobenzene-d5	66.0	%	30-130				
2-Fluorobiphenyl	68.0	%	30-130				
2,4,6-Tribromophenol	77.0	%	15-110				
4-Terphenyl-d14	93.0	%	30-130				
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1130 14:00	1204 11:27	PS
No Tentatively Identified Compounds	ND	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 02:13	AJ
RDX	ND	ug/l	0.269				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717675-02
GZA-10

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
MCP Explosives by EPA 8330 - Primary Column cont'd				64 8330A	1204 08:30	1205 02:13	AJ
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	102	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS .

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-03
MW-07
Sample Matrix: WATER

Date Collected: 28-NOV-2007 14:00
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	900	umhos/cm	10	30 2510B		1128 21:40	LR
Perchlorate by Method 314.0				58 314.0		1206 12:29	AJ
Perchlorate	ND	ug/l	1.00				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0072	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Beryllium, Total	0.00016J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Cadmium, Total	0.00004J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Copper, Total	0.00026J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Lead, Total	0.00008J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:26	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 11:50	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	33.0	%	15-110				
Phenol-d6	26.0	%	15-110				
Nitrobenzene-d5	60.0	%	30-130				
2-Fluorobiphenyl	64.0	%	30-130				
2,4,6-Tribromophenol	82.0	%	15-110				
4-Terphenyl-d14	105	%	30-130				
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1130 14:00	1204 11:50	PS
No Tentatively Identified Compounds	ND	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 03:16	AJ
RDX	ND	ug/l	0.260				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717675-03
MW-07

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
MCP-Explosives by EPA 8330 - Primary Column cont'd				64 8330A	1204 08:30	1205 03:16	AJ
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	107	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:200301-A CT:PH-0574 ME:MA086 RI:65 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0717675-04
TRC-102
Sample Matrix: WATER

Date Collected: 28-NOV-2007 16:05
Date Received : 28-NOV-2007
Date Reported : 27-DEC-2007

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 6-Amber,1-Bacteria,2-Plastic,2-Vial

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Specific Conductance	670	umhos/cm	10	30 2510B		1128 21:40	LR
Perchlorate by Method 314.0				58 314.0		1206 12:46	AJ
Perchlorate	ND	ug/l	1.00				
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Total Metals by MCP 6000/7000 series							
Arsenic, Total	0.0361	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Beryllium, Total	0.00005J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Cadmium, Total	0.00004J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Copper, Total	0.0007	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Lead, Total	0.00029J	mg/l	0.0005	64 6020A	1206 15:20	1207 21:32	BM
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:12	PS
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	30.0	%	15-110				
Phenol-d6	24.0	%	15-110				
Nitrobenzene-d5	63.0	%	30-130				
2-Fluorobiphenyl	63.0	%	30-130				
2,4,6-Tribromophenol	98.0	%	15-110				
4-Terphenyl-d14	105	%	30-130				
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 12:12	PS
Tentatively Identified Compounds							
Unknown	3.8	ug/l					
Unknown Substituted Benzene	4.8	ug/l					
Unknown C9H10	6.7	ug/l					
Unknown Substituted Benzene	4.3	ug/l					
Unknown	5.4	ug/l					
Unknown	4.2	ug/l					
Unknown	6.2	ug/l					
Unknown	8.4	ug/l					
Unknown	5.2	ug/l					
Unknown	3.9	ug/l					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
CERTIFICATE OF ANALYSIS

Laboratory Sample Number: L0717675-04
TRC-102

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Semivolatile Organics by MCP 8270C cont'd				64 8270C	1130 14:00	1204 12:12	PS
Unknown	4.5	ug/l					
Unknown	6.3	ug/l					
Unknown	5.6	ug/l					
Unknown	4.9	ug/l					
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1205 06:24	AJ
RDX	ND	ug/l	0.266				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	82.0	%	70-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH DUPLICATE ANALYSIS

Laboratory Job Number: L0717675

Parameter	Value 1	Value 2	Units	RPD	RPD Limits
Specific Conductance for sample(s) 02-04 (L0717675-03, WG303711-1)					
Specific Conductance	900	910	umhos/cm	1	20
Perchlorate by Method 314.0 for sample(s) 02-04 (L0717675-02, WG304715-3)					
Perchlorate	ND	ND	ug/l	NC	15
Hexavalent Chromium by MCP 7196A for sample(s) 02-04 (L0717675-03, WG303684-4)					
Chromium, Hexavalent	ND	ND	mg/l	NC	20

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH SPIKE ANALYSES

Laboratory Job Number: L0717675

Parameter	% Recovery	QC Criteria
Specific Conductance LCS for sample(s) 02-04 (WG303711-2)		
Specific Conductance	99	80-120
Perchlorate by Method 314.0 LCS for sample(s) 02-04 (WG304715-2)		
Perchlorate	99	85-115
Hexavalent Chromium by MCP 7196A SPIKE for sample(s) 02-04 (L0717675-02, WG303684-5)		
Chromium, Hexavalent	14	75-125

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0717675

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Hexavalent Chromium by MCP 7196A for sample(s) 02-04 (WG303684-2, WG303684-3)					
Chromium, Hexavalent	98	99	1	20	80-120
Total Metals by MCP 6000/7000 series for sample(s) 02-04 (WG304751-2, WG304751-3)					
Arsenic, Total	98	95	3	20	80-120
Beryllium, Total	87	91	4	20	80-120
Cadmium, Total	101	104	3	20	80-120
Copper, Total	95	95	0	20	80-120
Lead, Total	95	96	1	20	80-120
Semivolatile Organics by MCP 8270C for sample(s) 02-04 (WG303985-2, WG303985-3)					
Acenaphthene	62	64	3	20	40-140
1,2,4-Trichlorobenzene	50	54	8	20	40-140
Hexachlorobenzene	88	88	0	20	40-140
Bis(2-chloroethyl)ether	48	53	10	20	40-140
2-Chloronaphthalene	59	61	3	20	40-140
1,2-Dichlorobenzene	44	48	9	20	40-140
1,3-Dichlorobenzene	44	47	7	20	40-140
1,4-Dichlorobenzene	42	45	7	20	40-140
3,3'-Dichlorobenzidine	64	64	0	20	40-140
2,4-Dinitrotoluene	130	139	7	20	40-140
2,6-Dinitrotoluene	105	104	1	20	40-140
Azobenzene	68	72	6	20	40-140
Fluoranthene	93	102	9	20	40-140
4-Bromophenyl phenyl ether	81	83	2	20	40-140
Bis(2-chloroisopropyl)ether	53	57	7	20	40-140
Bis(2-chloroethoxy)methane	55	55	0	20	40-140
Hexachlorobutadiene	50	51	2	20	40-140
Hexachloroethane	42	45	7	20	40-140
Isophorone	58	60	3	20	40-140
Naphthalene	52	55	6	20	40-140
Nitrobenzene	62	62	0	20	40-140
Bis(2-Ethylhexyl)phthalate	84	93	10	20	40-140
Butyl benzyl phthalate	86	93	8	20	40-140
Di-n-butylphthalate	100	105	5	20	40-140
Di-n-octylphthalate	85	93	9	20	40-140
Diethyl phthalate	90	93	3	20	40-140
Dimethyl phthalate	79	82	4	20	40-140
Benzo(a)anthracene	88	97	10	20	40-140
Benzo(a)pyrene	84	89	6	20	40-140
Benzo(b)fluoranthene	92	101	9	20	40-140
Benzo(k)fluoranthene	83	92	10	20	40-140
Chrysene	82	90	9	20	40-140
Acenaphthylene	63	67	6	20	40-140
Anthracene	77	84	9	20	40-140
Benzo(ghi)perylene	77	88	13	20	40-140
Fluorene	70	71	1	20	40-140
Phenanthrene	77	82	6	20	40-140
Dibenzo(a,h)anthracene	84	91	8	20	40-140

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH LCS/LCSD ANALYSIS

Laboratory Job Number: L0717675

Continued

Parameter	LCS %	LCSD %	RPD	RPD Limit	QC Limits
Semivolatile Organics by MCP 8270C for sample(s) 02-04 (WG303985-2, WG303985-3)					
Indeno(1,2,3-cd)Pyrene	81	91	12	20	40-140
Pyrene	89	97	9	20	40-140
Aniline	25	18	33	20	40-140
4-Chloroaniline	49	42	15	20	40-140
Dibenzofuran	66	70	6	20	40-140
2-Methylnaphthalene	52	54	4	20	40-140
Acetophenone	57	59	3	20	40-140
2,4,6-Trichlorophenol	71	74	4	20	30-130
2-Chlorophenol	50	54	8	20	30-130
2,4-Dichlorophenol	59	67	13	20	30-130
2,4-Dimethylphenol	33	30	10	20	30-130
2-Nitrophenol	69	72	4	20	30-130
4-Nitrophenol	48	51	6	20	30-130
2,4-Dinitrophenol	170	184	8	20	30-130
Pentachlorophenol	86	95	10	20	30-130
Phenol	22	24	9	20	30-130
2-Methylphenol	42	43	2	20	30-130
3-Methylphenol/4-Methylphenol	41	40	2	20	30-130
2,4,5-Trichlorophenol	69	72	4	20	30-130
Surrogate(s)					
2-Fluorophenol	32	32	0		15-110
Phenol-d6	28	27	4		15-110
Nitrobenzene-d5	66	61	8		30-130
2-Fluorobiphenyl	72	69	4		30-130
2,4,6-Tribromophenol	95	89	7		15-110
4-Terphenyl-d14	107	105	2		30-130
MCP Explosives by EPA 8330 - Primary Column for sample(s) 02-04 (WG304322-2, WG304322-3)					
RDX	98	100	2	25	70-110
Surrogate(s)					
1,2-Dinitrobenzene	98	101	3		70-110

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH MS/MSD ANALYSIS

Laboratory Job Number: L0717675

Parameter	MS %	MSD %	RPD	RPD Limit	MS/MSD Limits
Perchlorate by Method 314.0 for sample(s) 02-04 (L0717592-02, WG304715-5)					
Perchlorate	66	51	26	15	70-130
MCP Explosives by EPA 8330 - Primary Column for sample(s) 02-04 (L0717592-02, WG304322-5)					
RDX	90	88	2	30	70-110
Surrogate(s)					
1,2-Dinitrobenzene	98	96	2		70-110

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717675

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02-04 (WG304715-1)							
Perchlorate by Method 314.0				58 314.0		1206 11:02	AJ
Perchlorate	ND	ug/l	1.00				
Blank Analysis for sample(s) 02-04 (WG303684-1)							
Hexavalent Chromium by MCP 7196A							
Chromium, Hexavalent	ND	mg/l	0.01	64 7196A	1128 21:45	1128 21:45	HS
Blank Analysis for sample(s) 02-04 (WG304751-1)							
Total Metals by MCP 6000/7000 series							
Arsenic, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:37	BM
Beryllium, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:37	BM
Cadmium, Total	0.00004J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:37	BM
Copper, Total	0.00008J	mg/l	0.0005	64 6020A	1206 15:20	1207 20:37	BM
Lead, Total	ND	mg/l	0.0005	64 6020A	1206 15:20	1207 20:37	BM
Blank Analysis for sample(s) 02-04 (WG303985-1)							
Semivolatile Organics by MCP 8270C				64 8270C	1130 14:00	1204 10:19	PS
Acenaphthene	ND	ug/l	5.0				
1,2,4-Trichlorobenzene	ND	ug/l	5.0				
Hexachlorobenzene	ND	ug/l	5.0				
Bis(2-chloroethyl)ether	ND	ug/l	5.0				
2-Chloronaphthalene	ND	ug/l	5.0				
1,2-Dichlorobenzene	ND	ug/l	5.0				
1,3-Dichlorobenzene	ND	ug/l	5.0				
1,4-Dichlorobenzene	ND	ug/l	5.0				
3,3'-Dichlorobenzidine	ND	ug/l	10.				
2,4-Dinitrotoluene	ND	ug/l	5.0				
2,6-Dinitrotoluene	ND	ug/l	5.0				
Azobenzene	ND	ug/l	5.0				
Fluoranthene	ND	ug/l	5.0				
4-Bromophenyl phenyl ether	ND	ug/l	5.0				
Bis(2-chloroisopropyl)ether	ND	ug/l	5.0				
Bis(2-chloroethoxy)methane	ND	ug/l	5.0				
Hexachlorobutadiene	ND	ug/l	10.				
Hexachloroethane	ND	ug/l	5.0				
Isophorone	ND	ug/l	5.0				
Naphthalene	ND	ug/l	5.0				
Nitrobenzene	ND	ug/l	5.0				
Bis(2-Ethylhexyl)phthalate	ND	ug/l	5.0				
Butyl benzyl phthalate	ND	ug/l	5.0				
Di-n-butylphthalate	ND	ug/l	5.0				
Di-n-octylphthalate	ND	ug/l	5.0				
Diethyl phthalate	ND	ug/l	5.0				
Dimethyl phthalate	ND	ug/l	5.0				
Benzo(a)anthracene	ND	ug/l	5.0				

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717675

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02-04 (WG303985-1)							
Semivolatile Organics by MCP 8270C cont'd				64 8270C	1130 14:00	1204 10:19	PS
Benzo(a)pyrene	ND	ug/l	5.0				
Benzo(b)fluoranthene	ND	ug/l	5.0				
Benzo(k)fluoranthene	ND	ug/l	5.0				
Chrysene	ND	ug/l	5.0				
Acenaphthylene	ND	ug/l	5.0				
Anthracene	ND	ug/l	5.0				
Benzo(ghi)perylene	ND	ug/l	5.0				
Fluorene	ND	ug/l	5.0				
Phenanthrene	ND	ug/l	5.0				
Dibenzo(a,h)anthracene	ND	ug/l	5.0				
Indeno(1,2,3-cd)Pyrene	ND	ug/l	5.0				
Pyrene	ND	ug/l	5.0				
Aniline	ND	ug/l	20.				
4-Chloroaniline	ND	ug/l	5.0				
Dibenzofuran	ND	ug/l	5.0				
2-Methylnaphthalene	ND	ug/l	5.0				
Acetophenone	ND	ug/l	20.				
2,4,6-Trichlorophenol	ND	ug/l	5.0				
2-Chlorophenol	ND	ug/l	6.0				
2,4-Dichlorophenol	ND	ug/l	10.				
2,4-Dimethylphenol	ND	ug/l	5.0				
2-Nitrophenol	ND	ug/l	20.				
4-Nitrophenol	ND	ug/l	10.				
2,4-Dinitrophenol	ND	ug/l	30.				
Pentachlorophenol	ND	ug/l	10.				
Phenol	ND	ug/l	7.0				
2-Methylphenol	ND	ug/l	6.0				
3-Methylphenol/4-Methylphenol	ND	ug/l	6.0				
2,4,5-Trichlorophenol	ND	ug/l	5.0				
Surrogate(s)	Recovery		QC Criteria				
2-Fluorophenol	33.0	%	15-110				
Phenol-d6	25.0	%	15-110				
Nitrobenzene-d5	62.0	%	30-130				
2-Fluorobiphenyl	62.0	%	30-130				
2,4,6-Tribromophenol	71.0	%	15-110				
4-Terphenyl-d14	96.0	%	30-130				
Blank Analysis for sample(s) 02-04 (WG303985-1)							
Semivolatile Organics by MCP 8270C Tentatively Identified Compounds				64 8270C	1130 14:00	1204 10:19	PS
No Tentatively Identified Compounds	ND						
Blank Analysis for sample(s) 02-04 (WG304322-1)							
MCP Explosives by EPA 8330 - Primary Column				64 8330A	1204 08:30	1204 17:50	AJ

ALPHA ANALYTICAL LABORATORIES
QUALITY ASSURANCE BATCH BLANK ANALYSIS

Laboratory Job Number: L0717675

Continued

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Blank Analysis for sample(s) 02-04 (WG304322-1)							
MCP Explosives by EPA 8330 - Primary Column cont'd				64 8330A	1204 08:30	1204 17:50	AJ
RDX	ND	ug/l	0.250				
Surrogate(s)	Recovery		QC Criteria				
1,2-Dinitrobenzene	102	%	70-110				

REFERENCES

30. Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

58. Determination of Perchlorate in Drinking Water Using Ion Chromatography. NERL-ORD, U.S. EPA, Cincinnati, OH. Revision 1.0, November 1999. (Additional requirements as defined in MA DEP letter dated February 18, 2004.)

64. Quality Assurance and Quality Control Requirements and Performance Standards for SW-846 Methods. MADEP BWSC. WSC-CAM-IIA (Revision 4), WSC-CAM-V C (Revision 2), WSC-CAM-IIIA (Revision 5). August 2004.

GLOSSARY OF TERMS AND SYMBOLS

REF	Reference number in which test method may be found.
METHOD	Method number by which analysis was performed.
ID	Initials of the analyst.
ND	Not detected in comparison to the reported detection limit.
NI	Not Ignitable.
J	Analyte concentration is below quantitation limit (RDL), but above the Method Detection Limit (MDL). Value is estimated.
H	The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

LIMITATION OF LIABILITIES

Alpha Analytical, Inc. performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical, Inc., shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical, Inc. be held liable for any incidental consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical, Inc.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding times and splitting of samples in the field.

ALPHA ANALYTICAL LABORATORIES
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0717675

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0717675-01A	Vial HCl preserved	A	NA	6.0 C	Y	Absent	SUB-MAN-8260
L0717675-01B	Vial HCl preserved	A	NA	6.0 C	Y	Absent	SUB-MAN-8260
L0717675-02A	Vial HCl preserved	B	NA	3.9 C	Y	Absent	SUB-MAN-8260
L0717675-02B	Vial HCl preserved	B	NA	3.9 C	Y	Absent	SUB-MAN-8260
L0717675-02C	Plastic 250ml unpreserved	B	7	3.9 C	Y	Absent	COND-2510, MCP-HEXCR7196-04
L0717675-02D	Bacteria Cup unpreserved	B	NA	3.9 C	Y	Absent	PERC-314
L0717675-02E	Plastic 250ml HNO3 preserved	B	<2	3.9 C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717675-02F	Amber 1000ml unpreserved	B	7	3.9 C	Y	Absent	MCP-8270-04
L0717675-02G	Amber 1000ml unpreserved	B	7	3.9 C	Y	Absent	MCP-8270-04
L0717675-02H	Amber 1000ml unpreserved	B	7	3.9 C	Y	Absent	8330-HRP, 8330-PH, MCP-8330-HRP
L0717675-02I	Amber 1000ml unpreserved	B	7	3.9 C	Y	Absent	8330-HRP, 8330-PH, MCP-8330-HRP
L0717675-02J	Amber 1000ml unpreserved	B	7	3.9 C	Y	Absent	SUB-MAN-8270SIM
L0717675-02K	Amber 1000ml unpreserved	B	7	3.9 C	Y	Absent	SUB-MAN-8270SIM
L0717675-03A	Vial HCl preserved	C	NA	3.2 C	Y	Absent	SUB-MAN-8260
L0717675-03B	Vial HCl preserved	C	NA	3.2 C	Y	Absent	SUB-MAN-8260
L0717675-03C	Plastic 250ml unpreserved	C	7	3.2 C	Y	Absent	COND-2510, MCP-HEXCR7196-04
L0717675-03D	Bacteria Cup unpreserved	C	NA	3.2 C	Y	Absent	PERC-314
L0717675-03E	Plastic 250ml HNO3 preserved	C	<2	3.2 C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717675-03F	Amber 1000ml unpreserved	C	7	3.2 C	Y	Absent	MCP-8270-04
L0717675-03G	Amber 1000ml unpreserved	C	7	3.2 C	Y	Absent	MCP-8270-04
L0717675-03H	Amber 1000ml unpreserved	C	7	3.2 C	Y	Absent	8330-HRP, 8330-PH, MCP-8330-HRP
L0717675-03I	Amber 1000ml unpreserved	C	7	3.2 C	Y	Absent	8330-HRP, 8330-PH, MCP-8330-HRP
L0717675-03J	Amber 1000ml unpreserved	C	7	3.2 C	Y	Absent	SUB-MAN-8270SIM
L0717675-03K	Amber 1000ml unpreserved	C	7	3.2 C	Y	Absent	SUB-MAN-8270SIM
L0717675-04A	Vial HCl preserved	A	NA	6.0 C	Y	Absent	SUB-MAN-8260
L0717675-04B	Vial HCl preserved	A	NA	6.0 C	Y	Absent	SUB-MAN-8260
L0717675-04C	Plastic 250ml unpreserved	A	7	6.0 C	Y	Absent	COND-2510, MCP-HEXCR7196-04
L0717675-04D	Bacteria Cup unpreserved	A	NA	6.0 C	Y	Absent	PERC-314
L0717675-04E	Plastic 250ml HNO3 preserved	A	<2	6.0 C	Y	Absent	MCP-AS-6020T, MCP-BE-6020T, MCP-CD-6020T, MCP-CU-6020T, MCP-PB-6020T, PREPT
L0717675-04F	Amber 1000ml unpreserved	A	7	6.0 C	Y	Absent	MCP-8270-04
L0717675-04G	Amber 1000ml unpreserved	A	7	6.0 C	Y	Absent	MCP-8270-04
L0717675-04H	Amber 1000ml unpreserved	A	7	6.0 C	Y	Absent	8330-HRP, MCP-8330-HRP
L0717675-04I	Amber 1000ml unpreserved	A	7	6.0 C	Y	Absent	8330-HRP, MCP-8330-HRP

ALPHA ANALYTICAL LABORATORIES
LOGIN SPECIFIC INFORMATION

Laboratory Job Number: L0717675

Continued

Container ID	Container Type	Cooler	pH	Temp	Pres	Seal	Analysis
L0717675-04J	Amber 1000ml unpreserved	A	7	6.0 C	Y	Absent	SUB-MAN-8270SIM --
L0717675-04K	Amber 1000ml unpreserved	A	7	6.0 C	Y	Absent	SUB-MAN-8270SIM

Container Comments

Container ID	Comments

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 11/28/07

ALPHA Job #: L0717675

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell MA, 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: KCormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former GE Wilmington/LMK
Project Location: Wilmington MA
Project #: 107181
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: ☒ Contact PM Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits: Special Project Emerging Chemicals
*Contact Ken Cormier for project Regulatory Requirements 978-656-3562
** Cr+6 is 24hr Holding time

ANALYSIS: VOCs 8260B; Metals; 1,4-Dioxane 8270C; Hex Chrome 7196A**; Perchlorate 314.0**; N-nitrosodimethylamine 1625; Cyclonite (RDX) 8330; Tributyl tin (GC/MS); SVOCs TICs 3510c/8270C

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs	Metals	1,4-Dioxane	Hex Chrome	Perchlorate	N-nitrosodimethylamine	Cyclonite (RDX)	Tributyl tin	SVOCs TICs	Total # Bottles	Sample Specific Comments
17675.1	TB-02	11/26/07	0450 LAB	Aq	SLR	2									2	SEE Project
.2	G2A-10	11/28/07	1030	Aq	CF	2	1	2	1	1	2	2	2	2	15	table 2-2
.3	MW-07	11/28/07	1400	Aq	CF	2	1	2	1	1	2	2	2	2	15	For ALL
.4	TRC-102	11/28/07	1605	Aq	CF	2	1	2	1	1	2	2	2	2	15	Methods /
																Analyses Required

Cooler temperature Blanks

Container Type: V P A P P A A A A
Preservative: B C A A A A A A A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

FORM NO: 01-01 (rev. 30-JUL-07)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/28/07 1955 CF	[signature]	11/28/07 19:55

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

ANALYTICAL REPORT

Prepared for:
Alpha Woods Hole Labs - Westborough
8 Walkup Drive
Westborough, MA 01581

Project:	L0717675 - TRC
ETR:	0711188
Report Date:	January 08, 2008

Certifications and Accreditations
Massachusetts M-MA030
Connecticut PH-0141
New Hampshire 2206
Rhode Island LAO00289
New Jersey MA015
Maine MA0030
New York 11627
Louisiana 03090
Florida E87814
Pennsylvania 68-02089
Army Corps of Engineers
Department of the Navy

This report shall not be reproduced except in full, without written approval from the laboratory.

Sample ID Cross Reference

Client: **Alpha Woods Hole Labs - Westborough**
Project: **L0717675 - TRC**

Lab Code: **MA00030**
ETR: **0711188**

Lab Sample ID	Client Sample ID
0711188-01	TB-02
0711188-02	GZA-10
0711188-03	MW-07
0711188-04	TRC-102

MADEP MCP Analytical Method Report Certification Form

Laboratory Name: Alpha Woods Hole Labs

Project Number: 0711188

Project Location: **MCP RTN #[1]:**

This Form provides certifications for the following data set: [Laboratory Sample ID Number(s)]:

0711188-01 through 0711188-04

Sample Matrices: [Groundwater] **Soil/Sediment** Drinking Water Other:

MCP SW-846 Methods used (as specified in MADEP Compendium of Analytical Methods)
Check all that apply:

8260B (X)	8151A ( )	8330 ( )	6010B ( )	7470A/1A ( )
8270C (X)	8081A ( )	VPH ( )	6020 ( )	9014M[2] ( )
8082 ( )	8021B ( )	EPH ( )	7000 S[3] ( )	Other:

[1] – List Release Tracking Number (RTN), if known.
[2]M – SW-846 Method 9014 or MADEP Physiologically Available Cyanide (PAC) Method.
[3]S – SW-846 Methods 7000 Series. List individual method and analyte.

