



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

MAR 23 2018

Constellation Mystic Power, LLC
Attn: Todd Cutler, Assistant Secretary
173 Alford Street
Charlestown, Massachusetts 02129

Re: PCB Cleanup and Disposal Approval under 40 CFR §§ 761.61(a) and (c)
Mystic Station
173 Alford Street
Charlestown, Massachusetts

Dear Mr. Cutler:

This is in response to the Notification¹ submitted by Constellation Mystic Power, LLC (Mystic), a wholly owned subsidiary of Exelon Generating Company LLC, to address *PCB remediation waste* (i.e., soil and concrete) on Mystic Station located at 173 Alford Street in Charlestown, Massachusetts. Specifically, soil and concrete located in the transformer 1, 2, 3, 4, 5, 6, 11, and 21 areas (together and hereinafter “the Site”) contain PCB concentrations that exceed the allowable PCB level of one (1) part per million (ppm) for unrestricted use under the federal PCB regulations at 40 CFR § 761.61(a).

In its Notification, Mystic has proposed the following PCB remediation plan:

- Phase I
 - Remove *porous surfaces* (i.e., concrete transformer pedestals and pads) with PCBs greater than (>) 25 ppm and *PCB remediation waste* (i.e., 1 to 2 feet surface trap rock and gravel), and dispose of at a TSCA approved facility in accordance with § 761.61(a)(5)(i)(B)(2)(iii)

¹ Information was submitted by GZA on behalf of Constellation Mystic Power, LLC (Mystic) to satisfy the notification requirement under 40 CFR § 761.61(a)(3). Information was provided dated July 31, 2017 (TSCA Risk-based Clean-up Plan), December 7, 2017 (Revised TSCA Risk-based Clean-up Plan), January 26, 2018 (Plans of excavations), February 9, 2018 (Verification sampling table), and February 28, 2018 (Clarification email concerning ownership). These submittals will be referred to as the “Notification.”

- Backfill excavated areas with a geotextile and clean trap rock and gravel
- Decontaminate *porous surfaces* (i.e., concrete walls) with PCBs > 25 ppm
- Collect verification samples from *porous surfaces* to confirm the less than or equal to (\leq) 25 ppm PCB cleanup standard has been met
- As a contingency for the concrete walls, if scarification (decontamination) does not result in removal of PCBs > 25 ppm, the walls will be encapsulated with an epoxy coating, until the walls are removed in Phase II
- Record a deed restriction in the form of an Activity and Use Limitation (AUL) on the land record that will restrict the transformer areas to a *low occupancy area* use
- Phase II (to be completed by 2022)
 - Remove *PCB remediation waste* (i.e., soil) with PCBs > 25 ppm as follows: transformer area 3 remove to 10 feet below ground surface (fbgs); transformer areas 4 and 11 remove to a depth of 1 to 2 fbgs; transformer area 5 remove to a depth of 7 fbgs; and, transformer area 6 remove to a depth of 5 fbgs
 - Dispose of *PCB remediation waste* at a TSCA approved facility in accordance with § 761.61(a)(5)(i)(B)(2)(iii)
 - Remove *porous surfaces* (i.e., concrete walls) with > 25 ppm PCBs remaining from Phase 1 and dispose of at a TSCA approved facility in accordance with § 761.61(a)(5)(i)(B)(2)(iii)
 - Collect soil verification samples to confirm \leq 25 ppm PCB cleanup standard has been met
 - Update deed restriction (i.e., AUL) on the land record, as needed, to reflect final Site conditions and *low occupancy area* use

Mystic has proposed an alternative verification sampling plan for *PCB remediation waste* (i.e., soil and concrete). Given the sampling data and the proposed removal plan, EPA has determined that the proposed verification sampling will be sufficient to confirm if the PCB cleanup standard has been achieved. EPA finds that the proposed verification sampling deviation will not present an unreasonable risk of injury to health or the environment based on the information provided and EPA may approve the alternative sampling under 40 CFR § 761.61(c).

With respect to the schedule to complete the PCB cleanup and disposal work, Mystic has proposed to leave PCB-contaminated soil beneath clean trap rock over a demarcation layer outside of the existing buildings and building structures to be demolished until the structures are demolished or until 2022, whichever is earlier. As Mystic will have removed or decontaminated the accessible surfaces with PCBs > 25 ppm, the 1 to 2-foot layer of backfill that is applied to the transformer areas following excavation will provide a protective cover over the PCB-contaminated soil. Accordingly, EPA has determined that leaving the soil beneath the trap rock/gravel and structures will not present an unreasonable risk of injury to health or the environment and EPA may approve the phased plan in accordance with § 761.61(c).

Mystic may proceed with its PCB cleanup and disposal plan under 40 CFR §§ 761.61(a) and (c); its Notification; and this Approval, subject to the conditions of Attachment 1.

Please be aware that this Approval only authorizes cleanup and disposal of PCBs in transformer areas 3, 4, 5, 6, and 11. This Approval does not address cleanup and disposal of transformer areas 1 and 2, and 21 as the PCB contamination in these areas has not been fully delineated. Upon completion of this assessment work, Mystic may modify its plan to clean up these PCBs in accordance with Attachment 1, Condition 1). Otherwise, Mystic shall submit a separate plan to address cleanup of the PCBs in accordance with 40 CFR 761.

In the event that Mystic identifies other PCB-contaminated wastes (i.e., PCBs not identified in the Notification) subject to cleanup and disposal under the PCB regulations, Mystic will be required to notify EPA and to clean up the PCB-contaminated wastes in accordance with 40 CFR Part 761 (see Attachment 1, Condition 1).

EPA encourages the compliance with greener cleanup practices for all cleanup projects, and recommends adherence to the ASTM Standard Guide to Greener Cleanups E2893-16 (Guide) for work conducted under this Approval and the Notification. Greener Cleanups is the practice of integrating options that minimize the environmental impacts of cleanup actions in order to incorporate practices that maximize environmental and human benefit. Please see Section 6 of the Guide for the Best Management Practices (BMP) Process dated May 2016. (See www.astm.org/Standards/E2893.htm for additional information) EPA encourages you to review the Guide and implement any practices that are feasible. If implemented, the PCB completion report (see Attachment 1, Condition 20) should include a section on BMP Documentation, as described in Section 6.6.5 of the Guide.

This Approval does not release Mystic from any applicable requirements of federal, state or local law, including the requirements related to cleanup and disposal of PCB-contaminated wastes under the Massachusetts Department of Environmental Protection regulations.

Questions and correspondence regarding this Approval should be directed to:

Katherine A. Woodward, Project Manager (OSRR07-2)
United States Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1353
woodward.katherine@epa.gov

EPA shall not consider the cleanup of PCBs from transformer areas complete until it has received all submittals required under this Approval. Please be aware that upon EPA receipt and review of the submittals, EPA may request any additional information necessary to establish that the work has been completed in accordance with 40 CFR Part 761, the Notification, and this Approval.

Sincerely,

A handwritten signature in black ink, appearing to read "Bryan Olson", with a long horizontal line extending to the right.

Bryan Olson, Director
Office of Site Remediation & Restoration

cc: Gary Basilesco, Mystic Station
Julea Hovey, Exelon
Greg McBride, LSP, GZA
Jason Chrzanowski, GZA
MassDEP, NERO (RTN 3-29680)
Juan A. Pérez, USEPA
File

Attachment 1- Approval Conditions

ATTACHMENT 1

**PCB CLEANUP AND DISPOSAL APPROVAL CONDITIONS
MYSTIC STATION
173 ALFORD STREET ("the Site")
CHARLESTOWN, MASSACHUSETTS**

GENERAL CONDITIONS

1. This Approval is granted under the authority of Section 6(e) of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605(e), and the PCB regulations at 40 CFR Part 761, and applies solely to PCB-contaminated waste (e.g., soil and concrete) located in transformer areas 3, 4, 5, 6, and 11.
 - a. Constellation Mystic Power, LLC (Mystic) may propose to incorporate cleanup of PCB-contaminated wastes located in transformer areas 1, 2, and 21 under this Approval in accordance with Condition 15, once the nature and extent of PCBs have been delineated in these areas. Alternatively, Mystic shall submit a separate plan to address the PCB contamination in accordance with 40 CFR Part 761.
 - b. In the event that Mystic identifies other PCB-contaminated wastes (i.e., wastes not identified in the Notification) subject to cleanup and disposal under the PCB regulations, Mystic will be required to notify EPA and clean up the PCB-contaminated wastes in accordance with 40 CFR Part 761.
 - c. To address the PCB contamination, Mystic shall submit a separate plan or Mystic may propose to modify the Notification to incorporate cleanup of the PCBs under this Approval in accordance with Condition 15.
2. Mystic shall conduct on-site activities in accordance with the conditions of this Approval and with the Notification.
3. In the event that the cleanup plan described in the Notification differs from the conditions specified in this Approval, the conditions of this Approval shall govern.
4. The terms and abbreviations used herein shall have the meanings as defined in 40 CFR § 761.3 unless otherwise defined within this Approval.
5. Mystic must comply with all applicable federal, state and local regulations in the storage, handling, and disposal of all PCB wastes, including PCBs, PCB Items and decontamination wastes generated under this Approval. In the event of a new spill during response actions, Mystic shall contact EPA within 24 hours for direction on PCB cleanup and sampling requirements.

6. Mystic is responsible for the actions of all officers, employees, agents, contractors, subcontractors, and others who are involved in activities conducted under this Approval. If at any time Mystic has or receives information indicating that Mystic or any other person has failed, or may have failed, to comply with any provision of this Approval, it must report the information to EPA in writing within 24 hours of having or receiving the information.
7. This Approval does not constitute a determination by EPA that the transporters or disposal facilities selected by Mystic are authorized to conduct the activities set forth in the Notification. Mystic is responsible for ensuring that its selected transporters and disposal facilities are authorized to conduct these activities in accordance with all applicable federal, state and local statutes and regulations.
8. This Approval does not: 1) waive or compromise EPA's enforcement and regulatory authority; 2) release Mystic from compliance with any applicable requirements of federal, state or local law; or 3) release Mystic from liability for, or otherwise resolve, any violations of federal, state or local law.
9. Failure to comply with the Approval conditions specified herein shall constitute a violation of the requirement in § 761.50(a) to store or dispose of PCB waste in accordance with 40 CFR Part 761 Subpart D.

NOTIFICATION AND CERTIFICATION CONDITIONS

10. This Approval may be revoked if the EPA does not receive written notification from Mystic of its acceptance of the conditions of this Approval within 10 business days of receipt.
11. Mystic shall submit the following information to EPA:
 - a. a certification signed by its selected contractor, stating that the contractor(s) has read and understands the Notification, and agrees to abide by the conditions specified in this Approval; and,
 - b. a certification signed by the selected analytical laboratory, stating that the laboratory has read and understands the extraction and analytical methods and quality assurance requirements specified in the Notification and in this Approval.

CLEANUP AND DISPOSAL CONDITIONS

12. The cleanup level for *PCB remediation waste* (i.e., soil and concrete) remaining at the Site shall be less than or equal to (\leq) 25 parts per million (ppm) to meet the *low occupancy area* cleanup requirements at 40 CFR § 761.61(a)(4).

- a. Verification soil samples shall be collected on a bulk basis (i.e., mg/kg) on a maximum 10-foot sample grid spacing. Samples shall be collected in accordance with 40 CFR Part 761 Subpart O. Samples shall be collected from both excavation bottoms and sidewalls.
 - b. All post-decontamination verification sampling of *porous surfaces* (e.g., concrete) shall be performed on a bulk basis (i.e., mg/kg). Post-abatement confirmatory samples shall be conducted in accordance with the EPA Region 1 *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCBs) Revision 4, May 5, 2011*, at a maximum depth interval of 0.5 inches on a maximum 10-foot sample grid spacing.
 - c. Chemical extraction for PCBs shall be conducted using Methods 3500B/3540C of SW-846 for solid matrices and Method 3500B/3510C of SW-846 for aqueous matrices; and, chemical analysis for PCBs shall be conducted using Method 8082 of SW-846, unless another extraction or analytical method(s) is validated according to Subpart Q.
13. All PCB waste (regardless of concentration) generated as a result of the activities described in the Notification, excluding any decontaminated materials, shall be marked in accordance with § 761.40; stored in a manner prescribed in § 761.65; and, disposed of in accordance with 40 CFR § 761.61(a)(5), unless otherwise specified below:
- a. Decontamination wastes and residues shall be disposed of in accordance with 40 CFR § 761.79(g).
 - b. Moveable equipment, tools, and sampling equipment shall be decontaminated in accordance with either 40 CFR § 761.79(b)(3)(i)(A), § 761.79(b)(3)(ii)(A), or § 761.79(c)(2).
 - c. PCB-contaminated water generated during decontamination shall be decontaminated in accordance with 40 CFR § 761.79(b)(1) or disposed of under § 761.60.

INSPECTION, MODIFICATION AND REVOCATION CONDITIONS

14. Mystic shall allow any authorized representative of the Administrator of the EPA to inspect the Site and to inspect records and take samples as may be necessary to determine compliance with the PCB regulations and this Approval. Any refusal by Mystic to allow such an inspection (as authorized by Section 11 of TSCA) shall be grounds for revocation of this Approval.

15. Any modification(s) in the plan, specifications, and information submitted by Mystic, contained in the Notification, and forming the basis upon which this Approval has been issued, must receive prior written approval from the EPA. Mystic shall inform the EPA of any modification, in writing, at least ten (10) days prior to such change. No action may be taken to implement any such modification unless the EPA has approved of the modification, in writing. The EPA may request additional information in order to determine whether to approve the modification.
16. Any departure from the conditions of this Approval without prior, written authorization from the EPA may result in the revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.
17. Any misrepresentation or omission of any material fact in the Notification or in any records or reports may result in the EPA's revocation, suspension and/or modification of the Approval, in addition to any other legal or equitable relief or remedy the EPA may choose to pursue.