	An affirmative response to question A, B, C and D is required for "Presumptive Certainty" status.		
A	Were all samples received by the laboratory in a condition consistent with that described on the Chain-of-Custody documentation for the data set?	[Yes]	No[1]
B	Were all QA/QC procedures required for the specified analytical method(s) included in this report followed, including the requirement to note and discuss in a narrative QC data that did not meet appropriate performance standards or guidelines?	[Yes]	No[1]
C	Does the data included in this report meet all the analytical requirements for "Presumptive Certainty", as described in Section 2.0 (a), (b), (c) and (d) of the MADEP document CAM VII A, "Quality Assurance and Quality Control Guidelines for Acquisition and Reporting of Analytical Data"?	[Yes]	No[1]
D	***VPH and EPH methods only***: Was the VPH or EPH method conducted without significant modifications (see Section 11.3 of respective Methods)?	Yes	No[1]
	A response to questions E and F below is required for "Presumptive Certainty" status.		
E	Were all analytical QC performance standards and recommendations for the specified methods achieved?	[Yes]	**No[1]**
F	Were results for all analyte-list compounds/elements for the specified method(s) reported?	**Yes**	[No[1]]

[1] All Negative responses must be addressed in an attached Environmental Laboratory case narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: [signature] **Position:** **Technical Representative**

Printed Name: **Kathleen O'Brien** **Date** **1-8-08**

CASE NARRATIVE
Alpha Woods Hole Labs

ETR: 0711188
Project: L0717675-TRC

All analyses were performed according to Alpha Woods Hole Labs quality assurance program and documented Standard Operating Procedures (SOPs). The analytical results contained in this report were performed within holding time, and with appropriate quality control measures, except where noted. A summary of all state and federal accreditations is provided within this report. Blank correction of results is not performed in the laboratory for any parameter. Alpha Woods Hole Labs certifies that the test results within meet all of the requirements of NELAC, for all NELAC accredited parameters.

Report Submission
This report replaces the report issued on December 27, 2007. The 1,4-Dioxane result for MW-7 (0711188-03) has been amended.

Volatile Organics by 8260

1. Per client request, only a subset of the MCP analyte list for SW-846 Method 8260B Volatile Organic Compounds by GC/MS were reported.

2. The initial calibration had values for compounds outside of the 15% RSD QC advisory limit. Refer to the Form VI Initial Calibration Summary report for specific outliers. This initial calibration meets the acceptability criteria.

3. Sample MW-7 (0711188-03) had Chlorodifluoromethane detected above the calibration range of the instrument. The sample was diluted 1:5 and re-analyzed. Both analyses were reported.

The enclosed results of analyses are representative of the samples as received by the laboratory. Alpha Woods Hole Labs makes no representations or certifications as to the method of sample collection, sample identification, or transporting/handling procedures used prior to the receipt of samples by Alpha Woods Hole Labs. To the best of my knowledge, the information contained in this report is accurate and complete. For any questions regarding this report, please contact the signatory below at 508-822-9300.

Approved by: _____ Title: Technical Representative Date: 1/8/08
Kathleen O'Brien

Chain of Custody Records

AWHL

CHAIN OF CUSTODY PAGE ____ OF ____

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: 071188

Client Information

Client: Alpha Analytical Labs
Address: Westboro, MA
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Peter Henriksen
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/12/07 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria
MCP	GW-1

MA MCP PRESUMPTIVE CERTAINTY---CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Level 5 CLP
See Mary Davis w/ Questions

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: 8260 *	1,4-Dioxane 8270	SAMPLE HANDLING	Sample Specific Comments	TOTAL # BOTTLES
-1	L0717675-01	11/28	1050			X				2
-2	-02	11/28/07	1030			X	X			4
-3	-03	"	1400			X	X			4
-4	-04	"	1605			X	X			4

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	V		A
Preservative	B		A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
Paul Gillett	11/29/07 1605	Paul Gillett	11/29/07 16:55
Paul Gillett	11/29/07 17:45	Luke D. Anderson	11/29/07 17:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/28/07

ALPHA Job #: W17675

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell MA, 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: KCormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: EmerGE Wilmington/LHR
Project Location: Wilmington MA
Project #: 107181
Project Manager: Ken Cormier
ALPHA Quote #: Mary Davis

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/12/07 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: * Contact PM
Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☒ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits: Special Project = EmerGE Chemicals
*Contact Ken Cormier for project Regulatory Requirements 978-656-3362
** Cr+6 is 24hr Holding time

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs 8260C	Metals	1,4 Dioxane 8270C	Hex Chrome 7196A *	Perchlorate 314.0	N-nitrosodimethylamine 1625	Cyclonite (RDX) 8330	Tributyl Tin (Bt/PAH)	SVOCs TICs 3510e/8270C	SAMPLE HANDLING: Filtration ☐ Done ☒ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)	Sample Specific Comments	TOTAL # BOTTLES
W17675-1	TB-02	11/26/07	0450 LAB	Aq	SLR	2										SEE Project	2
2	G2A-10	11/28/07	1030	Aq	CF	2	1	2	1	1	2	2	2	2		table 2-2	15
3	MW-07	11/28/07	1400	Aq	CF	2	1	2	1	1	2	2	2	2		For ALL	15
4	TRC-102	11/28/07	1605	Aq	CF	2	1	2	1	1	2	2	2	2		Methods /	15
																Analyses Required	
	Cooler temperature			Blanks													

Container Type	V	P	A	P	P	A	A	A	A		
Preservative	B	C	A	A	A	A	A	A	A		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	11/28/07 1955	Corey	11/28/07 19:55

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

Sample Delivery Group Form

Laboratory Job No: L0717675 **Client:** TRC

Receipt Date/Time: 11/27/07 19:55 **SDG Reviewer:** CT

Samples Delivered By:

[✓] Alpha Courier [ ] Client [ ] UPS [ ] FedEx [ ] Other _____

Bill of Laden: [ ]Yes [ ] Unavailable Tracking #: _____

Chain of Custody: [✓] Present [ ] Absent: _____

Custody Seals: [✓] Absent [ ] Present/Intact [ ] Present/Broken

Cooler/Sample Temperature:

Is Ice/Blue Ice present? [✓] Yes [ ] No [ ] N/A _____

Temp taken from: Temp Blank:(a) 6°C (b) 3.9°C (c) 3.2°C (d)_____ (e)_____

IR Gun: (a)_____ (b)_____ (c)_____ (d)_____ (e)_____

Was Temp: [ ] 2-6 Celsius

[ ] <2 Celsius ... were samples frozen upon receipt? [ ] Yes [ ] No

[ ] >6 Celsius ... were samples delivered direct from site? [ ] Yes [ ] No

Containers Received: [✓] Intact

[ ] Broken/Leaking Sample IDs: _____

Sample IDs: _____

All Containers Accounted For? [✓] Yes

[ ] No: _____

Extra Samples Received? [✓] No

[ ] Yes: _____

Do Sample Labels and COC agree? [✓] Yes

[ ] No: _____

Are Samples in Appropriate Containers? [✓] Yes

[ ] No: _____

Are samples rec'd within holding time? [✓] Yes

[ ] No: _____

* Please note: the analysis of pH will always be performed beyond the regulatory-required holding time of 15 min. from the time of collection.

pH of samples upon receipt: [ ] N/A [✓] <2 [ ] >12 and/or [✓] 7

Are samples properly preserved? [✓] Yes [ ] No If No then.....:

Initial pH= _____ preserved In-House with [ ] HCL [ ] H_2SO_4 [ ] HNO_3 <<Final pH = _____>>

Other Issues: _____

Chlorine Check: [✓] N/A [ ] Present [ ] Absent

VOA/VPH vials: [✓] Yes [ ] No

Aqueous: vials contain head space? [✓] No [ ] Yes : _____

Soils: MeOH covering soil? [ ] Yes [ ] No : _____

Reagent H_2O Preserved vials Frozen @ date/time: _____

Frozen by Client? [ ] No [ ] Yes @ date/time: _____

Was Client notified of any discrepancies listed above? [ ] Yes [ ] No [ ] N/A

If Yes: Call Tracker # _____

Sample Receipt Checklist

Client: Alpha		**Receipt Date:** 11/29/07	
Project:		**Log-in Date:** 11/30/07	
ETR #: 0711188		**Inspection by:** JJD	**Login by:** W

ALL SECTIONS BELOW MUST BE COMPLETED

Comments / Notes

Were samples shipped? Yes, ~~FedEx / UPS /~~ Other: _____
No, (WHG Courier pick-up) / Hand delivered

Is bill of lading retained? Yes, Tracking #: _____
No, Unavailable / (NA)

Number of coolers received for this project delivery: 1

Indicate cooler temperature upon opening (if multiple coolers, record all temps):

Note: If all coolers are 2-6°C, use one checklist, if NOT, use separate checklists and note all samples received *above* 6°C.

Cooler 1:
Temperature(s) taken from: 3° IR Gun, 1° Temp. Blank, / NA

Were samples received on ice? (Yes) / No

Chain-of-Custody present? (Yes) / No

Complete? ~~Yes~~ (Yes) / (No) MATRIX Not Listed on COC

Custody seals present on Cooler? Yes / (No)

on Bottles? Yes / (No)

Intact? Yes / No / (NA)

Note: Affix custody seals to back of this page.

Were sample containers intact? (Yes) / No If No, list samples: →

Did VOA/VPH waters contain headspace (>5mm)? Yes / No / NA If Yes, list samples: →

Were 5035 VOA soils, or VPH soils, *covered* with MeOH? Yes / No / (NA) If No, list samples: →

Was a sufficient amount of sample received for each test indicated on the COC? Yes / No If No, list samples: →

If chemical preservation is appropriate -
Were samples field preserved? Yes / No / NA

☒ C=HCl ☐ M=MeOH ☐ S=H_2SO4
☐ H=NaOH ☐ N=HNO_3 ☐ Other: _____ ☐ U= Unknown

Chemical preservation OK for ALL samples?

Yes / No / (NA)

If No, list samples below:

Preservation (pH) verified at lab for *EVERY* bottle? (Not: VOA / VPH / Sulfide)

YES: <2 or >12 (CN) or NO NA

If No, why?:

Were samples received within hold time? (Yes) / No If No, list samples: →

Discrepancy between samples rec'd & COC? Yes / No If Yes, list samples: →

Was the Project Manager notified of any other problems? Yes / No / NA

Project Manager Acknowledgement: Date:

Sample storage refrigerator #: C3 VOA

Sample storage freezer #: _____

Cooler 2: _____ Cooler 3: _____

Cooler 4: _____ Cooler 5: _____

Cooler 6: _____ Cooler 7: _____

More: _____

Please use back for any additional notes!

Certificate/Approval Program Summary

Method numbers assume the most recent EPA revisions. For a complete listing of analytes for the referenced methods please contact your Alpha Woods Hole Lab Project Manager or the Quality Assurance Manager.

Connecticut Department of Public Health Certificate/Lab ID : PH-0141 - *Wastewater* (General Chemistry: EPA 120.1, 150.1, 160.1, 160.2, 180.1, 300.0, 310.1, 335.2, 365.2; Metals: 200.8, 245.1; Organics: 608, 624, 625, ETPH) *Solid Waste/Soil* (General Chemistry: 1010, 9010/9014, 9045, 9060; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270, ETPH).

Florida Department of Health Certificate/Lab ID : E87814 - Primary NELAP Accreditation Authority for Air & Emissions. Secondary NELAP Accreditation for Wastwater and Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 335.2, 365.2, SM2320B, SM2340B, SM2540G, SM4500NH3; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: 9010/9014, 9045, 9050, 9056, 9065, Reactivity 7.3; Metals: 6020, 7470, 7471; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Louisiana Department of Environmental Quality Certificate/Lab ID : 03090 - Primary NELAP Accrediting Authority for Wastewater, Solid & Hazardous Waste. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1, 6020; Organics: 608, 624, 625, 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Solid and Hazardous Waste* (General Chemistry: 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060, Reactivity 7.3; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270).

Maine Department of Human Services Certificate/Lab ID : MA0030 - *Wastewater* (General Chemistry: EPA 120.1/ SM2510B, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: 608, 624)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA030 - *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 335.2, 365.2; Metals: EPA 245.1; Organics: EPA 608, 624).

New Hampshire Department of Environmental Services Certificate/Lab ID: 2206 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 365.2, 376.2, SM2540G; Metals: 200.8, 245.4; Organics: 608, 624, 625).

New Jersey Department of Environmental Protection Certificate/Lab ID : MA015 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 180.1, 300.0, 310.1/SM2320B, 335.2, 376.2, 9010/9014, 9056, SM2540G; Metals: 200.8, 245.1 6020; Organics: 608, 624, 625, 8081, 8082, 8260, 8270). *Solid & Hazardous Waste* (General Chemistry: EPA 1010, 1311, 9010/9014, 9040, 9045, 9056, 9060; Metals: 6020, 7196, 7470, 7471; Organics: 8015-DRO/GRO, 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

New York Department of Health Certificate/Lab ID : 11627 - Secondary NELAP Accreditation. *Wastewater* (General Chemistry: EPA 120.1/SM2510B, 150.1, 160.1/SM2540C, 160.2/SM2540D, 300.0, 310.1/SM2320B, 365.2, 376.2; Metals: 245.1; Organics: 608, 624, 625). *Solid and Hazardous Waste* (General Chemistry: EPA 1010, 1311; : 245.1; 6020, 7041; Organics: 8081, 8082, 8260, 8270). *Air & Emissions* (Organics: EPA TO-15).

Rhode Island Department of Health Certificate/Lab ID : LAO00289 - Chemistry: *Organic and Inorganic in Non-Poratable Water, Wastewater/Sewage and Soil* (Refer to LADEQ and MADEP certificates for method numbers.)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-02089 - Registered laboratory

U.S. Army Corps of Engineers

Department of the Navy

Bodycote

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www.bodycote.com
www.bodycotetesting.com

January 2, 2008

Alpha Woods Hole Labs
Westboro, MA
8 Walk Up Dr
Westborough, MA 01581-1019

Attn: Peter Henriksen

Job No: 101135

LO

LABORATORY REPORT

Samples Received: Eight (8) Samples
Date Received: 11/29/2007
Purchase Order No: PAID IN FULL/CK# 73103

The samples were analyzed as follows:

Analysis

Page

Tributyltin by SOP 3200, Rev 6
Environmental Data Package

2
Enclosed*

*Data Package Includes Bodycote Job Numbers 101170 and 101256

Michael Shelton
Senior Staff Chemist

Greg R. Shaw, M.S.
Senior Chemist

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WEST COAST ANALYTICAL SERVICE, INC.

Alpha Woods Hole Labs
Attn: Peter Henriksen

Job No: 101135
January 2, 2008

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717594-1	ND	57
L0717594-2	ND	64
L0717594-3	ND	91
Method Blank	ND	79
Detection Limit	0.1	50 - 150

Date extracted: 12-04-07
Dates analyzed: 12-06-07

Quality Control Summary

Sample ID: L0717594-1

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Duplicate Result	Spike Duplicate % Rec	Spike RPD
Tributyltin	ND	0.475	0.330	69	0.336	71	2

Sample ID: 120407W

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec
Tributyltin	ND	0.470	0.356	76

QC Guidelines

Analyte	% Recovery	RPD Limit
Tributyltin	50 - 150	NMT 30

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www.bodycotetesting.com

January 2, 2008

Alpha Woods Hole Labs
Westboro, MA
8 Walk Up Dr
Westborough, MA 01581-1019

Attn: Peter Henriksen

Job No: 101170

LO

LABORATORY REPORT

Samples Received: Six (6) Samples
Date Received: 11/30/2007
Purchase Order No: PAID IN FULL/CK# 73103

The samples were analyzed as follows:

Analysis	Page
Tributyltin by SOP 3200, Rev 6	2
Environmental Data Package	Enclosed*

*Enclosed with Bodycote Job Number 101135

Michael Shelton
Senior Staff Chemist

Greg R. Shaw, M.S.
Senior Chemist

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Bodycote

WEST COAST ANALYTICAL SERVICE, INC.

Alpha Woods Hole Labs
Attn: Peter Henriksen

Job No: 101170
January 2, 2008

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717679-1	ND	70
L0717679-2	ND	67
L0717679-3	ND	78
Method Blank	ND	90
Detection Limit	0.1	50 - 150

Date extracted: 12-05-07
Dates analyzed: 12-07-07

Quality Control Summary

Sample ID: 120507W

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Duplicate Result	Spike Duplicate % Rec	Spike RPD
Tributyltin	ND	0.521	0.395	76	0.426	82	7

QC Guidelines

Analyte	% Recovery	RPD Limit
Tributyltin	50 - 150	NMT 30

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Westcoast Analytical

CHAIN OF CUSTODY

PAGE_____ OF_____

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 1

ALPHA Job #:

Client Information

Client: Alpha Analytical Labs
Address: 8 Walkup Dr.
Westboro, MA
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Peter Henriksen
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: TPH by 1664

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
mr*	L0717679-01	11/28/07	1030				2
mr	-02	↓	1400				2
mr	-03	↓	1605				2

* 11.30.07 JG: samples will have
-01A, -01B -03A, -03B
-02A, -02B

Container Type: A
Preservative: A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
Kim Bailey UPS	11/28/07 11.30.07	UPS Jennifer Berry cour	11.30.07 1749

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

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January 2, 2008

Alpha Woods Hole Labs
Westboro, MA
8 Walk Up Dr
Westborough, MA 01581-1019

Attn: Peter Henriksen

Job No: 101256

LO

LABORATORY REPORT

Samples Received: Four (4) Samples
Date Received: 12/04/2007
Purchase Order No: PAID IN FULL/CK# 73103

The samples were analyzed as follows:

Analysis	Page
Tributyltin by SOP 3200, Rev 6	2
Environmental Data Package	Enclosed*

*Enclosed with Bodycote Job Number 101135

Michael Shelton
Senior Staff Chemist

Greg R. Shaw, M.S.
Senior Chemist

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Bodycote

WEST COAST ANALYTICAL SERVICE, INC.

Alpha Woods Hole Labs
Attn: Peter Henriksen

Job No: 101256
January 2, 2008

Tributyltin by WCAS SOP 3200 Rev. 6
Gas Chromatography/Flame Photometric Detector

Instrument:	HP 5890 Gas Chromatograph
Detector:	Flame Photometric
Column:	30 m x 0.53 mm DB-5
Column Temp:	100 °C to 250 °C at 10 °C/min
Inj / Det Temp:	250 °C / 250 °C

Parts per Billion (µg/L)

Sample ID	Tributyltin	Surrogate % Recovery Tri-n-propyltin
L0717783-1	ND	62
L0717783-2	ND	78
Method Blank	ND	53
Detection Limit	0.1	50 - 150

Date extracted: 12-06-07
Dates analyzed: 12-07-07

Quality Control Summary

Sample ID: 120507W

Analyte	Sample Result	Spike Conc	Spike Result	Spike % Rec	Spike Duplicate Result	Spike Duplicate % Rec	Spike RPD
Tributyltin	ND	0.521	0.395	76	0.426	82	7

QC Guidelines

Analyte	% Recovery	RPD Limit
Tributyltin	50 - 150	NMT 30

This report is to be reproduced in its entirety.

CHAIN OF CUSTODY

PAGE 1 OF 1

Eight Walk Up Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: ALPHA WOODHOLE LABS
Address: 8 WALK UP DRIVE
WESTBORO, MA 01581
Phone: 508-898-9220
Fax:
Email:
☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: Pete Henrickson
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 12/20/07 Time:

Other Project Specific Requirements/Comments/Detection Limits:

Full Data Deliverable Package Required. J-qualifiers needed.

Date Rec'd in Lab:

ALPHA Job #:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-THESE QUESTIONS MUST BE ANSWERED

☒ Yes	☐ No	Are MCP Analytical Methods Required?
☐ Yes	☒ No	Are Drinking Water Samples Submitted?
☐ Yes	☐ No	Have you met minimum field QC requirements?

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Tributyl Tin	Sample Specific Comments	TOTAL # BOTTLES
	L0717783-01	11/29/07	11:30	GW		X		2
	L0717783-02	11/29/07	16:00	GW		X		2

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP?

FORM NO: 01-01 Internal

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/29/07	UPS	
UPS	12.04.07 0943	Lori Alvino Barycki	12.04.07 0943A

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

#12.04.07 per: ~~Samples are labeled A & B~~ @ CMH 12-4-07
(also have A + B Sample ID ok)

101256

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Narrative

Eight (8) samples were received in eighteen (18) containers according to the schedule given below. The shipping containers were sealed and the seals were intact for job numbers 101135 and 101256. The shipping containers assigned to job number 101170 were not sealed. None of the sample containers were sealed with either tape or custody seals. The temperatures of the samples were either at 3 or 5 °C at time of receipt.

The samples were analyzed for tributyltin according to WCAS SOP 3200 Rev 6.

Sample	Date Sampled	Date Received	WCAS Job No.
L0717594-1*	11-27-07	11-29-07	101135
L0717594-2*	11-27-07	11-29-07	101135
L0717594-3*	11-27-07	11-29-07	101135
L0717679-1**	11-28-07	11-30-07	101170
L0717679-2**	11-28-07	11-30-07	101170
L0717679-3**	11-28-07	11-30-07	101170
L0717783-1**	11-29-07	12-04-07	101256
L0717783-2**	11-29-07	12-04-07	101256

* - Sample containers received labeled: WE-09 L0717594-01A, B, C, D; WE -90 L0717594-02A, B; and Equipment Blank/FB-01 L0717594-03A, B.
** - Samples were received with A and B designations at end of sample identification number.

Sample L0717594-1 (Job number 101135) was designated by the client to be used as the matrix spike and matrix spike duplicate samples. Bodycote used a different Alpha Wood sample for the matrix spike and matrix spike duplicate sample in job numbers 101170 and 101256.

The samples, approximately 1 L, were acidified with HCl, added surrogate spike (tri-n-propyltin chloride/hexane), and extracted with 0.2% tropolone/hexane solution by shaking for approximately two minutes. The lower layer was drained and the organic layer was filtered through rinsed sodium sulfate. This process was repeated twice more and 30 mL of hexane was also passed through the rinsed sodium sulfate and added to the sample solutions. The sample solutions were concentrated to less than 2 mL, using a heated water bath, cooled, drained and diluted to a final volume of 2 mL with 0.2% tropolone/hexane. The diluted solutions were transferred to vials and analyzed using GC/FPD. Calibration standards were prepared using 0.2% tropolone/hexane, which were then put through the entire derivatization, extraction and analysis.

Injections 12 and 25 were not used due to bad injections. The injections were reanalyzed in injections 14 and 26. A different Alpha Woods job was used to report the quality summary data for job numbers 101170 and 101256.

Entries have been redacted to protect the confidential nature of other client's data. This data is not part of this study and will not be discussed further in this data package.

No other problems were encountered with the analysis.

Westcoast Analytical

CHAIN OF CUSTODY

PAGE ____ OF ____

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/27

ALPHA Job #:

Client Information

Client: Alpha Analytical

Address:

Phone:

Fax:

Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:

Project Location: MA

Project #:

Project Manager: Peter Henriksen

ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: Tributyl Tin

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
1	L0717594 - 1	11/27	1300	GW		MS/MSD	4
	2	↓	1600	↓			2
	3	↓	1530	↓			2
	11-29-07 ADD:						
	* SAMPLES ICVd. as:						
	WE-01 L0717594-01 A, B, C, D						
	WE-02 L0717594-02 A, B						
	Equipment Blank FB-01 L0717594-03 A, B						

Container Type: A

Preservative: A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
UPS	11/27 11/28/07 1430	UPS	11/28/07 11/29/07 8:44

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

101195

FORM NO: 01-01 (rev. 30-JUL-07)

Westcoast Analytical

CHAIN OF CUSTODY PAGE ____ OF ____

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 1

ALPHA Job #:

Client Information

Client: Alpha Analytical Labs
Address: 8 Walkup Dr. Westboro, MA
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Peter Henriksen
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: TCL/Butyl Tin

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
*	L0717679-01	11/28/07	1030				2
	-02	↓	1400				2
	-03	↓	1605				2

* 11-30-07 JC samples will have -01A, -01B -03A, -03B -02A, -02B

Container Type: A
Preservative: A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
Kim LBarley UPS	11/28/07 11:30-07	UPS Jean Bixby cust	11 30 07 1174S

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

West Coast Analytical

CHAIN OF CUSTODY

PAGE 1 OF 1

Eight Walk Up Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: ALPHA WOODHOLE LABS
Address: 8 WALK UP DRIVE
WESTBORO, MA 01581
Phone: 508-898-9220
Fax:
Email:

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: Pete Henrickson
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 12/20/07 Time:

Other Project Specific Requirements/Comments/Detection Limits:

Full Data Deliverable Package Required. J-qualifiers needed.

Date Rec'd in Lab:

ALPHA Job #:

Report Information — Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-THESE QUESTIONS MUST BE ANSWERED

☒ Yes	☐ No	Are MCP Analytical Methods Required?
☐ Yes	☒ No	Are Drinking Water Samples Submitted?
☐ Yes	☐ No	Have you met minimum field QC requirements?

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Tributyl Tin	SAMPLE HANDLING	TOTAL # BOTTLES
	L0717783-01	11/29/07	11:30	GW		X		2
	L0717783-02	11/29/07	16:00	GW		X		2

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

Container Type
Preservative

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT MCP?

FORM NO: 01-01 Internal

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/29/07	UPS	
UPS	12.04.07 0943	[signature] Barycz	12.04.07 0943A

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

*12 04 07 @ 0943A per Cmh, 12-4-07 ~~Samples are labeled A & B~~ (also have A & B Sample ID ok)

101256

Bodycote TESTING GROUP

Environmental Receiving Form

Page 1 of 1

Company: Alpha ~~Analytical~~ Woods Hole @12901665 Sampler indicated: Y / (N)

Shipping container sealed? (Y) / N / NA Tape / Custody Seal Intact / Broken Signed / Unsigned

Temperature 3 °C Avg. IR Scan / Temperature Blank ID: 167 Note:

Samples sealed? Y / (N) Tape / Custody Seal Intact / Broken Signed / Unsigned

Sampling Date(s) present? (Y) / N Sampling Time(s) present? (Y) / N Note:

All samples received within hold time? (Y) / N Note:

Sample Identification	Test(s)	Container Type*	Container Correct?	Preservation pH	Preservation Correct?	Notes
L0717594-1	TBT	(4) amb gl	(Y) / N	Not tested	Y / N	
↓ -2	↓	(2) ↓	(Y) / N	↓	Y / N	
↓ -3	↓	(2) ↓	(Y) / N	↓	Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	

Radioactivity Reading: 17 Avg. CPM ID: 50053 Note:

Notes:

FOR ANY PROBLEMS OR DISCREPANCIES - Client Contact Notes

Contact: _____ from _____ on ____ / ____ / ____ at _____ am / pm

CT Completed by Kristin Bowers on 11 / 29 / 01 at 9:44 (am) / pm Job No. 101135

* Glass = G, Plastic = P, Amber = Amb, Clear = Cl, 40 mL VOA = VOA

Bodycote TESTING GROUP — Environmental Receiving Form

Company: Alpha Woods Hole — Sampler indicated: Y / (N)

Shipping container sealed? Y / N / (NA) Tape / Custody Seal Intact / Broken Signed / Unsigned

Temperature 5 °C Avg. IR Scan / (Temperature Blank) ID: 167 Note:

Samples sealed? Y / (N) Tape / Custody Seal Intact / Broken Signed / Unsigned

Sampling Date(s) present? (Y) / N Sampling Time(s) present? (Y) / N Note:

All samples received within hold time? (Y) / N Note:

Sample Identification	Test(s)	Container Type*	Container Correct?	Preservation pH	Preservation Correct?	Notes
Lot 17679-01	TBT	(2) amge	(Y) / N	not tested	Y / N	
-02	↓	(2)	(Y) / N	↓	Y / N	
↓ -03	↓	(2) ↓	(Y) / N	↓	Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	

Radioactivity Reading: 13 Avg. CPM ID: 50853 Note:

Notes:

FOR ANY PROBLEMS OR DISCREPANCIES - Client Contact Notes

Contact: _____ from _____ on ___ / ___ / ___ at _____ am / pm

Completed by [signature] on 11 / 30 / 07 at 9:48 (am) / pm Job No. 101170

* Glass = G, Plastic = P, Amber = Amb, Clear = Cl, 40 mL VOA = VOA

Bodycote TESTING GROUP — Environmental Receiving Form

Page 1 of 1

Company: Alpha Woods Hole — Sampler indicated: Y / (N)

Shipping container sealed? (Y) / N / NA — Tape / Custody Seal — Intact / Broken — Signed / (Unsigned)

Temperature 5 °C Avg. — IR Scan / Temperature Blank — ID: 44 — Note:

Samples sealed? Y / (N) — Tape / Custody Seal — Intact / Broken — Signed / Unsigned

Sampling Date(s) present? (Y) / N — Sampling Time(s) present? (Y) / N — Note:

All samples received within hold time? (Y) / N — Note: Notify of arrival as 2 days left on HT

Sample Identification	Test(s)	Container Type*	Container Correct?	Preservation pH	Preservation Correct?	Notes
L0717783-01 A	TBI	amg	(Y) / N	not tested	Y / N	
-01 B			(Y) / N		Y / N	
-02 A			(Y) / N		Y / N	
-02 B			(Y) / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	
			Y / N		Y / N	

Radioactivity Reading: 16 Avg. CPM ID: 50853 Note:

Notes:

FOR ANY PROBLEMS OR DISCREPANCIES - Client Contact Notes

Contact: _____ from _____ on ___/___/___ at _____ am / pm

Completed by [signature] on 2/04/07 at 9:43 (am) / pm

Job No. 101256

* Glass = G, Pl... Clear = Cl, 40 mL VOA = VOA

Westcoast Analytical

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 11/27

ALPHA Job #:

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Alpha Analytical

Address:

Phone:

Fax:

Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:

Project Location: MA

Project #:

Project Manager: Pete Henriksen

ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ANALYSIS: Tributyl Tin

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
*	L0717594 - 1	11/27	1300	GW		MS/MSD	4
	2	↓	1600	↓			2
	3	↓	1530	↓			2
	11-24-07 @ 0830						
	* samples rcvd. as:						
	WE-01 L0717594-01 A, B, C, D						
	WE-90 L0717594-02 A, B						
	Equipment Blank/ FR-01 L0717594-03 A, B						

Container Type: A

Preservative: A

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
UPS	11/27 11/28/07 1430	UPS	11/28/07 11:29-01 A9:44

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

101135

FORM NO: 01-01 (rev. 30-JUL-07)

SOUTHWEST RESEARCH INSTITUTE®

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Chemistry and Chemical Engineering Division
Department of Analytical & Environmental Chemistry

December 18, 2007

Alpha Analytical Labs
8 Walkup Drive
Westborough, MA 01580
Tel. 508-439-5171

Attention: Mary Davis

Subject: Reports of NDMA/ DMN Analysis for 20 Water Samples by HRGC/HRMS

SwRI Project #: 01.12700.08.007
SwRI Task Orders: 071130-2, 071203-4, 071203-5

Dear Mary:

Enclosed please find the PDF scan file of full analytical report and data package of NDMA/DMN analysis for 20 water samples by HRGC/HRMS method.

Southwest Research Institute appreciates the opportunity to provide the service to Alpha Analytical Labs. If you have any questions, please do not hesitate to call me at 210-522-3954.

Sincerely,

Gang Sun, Ph.D.
Principal Scientist

APPROVAL:

FOR Reza Karimi, Ph.D.
Director

010001

CLIENT: Alpha Analytical Laboratory
SwRI PROJECT: 01.12700.08.007
TASK ORDER: 071130-2, 071203-4, 071203-5

NARRATIVE

(Alpha Lab-NDMA-9-HR)

Client: Alpha Analytical Labs
SDG: 314397, 314437, 314465
SwRI Project Number: 12700.08.007
SwRI Task Order Number: 071130-2, 071203-4, 071203-5

Narrative
Alpha Analytical
SRR: 31658, 31666, 31668
TO: 071130-2, 071203-4, 071203-5
SDG: 314397, 314437, 314465
12/16/07

Saved as:
Alpha_sdg314397_314437_314465(NDMA)_liquid.doc
in:
w:\Envchem\Gourley, Chris\Narratives\Alpha Analytical

Client: Alpha Analytical Labs
SDG: 314397, 314437, 314465
SwRI Project Number: 12700.08.007
SwRI Task Order Number: 071130-2, 071203-4, 071203-5

NDMA ANALYSIS

Samples were analyzed for N-Nitrosodimethylamine and N-Nitrodimethylamine. The instrument used was a Waters AutoSpec high-resolution gas chromatograph/high-resolution mass spectrometers (HRGC / HRMS), operated at 8000 resolution power throughout the analysis. The analytical column used was a Restek DB-1701 (60 m, 0.32 mm ID, 0.25 µm film thickness).

Sample extraction holding time is seven (7) days from CED. Analytical holding time is thirty (30) days from extraction. All samples met both the extraction and analytical holding times for this project.

Samples are reported on an as-received basis.

The initial calibration met the QC requirement of ≤ 20 % relative standard deviation (RSD) for unlabeled standards and labeled standards. The continuing calibration met the Quality Control (QC) criteria of ≤ 20 % difference (D) for native and labeled compounds. Sample quantitations are based on the mean RRF from the corresponding ICAL. The CRQL was based on a concentration of 10.0 pg/µL.

Each sample, extraction blank, laboratory control sample (LCS), and laboratory-fortified blank (LFB) was spiked with 20 µL internal standard mixture at the beginning of extraction. The composition of this PCDD/PCDF internal standard mixture was as follows:

N-Nitrosodimethylamine-d6	250 pg/µL
N-Nitrodimethylamine –d6	250 pg/µL

The LCS was spiked with 20 µL of the following spiking solution:

N-Nitrosodimethylamine	250 pg/µL
N-Nitrodimethylamine	250pg/µL

The LFB was spiked with 40 µL of the following spiking solution:

N-Nitrosodimethylamine	25 pg/µL
N-Nitrodimethylamine	25 pg/µL

Client: Alpha Analytical Labs
SDG: 314397, 314437, 314465
SwRI Project Number: 12700.08.007
SwRI Task Order Number: 071130-2, 071203-4, 071203-5

Prior to analysis, each sample, blank, MS/MSD, LCS, and LFB was spiked with 5.0 µL of recovery standard (1,2-dichlorobenzene-d4 1000 pg/µL spike soln.).

The blank was found to be free of target analytes above the CRQL.

All internal standards were within the QC limits of 10-100 % (advisory).

Spike recoveries for the LCS were all within the QC limits of 70-130 % for all compounds.

Spike recoveries for the LFB were within the QC limits of 70-130% for all compounds.

Three types of detection limits are reported.

a. CRQL (derived from CLP's contract required quantitation limits). CRQL was calculated based on the concentration of the lowest point calibration standard, final extract volume, sample size, and % dry weight (if applicable).

Possible qualifiers:

U Target compound not detected.
J Target compound found at the concentration below the calibration range.
E Target compound found at the concentration above the calibration range.
D Target compound concentration reported based on dilution analysis that brought the concentration within calibration range.

Sample Calculations:

Positive result

Sample: L0717593-1
Lab ID: 314397
Analyte: N-Nitrosodimethylamine
$Response_{(NAT)}$: 2111.933
$Response_{(IS)}$: 47947.938

Native RRF: 0.777
IS Conc.: 50 pg/µL
Sample Vol: 1.00 L
Extract Vol: 100 µL
Dilution Factor: 1

Client: Alpha Analytical Labs
SDG: 314397, 314437, 314465
SwRI Project Number: 12700.08.007
SwRI Task Order Number: 071130-2, 071203-4, 071203-5

$$Conc(pg/\mu L) = \frac{(Area_{Nat})(Conc_{IS})}{(Area_{IS})(RRF_{Nat})} = \frac{(2111.933)(50)}{(47947.938)(0.777)} = 2.83\,pg/\mu L$$

$$Conc(ng/L) = \frac{(Conc_{pg/\mu L})(Vol_{Ext})(DilutionFactor)(1ng)}{(SampleVol)(1000\,pg)} = \frac{(2.83\,pg/\mu L)(100\mu L)(1)}{(1.00L)} = 0.283ng/L$$

"I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature. This report shall not be reproduced except in full, without the written approval of SwRI."

Manager **Date**

010005

CLIENT: Alpha Analytical Laboratory
SwRI PROJECT: 01.12700.08.007
TASK ORDER: 071130-2, 071203-4, 071203-5

WORK ORDER AND CHAIN OF CUSTODY

Southwest Research Institute

Laboratory Task Order

TO #: 071130-2 Revision: 0

SDG: 314397

SRR #'s: 31658
Client(s): Alpha Analytical Labs

Project(s): 12700.08.007
Manager(s): SUN, GANG
To PM: 12/18/07
To QA: 12/19/07
To Client: 12/20/07

010008

Instructions

Documents Related to this task order: 36092[COC for SRR 31658], 31022[pricing], 31081[signed price quote], 31240[signed price quote]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: NDMA-EXT
Section: EXTLAB

Holding: 7 days from CED
EXTRACTION FOR NDMA - HIGH RES

Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
314397		1	Water	L0717593-1	27 Nov 07	04 Dec 07
314398	MS	1	Water	L0717593-1 MS	27 Nov 07	04 Dec 07
314399	MSD	1	Water	L0717593-1 MSD	27 Nov 07	04 Dec 07
314400		1	Water	L0717593-2	27 Nov 07	04 Dec 07
314401		1	Water	L0717593-3	27 Nov 07	04 Dec 07

Test: NDMA-HR
Section: DIOXIN

Holding: 40 days from VTSR
HIGH RES ANALYSIS FOR NDMA

Cnt: 5

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
314397		1	Water	L0717593-1	29 Nov 07	08 Jan 08
314398	MS	1	Water	L0717593-1 MS	29 Nov 07	08 Jan 08
314399	MSD	1	Water	L0717593-1 MSD	29 Nov 07	08 Jan 08
314400		1	Water	L0717593-2	29 Nov 07	08 Jan 08
314401		1	Water	L0717593-3	29 Nov 07	08 Jan 08

Southwest Research

CHAIN OF CUSTODY

PAGE ___ OF ___

Date Rec'd in Lab: 11/27

ALPHA Job #:

ALPHA ANALYTICAL
WESTBORO, MA — TEL: 508-898-9220 — FAX: 508-898-9193
MANSFIELD, MA — TEL: 508-822-9300 — FAX: 508-822-3288

Client Information

Client: Alpha Analytical

Address:

Phone:

Fax:

Email:

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:

Project Location: MA

Project #:

Project Manager: Peter Hennessy

ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

Attn. Gary Sun

ANALYSIS: NDMA

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	# of Bottles
L0717593-1		11/27	1300	GW		MS/MSD	4
2			1600				2
3			1530				2

Client: Alpha Analytical
SRR #31658
Project #12700.06.007
VTSR: 11/29/07 1000
Case: MA
Sample(s) Received Intact
Temp. 3.0 °C/#027

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type: A

Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
	11/27 1430		11/28/07
			11/29/07 1000

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms See reverse side.

FORM NO. 01-01 (rev. 30-JUL-07)

010007

Southwest Research Institute

Laboratory Task Order

TO #: 071203-4 Revision: 0

SDG: 314437

SRR #'s: 31666
Client(s): Alpha Analytical Labs

Project(s): 12700.08.007
Manager(s): SUN, GANG
To PM: 12/19/07
To QA: 12/20/07
To Client: 12/21/07

010008

Instructions

Documents Related to this task order: 36152[COC for SRR 31666], 31022[pricing], 31081[signed price quote], 31240[signed price quote]

Deliverables --> Hard Copy: no EDD: -YES- PDF: -YES-

Test: NDMA-EXT
Section: EXTLAB

Holding: 7 days from CED
EXTRACTION FOR NDMA - HIGH RES

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
314437		1	Water	L0717677-01	28 Nov 07	05 Dec 07
314438		1	Water	L0717677-02	28 Nov 07	05 Dec 07
314439		1	Water	L0717677-03	28 Nov 07	05 Dec 07

Test: NDMA-HR
Section: DIOXIN

Holding: 40 days from VTSR
HIGH RES ANALYSIS FOR NDMA

Cnt: 3

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
314437		1	Water	L0717677-01	30 Nov 07	09 Jan 08
314438		1	Water	L0717677-02	30 Nov 07	09 Jan 08
314439		1	Water	L0717677-03	30 Nov 07	09 Jan 08

Southwest Research Institute

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab:

ALPHA Job #:

ALPHA
WESTBORO, MA TEL 508-898-9220 FAX 508-898-9193
MANSFIELD, MA TEL 508-822-9300 FAX 508-822-3288

Client Information

Client: Alpha Analytical Labs
Address: 8 Walkup Dr
Westboro, MA
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location: MA
Project #:
Project Manager: Peter Henriksen
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY — CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: VOMA (5 in Hg Sodium Bisulfate)	SAMPLE HANDLING: Filtration ☐ Done ☐ Not needed ☐ Lab to do; Preservation ☐ Lab to do	TOTAL # BOTTLES	Sample Specific Comments
	L0717677-01	11/28/07	1030			X		2	
	-02	↓	1400			9		2	
	-03	↓	1605			9		2	

Client: Alpha Analytical
SRR #31666
Project #12700.08.007
VTSR: 11/30/07 0845
Case: MA
Sample(s) Received Intact
Temp.: 3.0 °C/#027

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

	Container Type	Preservative	Relinquished By:	Date/Time	Received By:	Date/Time
	A	A	Tim Bailey	11/28/07		11/30/07 0845

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 30-JUL-07)

010009

Southwest Research Institute

Laboratory Task Order

TO #: 071203-5 Revision: 0

SDG: 314465

SRR #'s: 31668
Client(s): Alpha Analytical Labs

Project(s): 12700.08.007
Manager(s): SUN, GANG
To PM: 12/19/07
To QA: 12/20/07
To Client: 12/21/07

010010

Instructions

Documents Related to this task order: 31022[pricing], 31081[signed price quote], 31240[signed price quote]

Deliverables --> Hard Copy: no EDD: no PDF: -YES-

Test: NDMA-EXT
Section: EXTLAB

Holding: 7 days from CED
EXTRACTION FOR NDMA - HIGH RES

Cnt: 12

System ID	Type	Cont	Matrix	Customer ID	CED	Method Date
314465		1	GW	L0717782-01	29 Nov 07	06 Dec 07
314466		1	GW	L0717782-02	29 Nov 07	06 Dec 07
314467		1	GW	L0717801-01	27 Nov 07	04 Dec 07
314468		1	GW	L0717801-02	27 Nov 07	04 Dec 07
314469		1	GW	L0717801-03	28 Nov 07	05 Dec 07
314470		1	GW	L0717801-04	28 Nov 07	05 Dec 07
314471		1	GW	L0717801-05	28 Nov 07	05 Dec 07
314472		1	GW	L0717801-06	28 Nov 07	05 Dec 07
314473		1	GW	L0717801-07	28 Nov 07	05 Dec 07
314474		1	GW	L0717801-08	28 Nov 07	05 Dec 07
314483		1	GW	L0717801-03 MS	28 Nov 07	05 Dec 07
314484		1	GW	L0717801-03 MSD	28 Nov 07	05 Dec 07

Test: NDMA-HR
Section: DIOXIN

Holding: 40 days from VTSR
HIGH RES ANALYSIS FOR NDMA

Cnt: 12

System ID	Type	Cont	Matrix	Customer ID	VTSR	Method Date
314465		1	GW	L0717782-01	01 Dec 07	10 Jan 08
314466		1	GW	L0717782-02	01 Dec 07	10 Jan 08
314467		1	GW	L0717801-01	01 Dec 07	10 Jan 08
314468		1	GW	L0717801-02	01 Dec 07	10 Jan 08
314469		1	GW	L0717801-03	01 Dec 07	10 Jan 08
314470		1	GW	L0717801-04	01 Dec 07	10 Jan 08
314471		1	GW	L0717801-05	01 Dec 07	10 Jan 08
314472		1	GW	L0717801-06	01 Dec 07	10 Jan 08
314473		1	GW	L0717801-07	01 Dec 07	10 Jan 08
314474		1	GW	L0717801-08	01 Dec 07	10 Jan 08
314483		1	GW	L0717801-03 MS	01 Dec 07	10 Jan 08
314484		1	GW	L0717801-03 MSD	01 Dec 07	10 Jan 08

Southwest Research Institute

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab:

ALPHA Job #:

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Alpha Analytical
Address:
Phone:
Fax:
Email:
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: R. Henrickson
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: 12/20 Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☒ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria:

MA MCP PRESUMPTIVE CERTAINTY---CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Level 5 + CLP Data pkg Required.
J Qualifiers needed

ANALYSIS: NDMA

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Sample Specific Comments	TOTAL # BOTTLES
L0717801	-01	11/27	1343	GW			2
	02	↓	1415				2
	03	11/28	0803			Run MS/MSD on this sample	2
	04		1015				2
	05		1136				2
	06		1350			Limited Sample Volume	1
	07		1527				2
	08	↓	1555				2

L0717801

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
	11/29/07		12/1/07 12:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO 01-01 (rev. 30-JUL-07)

Southwest Research Institute

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA

Eight Walk Up Drive Westborough, MA 01581
TEL: 508-898-9220 FAX: 508-898-9193

Client Information

Client: ALPHA WOODHOLE LABS
Address: 8 WALK UP DRIVE
WESTBORO, MA 01581
Phone: 508-898-9220
Fax:
Email:

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name:
Project Location:
Project #:
Project Manager: Pete Henrickson
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 12/20/07 Time:

Other Project Specific Requirements/Comments/Detection Limits:

Full Data Deliverable Package Required. J-qualifiers needed. Attn: Mr. Gang Sun.

Date Rec'd in Lab:

ALPHA Job #:

Report Information — **Data Deliverables**

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

MCP PRESUMPTIVE CERTAINTY-THESE QUESTIONS MUST BE ANSWERED

☒ Yes	☐ No	Are MCP Analytical Methods Required?
☐ Yes	☒ No	Are Drinking Water Samples Submitted?
☐ Yes	☐ No	Have you met minimum field QC requirements?

ANALYSIS

NDMA

SAMPLE HANDLING
Filtration
☐ Done
☐ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	NDMA	TOTAL # BOTTLES
	L0717782-01	11/29/07	11:30	GW		X	2
	L0717782-02	11/29/07	16:00	GW		X	2

0100 12

Container Type
Preservative

QUESTIONS ABOVE MUST BE ANSWERED FOR PRESUMPTIVE CERTAINTY

IS YOUR PROJECT **MCP?**

Relinquished By:	Date/Time	Received By:	Date/Time
	11/29/07		12/1/07 1223

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01 (rev. 1)

CLIENT: Alpha Analytical Laboratory
SwRI PROJECT: 01.12700.08.007
TASK ORDER: 071130-2, 071203-4, 071203-5

010013

ANALYTICAL DATA REPORT SHEETS

010014

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717593-1**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314397	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.3 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010015

Southwest Research Institute

Matrix Spike Recovery Report

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1 L
Lynx Sample #:	**L0717593-1 MS**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314398	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Compared Sample #:	**L0717593-1**
Reporting Date:	12/18/2007		

ANALYTE	CAS #	Spike	Result	MS recovery
N-Nitrosodimethylamine	62-75-9	5 ng/L	4.93 ng/L	**93%**
N-Nitrodimethylamine	4164-28-7	5 ng/L	3.80 ng/L	**76%**

010016

Southwest Research Institute

Matrix Spike Recovery Report

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1 L
Lynx Sample #:	**L0717593-1 MSD**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314399	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Compared Sample #:	**L0717593-1**
Reporting Date:	12/18/2007		

ANALYTE	CAS #	Spike	Result	MS recovery
N-Nitrosodimethylamine	62-75-9	5 ng/L	4.54 ng/L	**85%**
N-Nitrodimethylamine	4164-28-7	5 ng/L	4.26 ng/L	**85%**

010017

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717593-2**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314400	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.5 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010018

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717593-3**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071130-2/314401	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	11/29/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.4 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010019

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717677-01**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-4/314437	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	11/30/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	**54.0 ppt**	
N-Nitrodimethylamine	4164-28-7	**56.4 ppt**	

010020

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717677-02**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-4/314438	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	11/30/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.5 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010021

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717677-03**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-4/314438	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	11/30/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010022

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717782-01**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314465	Analytical Method:	TAP-01-0403-015
Collection Date:	11/29/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	**1.6 ppt**	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010023

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717782-02**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314466	Analytical Method:	TAP-01-0403-015
Collection Date:	11/29/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010024

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717801-01**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314467	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010025

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717801-02**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314468	Analytical Method:	TAP-01-0403-015
Collection Date:	11/27/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.6 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010026

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717801-03**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314469	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.4 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010027

Southwest Research Institute

Matrix Spike Recovery Report

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1 L
Lynx Sample #:	**L0717801-03 MS**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314483	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Compared Sample #:	**L0717801-03**
Reporting Date:	12/18/2007		

ANALYTE	CAS #	Spike	Result	MS recovery
N-Nitrosodimethylamine	62-75-9	5 ng/L	4.92 ng/L	**91%**
N-Nitrodimethylamine	4164-28-7	5 ng/L	4.00 ng/L	**80%**

010028

Southwest Research Institute

Matrix Spike Recovery Report

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1 L
Lynx Sample #:	**L0717801-03 MSD**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314484	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Compared Sample #:	**L0717801-03**
Reporting Date:	12/18/2007		

ANALYTE	CAS #	Spike	Result	MS recovery
N-Nitrosodimethylamine	62-75-9	5 ng/L	4.75 ng/L	**88%**
N-Nitrodimethylamine	4164-28-7	5 ng/L	3.82 ng/L	**76%**

010029

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717801-04**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314470	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010030

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	1000 mL
Lynx Sample #:	**L0717801-05**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314471	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	**0.7 ppt**
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

010031

Southwest Research Institute

Analytical Data Report Sheet

SwRI Project #:	01.12700.08.007	Sample Matrix:	Water
Sponsor:	Alpha Analytical Labs	Sample Volume:	910 mL
Lynx Sample #:	**L0717801-06**	Final Extract Volume:	0.1 mL
SwRI TO#-ID:	071203-5/314472	Analytical Method:	TAP-01-0403-015
Collection Date:	11/28/2007	Reporting Limit:	1 ppt
Receiving Date:	12/01/2007	Method Detect Limit:	0.4 ppt for NDMA
Extraction Date:	12/04/2007		0.3 ppt for DMN
Analysis Date:	12/12/2007	Matrix Spike Recov.:	NDMA 86%
Reporting Date:	12/18/2007		DMN 81%

ANALYTE	CAS #	Result	J-Value
N-Nitrosodimethylamine	62-75-9	< 1 ppt	
N-Nitrodimethylamine	4164-28-7	< 1 ppt	

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: October 31, 2008

Subject: 1,4-Dioxane Data Validation Review for October 2008 Groundwater Samples; Former General Electric Site/Wilmington, Massachusetts Emerging Chemicals Investigation

SUMMARY

Limited validation was performed on the data for four groundwater samples (including one field duplicate pair) and one equipment blank collected at the Former General Electric Site in Wilmington, Massachusetts. The samples were collected on October 14, 15, and 16, 2008 and submitted to Alpha Woods Hole Labs (Alpha) in Mansfield, Massachusetts for analysis. The samples were analyzed for 1,4-dioxane using SW-846 method 8270C with selective ion monitoring (SIM). Alpha reported the results under job number L0815343 (0810079).

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (10/99). Modification of the Functional Guidelines was done to accommodate the non-CLP methodology and requirements outlined in the Work Plan for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater, Addendum A, dated September 2008.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Qualification of the data was not required.