RECORDKEEPING AND REPORTING CONDITIONS

18. Mystic shall prepare and maintain all records and documents required by 40 CFR Part 761, including but not limited to the records required under Subparts J and K. A written record of the cleanup and the analytical sampling shall be established and maintained by Mystic in one centralized location, until such time as EPA approves in writing a request for an alternative disposition of such records. All records shall be made available for inspection to authorized representatives of EPA.
19. Within 60 days of completion of the Phase I cleanup activities described in the Notification and authorized by this Approval, and as required under 40 CFR § 761.61(a)(8)(i)(B), Mystic shall submit to EPA a certification, signed by a Mystic approving official, that it has recorded the notation on the deed as required under § 761.61(a)(8)(i)(A). A copy of the notation on the deed must also be submitted. Upon completion of the Phase II cleanup activities, the deed notice shall be revised to reflect the PCB conditions remaining at the Site.
20. Mystic shall submit an interim completion report in both a hard copy and electronic version (e.g., CD-ROM), to the EPA within 60 days of completion of the Phase I activities authorized under this Approval. At a minimum, this interim report shall include: a short narrative of the project activities with photographic documentation and Greener Cleanups BMP documentation, if implemented; characterization and confirmation sampling analytical results; copies of the accompanying analytical chains of custody; field and laboratory quality control/quality assurance checks; an estimate of the quantity of PCB waste disposed of; copies of manifests and bills of lading; copies of certificates of disposal or similar certifications issued by the disposer; and, the estimated cost of the remediation work. Mystic shall submit a final completion report to EPA within 60 days of completion of the Phase II activities authorized under this Approval. This final completion report shall contain the same type of information as that required for the Phase I interim completion report, including a brief recap of the completed Phase I activities.

21. Required submittals shall be mailed to:

Katherine A. Woodward, PE, Project Manager
United States Environmental Protection Agency
5 Post Office Square, Suite 100 – (OSRR07-2)
Boston, Massachusetts 02109-3912
Telephone: (617) 918-1353
Woodward.Katherine@epa.gov

22. No record, report or communication required under this Approval shall qualify as a self-audit or voluntary disclosure under EPA audit, self-disclosure or penalty policies.

END OF ATTACHMENT 1



Proactive by Design



RISK-BASED CLEANUP PLAN MODIFICATION FORMER TRANSFORMER AREAS 1, 2, AND 21 TOXIC SUBSTANCES CONTROL ACT (40 CFR 761.61 [c])

**Mystic Station
173 Alford Street
Charlestown, Massachusetts**

April 2018
File No. 01.0015442.76

PREPARED FOR:
Constellation Mystic Power LLC
Baltimore, Maryland

GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue | Norwood, MA 02062
800-789-5848

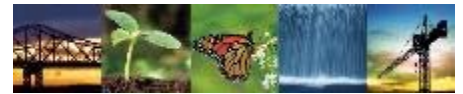
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April 30, 2018
File No. 01.0015442.76

Ms. Kimberly N. Tisa (CPT)
EPA-New England Region 1
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Re: Modification to the Final TSCA Risk-Based Cleanup Plan
Related to RCRA Corrective Action Requirements
MassDEP Release Tracking Number 3-29680
Mystic Station
173 Alford Street
Charlestown, Massachusetts

Dear Ms. Tisa:

On behalf of Constellation Mystic Power, LLC, which is a wholly owned subsidiary of Exelon Generation Company, LLC, GZA has prepared the attached the modification to the final Risk-Based Cleanup Plan ("the Plan"). The final Plan was submitted to the United States Environmental Protection Agency (USEPA) on December 7, 2017 and was approved by the USEPA in a formal letter to Mystic Station and GZA dated March 23, 2018. The Plan addressed decommissioned transformer areas 3, 4, 5, 6, and 11. This modification incorporates the contiguous Transformer 1, 2, and 21 Area as part of the Plan.

Attached to this cover letter is the modification to the approved final Plan and ancillary attachments (e.g. data tables, exploration location figures, exploration logs, and laboratory analytical reports) related to the decommissioned Transformer 1, 2, and 21 Area.

If you have questions or need further information, please contact the undersigned at (781) 278-3700.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Jason R. Chrzanowski
Senior Project Manager

Gregg McBride, LSP
Senior Principal

David E. Leone
Consultant/Reviewer

cc: Ms. Katherine Woodward, USEPA
Mr. Juan Perez, USEPA
Ms. Julea Hovey (Exelon Generation)
Mr. Gary Basileco (Constellation Mystic Power LLC)
Mr. Larry Liden (Exelon Generation)

Attachments: Modification to the Final Plan (Transformer 1, 2, and 21 Area)



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1.0 INTRODUCTION

This report presents supporting documentation for a proposed modification to the final approved Risk-Based Cleanup Plan (“the Plan”) for polychlorinated biphenyls (PCBs) under the federal TSCA (40 CFR 761.61 [c]) regulation. The signed certification for this modification to the Plan is included in Appendix A. This report is subject to the Limitations contained in Appendix B.

The USEPA approved the final Plan for the former Transformer 3, 4, 5, 6, and 11 Areas in a letter dated March 23, 2018. This modification to the Plan outlines the proposed approach and schedule for implementing the PCB cleanup and complying with TSCA (40 CFR 761.61 [c]) in the Transformer 1, 2, and 21 Area. Sections 1.1 through 1.3 provide the relevant updates to the background, regulatory history, and investigation of the decommissioned transformer areas. A detailed summary of Site background and history was previously provided in the approved December 7, 2017 Plan. This modification presents the PCB characterization data for soil, concrete, and groundwater samples collected in the Transformer 1, 2, and 21 Area, summarizes human health and ecological risk evaluations, presents risk-based cleanup goals for the low occupancy area, and presents the proposed remedial activities to reduce and/or encapsulate PCB within the Transformer 1, 2, and 21 Area to meet the cleanup goals.

The extent of soil and concrete containing PCBs in the Transformer 1, 2, and 21 Area is further discussed in Section 2.0.

Consistent with the approved Plan, this modification proposes that the remedial activities for the decommissioned Transformer 1, 2, and 21 Area proceed in two phases. Phase I includes aboveground remediation of concrete surfaces, structure removal, and excavation of the top 1 to 2 feet of gravel/trap rock. Phase I work under this modification will occur concurrent with the Phase I work in the approved Plan for the Transformer 3, 4, 5, 6, and 11 Areas. The Phase II work will occur by 2022, when the building is removed. The remedial approaches under this modification for the Phase I and II work are like those described in the approved Plan for the Transformer 1, 2, and 21 Area, except for the approach to address deeper soils (e.g. greater than 10 feet bgs) for Transformer 21 Area.

As part of the Phase II work under this modification, subsurface soil and concrete exhibiting total PCB concentrations greater than 25 mg/kg based on testing data will be removed to a depth of approximately 3 to 5 feet bgs in the Transformer 1 and 2 Area, and to a depth of 10 feet bgs in the Transformer 21 Area. For soils containing PCBs above the cleanup goal that are located at depths greater than 10 feet bgs in the Transformer 21 Area, a low-permeability cap will be constructed at depth, and the excavation will be backfilled to grade with clean imported fill material. As described further in Section 4.0, subsurface soil excavation adjacent to the building foundation walls will be more technically and financially feasible after the power plant building has been demolished. In this modification, Mystic Station proposes to excavate and dispose of soil and concrete with total PCB concentrations greater than the cleanup goal of 25 mg/kg as PCB Remediation Waste. The schedule and timeline for soil remediation is discussed further in Section 4.0.

An Activity and Use Limitation (AUL1) will be filed after Phase I, and updated following the completion of Phase II. The AUL will prohibit disturbances of the low permeability cap and provide long-term cap maintenance guidelines.

1.1 BACKGROUND

Following characterization of the Transformer 1, 2, and 21 Area, evaluation of the data and remedial alternatives, and per a condition in USEPA’s approval of the Plan, GZA prepared this proposed modification to the Plan on behalf of Mystic

¹ A deed restriction under the Massachusetts Contingency Plan [MCP; 310 CMR 40.0000].



Station. The objective of the plan modification is to provide the approach and schedule for implementing the cleanup, and to comply with TSCA (40 CFR 761.61 [c]) for management of PCBs in the Transformer 1, 2, and 21 Area.

1.2 USEPA RCRA CORRECTIVE ACTION PROGRAM

Following a March 2017 meeting between the USEPA (Region 1), Mystic Station, and GZA, a sampling and analysis program was implemented to assess the decommissioned Transformer 1, 2, and 21 Area. During initial sampling efforts in spring 2017, several challenges were encountered when attempting to collect soil characterization samples during the subsurface assessment work. These challenges included the presence of a non-porous geo-textile liner encountered beneath approximately 2 feet of surface trap rock and gravel, the presence of perched storm water above the non-porous liner, and multiple boring refusals on concrete obstructions; this issue is discussed further in Section 2.1. Additional characterization activities for the Transformer 1, 2, and 21 Area were completed by GZA in August through October 2017.

As mentioned, the final Plan for the Transformer 3, 4, 5, 6, and 11 Areas was approved by USEPA in March 2018. During conversations with USEPA in October 2017, GZA and Mystic Station discussed the preliminary characterization data and remedial alternative options for the Transformer 1, 2, and 21 Area. Following those discussions, in November 2017, USEPA requested that a Plan be submitted for the Transformers 3, 4, 5, 6, and 11 Areas with subsequent modification when the evaluations of the Transformer 1, 2, and 21 Area data were completed. This modification to the Plan, when approved, will resolve the RCRA Corrective Action issue for the decommissioned Transformer Areas at Mystic Station.

1.3 RESPONSE ACTIONS UNDER THE MCP

Presently, under the Massachusetts Department of Environmental Protection (MassDEP) MCP, a Temporary Solution Statement (TSS) is in effect for the decommissioned Transformer 3, 4, 5, 6, and 11 Areas under Release Tracking Number (RTN) 3-29680. GZA will submit a revised TSS to MassDEP later in 2018 to add the Transformer 1, 2, and 21 Area to RTN 3-29680. The following section summarizes additional MCP information pertinent to the Transformer 1, 2, and 21 Area soil and groundwater characterization data.

On December 6, 2017, GZA submitted a Release Notification Form (RNF) to MassDEP on behalf of Mystic Station related to a 120-day release notification condition due to the detection of volatile organic compounds (VOCs) in soil and groundwater above MassDEP's Reportable Concentrations (RCs) in the Transformer 1, 2, and 21 Area. It was GZA's opinion that this condition was not a separate release requiring a new RTN, since it is consistent with the Conceptual Site Model (CSM) of historic releases of fluids containing PCBs from electrical transformers. However, since these VOCs (1,2,4-trichlorobenzene and 1,4-dichlorobenzene) had not been previously reported, as a conservative approach, Mystic Station submitted the RNF (BWSC-103) under the existing RTN to document the findings. On December 11, 2017 a representative from MassDEP contacted Mystic Station regarding the RNF submittal. After discussion between GZA and MassDEP, it was agreed that the detection of VOCs in soil and groundwater above RCs is a condition which is exempt from Notification, per 310 CMR 40.0317(16)(c) due to the common source and exposure potential of the other OHM listed under the RTN.

Soil and groundwater conditions related to VOCs will be managed under ongoing response actions under the MCP.

2.0 **NATURE AND EXTENT OF PCBs IN DECOMMISSIONED TRANSFORMER 1, 2, AND 21 AREA**

The following sections describe the assessment work completed and the characterization data for the decommissioned Transformers 1, 2, and 21 Area; note: the assessment work and characterization data for the Transformer 3, 4, 5, 6, and 11 Areas were previously summarized in the final approved Plan.



The CSM developed by GZA in 2013 for the Site was based on historic documentation, discussions with facility personnel, field observations and analytical data. The 2013 CSM suggested that releases of mineral oil dielectric fluid (MODF), either through incremental drips or accidental spills, impacted soil and concrete surfaces in and around the transformers. Based on several reports from the 1980s, there were prior efforts to clean up releases within several of the transformer areas (i.e., 1, 2, 3, and 11). GZA’s assessment of decommissioned Transformer 4 and 11 in 2016 and 1, 2, and 21 in 2017, shows these areas are consistent with the CSM developed in 2013 for the other transformer areas.

The assessment and characterization work for the Transformer 1, 2, and 21 Area included: soil boring/soil sampling activities by vacuum excavation and hand auger sampling; conventional hollow stem auger (HSA) soil boring/soil sampling via split spoon sampler; and groundwater sampling from newly installed and one existing monitoring well. The concrete samples were collected in general accordance with USEPA Region 1 protocol for collection of concrete dust samples. An electric hammer drill with a 1-inch diameter drill bit was used to advance multiple 1-inch diameter by approximately ½-inch deep core holes in the concrete surfaces, and the dust was collected as a bulk sample from each approximately 1 to 3 ft² surface area. GZA personnel performed, or provided observation of, the field work activities of the drilling or excavating subcontractors. In June 2017, GZA collected deeper (approximately 1 to 2 inches) concrete samples from wall locations that were above the cleanup goal to characterize the extents of PCBs in the building wall.

Based on observations made during the subsurface explorations, the subsurface stratigraphy for the Transformer 1, 2, and 21 Area suggests prior soil removal was completed as reported. GZA’s observations also suggest that the excavation reported to have occurred in 1984 appears to have been backfilled with trap rock and gravel over a geotextile fabric. The material found above the geotextile from ground surface to approximately 2 feet bgs is trap rock and gravel; note: depths to soil samples shown on Tables 1A and 1B include the surface layer of gravel above the geotextile. Additional details regarding the assumptions for the trap rock and gravel in the Transformer 1, 2, and 21 Area and the plans to manage it during the Phase II subsurface soil remediation are provided in in Sections 2.1 and 4.0.

Due to a large subsurface obstruction, groundwater was not encountered during exploration activities in the Transformer 1 and 2 Area; several explorations encountered what appeared to be perched groundwater (especially above geotextile layers). Several explorations were advanced below the water table in the Transformer 21 Area and monitoring points were established. The groundwater characterization data for the Transformer 21 Area are discussed further in Section 2.1.

The soil and concrete characterization samples collected for PCB analysis were analyzed via USEPA Method 8082. The samples were extracted for analysis using manual Soxhlet extraction by USEPA Method 3540C. Soil samples collected from the Transformer 1, 2, and 21 Area were also analyzed for volatile organic compounds (VOCs) via EPA method 8260C; groundwater samples were analyzed for VOCs and PCBs. Exploration logs are included as Appendix C. Copies of the laboratory analytical reports are provided as Appendix D. Further discussion of the soil, concrete, and groundwater analytical results are provided in Section 2.1. The transformer areas and sampling locations are depicted on Figures 2 through 4.