SAMPLES

Samples included in this review are listed below:

EMW-11R2	MW-901 (field duplicate of EMW-11R2)	IP-4R3	IP-1R2
EB-01 (equipment blank)			

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

All samples were prepared and analyzed within the method-specified holding time. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks

1,4-Dioxane was not detected in the laboratory method blank or equipment blank (EB-01).

Surrogate Spike Recoveries

All criteria were met.

MS/MSD Results

Sample IP-4R3 was submitted for MS/MSD analyses with this sample set. All recoveries and relative percent differences (RPDs) were within the acceptance limits.

LCS Results

An LCS and LCS Duplicate were prepared with the samples; all recovery and RPD criteria were met.

Field Duplicate Results

Samples EMW-11R2 and MW-901 were submitted as a field duplicate pair with this sample set. The following table summarizes the RPD of the 1,4-dioxane detection, which was within the acceptance criteria.

Compound	EMW-11R2 (µg/L)	MW-901 (µg/L)	RPD (%)
1,4-Dioxane	21.6	21.8	0.92

Quantitation Limits and Sample Results

The laboratory met the required quantitation limits for all samples. There were no dilutions performed on any samples in this data set.

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: October 31, 2008

Subject: Perchlorate Data Validation Review for October 2008 Groundwater Samples; Former General Electric Site/Wilmington, Massachusetts Emerging Chemicals Investigation

SUMMARY

Limited validation was performed on the data for seven groundwater samples (including one field duplicate pair) and one equipment blank collected at the Former General Electric Site in Wilmington, Massachusetts. The samples were collected on October 14, 15, and 16, 2008 and submitted to Alpha Woods Hole Labs (Alpha) in Westborough, Massachusetts for analysis. The samples were analyzed for perchlorate using EPA method 332.0. Alpha reported the results under job number L0815343.

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (07/02). Modification of the Functional Guidelines was done to accommodate the non-CLP methodology and requirements outlined in the Work Plan for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater, Addendum A, dated September 2008.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Qualification of the data was not required.

SAMPLES

Samples included in this review are listed below:

EMW-11R2	MW-901 (field duplicate of EMW-11R2)	GZA-10	MW-07
TRC-102	GZA-103R1	WE-9	EB-01 (equipment blank)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Laboratory control sample (LCS) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

All samples were prepared and analyzed within the method-specified holding time.. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks

Target analytes were not detected in the laboratory method blank and equipment blank (EB-01).

MS Results

Sample TRC-102 was submitted for MS analysis with this sample set. The recovery of perchlorate was within the acceptance criteria.

Laboratory Duplicate Results

Laboratory duplicate analyses were performed on sample TRC-102. Perchlorate was not detected in the original or duplicate analyses.

LCS Results

An LCS was prepared with the samples; all criteria were met.

Field Duplicate Results

Samples EMW-11R2 and MW-901 were submitted as a field duplicate pair with this sample set. Perchlorate was not detected in the original or duplicate analyses.

Quantitation Limits and Sample Results

The laboratory met the required quantitation limits for all samples. There were no dilutions performed on any samples in this data set.

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-01
EMW-11R2.10.14.08
Sample Matrix: WATER

Date Collected: 14-OCT-2008 15:45
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber,2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71	332.0		1022 20:04	AJ
Perchlorate	ND	ug/l	0.050					
1,4-Dioxane by 8270				1	8270	1021 00:00	1026 17:42	JS
1,4-Dioxane	21600	ng/l	500					
Surrogate(s)	Recovery		QC Criteria					
1,4-Dioxane-d8	44.0	%	15-110					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-02
MW-901.10.14.08
Sample Matrix: WATER

Date Collected: 14-OCT-2008 17:45
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber,2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71	332.0		1022 20:30	AJ
Perchlorate	ND	ug/l	0.050					
1,4-Dioxane by 8270				1	8270	1021 00:00	1026 18:18	JS
1,4-Dioxane	21800	ng/l	500					
Surrogate(s)	Recovery		QC Criteria					
1,4-Dioxane-d8	47.0	%	15-110					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-03
GZA-10.10.15.08
Sample Matrix: WATER

Date Collected: 15-OCT-2008 11:05
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71 332.0		1022 20:55	AJ
Perchlorate	ND	ug/l	0.050				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-04
MW-07.10.15.08
Sample Matrix: WATER

Date Collected: 15-OCT-2008 12:55
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71 332.0		1022 21:20	AJ
Perchlorate	ND	ug/l	0.050				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-05
TRC-102.10.15.08
Sample Matrix: WATER

Date Collected: 15-OCT-2008 14:25
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 4-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71 332.0		1022 21:45	AJ
Perchlorate	ND	ug/l	0.050				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-06
IP-4R3.10.15.08
Sample Matrix: WATER

Date Collected: 15-OCT-2008 17:00
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 4-Amber

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
1,4-Dioxane by 8270				1 8270	1021 00:00	1026 18:55	JS
1,4-Dioxane	32700	ng/l	500				
Surrogate(s)	Recovery		QC Criteria				
1,4-Dioxane-d8	43.0	%	15-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LA000065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-07
WE-9.10.16.08
Sample Matrix: WATER

Date Collected: 16-OCT-2008 12:10
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71 332.0		1022 23:26	AJ
Perchlorate	ND	ug/l	0.050				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-08
IP-IR2.10.16.08
Sample Matrix: WATER

Date Collected: 16-OCT-2008 13:55
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber

PARAMETER	RESULT	UNITS	RDL	REF	METHOD	DATE PREP	DATE ANAL	ID
1,4-Dioxane by 8270				1	8270	1021 00:00	1026 20:46	JS
1,4-Dioxane	32100	ng/l	500					
Surrogate(s)	Recovery		QC Criteria					
1,4-Dioxane-d8	50.0	%	15-110					

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LA000065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-09
GZA-103R1.10.16.08
Sample Matrix: WATER

Date Collected: 16-OCT-2008 15:55
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71 332.0		1022 23:51	AJ
Perchlorate	ND	ug/l	0.050				

Comments: Complete list of References and Glossary of Terms found in Addendum I

ALPHA ANALYTICAL
CERTIFICATE OF ANALYSIS

MA:M-MA086 NH:2003 CT:PH-0574 ME:MA0086 RI:LAO00065 NY:11148 NJ:MA935 Army:USACE

Laboratory Sample Number: L0815343-10
EB-01
Sample Matrix: WATER

Date Collected: 16-OCT-2008 10:20
Date Received : 16-OCT-2008
Date Reported : 29-OCT-2008

Condition of Sample: Satisfactory

Field Prep: None

Number & Type of Containers: 2-Amber,2-Plastic

PARAMETER	RESULT	UNITS	RDL	REF METHOD	DATE PREP	DATE ANAL	ID
Perchlorate by IC-MS-MS				71 332.0		1023 00:16	AJ
Perchlorate	ND	ug/l	0.050				
1,4-Dioxane by 8270				1 8270	1021 00:00	1026 21:23	JS
1,4-Dioxane	ND	ng/l	526.				
Surrogate(s)	Recovery		QC Criteria				
1,4-Dioxane-d8	45.0	%	15-110				

Comments: Complete list of References and Glossary of Terms found in Addendum I

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA WOODS HOLE LABS

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
RAYNHAM,MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 10/16/07

ALPHA Job #:

Client Information

Client: TRC
Address: 650 SUFFOLK ST.
LOWELL, MA 01854
Phone: 978-650-3562
Fax:
Email: JCORMIER@TRCSOLUTIONS.COM
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LOCKHEED, EMERGING CHEM.
Project Location: WILMINGTON, MA
Project #: 107181
Project Manager: J.C. CORMIER
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☒ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
SAMPLES SHIPPED ON ICE

ANALYSIS: SW-846 Ultrasonic Dilution Method 8270C; EPA Method 332.0 Mar. 2005 Rev 1.1

SAMPLE HANDLING
Filtration
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	SW-846	EPA	Sample Specific Comments	TOTAL # BOTTLES
	EMW-1R2.10.14.08	10/14/08	1545	GW	JCM	X	X		4
	MW-901.10.14.08	10/14/08	1745		JCM	X	X		4
	GZA-10.10.15.08	10/15/08	1105		JCM		X		2
	MW-07.10.15.08	10/15/08	1255		JCM		X		2
	TRC-102.10.15.08	10/15/08	1425		JCM		X	MS/MSD	4
	IP-4R3.10.15.08	10/15/08	1700		JCM	X		MS/MSD	4
	WE-9 JCM.10.16.08	10/16/08	1210		JCM		X		2
	IP-1R2.10.16.08	10/16/08	1355		JCM	X			2
	GZA-103R1.10.16.08	10/16/08	1515		JCM		X		2
	EB-01	10/16/08	1020			X	X		4
					Container Type	A	P		
					Preservative	A	A		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP *or* CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	10/16/08 1907		10/16/08 1907

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms. See reverse side.

FORM NO: 01-01 (rev. 10-OCT-05)

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: February 22, 2010

Subject: Arsenic Data Validation Review for December 2009 Groundwater Samples; Former General Electric Site/Wilmington, Massachusetts Emerging Chemicals Investigation

SUMMARY

Limited validation was performed on the data for 26 groundwater samples (including two field duplicate pairs) and one equipment blank collected at the Former General Electric Site in Wilmington, Massachusetts. The samples were collected on December 7, 8, 10, and 11, 2009 and submitted to Alpha Woods Hole Labs (Alpha) in Mansfield, Massachusetts for analysis. The samples were analyzed for total and dissolved arsenic using SW-846 method 6020A. Alpha reported the results under job numbers L0917620, L0917763, L0917954, and L0918071.

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (10/04). Modification of the Functional Guidelines was done to accommodate the non-CLP methodology and requirements outlined in the Work Plan for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater, Addendum A, dated September 2008.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Qualification of the data was not required.

SAMPLES

Samples included in this review are listed below:

TRC-102	GZA-102S	GZA-105S	TRC-103
WE-9	WE-8	MW-5	GZA-14
GZA-14A	TRC-104	MW-07	MW-901 (field duplicate of GZA-14)
MW-902 (field duplicate of MW-07)	GZA-10	GZA-6	GZA-4
WE-7	TRC-106	PZ-9S	PZ-9D
PZ-9R	FB-01 (equipment blank)	GZA-101R	GZA-12
TRC-105S	GZA-103R1	EMW-11S	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike (MS) results
- Laboratory duplicate results
- Laboratory control sample (LCS) results
- Field duplicate results
- Total versus dissolved results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

All samples were prepared and analyzed within the method-specified holding time. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks

Total and dissolved arsenic were not detected in the laboratory method blanks or equipment blank (FB-01).

MS Results

Samples GZA-14A and MW-7 were submitted for total and dissolved arsenic MS analyses with this sample set. All recoveries were within the acceptance limits.

Laboratory Duplicate Results

Samples GZA-14A and MW-7 were submitted for total and dissolved arsenic laboratory duplicate analyses with this sample set. All relative percent differences (RPDs) were within the acceptance limits.

LCS Results

An LCS and LCS Duplicate were prepared with the samples; all recovery and RPD criteria were met.

Field Duplicate Results

Samples GZA-14/MW-901 and MW-7/MW-902 were submitted as field duplicate pairs with this sample set. The following tables summarize the RPDs of the detected metals, all of which were within the acceptance criteria.

Analyte	GZA-14 (µg/L)	MW-901 (µg/L)	RPD (%)
Total Arsenic	17.4	17.2	1.2
Dissolved Arsenic	17.0	16.6	2.4

Analyte	MW-7 (µg/L)	MW-902 (µg/L)	RPD (%)
Total Arsenic	6.0	5.5	8.7
Dissolved Arsenic	5.4	5.7	5.4

Total Versus Dissolved Results

All criteria were met.

Quantitation Limits and Sample Results

The total arsenic analyses of samples GZA-12 and GZA-101R and the dissolved arsenic analysis of sample GZA-12 were analyzed at 5-fold dilutions due to the presence of an interfering analyte. Quantitation limits were elevated accordingly in these samples but all project action levels were still achieved.

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-01
Client ID: TRC-102.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 12:35
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0442		mg/l	0.0005	1	12/10/09 12:45	12/10/09 20:53	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0445		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:15	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-02
Client ID: GZA-102S.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 15:30
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0073		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:06	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0065		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:44	EPA 3005A	64,6020A	BM

Project Name:	FORMER GE-SITE	**Lab Number:**	L0917620
Project Number:	172015-000001	**Report Date:**	12/17/09

SAMPLE RESULTS

Lab ID:	L0917620-03	Date Collected:	12/07/09 12:24
Client ID:	GZA-105S.12.07.09	Date Received:	12/07/09
Sample Location:	WILMINGTON, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.1712		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:12	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.1682		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:50	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001

Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-04
Client ID: TRC-103.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/09 15:05
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.1035		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:18	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0888		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:56	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-05
Client ID: WE-9.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 12:40
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0021		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:36	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0012		mg/l	0.0005	1	12/11/09 13:15	12/14/09 16:02	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-06
Client ID: WE-8.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 16:20
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0038		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:42	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0027		mg/l	0.0005	1	12/11/09 13:15	12/14/09 16:08	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001
Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-01
Client ID: MW-5 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/08/09 15:30
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0094		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:48	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0095		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:08	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-02
Client ID: GZA-14 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 14:50
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0174		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:54	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0170		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:14	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-03
Client ID: GZA-14A 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 12:30
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0019		mg/l	0.0005	1	12/10/09 12:45	12/10/09 22:06	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0011		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:26	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-04
Client ID: TRC-104 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 13:25
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0127		mg/l	0.0005	1	12/10/09 12:45	12/10/09 22:48	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0014		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:50	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001
Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-05
Client ID: MW-07 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/08/09 11:20
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method[a]	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0060		mg/l	0.0005	1	12/10/09 12:45	12/10/09 23:00	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0054		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:14	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-06
Client ID: MW-901 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 13:50
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0172		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:56	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0166		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:38	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-07
Client ID: MW-902 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 10:20
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0055		mg/l	0.0005	1	12/11/09 13:15	12/14/09 19:20	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0057		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:44	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-01
Client ID: GZA-10 121009
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 10:55
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.1267		mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:31	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.1319		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:30	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-02
Client ID: GZA-6 121009
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 12:15
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0079		mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:43	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0085		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:42	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-03
Client ID: GZA-4 121009
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 13:55
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0152		mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:49	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0153		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:48	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-04
Client ID: WE-7.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 12:15
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.00048	J	mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:56	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0006		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:54	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-05
Client ID: TRC-106.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 15:10
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0033		mg/l	0.0005	1	12/22/09 12:00	12/23/09 07:02	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0039		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:12	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-06
Client ID: PZ-9S.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 10:40
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0008		mg/l	0.0005	1	12/22/09 12:00	12/23/09 07:08	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0008		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:18	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-07
Client ID: PZ-9D.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 12:00
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.00029	J	mg/l	0.0005	1	12/22/09 12:00	12/23/09 07:14	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.00034	J	mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:24	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-08
Client ID: PZ-9R.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 13:45
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0015		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:02	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0016		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:30	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-01
Client ID: FB-01.12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/11/09 09:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	ND		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:08	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	ND		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:36	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-02
Client ID: GZA-101R.121109
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/11/09 10:45
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0034		mg/l	0.0025	5	12/22/09 12:00	12/23/09 12:19	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0033		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:43	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-03
Client ID: GZA-12.121109
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/11/09 12:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	ND		mg/l	0.0025	5	12/22/09 12:00	12/23/09 12:25	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.00207	J	mg/l	0.0025	5	12/22/09 12:10	12/23/09 12:37	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-05
Client ID: TRC-105S.12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/11/09 13:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0116		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:31	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0122		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:55	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-06
Client ID: GZA-103R1-12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/11/09 11:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0487		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:43	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0484		mg/l	0.0005	1	12/22/09 12:10	12/23/09 06:01	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-07
Client ID: EMW-11S.12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/11/09 13:45
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0015		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:49	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0020		mg/l	0.0005	1	12/22/09 12:10	12/23/09 06:07	EPA 3005A	64,6020A	BM

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 12/7/09

ALPHA Job #: L0912620

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

12170917-17

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: kcormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former GE-Site
Project Location: Wilmington, MA
Project #: 172015-00000 1
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/21/09 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l. Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP
Criteria: GW-1 / GW-2 / GW-3 (ALL THREE)

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please Contact Ken Cormier at 978-656-3562 w/questions
Samples Hand Delivered on ICE

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Arsenic (6020)	Dissolved Arsenic (6020)	Toc (5310B)	Doc (5310B)	COD (5220)	Sample Specific Comments	TOTAL # BOTTLES
12620-1	TRC-102.12.07.09	12/07/09	1235	Ag	CF	1	1	2	2	1		7
-2	G2A-102S.12.07.09		1530		CF	1	1	2	2	1		7
-3	G2A-105S.12.07.09		1224		AW	1	1	2	2	1		7
-4	TRC-103.12.07.09		1505		AW	1	1	2	2	1		7
-5	WE-9.12.07.09		1240	↓	JM	1	1	2	2	1		7
-6	WE-8.12.07.09	12/07/09	1620	Ag	JM	1	1	2	2	1		7

Cooler Temperature Blank

SAMPLE HANDLING
Filtration: Yes ☒ Done ☐ Not needed ☐ Lab to do
Preservation: ☐ Lab to do (Please specify below)

Container Type	P	P	V	V	P
Preservative	C	C	D	D	D

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/07/09 1825		12/7/09 1825

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA TECHNICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/08/09 | ALPHA Job #: L0917763

Client Information
Client: TRC
Address: 650 Suffolk St
Lowell MA 01854
Phone: 978 970 5600
Fax: 978 453 1995
Email: KCormier@TRCSolutions.com
☐ These samples have been previously analyzed by Alpha.

Project Information
Project Name: Former GE Site
Project Location: Wilmington, MA
Project #: 172015-00001
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time
☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/22/09 Time:

Report Information - Data Deliverables
☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information
☒ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program: MCP | Criteria: GW-1, GW-2, GW-3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS
☐ Yes ☐ No Are MCP Analytical Methods Required?
☒ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please contact Ken Cormier @ 978 656 3562 w/ ??s.
Samples delivered on ICE

SAMPLE HANDLING
Filtration: Yes.
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab use only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analysis: Total Arsenic (1mg)	Dissolved Arsenic (1mg)	TRC (53103)	DOC (53103)	COD (5220)	1,4 Dioxane w/ isotope dil (8270 C)							Sample Specific Comments	TOTAL # BOTTLES
	Temp Blank	12/8/09		GW														No Arm/ysis	
17263-1	MW-5 12.8.09		1530		JM	1	1	2	2	1									7
-2	GZA-14 12.8.09		1450		CF	1	1	2	2	1									7
-3	GZA-14A 12.8.09		1230		CF	1	1	2	2	1									7
-4	TRC-104 12.8.09		1325		AW	1	1	2	2	1									7
-5	MW-07 12.8.09		1170		AW	1	1	2	2	1									7
-6	MW-901 12.8.09		1350		CF	1	1												2
-7	MW-902 12.8.09		1020		AW	1	1												2
-8	TRC-301 R-C 12-08-09		1320		JM						2								2
	Container Type					P	P	V	V	P	A								
	Preservative					C	C	D	D	D	A								

PLEASE ANSWER QUESTIONS ABOVE!
IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/8/09 1740		12/8/09 1740

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

12220911:11

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/10/09

ALPHA Job #: L0917954

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell MA 01854
Phone: 978-970-5600
Fax:
Email: KCormier@TRCSolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former GE Site
Project Location: Wilmington, MA
Project #: 172015-C
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/24/09 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria
MCP	GW-1, GW-2, GW3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please contact Ken Cormier w/ any questions.

Samples delivered on ice

SAMPLE HANDLING
Filtration: Done
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Arsenic (6020)	Dissolved As (6020)	TOC (5310B)	DOC (5310B)	COD (5220)	1,4-Dioxane w/ Low Level by 8270C SIM								Sample Specific Comments	TOTAL # BOTTLES
17954.1	GZA-10 121009	12/10/09	1055	GW	AW	1	1	2	2	1										7
2	GZA-6 121009		1215		AW	1	1	2	2	1										7
3	GZA-4 121009		1355		AW	1	1	2	2	1										7
4	WE-7.12.10.09		1215		JM	1	1	2	2	1										7
5	TRC-106.12.10.09		1510		JM	1	1	2	2	1										7
6	PZ-9S.12.10.09		1040		CF	1	1	2	2	1										7
7	PZ-9D.12.10.09		1200		CF	1	1	2	2	1										7
8	PZ-9R.12.10.09		1345		CF	1	1	2	2	1										7
9	GZA-103R2.12.10.09		1610		CF						2									2
	TEMP. BLANK																		DO NOT Analyze	1
	Container Type					P	P	V	V	P	A									
	Preservative					C	C	D	D	D	A									

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/10/09, 1930		12/10/09 1930

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

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12280913:36

CHAIN OF CUSTODY PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/11/09 | ALPHA Job #: L0912D7

Client Information
Client: TRC
Address: 650 Suffolk St 01854 Lowell MA ~~01854~~
Phone: 978-970-5600
Fax: 978-453-1995
Email: kcormier@trcsolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information
Project Name: Former GE Site
Project Location: Wilmington, MA
Project #: 172015
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time
☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/28/09 Time:

Report Information - Data Deliverables
☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information
☒ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program: MCP | Criteria: GW-1, GW2, GW3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS
☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please contact Ken Cormier w/ any questions.
Samples delivered on ice.

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Arsenic (1020)	Dissolved As (1020)	TOC (5310B)	DOC (5310B)	COD (5220)	1,4 Dioxane (8270C w/ Isotope Dilution)						Sample Specific Comments	TOTAL # BOTTLES
18021	1 FB-01.12.4.09	12/11/09	0915	GW	CF	1	1											2
	2 GZA-101R.121109		1045		AW	1	1	2	2	1	2							9
	3 GZA-12.121109		1215		AW	1	1	2	2	1								7
	4 FB-02.12.11.09		0930		CF						2							2
	5 TRC-105S.12.11.09		1315		JM	1	1	2	2	1								7
	6 GZA-103R1-12.11.09		1115		CF	1	1	2	2	1	2 + CP							9
	7 EMW-115.12.11.09		1345		CF	1	1	2	2	1								7
	8 MW-903.12.11.09		1015		CF						2							2
	Cooler Temperature					Blank												
	Container Type					P	P	V	V	P	A							
	Preservative					C	C	D	D	O	A							

SAMPLE HANDLING
Filtration: ☒ Done ☐ Not needed ☐ Lab to do
Preservation: ☐ Lab to do (Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/11/09 1600		12/11/09 1600
	12/11/09 1600		12/11/09 1600

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: February 22, 2010

Subject: Arsenic Data Validation Review for December 2009 Groundwater Samples; Former General Electric Site/Wilmington, Massachusetts Emerging Chemicals Investigation

SUMMARY

Limited validation was performed on the data for 26 groundwater samples (including two field duplicate pairs) and one equipment blank collected at the Former General Electric Site in Wilmington, Massachusetts. The samples were collected on December 7, 8, 10, and 11, 2009 and submitted to Alpha Woods Hole Labs (Alpha) in Mansfield, Massachusetts for analysis. The samples were analyzed for total and dissolved arsenic using SW-846 method 6020A. Alpha reported the results under job numbers L0917620, L0917763, L0917954, and L0918071.

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (10/04). Modification of the Functional Guidelines was done to accommodate the non-CLP methodology and requirements outlined in the Work Plan for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater, Addendum A, dated September 2008.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Qualification of the data was not required.

SAMPLES

Samples included in this review are listed below:

TRC-102	GZA-102S	GZA-105S	TRC-103
WE-9	WE-8	MW-5	GZA-14
GZA-14A	TRC-104	MW-07	MW-901 (field duplicate of GZA-14)
MW-902 (field duplicate of MW-07)	GZA-10	GZA-6	GZA-4
WE-7	TRC-106	PZ-9S	PZ-9D
PZ-9R	FB-01 (equipment blank)	GZA-101R	GZA-12
TRC-105S	GZA-103R1	EMW-11S	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike (MS) results
- Laboratory duplicate results
- Laboratory control sample (LCS) results
- Field duplicate results
- Total versus dissolved results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

All samples were prepared and analyzed within the method-specified holding time. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks

Total and dissolved arsenic were not detected in the laboratory method blanks or equipment blank (FB-01).

MS Results

Samples GZA-14A and MW-7 were submitted for total and dissolved arsenic MS analyses with this sample set. All recoveries were within the acceptance limits.

Laboratory Duplicate Results

Samples GZA-14A and MW-7 were submitted for total and dissolved arsenic laboratory duplicate analyses with this sample set. All relative percent differences (RPDs) were within the acceptance limits.

LCS Results

An LCS and LCS Duplicate were prepared with the samples; all recovery and RPD criteria were met.

Field Duplicate Results

Samples GZA-14/MW-901 and MW-7/MW-902 were submitted as field duplicate pairs with this sample set. The following tables summarize the RPDs of the detected metals, all of which were within the acceptance criteria.

Analyte	GZA-14 (µg/L)	MW-901 (µg/L)	RPD (%)
Total Arsenic	17.4	17.2	1.2
Dissolved Arsenic	17.0	16.6	2.4

Analyte	MW-7 (µg/L)	MW-902 (µg/L)	RPD (%)
Total Arsenic	6.0	5.5	8.7
Dissolved Arsenic	5.4	5.7	5.4

Total Versus Dissolved Results

All criteria were met.

Quantitation Limits and Sample Results

The total arsenic analyses of samples GZA-12 and GZA-101R and the dissolved arsenic analysis of sample GZA-12 were analyzed at 5-fold dilutions due to the presence of an interfering analyte. Quantitation limits were elevated accordingly in these samples but all project action levels were still achieved.

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-01
Client ID: TRC-102.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 12:35
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0442		mg/l	0.0005	1	12/10/09 12:45	12/10/09 20:53	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0445		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:15	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-02
Client ID: GZA-102S.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 15:30
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0073		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:06	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0065		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:44	EPA 3005A	64,6020A	BM

Project Name:	FORMER GE-SITE	**Lab Number:**	L0917620
Project Number:	172015-000001	**Report Date:**	12/17/09

SAMPLE RESULTS

Lab ID:	L0917620-03	Date Collected:	12/07/09 12:24
Client ID:	GZA-105S.12.07.09	Date Received:	12/07/09
Sample Location:	WILMINGTON, MA	Field Prep:	See Narrative
Matrix:	Water		

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.1712		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:12	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.1682		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:50	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001

Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-04
Client ID: TRC-103.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/09 15:05
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.1035		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:18	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0888		mg/l	0.0005	1	12/11/09 13:15	12/14/09 15:56	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-05
Client ID: WE-9.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 12:40
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0021		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:36	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0012		mg/l	0.0005	1	12/11/09 13:15	12/14/09 16:02	EPA 3005A	64,6020A	BM

Project Name: FORMER GE-SITE
Project Number: 172015-000001
Lab Number: L0917620
Report Date: 12/17/09

SAMPLE RESULTS

Lab ID: L0917620-06
Client ID: WE-8.12.07.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/09 16:20
Date Received: 12/07/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0038		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:42	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0027		mg/l	0.0005	1	12/11/09 13:15	12/14/09 16:08	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001
Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-01
Client ID: MW-5 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/08/09 15:30
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0094		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:48	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0095		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:08	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-02
Client ID: GZA-14 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 14:50
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0174		mg/l	0.0005	1	12/10/09 12:45	12/10/09 21:54	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0170		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:14	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-03
Client ID: GZA-14A 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 12:30
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0019		mg/l	0.0005	1	12/10/09 12:45	12/10/09 22:06	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0011		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:26	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-04
Client ID: TRC-104 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 13:25
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0127		mg/l	0.0005	1	12/10/09 12:45	12/10/09 22:48	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0014		mg/l	0.0005	1	12/11/09 13:15	12/14/09 17:50	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001
Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-05
Client ID: MW-07 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/08/09 11:20
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method[a]	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0060		mg/l	0.0005	1	12/10/09 12:45	12/10/09 23:00	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0054		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:14	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-06
Client ID: MW-901 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 13:50
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0172		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:56	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0166		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:38	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917763
Report Date: 12/22/09

SAMPLE RESULTS

Lab ID: L0917763-07
Client ID: MW-902 12.8.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/09 10:20
Date Received: 12/08/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0055		mg/l	0.0005	1	12/11/09 13:15	12/14/09 19:20	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0057		mg/l	0.0005	1	12/11/09 13:15	12/14/09 18:44	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-01
Client ID: GZA-10 121009
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 10:55
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.1267		mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:31	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.1319		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:30	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-02
Client ID: GZA-6 121009
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 12:15
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0079		mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:43	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0085		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:42	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-03
Client ID: GZA-4 121009
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 13:55
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0152		mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:49	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0153		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:48	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-04
Client ID: WE-7.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 12:15
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.00048	J	mg/l	0.0005	1	12/22/09 12:00	12/23/09 06:56	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0006		mg/l	0.0005	1	12/22/09 12:10	12/23/09 04:54	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-05
Client ID: TRC-106.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 15:10
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0033		mg/l	0.0005	1	12/22/09 12:00	12/23/09 07:02	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0039		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:12	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-06
Client ID: PZ-9S.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 10:40
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0008		mg/l	0.0005	1	12/22/09 12:00	12/23/09 07:08	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0008		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:18	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-07
Client ID: PZ-9D.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 12:00
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.00029	J	mg/l	0.0005	1	12/22/09 12:00	12/23/09 07:14	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.00034	J	mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:24	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015-000001

Lab Number: L0917954
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0917954-08
Client ID: PZ-9R.12.10.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/10/09 13:45
Date Received: 12/10/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0015		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:02	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0016		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:30	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-01
Client ID: FB-01.12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/11/09 09:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	ND		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:08	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	ND		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:36	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-02
Client ID: GZA-101R.121109
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/11/09 10:45
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0034		mg/l	0.0025	5	12/22/09 12:00	12/23/09 12:19	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0033		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:43	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-03
Client ID: GZA-12.121109
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/11/09 12:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	ND		mg/l	0.0025	5	12/22/09 12:00	12/23/09 12:25	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.00207	J	mg/l	0.0025	5	12/22/09 12:10	12/23/09 12:37	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-05
Client ID: TRC-105S.12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/11/09 13:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0116		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:31	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0122		mg/l	0.0005	1	12/22/09 12:10	12/23/09 05:55	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-06
Client ID: GZA-103R1-12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/11/09 11:15
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0487		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:43	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0484		mg/l	0.0005	1	12/22/09 12:10	12/23/09 06:01	EPA 3005A	64,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L0918071
Report Date: 12/28/09

SAMPLE RESULTS

Lab ID: L0918071-07
Client ID: EMW-11S.12.11.09
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/11/09 13:45
Date Received: 12/11/09
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab										
Arsenic, Total	0.0015		mg/l	0.0005	1	12/22/09 12:00	12/23/09 12:49	EPA 3005A	64,6020A	BM
MCP Dissolved Metals - Westborough Lab										
Arsenic, Dissolved	0.0020		mg/l	0.0005	1	12/22/09 12:10	12/23/09 06:07	EPA 3005A	64,6020A	BM

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 12/7/09

ALPHA Job #: L0912620

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

12170917-17

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell, MA 01854
Phone: 978-970-5600
Fax: 978-453-1995
Email: kcormier@trcsolutions.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former GE-Site
Project Location: Wilmington, MA
Project #: 172015-00000 1
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/21/09 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l. Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP
Criteria: GW-1 / GW-2 / GW-3 (ALL THREE)

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS

☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please Contact Ken Cormier at 978-656-3562 w/questions
Samples Hand Delivered on ICE

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Arsenic (6020)	Dissolved Arsenic (6020)	Toc (5310B)	Doc (5310B)	COD (5220)	Sample Specific Comments	TOTAL # BOTTLES
12620-1	TRC-102.12.07.09	12/07/09	1235	Ag	CF	1	1	2	2	1		7
-2	G2A-102S.12.07.09		1530		CF	1	1	2	2	1		7
-3	G2A-105S.12.07.09		1224		AW	1	1	2	2	1		7
-4	TRC-103.12.07.09		1505		AW	1	1	2	2	1		7
-5	WE-9.12.07.09		1240	↓	JM	1	1	2	2	1		7
-6	WE-8.12.07.09	12/07/09	1620	Ag	JM	1	1	2	2	1		7

Cooler Temperature Blank

SAMPLE HANDLING
Filtration: Yes ☒ Done ☐ Not needed ☐ Lab to do
Preservation: ☐ Lab to do (Please specify below)

Container Type	P	P	V	V	P
Preservative	C	C	D	D	D

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/07/09 1825		12/7/09 1825

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

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CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA TECHNICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/08/09 | ALPHA Job #: L0917763

Client Information
Client: TRC
Address: 650 Suffolk St
Lowell MA 01854
Phone: 978 970 5600
Fax: 978 453 1995
Email: kcormier@trcsolutions.com
☐ These samples have been previously analyzed by Alpha.

Project Information
Project Name: Former GE Site
Project Location: Wilmington, MA
Project #: 172015-00001
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time
☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/22/09 Time:

Report Information - Data Deliverables
☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information
☒ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program: MCP | Criteria: GW-1, GW-2, GW-3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS
☐ Yes ☐ No Are MCP Analytical Methods Required?
☒ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please contact Ken Cormier @ 978 656 3562 w/ ??s.
Samples delivered on ICE

SAMPLE HANDLING
Filtration: Yes.
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab use only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analysis: Total Arsenic (1mg)	Dissolved Arsenic (1mg)	TRC (53103)	DOC (53103)	COD (5220)	1,4 Dioxane w/ isotope dil (8270 C)							Sample Specific Comments	TOTAL # BOTTLES
	Temp Blank	12/8/09		GW														No Arm/ysis	
17263-1	MW-5 12.8.09		1530		JM	1	1	2	2	1									7
-2	GZA-14 12.8.09		1450		CF	1	1	2	2	1									7
-3	GZA-14A 12.8.09		1230		CF	1	1	2	2	1									7
-4	TRC-104 12.8.09		1325		AW	1	1	2	2	1									7
-5	MW-07 12.8.09		1120		AW	1	1	2	2	1									7
-6	MW-901 12.8.09		1350		CF	1	1												2
-7	MW-902 12.8.09		1020		AW	1	1												2
-8	TRC-301 R-C 12-08-09		1320		JM						2								2
	Container Type					P	P	V	V	P	A								
	Preservative					C	C	D	D	D	A								

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/8/09 1740		12/8/09 1740

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

12220911:11

CHAIN OF CUSTODY

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ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/10/09

ALPHA Job #: L0917954

Client Information

Client: TRC
Address: 650 Suffolk St
Lowell MA 01854
Phone: 978-970-5600
Fax:
Email: KCormier@TRCSolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former GE Site
Project Location: Wilmington, MA
Project #: 172015-C
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/24/09 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria
MCP	GW-1, GW-2, GW3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please contact Ken Cormier w/ any questions.

Samples delivered on ice

SAMPLE HANDLING
Filtration: Done
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Arsenic (6020)	Dissolved As (6020)	TOC (5310B)	DOC (5310B)	COD (5220)	1,4-Dioxane w/ Low Level by 8270C SIM								Sample Specific Comments	TOTAL # BOTTLES
17954.1	GZA-10 121009	12/10/09	1055	GW	AW	1	1	2	2	1										7
2	GZA-6 121009		1215		AW	1	1	2	2	1										7
3	GZA-4 121009		1355		AW	1	1	2	2	1										7
4	WE-7.12.10.09		1215		JM	1	1	2	2	1										7
5	TRC-106.12.10.09		1510		JM	1	1	2	2	1										7
6	PZ-9S.12.10.09		1040		CF	1	1	2	2	1										7
7	PZ-9D.12.10.09		1200		CF	1	1	2	2	1										7
8	PZ-9R.12.10.09		1345		CF	1	1	2	2	1										7
9	GZA-103R2.12.10.09		1610		CF						2									2
	TEMP. BLANK																		DO NOT Analyze	1
	Container Type					P	P	V	V	P	A									
	Preservative					C	C	D	D	D	A									

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/10/09, 1930		12/10/09 1930

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

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12280910:12

12280913:36

CHAIN OF CUSTODY PAGE 1 OF 1

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/11/09 | ALPHA Job #: L0912D7

Client Information
Client: TRC
Address: 650 Suffolk St 01854 Lowell MA ~~01854~~
Phone: 978-970-5600
Fax: 978-453-1995
Email: kcormier@trcsolutions.com
☐ These samples have been previously analyzed by Alpha

Project Information
Project Name: Former GE Site
Project Location: Wilmington, MA
Project #: 172015
Project Manager: Ken Cormier
ALPHA Quote #:

Turn-Around Time
☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/28/09 Time:

Report Information - Data Deliverables
☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information
☒ Same as Client info PO #:

Regulatory Requirements/Report Limits
State /Fed Program: MCP | Criteria: GW-1, GW2, GW3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS
☐ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
Please contact Ken Cormier w/ any questions.
Samples delivered on ice.

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Total Arsenic (1020)	Dissolved As (1020)	TOC (5310B)	DOC (5310B)	COD (5220)	1,4 Dioxane (8270C w/ Isotope Dilution)						Sample Specific Comments	TOTAL # BOTTLES
18021	1 FB-01.12.4.09	12/11/09	0915	GW	CF	1	1											2
	2 GZA-101R.121109		1045		AW	1	1	2	2	1	2							9
	3 GZA-12.121109		1215		AW	1	1	2	2	1								7
	4 FB-02.12.11.09		0930		CF						2							2
	5 TRC-105S.12.11.09		1315		JM	1	1	2	2	1								7
	6 GZA-103R1-12.11.09		1115		CF	1	1	2	2	1	2 + CP							9
	7 EMW-115.12.11.09		1345		CF	1	1	2	2	1								7
	8 MW-903.12.11.09		1015		CF						2							2
	Cooler Temperature					Blank												
	Container Type					P	P	V	V	P	A							
	Preservative					C	C	D	D	O	A							

SAMPLE HANDLING
Filtration: ☒ Done ☐ Not needed ☐ Lab to do
Preservation: ☐ Lab to do (Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/11/09 1600		12/11/09 1600
	12/11/09 1600		12/11/09 1600

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

Memorandum

To: Ken Cormier

From: Elizabeth Denly

CC:

Date: January 24, 2011

Subject: Data Validation Review: Groundwater Samples: Former GE Site/Wilmington, MA: Laboratory Report #s L1019407, L1019408, L1019509, L1019581, L1019696 and L1019704

SUMMARY

Limited validation was performed on the data for 17 groundwater samples and one equipment blank collected at the Former GE Site in Wilmington, Massachusetts. The samples were collected on December 6, 7, 8 and 9, 2010 and submitted to Alpha Woods Hole Laboratory (Alpha) in Westborough, Massachusetts for analysis. The samples were analyzed for the following parameters:

- Total organic carbon (TOC) using Standard Method 5310C;
- Chemical oxygen demand (COD) using Standard Method 5220D;
- Biochemical oxygen demand (BOD) using Standard Method 5210B;
- Select metals (arsenic, iron and aluminum; total and dissolved) using SW-846 method 6020A (WSC-CAM-IIID); and
- Total petroleum hydrocarbons (TPH) using SW-846 method 8015D, both with and without silica-gel cleanup (SW-846 method 3630).

Alpha reported the results under job numbers L1019407, L1019408, L1019509, L1019581, L1019696 and L1019704.

The sample results were assessed using the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (10/04). Modification of the Functional Guidelines was done to accommodate the non-CLP methodologies and requirements outlined in the *Work Plan for Evaluation of Emerging Chemicals and Tentatively Identified Compounds in Groundwater*, dated October 2007, Addendum A to this Work Plan, dated September 2008, and the *Statement Of Work/Technical And Functional Requirements, RFP # 10111_R615, Lockheed Martin Corporation, Emerging Contaminant (Arsenic) Groundwater Sampling and Analysis*, dated November 9, 2010.

In general, the data appear to be valid as reported and may be used for decision-making purposes. Qualification of the data was not required.

SAMPLES

Samples included in this review are listed below:

L1019407 (collected 12/6/10):

GZA-105S[1]	TRC-102	TRC-103[1]	EMW-11S[1]
MW-901 (field duplicate of GZA-105S)[1]			

[1]also reported in L1019408 for TPH

L1019509 (collected 12/7/10):

GZA-4	GZA-12	GZA-14[2]	GZA-101R
MW-7			

[2]also reported in L1019408 for TPH

L1019581 (collected 12/8/10):

GZA-6[3]	GZA-102S[3]	GZA-103R1	EMW-10S
WE-9			

[3]also reported in L1019408 for TPH

L1019696 and L1019704 (collected 12/9/10):

GZA-10	TRC-105S	FB-1 (equipment blank)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with TRC requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike (MS) results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Laboratory duplicate results
- Field duplicate results
- Comparison of total and dissolved results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with TRC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody and any correspondence between TRC and the laboratory. There were no discrepancies noted.

Holding Times and Sample Preservation

Preparation and analyses of samples for TOC, BOD, COD, TPH and metals were performed within the method-specified holding times. All samples were preserved in accordance with method requirements.

Method Blanks/Equipment Blanks

Target analytes were not detected in the equipment blank, FB-1 or any of the method blanks.

MS Results

MS analyses were performed on sample MW-901 for total and dissolved aluminum, arsenic and iron, sample GZA-105S for COD, and sample WE-9 for COD and TOC. All criteria were met.

Surrogate Spike Recoveries

The surrogate recoveries met criteria for all TPH analyses.

LCS Results

An LCS and/or LCS Duplicate were analyzed with the samples for each parameter. All criteria were met.

Laboratory Duplicate Results

Laboratory duplicate analyses were performed on sample GZA-105S for COD and sample WE-9 for COD and TOC. All criteria were met for TOC. The relative percent differences (RPDs) of COD were outside of the acceptance criteria in the laboratory duplicate analyses performed on samples GZA-105S (29) and WE-9 (40). Since the concentrations of COD in these samples were <5x the quantitation limit and the difference between the original and duplicate results was less than the quantitation limit, qualification of the data was not required.

Field Duplicate Results

Samples GZA-105S and MW-901 were submitted as the field duplicate pair with this sample set. The following tables summarize the RPDs of the detected compounds, all of which were either within the acceptance criteria or not calculable (NC) due to a nondetect result in the original sample.

Analyte	GZA-105S (mg/L)	MW-901 (mg/L)	RPD (%)
Total Aluminum	0.040 U	0.065	NC
Total Arsenic	0.1990	0.2033	2.1
Total Iron	47.2	47.8	1.3
Dissolved Arsenic	0.1968	0.2032	3.2
Dissolved Iron	46.5	47.2	1.5

Analyte	GZA-105S (mg/L)	MW-901 (mg/L)	RPD (%)
COD	42	47	11.2
BOD	13	16	20.7
TOC	15	15	0
TPH pre-cleanup	1.57	1.34	15.8
TPH psot-cleanup	0.470	0.362	26.0

Comparison of Total and Dissolved Results

A comparison of the total and dissolved metals results was performed. All criteria were met; the dissolved results were either not greater than the total results or did not exceed that of the total result by more than 10 percent.

Quantitation Limits and Sample Results

All TOC analyses of groundwater samples were performed at 2-fold or 4-fold dilutions either due to the concentrations of TOC which would have exceeded the calibration range if not diluted or due to the sample matrix.

All COD and TPH analyses of groundwater samples were performed undiluted.

The BOD analyses of sample GZA-105S (2.5-fold), MW-901 (2.5-fold) and GZA-103R1 (2.5-fold) were performed on dilution due to the concentrations of BOD which would have exceeded the calibration range if not diluted.

The total and dissolved metals analyses of samples GZA-105S (4-fold), TRC-103 (4-fold), MW-901 (4-fold), TRC-102 (10-fold and 4-fold), GZA-14 (2-fold), GZA-101R (2-fold), MW-7 (2-fold), GZA-4 (4-fold) and GZA-12 (4-fold) were performed on dilution due to elevated concentrations of non-target analytes. Quantitation limits were elevated accordingly.

CHAIN OF CUSTODY

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ALPHA TECHNICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Serial_No:12201016:38

Date Rec'd in Lab: 12/10/10

ALPHA Job #: L1019407

Client Information

Client: TRC
Address: 650 SUFFOLK ST
LOWELL, MA 01854
Phone: 978-656-3562
Fax:
Email: VCORMIER@TRCSOLUTIONS.COM
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: FORMER GE
Project Location: WILMINGTON, MA
Project #: 172015
Project Manager: V. CORMIER
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/20/10 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria: GW-1, GW-2, GW-3

Other Project Specific Requirements/Comments/Detection Limits:

SAMPLE SHIPPED ON ICE

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	COD	BOD	Total As, Fe, Al	Dissolved As, Fe, Al	TPH-PHI PRETREAT CLEANUP	Sample Specific Comments	TOTAL # BOTTLES
L1019407-1	GZA-105S.12.06.10	12/6/10	1050	GW	JCM	X	X	X	X	X	X		10
2	TRC-103.12.6.10	12/6/10	1120	GW	CF	X	X	X	X	X	X		10
3	MW-901.12.06.10	12/06/10	1150	GW	JCM	X	X	X	X	X	X		12
4	TRC-102.12.6.10	12/06/10	1245	GW	CF	X	X	X	X	X		METALS MS/MSD	6
5	EMW-11S.12.6.10	12/06/10	1445	GW	CF	X	X	X	X	X	X		10
	Cooler Temperature Blanks												

SAMPLE HANDLING
Filtration
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	V	P	P	P	P	A
Preservative	D	D	A	C	C	A

Relinquished By:	Date/Time	Received By:	Date/Time
	12/06/10 1920		12/06/10 1920

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

Serial_No:12211013:38

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/7/10 | ALPHA Job #: L1019509

Client Information

Client: TRC
Address: 650 SUFFOLK ST
LOWELL, MA 01854
Phone: 978-656-3562
Fax:
Email: KCORMIER@TRCSOLUTIONS.COM
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: FORMER GE
Project Location: WILMINGTON, MA
Project #: 172015
Project Manager: KEN CORMIER
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/21/10 Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria:

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☑ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☑ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☑ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All *CAM* methods for Inorganic analyses require MS every 20 soil samples)

SAMPLES SHIPPED ON ICE

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	COD	BOD	Total As, Fe, Al	Dissolved As, Fe, Al	TPH-PHC Pre-Post Cleanup	Sample Specific Comments	TOTAL # BOTTLES
19509.1	GZA-14.12.07.10	12/7/10	1035	GW	JCM	2	1	1	1	1	4		16
2	GZA-10R.12.07.10		1145		CF	2	1	1	1	1			6
3	MW-7.12.07.10		1350		JCM	2	1	1	1	1			6
4	GZA-4.12.07.10		1530		JCM	2	1	1	1	1			6
5	GZA-12.12.07.10		1540		CF	2	1	1	1	1			6
6	TEMP BLANK												1

SAMPLE HANDLING
Filtration ☑ Done ☐ Not needed ☐ Lab to do
Preservation ☐ Lab to do (Please specify below)

Container Type	V	P	P	P	P	A	
Preservative	D	D	A	C	C	A	

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
	12/07/10 1850		12/7/10 1850

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Serial No:12221015:46

Date Rec'd in Lab: 12/8/10

ALPHA Job #: L1019581

Client Information

Client: TEC

Address: 650 SUFFOLK ST
LOWELL, MA 01854

Phone: 978-656-3562

Fax:

Email: KCORMIER@TRCSOLUTIONS.COM

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: FORMER CE SITE

Project Location: WILMINGTON, MA

Project #: 172015

Project Manager: KEN CORMIER

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria: GW-1, GW2, GW-3

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?

☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

SAMPLES SHIPPED ON ICE

ANALYSIS: TOC, COD, BOD, Total As, Fe, Al, Dissolved As, Fe, Al, TPH-PHC 8270 SIM PAH, TOTAL # BOTTLES

SAMPLE HANDLING: Filtration ☒ Done ☐ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TOC	COD	BOD	Total As, Fe, Al	Dissolved As, Fe, Al	TPH-PHC 8270 SIM PAH	Sample Specific Comments	TOTAL # BOTTLES
9581 1	GZA-103R1.12.8.10	12/8/10	1030	GW	CF	2	1	1	1	1			6
2	EMW-10S.12.08.10		1120		JCM	2	1	1	1	1			6
3	WE-9.12.8.10		1230		CF	2	1	1	1	1			6
4	GZA-102S.12.08.10		1400		JCM	2	1	1	1	1	4		10
5	GZA-6.12.8.10	↓	1415	↓	CF	2	1	1	1	1	4		10
6	TEMP BLANK												1

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type	V	P	P	D	P	A
Preservative	D	D	A	C	C	A

Relinquished By:	Date/Time	Received By:	Date/Time
	12/08/10, 1835		12/8/10 1835

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA TECHNICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Serial No:12221019:17

Date Rec'd in Lab: 12/9/10

ALPHA Job #: L1019690

Client Information

Client: TRC
Address: 650 SUFFOLK ST
LOWELL, MA
Phone: 978-656-3562
Fax:
Email: KLOMNICKI@TRCSOLUTIONS.COM
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: FORMER GE SITE
Project Location: WILMINGTON, MA
Project #: 172015
Project Manager: KEN COMNICKI
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: 12/23/10 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MCP Criteria:

MA MCP PRESUMPTIVE CERTAINTY - CT REASONABLE CONFIDENCE PROTOCOLS

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☐ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:
SAMPLES SHIPPED ON ICE

ANALYSIS: TRC; COD; BOD; TOTAL As, Fe, Al; DISSOLVED As, Fe, Al; TPH-PHC (EXTRACTABLE)

SAMPLE HANDLING: Filtration ☒ Done ☐ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TRC	COD	BOD	Total As, Fe, Al	Dissolved As, Fe, Al	TPH-PHC (Extractable)	Sample Specific Comments	TOTAL # BOTTLES
9690 1	TRC-1055.12.09.10	12/9/10	1315	GW	JCM	2	1	1	1	1	4		10
2	GZA-10.12.09.10	↓	1520	↓	↓	2	1	1	1	1	4		10
3	FB-1.12.09.10	↓	1600	↓	↓	2	1	1	1	1	4		10
	TEMP BLANK												1

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type	V	P	P	P	P	A
Preservative	D	D	A	C	C	A

Relinquished By:	Date/Time	Received By:	Date/Time
	12/9/10 1850		12/9/10 1850

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

Qualified Form Is

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-01
Client ID: GZA-105S.12.06.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 10:50
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	ND		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 20:20	EPA 3005A	97,6020A	BM
Arsenic, Total	0.1990		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 20:20	EPA 3005A	97,6020A	BM
Iron, Total	47.2		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 20:20	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 19:14	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.1968		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 19:14	EPA 3005A	97,6020A	BM
Iron, Dissolved	46.5		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 19:14	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015
Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-02
Client ID: TRC-103.12.6.10
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/06/10 11:20
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.057		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 20:26	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0791		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 20:26	EPA 3005A	97,6020A	BM
Iron, Total	28.9		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 20:26	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 19:32	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0737		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 19:32	EPA 3005A	97,6020A	BM
Iron, Dissolved	27.1		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 19:32	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-03
Client ID: MW-901.12.06.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 11:50
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.065		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 20:50	EPA 3005A	97,6020A	BM
Arsenic, Total	0.2033		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 20:50	EPA 3005A	97,6020A	BM
Iron, Total	47.8		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 20:50	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 19:44	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.2032		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 19:44	EPA 3005A	97,6020A	BM
Iron, Dissolved	47.2		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 19:44	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-04
Client ID: TRC-102.12.6.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 12:45
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.703		mg/l	0.100	--	10	12/07/10 10:15	12/08/10 21:14	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0675		mg/l	0.0050	--	10	12/07/10 10:15	12/08/10 21:14	EPA 3005A	97,6020A	BM
Iron, Total	21.5		mg/l	0.500	--	10	12/07/10 10:15	12/08/10 21:14	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.279		mg/l	0.040	--	4	12/07/10 10:15	12/08/10 20:08	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0578		mg/l	0.0020	--	4	12/07/10 10:15	12/08/10 20:08	EPA 3005A	97,6020A	BM
Iron, Dissolved	20.1		mg/l	0.200	--	4	12/07/10 10:15	12/08/10 20:08	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-05
Client ID: EMW-11S.12.6.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 14:45
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.021		mg/l	0.010	--	1	12/07/10 10:15	12/08/10 21:20	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0016		mg/l	0.0005	--	1	12/07/10 10:15	12/08/10 21:20	EPA 3005A	97,6020A	BM
Iron, Total	0.804		mg/l	0.050	--	1	12/07/10 10:15	12/08/10 21:20	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.010	--	1	12/07/10 10:15	12/08/10 20:14	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0010		mg/l	0.0005	--	1	12/07/10 10:15	12/08/10 20:14	EPA 3005A	97,6020A	BM
Iron, Dissolved	0.500		mg/l	0.050	--	1	12/07/10 10:15	12/08/10 20:14	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015
Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-01
Client ID: GZA-14.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/07/10 10:35
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.028		mg/l	0.020	--	2	12/09/10 10:30	12/15/10 01:53	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0239		mg/l	0.0010	--	2	12/09/10 10:30	12/15/10 01:53	EPA 3005A	97,6020A	BM
Iron, Total	12.7		mg/l	0.100	--	2	12/09/10 10:30	12/15/10 01:53	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.022		mg/l	0.020	--	2	12/08/10 13:30	12/15/10 00:58	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0243		mg/l	0.0010	--	2	12/08/10 13:30	12/15/10 00:58	EPA 3005A	97,6020A	BM
Iron, Dissolved	12.3		mg/l	0.100	--	2	12/08/10 13:30	12/15/10 00:58	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-02
Client ID: GZA-101R.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 11:45
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.034		mg/l	0.020	--	2	12/09/10 10:30	12/15/10 02:05	EPA 3005A	97,6020A	BM
Arsenic, Total	0.004		mg/l	0.0010	--	2	12/09/10 10:30	12/15/10 02:05	EPA 3005A	97,6020A	BM
Iron, Total	12.3		mg/l	0.100	--	2	12/09/10 10:30	12/15/10 02:05	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.020	--	2	12/08/10 13:30	12/15/10 01:22	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0041		mg/l	0.0010	--	2	12/08/10 13:30	12/15/10 01:22	EPA 3005A	97,6020A	BM
Iron, Dissolved	12.2		mg/l	0.100	--	2	12/08/10 13:30	12/15/10 01:22	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-03
Client ID: MW-7.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 13:50
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	ND		mg/l	0.020	--	2	12/09/10 10:30	12/15/10 02:11	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0081		mg/l	0.0010	--	2	12/09/10 10:30	12/15/10 02:11	EPA 3005A	97,6020A	BM
Iron, Total	16.9		mg/l	0.100	--	2	12/09/10 10:30	12/15/10 02:11	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.020	--	2	12/08/10 13:30	12/15/10 01:28	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0070		mg/l	0.0010	--	2	12/08/10 13:30	12/15/10 01:28	EPA 3005A	97,6020A	BM
Iron, Dissolved	15.2		mg/l	0.100	--	2	12/08/10 13:30	12/15/10 01:28	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-04
Client ID: GZA-4.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 15:30
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.213		mg/l	0.040	--	4	12/09/10 10:30	12/15/10 02:17	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0146		mg/l	0.0020	--	4	12/09/10 10:30	12/15/10 02:17	EPA 3005A	97,6020A	BM
Iron, Total	26.3		mg/l	0.200	--	4	12/09/10 10:30	12/15/10 02:17	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.183		mg/l	0.040	--	4	12/08/10 13:30	12/15/10 01:34	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0145		mg/l	0.0020	--	4	12/08/10 13:30	12/15/10 01:34	EPA 3005A	97,6020A	BM
Iron, Dissolved	23.5		mg/l	0.200	--	4	12/08/10 13:30	12/15/10 01:34	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-05
Client ID: GZA-12.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 15:40
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.107		mg/l	0.040	--	4	12/09/10 10:30	12/15/10 02:35	EPA 3005A	97,6020A	BM
Arsenic, Total	ND		mg/l	0.0020	--	4	12/09/10 10:30	12/15/10 02:35	EPA 3005A	97,6020A	BM
Iron, Total	1.80		mg/l	0.200	--	4	12/09/10 10:30	12/15/10 02:35	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.040	--	4	12/08/10 13:30	12/15/10 01:40	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	ND		mg/l	0.0020	--	4	12/08/10 13:30	12/15/10 01:40	EPA 3005A	97,6020A	BM
Iron, Dissolved	0.522		mg/l	0.200	--	4	12/08/10 13:30	12/15/10 01:40	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-01
Client ID: GZA-103R1.12.8.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 10:30
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	ND		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:10	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0519		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:10	EPA 3005A	97,6020A	BM
Iron, Total	13.1		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:10	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.013		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 19:09	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0519		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 19:09	EPA 3005A	97,6020A	BM
Iron, Dissolved	13.6		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 19:09	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-02
Client ID: EMW-10S.12.08.10
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/08/10 11:20
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.019		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:22	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0099		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:22	EPA 3005A	97,6020A	BM
Iron, Total	7.37		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:22	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.019		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 19:22	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0096		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 19:22	EPA 3005A	97,6020A	BM
Iron, Dissolved	8.07		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 19:22	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-03
Client ID: WE-9.12.8.10
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/08/10 12:30
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.139		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:28	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0023		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:28	EPA 3005A	97,6020A	BM
Iron, Total	7.88		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:28	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.020		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 19:28	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0015		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 19:28	EPA 3005A	97,6020A	BM
Iron, Dissolved	7.62		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 19:28	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-04
Client ID: GZA-102S.12.08.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 14:00
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.207		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:34	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0083		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:34	EPA 3005A	97,6020A	BM
Iron, Total	7.27		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:34	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 19:34	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0075		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 19:34	EPA 3005A	97,6020A	BM
Iron, Dissolved	7.12		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 19:34	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-05
Client ID: GZA-6.12.8.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 14:15
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.108		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:40	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0069		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:40	EPA 3005A	97,6020A	BM
Iron, Total	1.00		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:40	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.113		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 19:40	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0064		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 19:40	EPA 3005A	97,6020A	BM
Iron, Dissolved	1.06		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 19:40	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L1019696
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019696-01
Client ID: TRC-105S.12.09.10
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/09/10 13:15
Date Received: 12/09/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.037		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:46	EPA 3005A	97,6020A	BM
Arsenic, Total	0.0276		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:46	EPA 3005A	97,6020A	BM
Iron, Total	2.91		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:46	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	0.020		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 19:46	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0257		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 19:46	EPA 3005A	97,6020A	BM
Iron, Dissolved	2.94		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 19:46	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019696
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019696-02
Client ID: GZA-10.12.09.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/09/10 15:20
Date Received: 12/09/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	0.011		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:52	EPA 3005A	97,6020A	BM
Arsenic, Total	0.1281		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:52	EPA 3005A	97,6020A	BM
Iron, Total	16.9		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:52	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 20:04	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	0.0949		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 20:04	EPA 3005A	97,6020A	BM
Iron, Dissolved	13.5		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 20:04	EPA 3005A	97,6020A	BM

Project Name: FORMER GE SITE
Project Number: 172015
Lab Number: L1019696
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019696-03
Client ID: FB-1.12.09.10
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 12/09/10 16:00
Date Received: 12/09/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Aluminum, Total	ND		mg/l	0.010	--	1	12/15/10 16:05	12/17/10 01:59	EPA 3005A	97,6020A	BM
Arsenic, Total	ND		mg/l	0.0005	--	1	12/15/10 16:05	12/17/10 01:59	EPA 3005A	97,6020A	BM
Iron, Total	ND		mg/l	0.050	--	1	12/15/10 16:05	12/17/10 01:59	EPA 3005A	97,6020A	BM
MCP Dissolved Metals - Westborough Lab											
Aluminum, Dissolved	ND		mg/l	0.010	--	1	12/15/10 12:00	12/16/10 20:10	EPA 3005A	97,6020A	BM
Arsenic, Dissolved	ND		mg/l	0.0005	--	1	12/15/10 12:00	12/16/10 20:10	EPA 3005A	97,6020A	BM
Iron, Dissolved	ND		mg/l	0.050	--	1	12/15/10 12:00	12/16/10 20:10	EPA 3005A	97,6020A	BM

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-01
Client ID: GZA-105S.12.06.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 10:50
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	42		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	13		mg/l	5.0	NA	2.5	12/08/10 02:30	12/13/10 07:10	30,5210B	JT
Total Organic Carbon	15		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-02
Client ID: TRC-103.12.6.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 11:20
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	7.0		mg/l	2.0	NA	1	12/08/10 02:30	12/13/10 07:10	30,5210B	JT
Total Organic Carbon	3.8		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-03
Client ID: MW-901.12.06.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 11:50
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	47		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:09	30,5220D	DW
BOD, 5 day	16		mg/l	5.0	NA	2.5	12/08/10 02:30	12/13/10 07:10	30,5210B	JT
Total Organic Carbon	15		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-04
Client ID: TRC-102.12.6.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 12:45
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	54		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	7.9		mg/l	2.0	NA	1	12/08/10 02:30	12/13/10 07:10	30,5210B	JT
Total Organic Carbon	19		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019407
Report Date: 12/20/10

SAMPLE RESULTS

Lab ID: L1019407-05
Client ID: EMW-11S.12.6.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/06/10 14:45
Date Received: 12/06/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/08/10 02:30	12/13/10 07:10	30,5210B	JT
Total Organic Carbon	2.9		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-01
Client ID: GZA-14.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 10:35
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/09/10 00:40	12/13/10 18:20	30,5210B	JT
Total Organic Carbon	3.9		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-02
Client ID: GZA-101R.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 11:45
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	25		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/09/10 00:40	12/13/10 18:20	30,5210B	JT
Total Organic Carbon	1.2		mg/l	1.0	--	2	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-03
Client ID: MW-7.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 13:50
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:08	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/09/10 00:40	12/13/10 18:20	30,5210B	JT
Total Organic Carbon	1.8		mg/l	1.0	--	2	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-04
Client ID: GZA-4.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 15:30
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	37		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:09	30,5220D	DW
BOD, 5 day	4.4		mg/l	2.0	NA	1	12/09/10 00:40	12/13/10 18:20	30,5210B	JT
Total Organic Carbon	10		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019509
Report Date: 12/21/10

SAMPLE RESULTS

Lab ID: L1019509-05
Client ID: GZA-12.12.07.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/07/10 15:40
Date Received: 12/07/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	35		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:09	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/09/10 00:40	12/13/10 18:20	30,5210B	JT
Total Organic Carbon	2.1		mg/l	2.0	--	4	-	12/20/10 07:41	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-01
Client ID: GZA-103R1.12.8.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 10:30
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	37		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:11	30,5220D	DW
BOD, 5 day	17		mg/l	5.0	NA	2.5	12/10/10 00:40	12/14/10 20:00	30,5210B	JT
Total Organic Carbon	10		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-02
Client ID: EMW-10S.12.08.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 11:20
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	44		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:11	30,5220D	DW
BOD, 5 day	8.1		mg/l	2.0	NA	1	12/10/10 00:40	12/14/10 20:00	30,5210B	JT
Total Organic Carbon	3.2		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-03
Client ID: WE-9.12.8.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 12:30
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	30		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:12	30,5220D	DW
BOD, 5 day	5.5		mg/l	2.0	NA	1	12/10/10 00:40	12/14/10 20:00	30,5210B	JT
Total Organic Carbon	9.0		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-04
Client ID: GZA-102S.12.08.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 14:00
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:12	30,5220D	DW
BOD, 5 day	8.9		mg/l	2.0	NA	1	12/10/10 00:40	12/14/10 20:00	30,5210B	JT
Total Organic Carbon	3.6		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019581
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019581-05
Client ID: GZA-6.12.8.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/08/10 14:15
Date Received: 12/08/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:12	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/10/10 00:40	12/14/10 20:00	30,5210B	JT
Total Organic Carbon	4.5		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019696
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019696-01
Client ID: TRC-105S.12.09.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/09/10 13:15
Date Received: 12/09/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	23		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:14	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/11/10 00:15	12/15/10 21:30	30,5210B	JT
Total Organic Carbon	3.5		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019696
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019696-02
Client ID: GZA-10.12.09.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/09/10 15:20
Date Received: 12/09/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:14	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/11/10 00:15	12/15/10 21:30	30,5210B	JT
Total Organic Carbon	4.2		mg/l	2.0	--	4	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019696
Report Date: 12/22/10

SAMPLE RESULTS

Lab ID: L1019696-03
Client ID: FB-1.12.09.10
Sample Location: WILMINGTON, MA
Matrix: Water

Date Collected: 12/09/10 16:00
Date Received: 12/09/10
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Chemical Oxygen Demand	ND		mg/l	20	--	1	12/15/10 10:00	12/15/10 13:14	30,5220D	DW
BOD, 5 day	ND		mg/l	2.0	NA	1	12/11/10 00:15	12/15/10 21:30	30,5210B	JT
Total Organic Carbon	ND		mg/l	0.50	--	1	-	12/21/10 06:54	30,5310C	DW

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-01	Date Collected:	12/06/10 10:50
Client ID:	GZA-105S.12.06.10 PRE	Date Received:	12/06/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/20/10 22:29		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	1.57		mg/l	0.067	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		50-130
d50-Tetracosane	91		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-02
Client ID:	GZA-105S.12.06.10 POST
Sample Location:	WILMINGTON, MA
Matrix:	Water
Analytical Method:	1,8015D(M)
Analytical Date:	12/22/10 04:20
Analyst:	NS

Date Collected:	12/06/10 10:50
Date Received:	12/06/10
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	01/18/11 17:02
Cleanup Method1:	EPA 3630
Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.470		mg/l	0.067	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	86		50-130
d50-Tetracosane	90		50-130

Project Name: FORMER GE
Project Number: 172015
Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-03	Date Collected:	12/06/10 11:20
Client ID:	TRC-103.12.6.10 PRE	Date Received:	12/06/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/20/10 23:54		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.249		mg/l	0.065	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	89		50-130
d50-Tetracosane	93		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-04	Date Collected:	12/06/10 11:20
Client ID:	TRC-103.12.06.10 POST	Date Received:	12/06/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/18/11 17:02
Analytical Date:	12/22/10 05:45	Cleanup Method1:	EPA 3630
Analyst:	NS	Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.131		mg/l	0.065	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		50-130
d50-Tetracosane	91		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-05	Date Collected:	12/06/10 11:50
Client ID:	MW-901.12.06.10 PRE	Date Received:	12/06/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 01:19		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	1.34		mg/l	0.073	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	84		50-130
d50-Tetracosane	90		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-06
Client ID:	MW-901.12.06.10 POST
Sample Location:	WILMINGTON, MA
Matrix:	Water
Analytical Method:	1,8015D(M)
Analytical Date:	12/22/10 07:11
Analyst:	NS

Date Collected:	12/06/10 11:50
Date Received:	12/06/10
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	01/18/11 17:02
Cleanup Method1:	EPA 3630
Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.362		mg/l	0.073	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	80		50-130
d50-Tetracosane	88		50-130

Project Name: FORMER GE
Project Number: 172015
Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-07	Date Collected:	12/06/10 14:45
Client ID:	EMW-11S.12.6.10 PRE	Date Received:	12/06/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 02:44		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.073		mg/l	0.065	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		50-130
d50-Tetracosane	93		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-08
Client ID:	EMW-11S.12.6.10 POST
Sample Location:	WILMINGTON, MA
Matrix:	Water
Analytical Method:	1,8015D(M)
Analytical Date:	12/22/10 08:36
Analyst:	NS

Date Collected:	12/06/10 14:45
Date Received:	12/06/10
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	01/18/11 17:02
Cleanup Method1:	EPA 3630
Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.065	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	84		50-130
d50-Tetracosane	90		50-130

Project Name: FORMER GE
Project Number: 172015
Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-09	Date Collected:	12/07/10 10:35
Client ID:	GZA-14.12.07.10 PRE	Date Received:	12/07/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 04:09		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.067	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		50-130
d50-Tetracosane	91		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-10	Date Collected:	12/07/10 10:35
Client ID:	GZA-14.12.07.10 POST	Date Received:	12/07/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/18/11 17:02
Analytical Date:	12/22/10 10:01	Cleanup Method1:	EPA 3630
Analyst:	NS	Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.067	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	85		50-130
d50-Tetracosane	90		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-11	Date Collected:	12/08/10 14:00
Client ID:	GZA-102S.12.08.10 PRE	Date Received:	12/08/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 05:34		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.424		mg/l	0.070	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	88		50-130
d50-Tetracosane	94		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-12	Date Collected:	12/08/10 14:00
Client ID:	GZA-102S.12.08.10 POST	Date Received:	12/08/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/18/11 17:02
Analytical Date:	12/22/10 11:26	Cleanup Method1:	EPA 3630
Analyst:	NS	Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.164		mg/l	0.070	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	83		50-130
d50-Tetracosane	92		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-13	Date Collected:	12/08/10 14:15
Client ID:	GZA-6.12.8.10 PRE	Date Received:	12/08/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 09:50		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.066	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	87		50-130
d50-Tetracosane	89		50-130

Project Name: FORMER GE
Project Number: 172015

Lab Number: L1019408
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019408-14
Client ID:	GZA-6.12.8.10 POST
Sample Location:	WILMINGTON, MA
Matrix:	Water
Analytical Method:	1,8015D(M)
Analytical Date:	12/22/10 12:52
Analyst:	NS

Date Collected:	12/08/10 14:15
Date Received:	12/08/10
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	01/18/11 17:02
Cleanup Method1:	EPA 3630
Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.066	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	85		50-130
d50-Tetracosane	89		50-130

SAMPLE RESULTS

Lab ID:	L1019704-01	Date Collected:	12/09/10 13:15
Client ID:	TRC-105S.12.09.10 PRE	Date Received:	12/09/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 11:15		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.070	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	78		50-130
d50-Tetracosane	83		50-130

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019704
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019704-02	Date Collected:	12/09/10 13:15
Client ID:	TRC-105S.12.09.10 POST	Date Received:	12/09/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/18/11 17:02
Analytical Date:	12/21/10 12:41	Cleanup Method1:	EPA 3630
Analyst:	NS	Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.070	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	76		50-130
d50-Tetracosane	82		50-130

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019704
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019704-03	Date Collected:	12/09/10 15:20
Client ID:	GZA-10.12.09.10 PRE	Date Received:	12/09/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 14:07		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	0.070		mg/l	0.070	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	86		50-130
d50-Tetracosane	91		50-130

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019704
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019704-04	Date Collected:	12/09/10 15:20
Client ID:	GZA-10.12.09.10 POST	Date Received:	12/09/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/18/11 17:02
Analytical Date:	12/21/10 15:32	Cleanup Method1:	EPA 3630
Analyst:	NS	Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.070	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	83		50-130
d50-Tetracosane	90		50-130

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019704
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019704-05	Date Collected:	12/09/10 16:00
Client ID:	FB-1.12.09.10 PRE	Date Received:	12/09/10
Sample Location:	WILMINGTON, MA	Field Prep:	Not Specified
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8015D(M)	Extraction Date:	01/19/11 12:25
Analytical Date:	12/21/10 16:58		
Analyst:	NS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.069	–	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	71		50-130
d50-Tetracosane	74		50-130

Project Name: FORMER GE SITE
Project Number: 172015

Lab Number: L1019704
Report Date: 01/25/11

SAMPLE RESULTS

Lab ID:	L1019704-06
Client ID:	FB-1.12.09.10 POST
Sample Location:	WILMINGTON, MA
Matrix:	Water
Analytical Method:	1,8015D(M)
Analytical Date:	12/21/10 18:24
Analyst:	NS

Date Collected:	12/09/10 16:00
Date Received:	12/09/10
Field Prep:	Not Specified
Extraction Method:	EPA 3510C
Extraction Date:	01/18/11 17:02
Cleanup Method1:	EPA 3630
Cleanup Date1:	12/17/10

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Petroleum Hydrocarbon Identification by GC-FID - Mansfield Lab						
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.069	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
o-Terphenyl	68		50-130
d50-Tetracosane	76		50-130

Appendix C

Sediment and Surface Water Analytical Report and Data Validation

ANALYTICAL REPORT

Lab Number:	L1118656
Client:	Camp Dresser & McKee, Inc. 1 Cambridge Place 50 Hampshire Street Cambridge, MA 02139
ATTN:	Erika Parsons
Phone:	(617) 452-6000
Project Name:	LMC-WILMINGTON
Project Number:	Not Specified
Report Date:	11/14/11

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NY (11148), CT (PH-0574), NH (2003), NJ NELAP (MA935), RI (LAO00065), ME (MA00086), PA (68-03671), USDA (Permit #P-330-11-00240), NC (666), TX (T104704476), DOD (L2217), US Army Corps of Engineers.

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1118656-01	SW-1NO	WILMINGTON, MA	11/09/11 00:00
L1118656-02	SW-1	WILMINGTON, MA	11/09/11 08:31
L1118656-03	SW-2	WILMINGTON, MA	11/09/11 08:50
L1118656-04	SW-3	WILMINGTON, MA	11/09/11 09:13
L1118656-05	SW-4	WILMINGTON, MA	11/09/11 09:25
L1118656-06	SW-5	WILMINGTON, MA	11/09/11 09:45
L1118656-07	SW-6	WILMINGTON, MA	11/09/11 09:55
L1118656-08	SED-1A	WILMINGTON, MA	11/09/11 08:34
L1118656-09	SED-1B	WILMINGTON, MA	11/09/11 08:40
L1118656-10	SED-2A	WILMINGTON, MA	11/09/11 08:51
L1118656-11	SED-2B	WILMINGTON, MA	11/09/11 08:53
L1118656-12	SED-3A	WILMINGTON, MA	11/09/11 09:18
L1118656-13	SED-3B	WILMINGTON, MA	11/09/11 09:15
L1118656-14	SED-4A	WILMINGTON, MA	11/09/11 09:34
L1118656-15	SED-4B	WILMINGTON, MA	11/09/11 09:36
L1118656-16	SED-5A	WILMINGTON, MA	11/09/11 09:50
L1118656-17	SED-5B	WILMINGTON, MA	11/09/11 09:55
L1118656-18	SED-6A	WILMINGTON, MA	11/09/11 10:00
L1118656-19	SED-6B	WILMINGTON, MA	11/09/11 10:02

Project Name: LMC-WILMINGTON **Lab Number:** L1118656

Project Number: Not Specified **Report Date:** 11/14/11

MADEP MCP Response Action Analytical Report Certification

This form provides certifications for all samples performed by MCP methods. Please refer to the Sample Results and Container Information sections of this report for specification of MCP methods used for each analysis. The following questions pertain only to MCP Analytical Methods.

An affirmative response to questions A through F is required for "Presumptive Certainty" status		
A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	YES
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	YES
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	YES
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data?"	YES
E a.	VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications).	N/A
E b.	APH and TO-15 Methods only: Was the complete analyte list reported for each method?	N/A
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	YES

A response to questions G, H and I is required for "Presumptive Certainty" status		
G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	YES
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	NO
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	NO

For any questions answered "No", please refer to the case narrative section on the following page(s).

Please note that sample matrix information is located in the Sample Results section of this report.

Project Name: LMC-WILMINGTON **Lab Number:** L1118656
Project Number: Not Specified **Report Date:** 11/14/11

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

For additional information, please contact Client Services at 800-624-9220.

MCP Related Narratives

The samples were Field Filtered for Dissolved Metals only.

In reference to question H:

A Matrix Spike was not submitted for the analysis of Total Metals in soil.

Dissolved Metals

L1118656-07 has elevated detection limits for Arsenic and Iron due to the dilution required by the high concentrations of non-target analytes. The requested reporting limits were achieved.

In reference to question I:

All samples were analyzed for a subset of MCP elements per the Chain of Custody.