The table below summarizes the quantity and type of characterization samples collected in the Transformer 1, 2, and 21 Area.

Transformer Area	Soil Samples	Concrete Samples	Groundwater Samples
1, 2, & 21	42	14	5
Totals	42	14	5



Refer to Tables 1A and 1B for soil sample results; Table 2 for concrete sample results; and Tables 3A and 3B for groundwater sample results.

The following section summarize the assessment activities and characterization data for the decommissioned Transformer 1, 2, and 21 Area.

2.1 TRANSFORMER 1, 2, AND 21 AREA CHARACTERIZATION DATA

Soil Characterization

GZA completed multiple rounds of surface and subsurface assessment activities for the contiguous Transformer 1, 2, and 21 Area from April 27, 2017, through September 13, 2017. GZA personnel observed Technical Drilling Services (TDS) of Sterling, Massachusetts advance borings via vacuum excavation and/or hollow stem auger (HSA) drilling techniques during the assessment work. When sufficient soil was present, soil samples were collected via hand auger in advance of the vacuum excavator. As described further in the next section, TDS also completed 9 vacuum excavation boreholes across the Transformer 1, 2, and 21 Area, and installed five PVC dewatering sumps. When HSA drilling techniques were utilized, soil samples were collected via 2-foot split spoon sampler. Additionally, GZA collected 8 shallow (0-2' bgs) samples using hand tools (i.e., trowel and post hole digger), and TDS installed four 2-inch diameter PVC groundwater monitoring wells in select exploration locations. A total of 37 subsurface explorations were attempted, 15 of which encountered refusal at varying depths on subsurface obstructions. GZA collected soil characterization samples at varying depths from 23 exploration locations, and analyzed 42 samples for PCBs and VOCs. Completed exploration locations are shown on Figure 3. Soil characterization samples were not collected from 15 of the 37 locations due to refusal; lack of sufficient soil for sampling; and/or the explorations were completed to assess the presence of geotextile liner, utilities, perched water, or to install dewatering sumps. For clarity, locations that were not sampled for characterization purposes are not shown on Figure 3.

As noted, several challenges were encountered when attempting to collect soil samples during the subsurface assessment work. These challenges were related to the presence of a non-porous geo-textile liner that was encountered beneath approximately 2 feet of surface trap rock; the presence of perched storm water above the non-porous liner; and multiple boring refusals on concrete obstructions. To address the perched storm water, GZA observed TDS install five 6-inch diameter PVC well screens intended to serve as potential dewatering sumps. The sumps were installed above the non-porous liner, when encountered, and ranged in depths from approximately 1.5 to 5 feet bgs. GZA noted that the non-porous liner was encountered across the Transformer 1 and 2 Area, and extended approximately 10 feet east of the Transformer 2 aboveground concrete pedestals. The non-porous liner was not observed in the attempted vacuum excavated borings in the eastern area near the historic Transformer 21 location. In consultation with Mystic Station, soil sampling below the non-porous liner was postponed until the summer months when drier conditions were expected.

Borings for soil sampling were advanced by TDS to depths ranging from approximately 2 to 22 feet bgs in the Transformer 1, 2, and 21 Area. GZA personnel logged soil descriptions and screened soil samples that exhibited olfactory evidence of contamination using a photoionization detector (PID) for the presence of VOCs. Soil descriptions and field screening data are summarized on the exploration logs included as Appendix C. As noted on the exploration logs, the soils recovered from the split spoon samples from 2 to 5 feet bgs in the Transformer 1, 2, and 21 Area consisted of a sandy gravel; the sandy gravel layer extended from approximately 7 to 17 feet bgs in the borings in the Transformer 21 Area. A silty clay layer was noted in several borings from 7 to 14 feet bgs; a silty clay material with interbedded lenses of sand and gravel was noted in boring T21B3. Boring T21B8C had a layer of fine to medium sand from 17 to 20 feet bgs and was underlain by a clay layer at depth. Additionally, GZA noted an aromatic-like odor on the soil samples in the Transformer 21 Area starting at depths of approximately 6 to 9 feet bgs in borings B21B2 and B21B3, with a decrease in the aromatic-like odor with depth.



GZA personnel collected gravel and trap rock surface material using hand tools from each location and placed the excavated material into dedicated tinfoil trays; note: a trace amount of sand and silt was present within the gravel/trap rock fill material and was incorporated with the sample. Section 4.1 provides details on how the trap rock and gravel will be managed during Phase I aboveground concrete remediation and Phase II subsurface remediation.

The following table summarizes the detected PCB concentrations in samples collected from the Transformer 1, 2, and 21 Area:

Total Soil Samples Analyzed for PCBs	Total Samples Below 25 mg/kg	Total Samples Above 25 mg/kg	Surface Samples (0-2' bgs) Above 25 mg/kg	Subsurface Samples (2-10' bgs) Above 25 mg/kg	Subsurface Samples (10-22' bgs) Above 25 mg/kg
42	22	20	2	12	6

GZA also collected select soil samples that exhibited olfactory or PID evidence of VOCs for characterization analysis of VOCs² via EPA method 8260C; a total of 11 samples were analyzed for VOCs. Individual results of the soil characterization sampling analyses are shown on Tables 1A and 1B. Copies of the laboratory analytical reports are provided as Appendix D. As shown on Table 1A, analytical results from the soil samples collected from the borings (T21B5, T21B6, and T21B7) located in the roadway south of the former Transformer 21 Area showed PCBs were either not detected above the laboratory detection limits, or were detected at varying concentrations but were below the cleanup goal.

Concrete Surface Characterization

On April 13, 2017, GZA personnel collected a total of 10 concrete surface (0 to 0.5 inches) samples from the pedestals, pad, and vertical concrete surfaces (e.g., walls) within the Transformer 1, 2, and 21 Area; note: the pedestals for Transformer 2 are flush to grade with the ground surface. The approximate concrete sampling locations are shown on Figure 3 and on the photograph log included as Figure 4A. As shown on Table 2, PCBs were detected in the 10 shallow concrete samples collected from the Transformers 1 and 2 Area at concentrations ranging from 0.5 mg/kg (T1-CS-2; wall) to 5,430 mg/kg (T1-CS-3; Transformer 1 pad).

Based on the results of the surface sampling, GZA personnel returned to the Site with TDS on June 7, 2017 to collect deeper (1 to 2 inches) concrete samples from locations that exhibited elevated PCB concentrations. The deeper concrete sample locations are shown on the photograph log included as Figure 4B. As shown on Table 2, PCBs were not detected above the laboratory detection limit (0.2 mg/kg) in two of the four deeper concrete sample locations (T2-CS-5D and T2-CS-7D), but were detected at 0.2 mg/kg and 2.9 mg/kg in T1-CS-3D (pad) and T2-CS-6D (wall), respectively.

Copies of the laboratory analytical reports are provided as Appendix D.