Total Metals

Project Name:	LMC-WILMINGTON	**Lab Number:**	L1118656
Project Number:	Not Specified	**Report Date:**	11/14/11

Case Narrative (continued)

In reference to question I:

All samples were analyzed for a subset of MCP elements per the Chain of Custody.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Lisa Westerlind

Title: Technical Director/Representative Date: 11/14/11

METALS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-02
Client ID: SW-1
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 11/09/11 08:31
Date Received: 11/09/11
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Arsenic, Dissolved	0.0053		mg/l	0.0005	--	1	11/10/11 20:21	11/11/11 19:33	EPA 3005A	97,6020A	BM
Iron, Dissolved	4.10		mg/l	0.050	--	1	11/10/11 20:21	11/11/11 19:33	EPA 3005A	97,6020A	BM

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-03
Client ID: SW-2
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 11/09/11 08:50
Date Received: 11/09/11
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Arsenic, Dissolved	0.0212		mg/l	0.0005	--	1	11/10/11 20:21	11/11/11 19:39	EPA 3005A	97,6020A	BM
Iron, Dissolved	7.15		mg/l	0.050	--	1	11/10/11 20:21	11/11/11 19:39	EPA 3005A	97,6020A	BM

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-04
Client ID: SW-3
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 11/09/11 09:13
Date Received: 11/09/11
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Arsenic, Dissolved	0.0111		mg/l	0.0005	--	1	11/10/11 20:21	11/11/11 19:45	EPA 3005A	97,6020A	BM
Iron, Dissolved	6.57		mg/l	0.050	--	1	11/10/11 20:21	11/11/11 19:45	EPA 3005A	97,6020A	BM

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-05
Client ID: SW-4
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 11/09/11 09:25
Date Received: 11/09/11
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Arsenic, Dissolved	0.0033		mg/l	0.0005	--	1	11/10/11 20:21	11/11/11 19:51	EPA 3005A	97,6020A	BM
Iron, Dissolved	6.77		mg/l	0.050	--	1	11/10/11 20:21	11/11/11 19:51	EPA 3005A	97,6020A	BM

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-06
Client ID: SW-5
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 11/09/11 09:45
Date Received: 11/09/11
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Arsenic, Dissolved	0.0016		mg/l	0.0005	--	1	11/10/11 20:21	11/11/11 19:57	EPA 3005A	97,6020A	BM
Iron, Dissolved	1.97		mg/l	0.050	--	1	11/10/11 20:21	11/11/11 19:57	EPA 3005A	97,6020A	BM

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-07
Client ID: SW-6
Sample Location: WILMINGTON, MA
Matrix: Water
Date Collected: 11/09/11 09:55
Date Received: 11/09/11
Field Prep: See Narrative

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab											
Arsenic, Dissolved	0.0179		mg/l	0.0010	--	2	11/10/11 20:21	11/11/11 20:04	EPA 3005A	97,6020A	BM
Iron, Dissolved	7.93		mg/l	0.100	--	2	11/10/11 20:21	11/11/11 20:04	EPA 3005A	97,6020A	BM

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-08
Client ID: SED-1A
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 40%

Date Collected: 11/09/11 08:34
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	5.2		mg/kg	0.93	--	1	11/10/11 17:00	11/14/11 09:59	EPA 3005A	97,6010B	MS
Iron, Total	7800		mg/kg	4.7	--	1	11/10/11 17:00	11/14/11 09:59	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-09
Client ID: SED-1B
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 70%

Date Collected: 11/09/11 08:40
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	1.7		mg/kg	0.54	--	1	11/10/11 17:00	11/14/11 10:04	EPA 3005A	97,6010B	MS
Iron, Total	3300		mg/kg	2.7	--	1	11/10/11 17:00	11/14/11 10:04	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-10
Client ID: SED-2A
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 67%

Date Collected: 11/09/11 08:51
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	1.5		mg/kg	0.56	--	1	11/10/11 17:00	11/14/11 10:06	EPA 3005A	97,6010B	MS
Iron, Total	4600		mg/kg	2.8	--	1	11/10/11 17:00	11/14/11 10:06	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-11
Client ID: SED-2B
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 77%

Date Collected: 11/09/11 08:53
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	5.9		mg/kg	0.49	--	1	11/10/11 17:00	11/14/11 10:09	EPA 3005A	97,6010B	MS
Iron, Total	8700		mg/kg	2.5	--	1	11/10/11 17:00	11/14/11 10:09	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-12
Client ID: SED-3A
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 36%

Date Collected: 11/09/11 09:18
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	9.4		mg/kg	1.0	--	1	11/10/11 17:00	11/14/11 10:11	EPA 3005A	97,6010B	MS
Iron, Total	11000		mg/kg	5.2	--	1	11/10/11 17:00	11/14/11 10:11	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-13
Client ID: SED-3B
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 44%

Date Collected: 11/09/11 09:15
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	8.2		mg/kg	0.85	--	1	11/10/11 17:00	11/14/11 10:18	EPA 3005A	97,6010B	MS
Iron, Total	10000		mg/kg	4.3	--	1	11/10/11 17:00	11/14/11 10:18	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-14
Client ID: SED-4A
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 68%

Date Collected: 11/09/11 09:34
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	4.9		mg/kg	0.56	--	1	11/10/11 17:00	11/14/11 10:21	EPA 3005A	97,6010B	MS
Iron, Total	7300		mg/kg	2.8	--	1	11/10/11 17:00	11/14/11 10:21	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-15
Client ID: SED-4B
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 72%

Date Collected: 11/09/11 09:36
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	6.8		mg/kg	0.53	--	1	11/10/11 17:00	11/14/11 10:23	EPA 3005A	97,6010B	MS
Iron, Total	10000		mg/kg	2.6	--	1	11/10/11 17:00	11/14/11 10:23	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-16
Client ID: SED-5A
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 60%

Date Collected: 11/09/11 09:50
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	0.83		mg/kg	0.63	--	1	11/10/11 17:00	11/14/11 10:26	EPA 3005A	97,6010B	MS
Iron, Total	1400		mg/kg	3.2	--	1	11/10/11 17:00	11/14/11 10:26	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-17
Client ID: SED-5B
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 57%

Date Collected: 11/09/11 09:55
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	10		mg/kg	0.66	--	1	11/10/11 17:00	11/14/11 10:28	EPA 3005A	97,6010B	MS
Iron, Total	8000		mg/kg	3.3	--	1	11/10/11 17:00	11/14/11 10:28	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-18
Client ID: SED-6A
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 46%

Date Collected: 11/09/11 10:00
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	6.4		mg/kg	0.82	--	1	11/10/11 17:00	11/14/11 10:31	EPA 3005A	97,6010B	MS
Iron, Total	10000		mg/kg	4.1	--	1	11/10/11 17:00	11/14/11 10:31	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Lab Number: L1118656
Project Number: Not Specified
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-19
Client ID: SED-6B
Sample Location: WILMINGTON, MA
Matrix: Soil
Percent Solids: 76%

Date Collected: 11/09/11 10:02
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
MCP Total Metals - Westborough Lab											
Arsenic, Total	20		mg/kg	0.49	--	1	11/10/11 17:00	11/14/11 10:33	EPA 3005A	97,6010B	MS
Iron, Total	15000		mg/kg	2.5	--	1	11/10/11 17:00	11/14/11 10:33	EPA 3005A	97,6010B	MS

Project Name: LMC-WILMINGTON
Project Number: Not Specified
Lab Number: L1118656
Report Date: 11/14/11

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Total Metals - Westborough Lab for sample(s): 08-19 Batch: WG501598-1										
Arsenic, Total	ND		mg/kg	0.40	--	1	11/10/11 17:00	11/14/11 09:49	97,6010B	MS
Iron, Total	ND		mg/kg	2.0	--	1	11/10/11 17:00	11/14/11 09:49	97,6010B	MS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
MCP Dissolved Metals - Westborough Lab for sample(s): 02-07 Batch: WG501602-1										
Arsenic, Dissolved	ND		mg/l	0.0005	--	1	11/10/11 20:21	11/11/11 18:55	97,6020A	BM
Iron, Dissolved	ND		mg/l	0.050	--	1	11/10/11 20:21	11/11/11 18:55	97,6020A	BM

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: LMC-WILMINGTON

Project Number: Not Specified

Lab Number: L1118656

Report Date: 11/14/11

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
MCP Total Metals - Westborough Lab Associated sample(s): 08-19 Batch: WG501598-2 WG501598-3 SRM Lot Number: 0518-10-02								
Arsenic, Total	114		119		81-119	4		30
Iron, Total	86		101		51-150	16		30
MCP Dissolved Metals - Westborough Lab Associated sample(s): 02-07 Batch: WG501602-2 WG501602-3								
Arsenic, Dissolved	107		106		80-120	1		20
Iron, Dissolved	106		106		80-120	0		20

INORGANICS
&
MISCELLANEOUS

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-08
Client ID: SED-1A
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 08:34
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	40		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-09
Client ID: SED-1B
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 08:40
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-10
Client ID: SED-2A
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 08:51
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	67		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-11
Client ID: SED-2B
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 08:53
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-12
Client ID: SED-3A
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 09:18
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	36		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-13
Client ID: SED-3B
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 09:15
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	44		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-14
Client ID: SED-4A
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 09:34
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-15
Client ID: SED-4B
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 09:36
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-16
Client ID: SED-5A
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 09:50
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	60		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-17
Client ID: SED-5B
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 09:55
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	57		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-18
Client ID: SED-6A
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 10:00
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	46		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

SAMPLE RESULTS

Lab ID: L1118656-19
Client ID: SED-6B
Sample Location: WILMINGTON, MA
Matrix: Soil

Date Collected: 11/09/11 10:02
Date Received: 11/09/11
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76		%	0.10	NA	1	-	11/11/11 10:50	30,2540G	SD

Lab Duplicate Analysis
Batch Quality Control

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 08-19 QC Batch ID: WG501741-1 QC Sample: L1118526-02 Client ID: DUP Sample						
Solids, Total	72	73	%	1		20

Project Name: LMC-WILMINGTON
Project Number: Not Specified

Lab Number: L1118656
Report Date: 11/14/11

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

Cooler Information Custody Seal

Cooler	
A	Absent

Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1118656-01A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	DISPOSAL(0)
L1118656-02A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	MCP-FE-6020S-10(180),MCP-AS-6020S-10(180)
L1118656-03A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	MCP-FE-6020S-10(180),MCP-AS-6020S-10(180)
L1118656-04A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	MCP-FE-6020S-10(180),MCP-AS-6020S-10(180)
L1118656-05A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	MCP-FE-6020S-10(180),MCP-AS-6020S-10(180)
L1118656-06A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	MCP-FE-6020S-10(180),MCP-AS-6020S-10(180)
L1118656-07A	Plastic 250ml HNO3 preserved	A	<2	2.6	Y	Absent	MCP-FE-6020S-10(180),MCP-AS-6020S-10(180)
L1118656-08A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-09A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-10A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-11A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-12A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-13A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-14A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-15A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-16A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-17A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-18A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)
L1118656-19A	Amber 120ml unpreserved	A	N/A	2.6	Y	Absent	MCP-FE-6010T-10(180),MCP-AS-6010T-10(180),TS(7)

*Values in parentheses indicate holding time in days

Project Name: LMC-WILMINGTON **Lab Number:** L1118656

Project Number: Not Specified **Report Date:** 11/14/11

GLOSSARY

Acronyms

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NI - Not Ignitable.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

Report Format: Data Usability Report

Project Name:	LMC-WILMINGTON	**Lab Number:**	L1118656
Project Number:	Not Specified	**Report Date:**	11/14/11

Data Qualifiers

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name: LMC-WILMINGTON
Project Number: Not Specified
Lab Number: L1118656
Report Date: 11/14/11

REFERENCES

30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

97 EPA Test Methods (SW-846) with QC Requirements & Performance Standards for the Analysis of EPA SW-846 Methods under the Massachusetts Contingency Plan, WSC-CAM-IIA, IIB, IIIA, IIIB, IIIC, IIID, VA, VB, VC, VIA, VIB, VIIIA and VIIIB, July 2010.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certificate/Approval Program Summary

Last revised September 19, 2011 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

Connecticut Department of Public Health Certificate/Lab ID: PH-0574. ***NELAP Accredited Solid Waste/Soil.***

Drinking Water (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP), Ethylene Dibromide (EDB), 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223 P/A), E. Coli. – Colilert (SM9223 P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D))

Wastewater/Non-Potable Water (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E).)

Solid Waste/Soil (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Volatile Organics, Acid Extractables (Phenols), 3.3'-Dichlorobenzidine, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

Maine Department of Human Services Certificate/Lab ID: 2009024.
Drinking Water (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2130B, 2320B, 2540C, 4500Cl-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

Wastewater/Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664A, 350.1, 351.1, 353.2, 410.4, 420.1, SM2320B, 2510B, 2540C, 2540D, 426C, 4500Cl-D, 4500Cl-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-B, 4500Norg-C, 4500NH3-B, 4500NH3-G, 4500NH3-H, 4500NO3-F, 4500P-B, 4500P-E, 5210B, 5220D, 5310C, 9010B, 9040B, 9030B, 7470A, 7196A, 2340B, EPA 200.7, 6010, 200.8, 6020, 245.1, 1311, 1312, 3005A, Enterolert, 9223D, 9222D. Organic Parameters: 608, 8081, 8082, 8330, 8151A, 624, 8260, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

Solid Waste/Soil (Inorganic Parameters: 9010B, 9012A, 9014A, 9040B, 9045C, 6010B, 7471A, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260B, 8270C, 8330, 8151A, 8081A, 8082, 3540C, 3546, 3580A, 3630C, 5030B, 5035.)

Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.
*Drinking Water (*Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (*Inorganic Parameters:, (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl, V,Zn); 245.1, SM4500H,B, EPA 120.1,

SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.
Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B;Enterolert-QT: SM9222D-MF.)

New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 245.2, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, 245.2, SW-846 6010B, 6020, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 1664A, SW-846 9010, 9030, 9040B, SM426C, SM2120B, 2310B, 2320B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260B, 8270C, 8330, EPA 624, 625, 608, SW-846 8082, 8081A, 8151A.)

Solid & Chemical Materials (Inorganic Parameters: SW-846 6010B, 7196A, 7471A, 1010, 1030, 9010, 9012A, 9014, 9030B, 9040B, 9045C, 9050C, 9065,1311, 1312, 3005A, 3050B. Organic Parameters: SW-846 3540C, 3546, 3550B, 3580A, 3630C, 5030B, 5035, 8260B, 8270C, 8330, 8151A, 8015B, 8082, 8081A.)

New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.2, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

Non-Potable Water (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500Cl-E, EPA 300.0, SM2120B, SM4500F-BC, EPA 200.7, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 6020, 6020A, 7470A, 5540C, 4500H-B, EPA 200.8, SM3500Cr-D, 4500CN-CE, EPA 245.1, 245.2, SW-846 9040B, 3005A, 3015, EPA 6010B, 6010C, 7196A, 3060A, SW-846 9010B, 9030B. Organic Parameters: SW-846 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8081A, 8081B, 8082, 8082A, 8151A, 8330, NJ OQA-QAM-025 Rev.7, NJ EPH.)

Solid & Chemical Materials (Inorganic Parameters: SW-846, 6010B, 6010C, 7196A, 3060A, 9010B, 9030B, 1010, 1030, 1311, 1312, 3005A, 3050B, 7471A, 7471B, 9014, 9012A, 9040B, 9045C, 9050A, 9065. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3545, 3546, 3550B, 3580A, 3630C, 5030B, 5035L, 5035H, NJ OQA-QAM-025 Rev.7, NJ EPH.)

New York Department of Health Certificate/Lab ID: 11148. ***NELAP Accredited.***
Drinking Water (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.2, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500H-B, 4500NO3-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B-4a, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH3-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, LACHAT 10-107-04-1-C, SM4500-NO3-F, 4500-NO2-B, 4500P-E, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010B, 6020, EPA 7196A, SM3500Cr-D, EPA 245.1, 245.2, 7470A, SM2120B, LACHAT 10-204-00-1-A, EPA 9040B, SM4500-HB, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 3005A, 9010B, 9030B.. Organic Parameters: EPA 624, 8260B, 8270C, 625, 608, 8081A, 8151A, 8330, 8082, EPA 3510C, 5030B.)

Solid & Hazardous Waste (Inorganic Parameters: 1010, 1030, EPA 6010B, 7196A, 7471A, 9012A, 9014, 9040B, 9045C, 9065, 9050, EPA 1311, 1312, 3005A, 3050B, 9010B, 9030B. Organic Parameters: EPA 8260B, 8270C, 8015B, 8081A, 8151A, 8330, 8082, 3540C, 3545, 3546, 3580, 5030B, 5035.)

North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. Organic Parameters: MA-EPH, MA-VPH.

Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. ***NELAP Accredited.***
Drinking Water (Organic Parameters: EPA 524.2, 504.1)

Non-Potable Water (Inorganic Parameters: EPA 1312, 200.7, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE. Organic Parameters: EPA 3510C, 3005A, 3630C, 5030B, 625, 624, 608, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Solid & Hazardous Waste (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3050B, 6010B, 7196A, 7471A, 9010B, 9012A, 9014, 9040B, 9045C, 9050, 9065, SM 4500NH3-H. Organic Parameters: 3540C, 3545, 3546, 3550B**,** 3580A, 3630C, 5035, 8015B, 8081A, 8082, 8151A, 8260B, 8270C, 8330)

Rhode Island Department of Health Certificate/Lab ID: LAO00065. ***NELAP Accredited via NY-DOH.***
Refer to MA-DEP Certificate for Potable and Non-Potable Water.
Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476-09-1. ***NELAP Accredited.***
Non-Potable Water (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 376.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH3-H, 4500NO2B, 4500P-E, 4500 $S2^{-}$D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

Department of Defense Certificate/Lab ID: L2217.
Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6020, 245.1, 245.2, 7470A, 9040B, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 5220D, 5310C, 2320B, 2540C, 3005A, 3015, 9010B, 9056. Organic Parameters: EPA 8260B, 8270C, 8330A, 625, 8082, 8081A, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 7471A, 9010, 9012A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8270C, 8330A/B-prep, 8082, 8081A, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

The following analytes are not included in our current NELAP/TNI Scope of Accreditation:
EPA 8260B: Freon-113, 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnapthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine (Azobenzene). **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, Chloride in a soil matrix, TKN in a soil matrix, NO2 in a soil matrix, NO3 in a soil matrix, SO4 in a soil matrix.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/09/11

ALPHA Job #: L1118656

Client Information

Client: CDM
Address: 50 Hampshire St. Cambridge, MA 02139
Phone: 617 452 6000
Fax: 617 452 8000
Email: parsonsel@cdm.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC-Wilmington
Project Location: Wilmington MA
Project #:
Project Manager: Erika Parsons
ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)
Date Due: 11/14/11 Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program MassDEP MCP Criteria GW-1, GW-2, GW-3 S-1, S-2, S-3 NRWQC (PEC)

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All ***CAM*** methods for inorganic analyses require MS every 20 soil samples)

SAMPLE HANDLING

Filtration
☒ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	ANALYSIS: Dissolved Fe & As	ANALYSIS: Fe & As	Sample Specific Comments	TOTAL # BOTTLES
18656 1	SW-1ND	11/9/11	—	SW	ECA	—		DISCARD	
2	SW-1		0831			X		field filtered	
3	SW-2		0850			X			
4	SW-3		0913			X			
5	SW-4		0925			X			
6	SW-5		0945			X			
7	SW-6		0955			X			
8	SED-1A		0834	Sediment		~~X~~	X		
9	SED-1B		0840			~~X~~	X		
16	SED-2A		0851			~~X~~	X		

Container Type	250ml	100ml
Preservative	HNO3	—

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?
Re: Gadbois 11/09/11 11:00

Relinquished By:	Date/Time	Received By:	Date/Time
Erika L Parsons	11/9/11 3:20		11/9/11 1520
	11/9/11 1720		11.9.11 1720
	11/9/11		11/10/11 7:10
Pat Celee	11/10/11 8:45		11/10/11 9:30
P. Gilbert 11/10/11 1400			P. Gilbert 11/10/11 1300

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)

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CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 11/09/11

ALPHA Job #: L1118656

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: CDM
Address: 50 Hampshire St. Cambridge MA 02139
Phone: 617 452 6000
Fax: 617 452 8000
Email: parsonsel@cdm.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: LMC - Wilmington
Project Location: Wilmington MA
Project #:
Project Manager: Erika Parsons
ALPHA Quote #:

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program: MassDEP MCP Criteria: S-1, S-2, S-3 | NRWQC PEC

MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

☒ Yes ☐ No Are MCP Analytical Methods Required?
☐ Yes ☒ No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)
☐ Yes ☒ No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:

If MS is required , indicate in Sample Specific Comments which samples and what tests MS to be performed.
(Note: All ***CAM*** methods for inorganic analyses require MS every 20 soil samples)

ANALYSIS: Iron & Arsenic

SAMPLE HANDLING

Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Iron & Arsenic	Sample Specific Comments	TOTAL # BOTTLES
14656-11	SED-2B	11/9/11	0853	Sediment	ECA	X		
12	SED-3A		0918			X		
13	SED-3B		0915			X		
14	SED-4A		0934			X		
15	SED-4B		0936			X		
16	SED-5A		0950			X		
17	SED-5B		0955			X		
18	SED-6A		1000			X		
19	SED-6B		1002			X		

Container Type: 100ml
Preservative: None

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
Erika Parsons	11/9/2011 3:20		11/9/11 1520
	11/9/11 1720		11.9.11 1720
Pat Cerro	11/10/11 8am	Pat Cerro	11/10/11 9:30
P. Gillett 11/10/11 1400			

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

P. Gillett 11/10/11 1300

FORM NO: 01-01 (rev. 18-Jan-2010)

Serial_No:11141115:35

Appendix D

Public Involvement Documentation

CDM Smith

50 Hampshire Street
Cambridge, Massachusetts 02139
tel: +1 617 452-6000
fax: +1 617 452-8000
cdmsmith.com

January 6, 2012

Mr. Michael A. Caira
Town Manager
Town of Wilmington
121 Glen Road
Wilmington, MA 01887

Subject: Public Notification Requirement
Interim Phase II Comprehensive Site Assessment
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
MassDEP RTN 3-28282

Dear Mr. Caira:

On behalf of Lockheed Martin Corporation, and in accordance with the Massachusetts Contingency Plan 310 CMR 40.1403 (3)(e), this correspondence serves as notification that the Interim Phase II Comprehensive Site Assessment (CSA) has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the former GE Facility located at 50 Fordham Road in Wilmington, Massachusetts.

A copy of the Interim Phase II CSA, as well as all other applicable documents pertaining to the site, is available for review at the MassDEP Northeastern Regional Office located in Wilmington, Massachusetts. TRC Environmental Corporation and CDM Smith Inc. performed field investigations and subsequent risk characterization to evaluate the potential risk of harm to human health, safety, public welfare, and the environment. A copy of the conclusions of the Interim Phase II CSA is attached.

If you have any questions regarding this correspondence, please contact me at (617) 452-6000.

Very truly yours,

Ernest C. Ashley, P.G., LSP
Associate
CDM Smith Inc.

Section 7

Summary and Conclusions

This section presents a summary of the Phase II CSA. Public involvement documentation, as required by 310 CMR 40.1403(3)(e), is included as **Appendix D** of this report. This report details the nature and extent of impacts of the site, addresses the potential current and future risks to human health and the environment, and provides recommendations for additional measures at the site.

7.1 Summary of the Interim Phase II Comprehensive Site Assessment Investigation

The following activities were conducted during the Interim Phase II CSA investigation conducted in 2010 and 2011:

- The sampling of 16 monitoring wells;
- The collection of 12 sediment samples;
- The collection of six surface water samples; and
- The evaluation of data from 32 nearby sites of release on the MassDEP searchable database.
- Review of numerous investigations conducted by others on the Site, including a limited soil metals data investigation.

7.1.1 Summary of Nature and Extent

The investigations conducted at the Site suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases covered under a separate RTN. The Interim Phase II CSA was completed to assess and define the horizontal and vertical extent of the OHM at the Site in groundwater, sediment, and surface water and in soil in the general vicinity of the Site.

Based on the Phase II activities listed above, CDM Smith observed the following:

- Limited site soil samples from 1989 indicate potential elevated arsenic at the Site. There is no information to suggest a release of arsenic from former or current facility operations.
- Based on the review of soil and groundwater data from 32 nearby sites of release, it is evident that soil and/or bedrock in the area in and around Wilmington, Massachusetts, contains naturally high arsenic concentrations in excess of the general 20 mg/kg established to be background by MassDEP. At these sites of release, documented low Eh due to high organic carbon content coincident with this high arsenic soil/bedrock can cause arsenic dissolution from the soil/bedrock into groundwater to increase the arsenic groundwater concentrations to above background.
- MCP Method 1 GW-1 Groundwater Standard exceedances for arsenic were found in groundwater samples collected onsite from eight monitoring wells. MCP Method 2 GW-1 and GW-3 Groundwater Standard exceedances for iron were found in groundwater samples

collected onsite from nine monitoring wells. For the most part, these arsenic and iron exceedances were detected in groundwater samples collected from monitoring wells in areas impacted by the releases associated with RTN 3-0518, and are considered to be most likely associated with chemical changes due to these primarily organic releases.

- Sediment samples indicated that sediment is not impacted by the Site.
- Surface water samples indicated that surface water is potentially impacted at the Site, with elevated concentrations of iron; however arsenic concentrations in surface water are below the applicable screening criterion. It is important to note that surface water samples collected in locations considered to be background and/or unimpacted by RTN 3-0518 plumes contained elevated concentrations of iron.
- The nature and extent of arsenic and iron in site soil has not yet been fully characterized or delineated at the Site.
- Additional soil data is required above and within the elevated arsenic/iron groundwater plume to provide a complete understanding of the nature and extent of the arsenic and iron in soil. However, the findings of this effort are unlikely to result in any change to the assessment and conclusions of this report; rather this is merely a matter of determining exact concentrations and can possibly lead to consideration of removal of any arsenic-laden soil that is not naturally occurring and/or background.
- Additional rounds of groundwater and surface water sampling events and observations from these events are required to better understand seasonal and other variability of the arsenic in groundwater and associated potential impacts.
- Even though sediment data collected did not indicate impacts from the Site, since GW-3 exceedances for iron in groundwater samples collected from the Site exist, additional sediment data is required to more fully evaluate the pathway of groundwater to surface water and any associated impacts to sediment. This will also help to assess any possible seasonal or other variability in contaminant concentrations in sediment.

7.1.2 Summary of Risk Assessment

A condition of No Significant Risk to human health, public welfare, and the environment does not currently exist at the Site, based on arsenic and iron groundwater standard exceedances in samples collected from the Site. A condition of No Significant Risk to safety does currently exist at the Site. As a result of the presence of the groundwater concentrations above the applicable standards, additional remedial action is required at the Site.

7.2 Reason for Interim Phase II Comprehensive Site Assessment

The nature and extent of the constituents of concern for RTN 3-28282 at Site have not yet been fully delineated. Additional site soil, groundwater, sediment, and surface water data is needed in order to obtain a complete understanding of the impacts at the Site, before Phase II can be completed and remedial alternatives can be evaluated.

In addition, as previously discussed, arsenic impacts observed in groundwater samples collected from the Site are believed to likely be attributed to elevated, naturally-occurring, background concentrations and dissolution of arsenic from natural local soil and bedrock, due to reducing conditions resulting from the presence of high organic concentrations from contamination (and possibly remediation) associated with RTN 3-0518. Therefore, without the elimination of the high organic content stemming from releases associated with RTN 3-0518, remediation of the arsenic impacts in groundwater alone will not serve to mitigate the probable cause of high arsenic concentrations in groundwater at the Site. Thus, CDM Smith concludes that it is most appropriate to determine a remedial alternative that would most effectively mitigate impacts due to both RTN 3-0518 and RTN 3-28282 as a whole, instead of separately.

Therefore, CDM Smith proposes to link RTN 3-28282 to parent RTN 3-0518 as soon as the Tier 1A permit for RTN 3-0518 has been transferred from TRC back to Lockheed Martin. Lockheed Martin transferred responsibility for RTN 3-0518 to TRC on October 22, 1999, as part of a contractual relationship that has recently been terminated. TRC is in the process of transferring the responsibility for the Property and RTN 3-0518 back to Lockheed Martin, and that transfer should be completed in the beginning of 2012. At that time, the two RTNs will be linked, and further evaluation of the operating remedy under ROS associated with RTN 3-0518 will be conducted. Therefore, no Phase III RAP has been completed as part of this Interim Phase II CSA for RTN 3-28282, as is required by 310 CMR 40.0500. Additional characterization of the linked RTNs will be performed under the parent RTN, and the adequacy of the existing remedies will be evaluated.

7.3 Recommendations

Since groundwater samples contain concentrations of arsenic above the GW-1 standard and iron above the GW-1 and GW-3 standards, it has been determined that (1) there is potential risk associated with the Site and (2) additional remedial activities will be necessary at the site to achieve a level of No Significant Risk.

However, the full extent of arsenic impacts in site media is currently unknown. As a result, further soil, groundwater, sediment, and surface water sampling must be completed to fully delineate the nature and extent of arsenic impacts in preparation for the selection of a remedial alternative for the Site.

In addition, as presented in Section 7.2, CDM Smith recommends linking RTN 3-28282 to parent RTN 3-0518 in order to evaluate impacts and remedial options at the Site and the Property as a whole. This further characterization and evaluation for the linked RTNs will be conducted under the parent RTN.

CDM Smith

50 Hampshire Street
Cambridge, Massachusetts 02139
tel: +1 617 452-6000
fax: +1 617 452-8000
cdmsmith.com

January 6, 2012

Ms. Shelly Newhouse, R.S.
Director of Public Health
Town of Wilmington
121 Glen Road
Wilmington, MA 01887

Subject: Public Notification Requirement
Interim Phase II Comprehensive Site Assessment
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
MassDEP RTN 3-28282

Dear Ms. Newhouse:

On behalf of Lockheed Martin Corporation, and in accordance with the Massachusetts Contingency Plan 310 CMR 40.1403 (3)(e), this correspondence serves as notification that the Interim Phase II Comprehensive Site Assessment (CSA) has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the former GE Facility located at 50 Fordham Road in Wilmington, Massachusetts.

A copy of the Interim Phase II CSA, as well as all other applicable documents pertaining to the site, is available for review at the MassDEP Northeastern Regional Office located in Wilmington, Massachusetts. TRC Environmental Corporation and CDM Smith Inc. performed field investigations and subsequent risk characterization to evaluate the potential risk of harm to human health, safety, public welfare, and the environment. A copy of the conclusions of the Interim Phase II CSA is attached.

If you have any questions regarding this correspondence, please contact me at (617) 452-6000.

Very truly yours,

Ernest C. Ashley, P.G., LSP
Associate
CDM Smith Inc.

Section 7

Summary and Conclusions

This section presents a summary of the Phase II CSA. Public involvement documentation, as required by 310 CMR 40.1403(3)(e), is included as **Appendix D** of this report. This report details the nature and extent of impacts of the site, addresses the potential current and future risks to human health and the environment, and provides recommendations for additional measures at the site.

7.1 Summary of the Interim Phase II Comprehensive Site Assessment Investigation

The following activities were conducted during the Interim Phase II CSA investigation conducted in 2010 and 2011:

- The sampling of 16 monitoring wells;
- The collection of 12 sediment samples;
- The collection of six surface water samples; and
- The evaluation of data from 32 nearby sites of release on the MassDEP searchable database.
- Review of numerous investigations conducted by others on the Site, including a limited soil metals data investigation.

7.1.1 Summary of Nature and Extent

The investigations conducted at the Site suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases covered under a separate RTN. The Interim Phase II CSA was completed to assess and define the horizontal and vertical extent of the OHM at the Site in groundwater, sediment, and surface water and in soil in the general vicinity of the Site.

Based on the Phase II activities listed above, CDM Smith observed the following:

- Limited site soil samples from 1989 indicate potential elevated arsenic at the Site. There is no information to suggest a release of arsenic from former or current facility operations.
- Based on the review of soil and groundwater data from 32 nearby sites of release, it is evident that soil and/or bedrock in the area in and around Wilmington, Massachusetts, contains naturally high arsenic concentrations in excess of the general 20 mg/kg established to be background by MassDEP. At these sites of release, documented low Eh due to high organic carbon content coincident with this high arsenic soil/bedrock can cause arsenic dissolution from the soil/bedrock into groundwater to increase the arsenic groundwater concentrations to above background.
- MCP Method 1 GW-1 Groundwater Standard exceedances for arsenic were found in groundwater samples collected onsite from eight monitoring wells. MCP Method 2 GW-1 and GW-3 Groundwater Standard exceedances for iron were found in groundwater samples

collected onsite from nine monitoring wells. For the most part, these arsenic and iron exceedances were detected in groundwater samples collected from monitoring wells in areas impacted by the releases associated with RTN 3-0518, and are considered to be most likely associated with chemical changes due to these primarily organic releases.

- Sediment samples indicated that sediment is not impacted by the Site.
- Surface water samples indicated that surface water is potentially impacted at the Site, with elevated concentrations of iron; however arsenic concentrations in surface water are below the applicable screening criterion. It is important to note that surface water samples collected in locations considered to be background and/or unimpacted by RTN 3-0518 plumes contained elevated concentrations of iron.
- The nature and extent of arsenic and iron in site soil has not yet been fully characterized or delineated at the Site.
- Additional soil data is required above and within the elevated arsenic/iron groundwater plume to provide a complete understanding of the nature and extent of the arsenic and iron in soil. However, the findings of this effort are unlikely to result in any change to the assessment and conclusions of this report; rather this is merely a matter of determining exact concentrations and can possibly lead to consideration of removal of any arsenic-laden soil that is not naturally occurring and/or background.
- Additional rounds of groundwater and surface water sampling events and observations from these events are required to better understand seasonal and other variability of the arsenic in groundwater and associated potential impacts.
- Even though sediment data collected did not indicate impacts from the Site, since GW-3 exceedances for iron in groundwater samples collected from the Site exist, additional sediment data is required to more fully evaluate the pathway of groundwater to surface water and any associated impacts to sediment. This will also help to assess any possible seasonal or other variability in contaminant concentrations in sediment.

7.1.2 Summary of Risk Assessment

A condition of No Significant Risk to human health, public welfare, and the environment does not currently exist at the Site, based on arsenic and iron groundwater standard exceedances in samples collected from the Site. A condition of No Significant Risk to safety does currently exist at the Site. As a result of the presence of the groundwater concentrations above the applicable standards, additional remedial action is required at the Site.

7.2 Reason for Interim Phase II Comprehensive Site Assessment

The nature and extent of the constituents of concern for RTN 3-28282 at Site have not yet been fully delineated. Additional site soil, groundwater, sediment, and surface water data is needed in order to obtain a complete understanding of the impacts at the Site, before Phase II can be completed and remedial alternatives can be evaluated.

In addition, as previously discussed, arsenic impacts observed in groundwater samples collected from the Site are believed to likely be attributed to elevated, naturally-occurring, background concentrations and dissolution of arsenic from natural local soil and bedrock, due to reducing conditions resulting from the presence of high organic concentrations from contamination (and possibly remediation) associated with RTN 3-0518. Therefore, without the elimination of the high organic content stemming from releases associated with RTN 3-0518, remediation of the arsenic impacts in groundwater alone will not serve to mitigate the probable cause of high arsenic concentrations in groundwater at the Site. Thus, CDM Smith concludes that it is most appropriate to determine a remedial alternative that would most effectively mitigate impacts due to both RTN 3-0518 and RTN 3-28282 as a whole, instead of separately.

Therefore, CDM Smith proposes to link RTN 3-28282 to parent RTN 3-0518 as soon as the Tier 1A permit for RTN 3-0518 has been transferred from TRC back to Lockheed Martin. Lockheed Martin transferred responsibility for RTN 3-0518 to TRC on October 22, 1999, as part of a contractual relationship that has recently been terminated. TRC is in the process of transferring the responsibility for the Property and RTN 3-0518 back to Lockheed Martin, and that transfer should be completed in the beginning of 2012. At that time, the two RTNs will be linked, and further evaluation of the operating remedy under ROS associated with RTN 3-0518 will be conducted. Therefore, no Phase III RAP has been completed as part of this Interim Phase II CSA for RTN 3-28282, as is required by 310 CMR 40.0500. Additional characterization of the linked RTNs will be performed under the parent RTN, and the adequacy of the existing remedies will be evaluated.

7.3 Recommendations

Since groundwater samples contain concentrations of arsenic above the GW-1 standard and iron above the GW-1 and GW-3 standards, it has been determined that (1) there is potential risk associated with the Site and (2) additional remedial activities will be necessary at the site to achieve a level of No Significant Risk.

However, the full extent of arsenic impacts in site media is currently unknown. As a result, further soil, groundwater, sediment, and surface water sampling must be completed to fully delineate the nature and extent of arsenic impacts in preparation for the selection of a remedial alternative for the Site.

In addition, as presented in Section 7.2, CDM Smith recommends linking RTN 3-28282 to parent RTN 3-0518 in order to evaluate impacts and remedial options at the Site and the Property as a whole. This further characterization and evaluation for the linked RTNs will be conducted under the parent RTN.

CDM Smith

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January 6, 2012

Peter I. Hechenbleikner
Town Manager
Town of Reading Town Hall
16 Lowell Street
Reading, MA 01867

Subject: Public Notification Requirement
Interim Phase II Comprehensive Site Assessment
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
MassDEP RTN 3-28282

Dear Mr. Hechenbleikner:

On behalf of Lockheed Martin Corporation, and in accordance with the Massachusetts Contingency Plan 310 CMR 40.1403 (3)(e), this correspondence serves as notification that the Interim Phase II Comprehensive Site Assessment (CSA) has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the former GE Facility located at 50 Fordham Road in Wilmington, Massachusetts.

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Very truly yours,

Ernest C. Ashley, P.G., LSP
Associate
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Section 7

Summary and Conclusions

This section presents a summary of the Phase II CSA. Public involvement documentation, as required by 310 CMR 40.1403(3)(e), is included as **Appendix D** of this report. This report details the nature and extent of impacts of the site, addresses the potential current and future risks to human health and the environment, and provides recommendations for additional measures at the site.

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7.1.1 Summary of Nature and Extent

The investigations conducted at the Site suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases covered under a separate RTN. The Interim Phase II CSA was completed to assess and define the horizontal and vertical extent of the OHM at the Site in groundwater, sediment, and surface water and in soil in the general vicinity of the Site.

Based on the Phase II activities listed above, CDM Smith observed the following:

- Limited site soil samples from 1989 indicate potential elevated arsenic at the Site. There is no information to suggest a release of arsenic from former or current facility operations.
- Based on the review of soil and groundwater data from 32 nearby sites of release, it is evident that soil and/or bedrock in the area in and around Wilmington, Massachusetts, contains naturally high arsenic concentrations in excess of the general 20 mg/kg established to be background by MassDEP. At these sites of release, documented low Eh due to high organic carbon content coincident with this high arsenic soil/bedrock can cause arsenic dissolution from the soil/bedrock into groundwater to increase the arsenic groundwater concentrations to above background.
- MCP Method 1 GW-1 Groundwater Standard exceedances for arsenic were found in groundwater samples collected onsite from eight monitoring wells. MCP Method 2 GW-1 and GW-3 Groundwater Standard exceedances for iron were found in groundwater samples

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- The nature and extent of arsenic and iron in site soil has not yet been fully characterized or delineated at the Site.
- Additional soil data is required above and within the elevated arsenic/iron groundwater plume to provide a complete understanding of the nature and extent of the arsenic and iron in soil. However, the findings of this effort are unlikely to result in any change to the assessment and conclusions of this report; rather this is merely a matter of determining exact concentrations and can possibly lead to consideration of removal of any arsenic-laden soil that is not naturally occurring and/or background.
- Additional rounds of groundwater and surface water sampling events and observations from these events are required to better understand seasonal and other variability of the arsenic in groundwater and associated potential impacts.
- Even though sediment data collected did not indicate impacts from the Site, since GW-3 exceedances for iron in groundwater samples collected from the Site exist, additional sediment data is required to more fully evaluate the pathway of groundwater to surface water and any associated impacts to sediment. This will also help to assess any possible seasonal or other variability in contaminant concentrations in sediment.

7.1.2 Summary of Risk Assessment

A condition of No Significant Risk to human health, public welfare, and the environment does not currently exist at the Site, based on arsenic and iron groundwater standard exceedances in samples collected from the Site. A condition of No Significant Risk to safety does currently exist at the Site. As a result of the presence of the groundwater concentrations above the applicable standards, additional remedial action is required at the Site.

7.2 Reason for Interim Phase II Comprehensive Site Assessment

The nature and extent of the constituents of concern for RTN 3-28282 at Site have not yet been fully delineated. Additional site soil, groundwater, sediment, and surface water data is needed in order to obtain a complete understanding of the impacts at the Site, before Phase II can be completed and remedial alternatives can be evaluated.

In addition, as previously discussed, arsenic impacts observed in groundwater samples collected from the Site are believed to likely be attributed to elevated, naturally-occurring, background concentrations and dissolution of arsenic from natural local soil and bedrock, due to reducing conditions resulting from the presence of high organic concentrations from contamination (and possibly remediation) associated with RTN 3-0518. Therefore, without the elimination of the high organic content stemming from releases associated with RTN 3-0518, remediation of the arsenic impacts in groundwater alone will not serve to mitigate the probable cause of high arsenic concentrations in groundwater at the Site. Thus, CDM Smith concludes that it is most appropriate to determine a remedial alternative that would most effectively mitigate impacts due to both RTN 3-0518 and RTN 3-28282 as a whole, instead of separately.

Therefore, CDM Smith proposes to link RTN 3-28282 to parent RTN 3-0518 as soon as the Tier 1A permit for RTN 3-0518 has been transferred from TRC back to Lockheed Martin. Lockheed Martin transferred responsibility for RTN 3-0518 to TRC on October 22, 1999, as part of a contractual relationship that has recently been terminated. TRC is in the process of transferring the responsibility for the Property and RTN 3-0518 back to Lockheed Martin, and that transfer should be completed in the beginning of 2012. At that time, the two RTNs will be linked, and further evaluation of the operating remedy under ROS associated with RTN 3-0518 will be conducted. Therefore, no Phase III RAP has been completed as part of this Interim Phase II CSA for RTN 3-28282, as is required by 310 CMR 40.0500. Additional characterization of the linked RTNs will be performed under the parent RTN, and the adequacy of the existing remedies will be evaluated.

7.3 Recommendations

Since groundwater samples contain concentrations of arsenic above the GW-1 standard and iron above the GW-1 and GW-3 standards, it has been determined that (1) there is potential risk associated with the Site and (2) additional remedial activities will be necessary at the site to achieve a level of No Significant Risk.

However, the full extent of arsenic impacts in site media is currently unknown. As a result, further soil, groundwater, sediment, and surface water sampling must be completed to fully delineate the nature and extent of arsenic impacts in preparation for the selection of a remedial alternative for the Site.

In addition, as presented in Section 7.2, CDM Smith recommends linking RTN 3-28282 to parent RTN 3-0518 in order to evaluate impacts and remedial options at the Site and the Property as a whole. This further characterization and evaluation for the linked RTNs will be conducted under the parent RTN.

CDM Smith

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January 6, 2012

Ruth Clay
Public Health Director
Town of Reading Town Hall
16 Lowell Street
Reading, MA 01867

Subject: Public Notification Requirement
Interim Phase II Comprehensive Site Assessment
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
MassDEP RTN 3-28282

Dear Ms. Clay:

On behalf of Lockheed Martin Corporation, and in accordance with the Massachusetts Contingency Plan 310 CMR 40.1403 (3)(e), this correspondence serves as notification that the Interim Phase II Comprehensive Site Assessment (CSA) has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the former GE Facility located at 50 Fordham Road in Wilmington, Massachusetts.

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If you have any questions regarding this correspondence, please contact me at (617) 452-6000.

Very truly yours,

Ernest C. Ashley, P.G., LSP
Associate
CDM Smith Inc.

Section 7

Summary and Conclusions

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The investigations conducted at the Site suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases covered under a separate RTN. The Interim Phase II CSA was completed to assess and define the horizontal and vertical extent of the OHM at the Site in groundwater, sediment, and surface water and in soil in the general vicinity of the Site.

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CDM Smith

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tel: +1 617 452-6000
fax: +1 617 452-8000
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January 6, 2012

Mr. Greg Balukonis
Town Administrator
Town of North Reading
235 North Street
North Reading, MA 01864

Subject: Public Notification Requirement
Interim Phase II Comprehensive Site Assessment
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
MassDEP RTN 3-28282

Dear Mr. Balukonis:

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January 6, 2012

Mr. Martin Fair
Health Agent
Town of North Reading
235 North Street
North Reading, MA 01864

Subject: Public Notification Requirement
Interim Phase II Comprehensive Site Assessment
Former GE Facility
50 Fordham Road
Wilmington, Massachusetts
MassDEP RTN 3-28282

Dear Mr. Fair:

On behalf of Lockheed Martin Corporation, and in accordance with the Massachusetts Contingency Plan 310 CMR 40.1403 (3)(e), this correspondence serves as notification that the Interim Phase II Comprehensive Site Assessment (CSA) has been submitted to the Massachusetts Department of Environmental Protection (MassDEP) for the former GE Facility located at 50 Fordham Road in Wilmington, Massachusetts.

A copy of the Interim Phase II CSA, as well as all other applicable documents pertaining to the site, is available for review at the MassDEP Northeastern Regional Office located in Wilmington, Massachusetts. TRC Environmental Corporation and CDM Smith Inc. performed field investigations and subsequent risk characterization to evaluate the potential risk of harm to human health, safety, public welfare, and the environment. A copy of the conclusions of the Interim Phase II CSA is attached.

If you have any questions regarding this correspondence, please contact me at (617) 452-6000.

Very truly yours,

Ernest C. Ashley, P.G., LSP
Associate
CDM Smith Inc.

Section 7

Summary and Conclusions

This section presents a summary of the Phase II CSA. Public involvement documentation, as required by 310 CMR 40.1403(3)(e), is included as **Appendix D** of this report. This report details the nature and extent of impacts of the site, addresses the potential current and future risks to human health and the environment, and provides recommendations for additional measures at the site.

7.1 Summary of the Interim Phase II Comprehensive Site Assessment Investigation

The following activities were conducted during the Interim Phase II CSA investigation conducted in 2010 and 2011:

- The sampling of 16 monitoring wells;
- The collection of 12 sediment samples;
- The collection of six surface water samples; and
- The evaluation of data from 32 nearby sites of release on the MassDEP searchable database.
- Review of numerous investigations conducted by others on the Site, including a limited soil metals data investigation.

7.1.1 Summary of Nature and Extent

The investigations conducted at the Site suggest that secondary or induced impacts are present due to chemical changes associated with the organics releases covered under a separate RTN. The Interim Phase II CSA was completed to assess and define the horizontal and vertical extent of the OHM at the Site in groundwater, sediment, and surface water and in soil in the general vicinity of the Site.

Based on the Phase II activities listed above, CDM Smith observed the following:

- Limited site soil samples from 1989 indicate potential elevated arsenic at the Site. There is no information to suggest a release of arsenic from former or current facility operations.
- Based on the review of soil and groundwater data from 32 nearby sites of release, it is evident that soil and/or bedrock in the area in and around Wilmington, Massachusetts, contains naturally high arsenic concentrations in excess of the general 20 mg/kg established to be background by MassDEP. At these sites of release, documented low Eh due to high organic carbon content coincident with this high arsenic soil/bedrock can cause arsenic dissolution from the soil/bedrock into groundwater to increase the arsenic groundwater concentrations to above background.
- MCP Method 1 GW-1 Groundwater Standard exceedances for arsenic were found in groundwater samples collected onsite from eight monitoring wells. MCP Method 2 GW-1 and GW-3 Groundwater Standard exceedances for iron were found in groundwater samples

collected onsite from nine monitoring wells. For the most part, these arsenic and iron exceedances were detected in groundwater samples collected from monitoring wells in areas impacted by the releases associated with RTN 3-0518, and are considered to be most likely associated with chemical changes due to these primarily organic releases.

- Sediment samples indicated that sediment is not impacted by the Site.
- Surface water samples indicated that surface water is potentially impacted at the Site, with elevated concentrations of iron; however arsenic concentrations in surface water are below the applicable screening criterion. It is important to note that surface water samples collected in locations considered to be background and/or unimpacted by RTN 3-0518 plumes contained elevated concentrations of iron.
- The nature and extent of arsenic and iron in site soil has not yet been fully characterized or delineated at the Site.
- Additional soil data is required above and within the elevated arsenic/iron groundwater plume to provide a complete understanding of the nature and extent of the arsenic and iron in soil. However, the findings of this effort are unlikely to result in any change to the assessment and conclusions of this report; rather this is merely a matter of determining exact concentrations and can possibly lead to consideration of removal of any arsenic-laden soil that is not naturally occurring and/or background.
- Additional rounds of groundwater and surface water sampling events and observations from these events are required to better understand seasonal and other variability of the arsenic in groundwater and associated potential impacts.
- Even though sediment data collected did not indicate impacts from the Site, since GW-3 exceedances for iron in groundwater samples collected from the Site exist, additional sediment data is required to more fully evaluate the pathway of groundwater to surface water and any associated impacts to sediment. This will also help to assess any possible seasonal or other variability in contaminant concentrations in sediment.

7.1.2 Summary of Risk Assessment

A condition of No Significant Risk to human health, public welfare, and the environment does not currently exist at the Site, based on arsenic and iron groundwater standard exceedances in samples collected from the Site. A condition of No Significant Risk to safety does currently exist at the Site. As a result of the presence of the groundwater concentrations above the applicable standards, additional remedial action is required at the Site.

7.2 Reason for Interim Phase II Comprehensive Site Assessment

The nature and extent of the constituents of concern for RTN 3-28282 at Site have not yet been fully delineated. Additional site soil, groundwater, sediment, and surface water data is needed in order to obtain a complete understanding of the impacts at the Site, before Phase II can be completed and remedial alternatives can be evaluated.

In addition, as previously discussed, arsenic impacts observed in groundwater samples collected from the Site are believed to likely be attributed to elevated, naturally-occurring, background concentrations and dissolution of arsenic from natural local soil and bedrock, due to reducing conditions resulting from the presence of high organic concentrations from contamination (and possibly remediation) associated with RTN 3-0518. Therefore, without the elimination of the high organic content stemming from releases associated with RTN 3-0518, remediation of the arsenic impacts in groundwater alone will not serve to mitigate the probable cause of high arsenic concentrations in groundwater at the Site. Thus, CDM Smith concludes that it is most appropriate to determine a remedial alternative that would most effectively mitigate impacts due to both RTN 3-0518 and RTN 3-28282 as a whole, instead of separately.

Therefore, CDM Smith proposes to link RTN 3-28282 to parent RTN 3-0518 as soon as the Tier 1A permit for RTN 3-0518 has been transferred from TRC back to Lockheed Martin. Lockheed Martin transferred responsibility for RTN 3-0518 to TRC on October 22, 1999, as part of a contractual relationship that has recently been terminated. TRC is in the process of transferring the responsibility for the Property and RTN 3-0518 back to Lockheed Martin, and that transfer should be completed in the beginning of 2012. At that time, the two RTNs will be linked, and further evaluation of the operating remedy under ROS associated with RTN 3-0518 will be conducted. Therefore, no Phase III RAP has been completed as part of this Interim Phase II CSA for RTN 3-28282, as is required by 310 CMR 40.0500. Additional characterization of the linked RTNs will be performed under the parent RTN, and the adequacy of the existing remedies will be evaluated.

7.3 Recommendations

Since groundwater samples contain concentrations of arsenic above the GW-1 standard and iron above the GW-1 and GW-3 standards, it has been determined that (1) there is potential risk associated with the Site and (2) additional remedial activities will be necessary at the site to achieve a level of No Significant Risk.

However, the full extent of arsenic impacts in site media is currently unknown. As a result, further soil, groundwater, sediment, and surface water sampling must be completed to fully delineate the nature and extent of arsenic impacts in preparation for the selection of a remedial alternative for the Site.

In addition, as presented in Section 7.2, CDM Smith recommends linking RTN 3-28282 to parent RTN 3-0518 in order to evaluate impacts and remedial options at the Site and the Property as a whole. This further characterization and evaluation for the linked RTNs will be conducted under the parent RTN.