Groundwater Characterization

On September 14, 2017, GZA personnel collected groundwater samples from the four recently installed monitoring wells (T21B5-MW, T21B6-MW, T21B7-MW, and T21B8C-MW) and one historic monitoring well (T2-MW). GZA sampled the wells using the USEPA low flow purging and sampling procedure. The groundwater samples were analyzed for PCBs and VOCs, and the results are summarized on Tables 3A and 3B. As shown on Table 3A, PCBs were not detected in groundwater

² Several samples were analyzed for VOCs since "Chlorextal" was historically reported to have been released during the 1984 Transformer 2 malfunction. Based on GZA's research, Chlorextal is a brand name of an Askarel mixture of PCB's (Arochlor 1260) and a chlorobenzene-based solvent.



in wells T2-MW or T21B7-MW. However, PCBs were detected in wells T21B5-MW (0.44 micrograms per liter or $\mu\text{g/L}$) and T21B6-MW (0.41 $\mu\text{g/L}$); PCBs were detected in the sample from T21B8C-MW in the former Transformer 21 Area footprint at 3.25 $\mu\text{g/L}$. As shown on Table 3B, VOCs were not detected above the laboratory detection limits in the samples from wells T2-MW and T21B6-MW, but were detected in wells T21B5-MW, T21B7-MW, and T21B8C-MW ranging from 2.3 $\mu\text{g/L}$ to greater than 100 $\mu\text{g/L}$.

Although the wells were sampled using the USEPA low flow purging and sampling procedure to minimize turbidity and suspended solids during sample collection, it is GZA's opinion that the low levels of PCBs detected in several groundwater samples were potentially an artifact of suspended solids in the samples and not a result of dissolved-phase PCB impacts to groundwater. The September 14, 2017 groundwater samples were not field-filtered to remove suspended solids, therefore the groundwater data for PCBs were suspected to be biased high due to trace soil particles suspended in the groundwater collected for analysis. To confirm this theory, GZA collected a field-filtered groundwater sample from well T21B8C-MW on October 24, 2017 for PCB analysis; GZA also collected an unfiltered sample for VOCs analysis from the well. As shown on Table 3A, the PCB results from the field-filtered sample did not indicate PCBs above the laboratory detection limit (0.09 $\mu\text{g/L}$). As shown on Table 3B, the VOC results from the October 24, 2017 sample were consistent with the prior sampling data.

Results of the groundwater sampling analyses are summarized on Tables 3A and 3B. Copies of the laboratory analytical reports are provided as Appendix D.

3.0 RISK-BASED CLEANUP GOALS FOR PCBs

Consistent with the approved Plan, this modification will assume the cleanup goal of less than 25 mg/kg for soil and concrete surfaces for the low occupancy area³ of the Transformer 1, 2, and 21 Area. After completion of Phase I remediation, a deed restriction (AUL) will be placed for decommissioned transformer areas. The AUL will be modified following completion of the Phase II remediation for soil and/or concrete surfaces that exhibit post remediation confirmatory soil sample PCB concentrations greater than 1 mg/kg, but less than 25 mg/kg. As noted, a low permeability cap will be constructed for the Transformer 21 Area deep soil (i.e., greater than 10 feet bgs) to isolate deeper soil that contains PCBs above the cleanup goal; this issue is discussed further in Sections 4.0.

Consistent with the approach outlined in the approved December 7, 2017 Plan for the other five transformer areas (3, 4, 5, 6 and 11), the objective is to complete Phase II soil excavation for the Transformer 1, 2, and 21 Area by 2022, when access is expected to open. In the interim, the aboveground concrete structures or wall surfaces which are accessible will be remediated or removed along with excavation and removal of the top 2 feet of surface trap rock and gravel as part of Phase I remedial activities. The results of risk assessments previously prepared under the MCP have been used to demonstrate that short-term risks until final cleanup is implemented will not be significant.

3.1 SELECTION OF RISK-BASED CLEANUP GOALS

Consistent with the approved Plan, the cleanup goal of 25 mg/kg will be used for this modification to the Plan for the Transformer 1, 2, and 21 Area. Further, deep soil in the Transformer 21 Area containing PCBs that are above the cleanup

³ Per §761.30 - low occupancy area means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: less than 840 hours (an average of 16.8 hours per week) for nonporous surfaces and less than 335 hours (an average of 6.7 hours per week) for bulk PCB remediation waste. Examples could include an electrical substation or a location in an industrial facility where a worker spends small amounts of time per week (such as an unoccupied area outside a building, an electrical equipment vault, or in the nonoffice space in a warehouse where occupancy is transitory).



goal will remain in place under a low permeability cap following excavation and removal of shallower soils containing PCBs. The technical and financial infeasibility of excavation and removal of soils containing PCBs below 10 feet bgs, particularly for the Transformer 21 Area, increases substantially compared to the alternative of isolating them in under a low permeability cap. This issue is further discussed in Section 3.2.

3.2 REMEDIAL ALTERNATIVES EVALUATION

GZA previously evaluated Remedial Action Alternatives (RAA) under the Phase III Remedial Action Plan (RAP) provisions of the MCP (310 CMR 40.0853). The RAA's evaluated for the Transformer 3, 4, 5, 6, and 11 Areas included:

RAA No. 1 - No Further Action – Temporary Solution

RAA No. 2 - Soil Excavation and off-Site Disposal

RAA No. 3 - Engineered Cap

A hybrid approach of RAA No. 2 and No. 3 was selected as the appropriate remedial option for the Transformer 1, 2, and 21 Area, which would be acceptable as noted in the MCP⁴ (310 CMR 40.0996(4))⁵. Since PCBs are present in soil in the Transformer 21 Area at a depth greater than 10 feet bgs, we are proposing to excavate and dispose of soils containing PCBs to 10 feet bgs. A low permeability cap (or “Engineered Barrier”) will then be constructed to isolate soils containing PCBs located below 10 feet bgs that are above the cleanup goal. For the Transformer 1 and 2 Area, soil excavation will only be required to an approximate depth of 3 to 5-feet bgs, which is coincident with the top of a large concrete structure encountered in multiple boring refusals. Remediation of concrete surfaces is described further in Section 4.0.

For consistency with the approved Plan for the other transformer areas, the work proposed in this modification will be completed in two phases. Phase I will be completed prior to building demolition, and Phase II will occur after the building has been demolished or by 2022, whichever occurs first. We also evaluated the feasibility of a full-scale excavation for the Transformer 21 Area to a depth of approximately 22 feet bgs versus the hybrid RAA approach (“Option 1 versus Option 2”). Based on the characterization data, excavation to 22 feet bgs in the Transformer 21 Area will remove soils containing PCBs above the cleanup goal, and soil remaining will be below the cleanup goal (pending post-excavation confirmatory sample data).

The range of costs for the two depth options is approximately:

- Option 1 – Excavation to 10 Feet and Low Permeability Cap - \$1,300,000
- Option 2 – Excavation to 22 Feet - \$1,600,000

⁴ Per 310 CMR 40.0996(4) For a disposal site at which the concentration of one or more oil and/or hazardous material in Soil exceeds an Upper Concentration Limit, a level of No Significant Risk of harm to public welfare and to the environment exists or has been achieved for both current and future conditions if a finding of No Significant Risk of harm to public welfare and the environment has been made pursuant to 310 CMR 40.0994 and 40.0995, respectively, an Activity and Use Limitation is implemented as required in 310 CMR 40.1012(2), and the Soil with concentrations exceeding an Upper Concentration Limit: (a) has been permanently immobilized or fixated as part of a remedial action; (b) is located at a depth greater than 15 feet from the ground surface; or (c) is located beneath an Engineered Barrier.

⁵ The detailed evaluation required under the MCP will be included in a revised Phase III RAP submittal to MassDEP later in 2018 and after USEPA approval of this modification. For purposes of this proposed modification, we consider the evaluation preliminary since USEPA approval is contingent upon review of this modification request. The selected RAA summarized in the following sections was conceptually discussed with USEPA representatives during a phone call with Mystic Station and GZA on October 19, 2017.



These cost estimates assume that the building has been removed. Both options also include the estimated costs associated with the Phase I and II remedial work for the Transformer 1 and 2 Area where soil excavation and removal is only required to approximately 3 to 5 feet bgs. The estimated costs under Option 2 are higher than Option 1, and the differences are likely to be greater due to the limited data and significant uncertainty of subsurface conditions. The disadvantages and uncertainties that might result in significant cost increases beyond the preliminary estimate shown above for Option 2 may include:

- Increased costs for structural support of the excavation for the Transformer 21 Area;
- Increased costs for excavation dewatering and treatment;
- Increased costs to address potential unknown subsurface obstructions at depth (e.g. boulders or foundations) during excavation shoring installation; and
- Increased costs to excavate and dispose of non-PCB containing soils that will be required to create a 2:1 slope from the east to access the deeper soil.

We also considered the scenario of attempting the Phase II remediation while the building is present, however that option was rejected since the costs for the two options shown will increase substantially. With the building is present, the disadvantages and uncertainties will be greater, and there are additional potential costs that include:

- Costs to demolish the neutral resistor building to facilitate access;
- Instrumentation costs to monitor the existing power plant building foundation during construction; and
- Multiple mobilizations costs for Phase II subsurface work to address a small volume (approximately 30 cubic yards) of PCB-containing soils that would be located in between the northern sheet pile wall and the building foundation wall. If the work is done with the building present, a second mobilization will be required after the building is demolished to remove the remaining soil and clean the foundation surfaces.

As a result of these evaluations, Mystic Station is proposing to implement the hybrid RAA (Nos. 2 and 3/"Option 1") in the phased approach for the Transformer 1, 2, and 21 Area under this modification. This approach has a lower cost to implement; will remove PCB containing soils that are above the cleanup goal and/or isolate them at depth below a low permeability barrier; and is consistent with the phased approach and schedule in the approved Plan for the other transformer areas. Further, this approach will also potentially allow Mystic Station to achieve a Permanent Solution with respect to the MCP; under current conditions only a Temporary Solution is feasible. Additional details of the modification to the Plan are provided in Section 4.0.

3.3 HUMAN HEALTH RISK CHARACTERIZATION

A summary of GZA's prior human health risk characterizations for the Transformer 3, 4, 5, 6, and 11 Areas was included in the December 7, 2017 Plan. The following section summarizes GZA's evaluation of the recent Transformer 1, 2, and 21 Area characterization data.

The risk assessment was updated for the Transformer 1, 2, and 21 Area with the 2017 soil and groundwater data. The data evaluation completed by GZA indicates that two potential hot spots, as that term is defined by the MCP, exist in the vicinity east of former Transformer 1 and the former Transformer 21 location. The potential hot spots are due to detections of PCBs in surface sample T1E and PCBs and VOCs in soil samples T21B2 and T21B3 greater than 100 times the



surrounding samples. However, the potential hot spots do not constitute an Imminent Hazard (IH) condition as that term is defined in the MCP. Further, the concentrations in the top 8 feet of soil near the former Transformer 21 location does not pose a significant risk to potential emergency/utility workers when evaluating the risk using an acute toxicity value developed by Agency for Toxic Substances and Disease Registry (ATSDR) for PCBs (0.01 mg/kg-day); note: there are no active utilities in this area, but the evaluation to exposure for an emergency utility worker was completed as a conservative approach. Based on GZA's data evaluation, a condition of No Substantial Hazard (NSH) exists for the Transformer 1, 2, and 21 Area, which is a requirement for Temporary Solutions under the MCP. The results of the soil and groundwater investigation will be included in a Substantial Hazard Evaluation (SHE) update as part of an upcoming revised MCP submittal to the MassDEP that will include the Transformer 1, 2, and 21 Area with the other decommissioned transformer areas under RTN 3-29680.

3.4 ECOLOGICAL RISK CHARACTERIZATION

A summary of GZA's prior ecological risk characterizations for the Transformer 3, 4, 5, 6, and 11 Areas was included in the December 7, 2017 Plan. The following section summarizes GZA's evaluation of the recent Transformer 1, 2, and 21 Area characterization data.

Due to the MCP Upper Concentration Limit (UCL⁶) exceedances at the decommissioned Transformer 1, 2, and 21 Area, a condition of No Significant Risk (NSR) to the environment does not exist for this area under the future use scenario, but a condition of NSH exists under current use scenarios.

4.0 RISK-BASED CLEANUP PLAN

The Self-Implementing cleanup level (25 mg/kg) for low occupancy areas (40 CFR 761.61a) is being adopted as the Risk-based cleanup goal. Approval is being requested for a modification to the Plan to include the Transformer 1, 2, and 21 Area as part of the PCB remediation along with the Transformer 3, 4, 5, 6, and 11 Areas. The modification assumes that remediation of the Transformer 1, 2, and 21 Area will be conducted in a phased approach and time frame consistent with the approved Plan for the other transformer areas.

Phase I includes the removal of concrete pads and pedestals, remediation of the aboveground vertical brick and concrete surfaces (e.g., walls) to the cleanup goal, and removal of up to 2 feet of trap rock and gravel within the Transformer 1, 2, and 21 Area. Aboveground vertical concrete surfaces (e.g., walls) will be removed to an approximate depth of 2-3 inches, and horizontally/laterally to the limits of the adjacent sample location that was below the cleanup goal based on characterization data. After Phase I, a geotextile will be installed at the bottom of the excavation and backfilled with clean imported granular backfill.

Phase II includes the excavation and off-site disposal of soil with PCBs greater than 25 mg/kg up to 3 to 5 feet bgs in the Transformer 1 and 2 Area, and up to 10 feet bgs in the Transformer 21 Area; removal and/or remediation of subsurface concrete exhibiting PCB concentrations above 25 mg/kg; and installation of a low permeability cap for deep soil (below 10 feet bgs) in the Transformer 21 Area that is above the cleanup goal. An AUL deed restriction will be used to restrict uses to control exposure. At the completion of Phase I, PCBs will be reduced in exposed soil and concrete to concentrations below cleanup goals for low occupancy areas.

⁶ The UCL limit for PCBs in soil under the MCP is 100 µg/g or parts per million (PPM).



As shown by the dimension scales included on Figures 3 and 5B, the contiguous decommissioned Transformer 1, 2, and 21 Area is approximately 25 feet wide by 85 feet long (approximately 2,100 ft²). The soil and concrete characterization data presented on Figures 3, 4A, and 4B shows characterization sample data that are below or above the cleanup goal (25 mg/kg).

We assume soil samples collected from a specific depth that exhibit PCB concentrations above the cleanup goal are representative of soil concentrations within their respective transformer area boundaries for that depth interval and those soils will be removed as PCB remediation waste.

Soil will be excavated to an approximate depth of 3 to 5 feet bgs in the Transformer 1 and 2 Area, which is the approximate depth of an apparent concrete structure encountered in multiple exploration refusals. The subsurface concrete limits that may require remediation or removal are not known at this time, and characterization testing will occur following Phase II soil excavation when access to these structures/surfaces is possible. Consistent with the Plan, the Transformer 1, 2, and 21 Area subsurface concrete that exhibits PCB concentrations above the cleanup goal based on characterization data will be remediated or removed as PCB remediation waste during Phase II work. Soil for the Transformer 21 Area will be excavated to approximately 10 feet bgs. A low permeability cap will then be constructed at depth to isolate soils containing PCBs below 10 feet bgs. The following table summarizes the proposed confirmatory sampling for each transformer area:

Transformer Area	Approximate Square Footage (Ft ²) (Soil)	Estimated Quantity of Confirmatory Samples (Soil)	Remediation Phase When Samples Will Be Collected
1	750	See Notes 2 & 3	See Notes 2 & 3
2	750	See Notes 2 & 3	See Notes 2 & 3
21	375	10	Phase II
Total		10	
Transformer Area	Approximate Square Footage (Ft ²) Walls (Concrete)	Estimated Quantity of Confirmatory Samples (Concrete)	Remediation Phase When Samples Will Be Collected
1	See Note 4	NA	See Note 4
2	180	6	Phase I
21	See Note 4	NA	See Note 4
Total		6	
Transformer Area	Approx. Square Footage (Ft ²) Subsurface Concrete Structure	Estimated Quantity of Confirmatory Samples (Concrete)	Remediation Phase When Samples Will Be Collected
1	750	16	Phase II
2	750	16	Phase II
21	250	6	Phase II
Total		38	

Notes:

1. The aboveground concrete pedestals, pads, and/or slabs will be removed as PCB remediation waste during Phase I remediation. No confirmatory samples will be collected from these structures.
2. The top 2 feet of gravel and trap rock will be removed in the Transformer 1, 2, and 21 Area as PCB remediation waste during Phase I remediation activities; confirmatory soil samples are not planned during Phase I. A geotextile will be placed at the bottom of the Phase I excavation and clean imported backfill will be placed following Phase I work.



3. Multiple refusals were encountered on a large concrete structure during subsurface explorations. Therefore, we assume the presence of a subsurface concrete structure approximately 25 feet by 70 feet in dimension at approximately 3.5 to 5 feet bgs in the Transformer 1, 2 Area, and a portion of the Transformer 21 Area. During Phase II, soil excavation and removal will proceed to the top of the concrete structure in the Transformer 1, 2, and 21 Area. The subsurface concrete structure will be characterized during Phase II. If necessary, the structure will be remediated, and confirmation sampling will occur to verify the remaining surface meets the cleanup goal.
4. Concrete characterization data for the Transformer 1 and 21 Area walls did not indicate PCB concentrations above the cleanup goal, therefore, remediation of the walls in these areas are not being proposed.
5. Confirmatory subsurface soil samples will be collected during Phase II for the Transformer 21 Area where the subsurface concrete structure is not present.

Upon approval of the modification, Mystic Station will initiate Phase I remedial work in the late summer to early fall 2018 to address exposed concrete and brick surfaces that are above the cleanup goal (25 mg/kg), and removal of the top 1 to 2 feet of surface trap rock and gravel within the Transformer 1, 2, and 21 Area; Phase I remediation for the other transformer areas is expected to occur concurrently and in accordance with USEPA's March 2018 approval of the Plan. However, Phase II will be coordinated with eventual demolition of the power plant building, with the work completed no later than the end of 2022. The presence of the power plant building currently prevents unrestricted access for soil excavation. Due to access limitations imposed by the power plant building's foundation walls adjacent to the decommissioned transformer areas, the feasibility of PCB remediation of impacted soils via excavation is significantly reduced. During this time Mystic Station will provide annual status updates to USEPA. Before Phase II begins, a detailed milestone schedule will be submitted for the subsurface activities. GZA's risk evaluation, which will be filed with the MassDEP later in 2018, demonstrates that the short-term risks are not considered significant and there will be no additional risk by phasing the remediation.

The Quality Assurance Project Plan (QAPP) that was included as an appendix to the approved Plan will be used for this modification.

Soil and concrete containing PCBs above 1 mg/kg that are excavated/removed will be disposed of as PCB remediation waste at a facility licensed to accept hazardous waste containing PCBs.

The following section discusses the proposed modification to the Plan for remediation of soil and concrete surfaces in the decommissioned Transformer 1, 2, and 21 Area.

4.1 TRANSFORMER 1, 2, AND 21 AREA

During Phase I, the multi-part approach outlined in the approved plan will be utilized for the aboveground vertical surfaces (walls), followed by confirmatory testing. Presently, the Transformer 1 pad and Transformer 2 pedestals are above the cleanup goal and will be demolished and removed using a mini-excavator and percussion hammer attachment. The concrete structures will be removed for off-site disposal as PCB Remediation Waste. Additionally, up to 2 feet of surface gravel and trap rock will be removed as PCB remediation waste during the Phase I work. An AUL will be placed within 60 days of the completion of the Phase I remediation.

The concrete remediation work will be completed by constructing a framed polyethylene negative pressure HEPA filter containment around the work areas. Based on sample data for the walls from T2-CS-5 and 6, which are above the cleanup goal, the multi-part approach will be completed laterally toward the approximate limits of the adjacent sample locations (T2CS-4 AND T21-CS-8) that are below the cleanup goal; the multi-part approach will be completed vertically by an additional 3 feet up the building walls and to the ground surface at these locations (T2-CS-5 and 6). Post-remediation sampling will be conducted to confirm that cleanup goals have been met, and if necessary the multi-part approach will be repeated.



Subsurface soil remediation for the Transformer 1, 2, and 21 Area will be completed as part of Phase II remedial activities. Prior to beginning the Phase II subsurface excavation, the clean imported granular fill that was placed at the completion of the Phase I work will be excavated and segregated for later re-use. The geotextile installed at the bottom of the Phase I excavation will be disposed of as PCB remediation waste. Subsurface soil excavation will include the removal of subsurface soils containing PCBs above the cleanup goal (25 mg/kg) from approximately 2 to 5 feet for the Transformer 1 and 2 Area and 2 to 10 feet bgs for Transformer 21 Area. A low permeability cap will then be installed at in bottom of the Transformer 21 excavation. Where applicable, confirmatory soil sampling will be completed to document that cleanup goals were achieved.

Due to the proximity of the impacted soils to the power plant foundation wall and the Mystic River, it is anticipated that the deeper excavation for Transformer 21 Area will need to be braced via a steel interlocking sheet pile support of excavation (SOE) system. A cross section plan is included as Figure 5A to illustrate the Transformer 21 Area subsurface, and Figure 5B shows the proposed remedial plan including the low permeability cap detail.

SOE components will be installed on the western and southern sides of the Transformer 21 Area excavation to protect the fire suppression water utility located in the adjacent roadway, and to reduce groundwater infiltration into the excavation. Excavation dewatering volumes will be reduced, since the observed groundwater levels range from 8 to 9 feet bgs and SOE will be installed on two sides. Note: the sheet piles will be left in place to provide horizontal containment and support for construction of the low permeability cap. The deeper excavation for the Transformer 21 Area will be accessed from the eastern side and will require the excavation of non-PCB containing soils to create a 2:1 slope; we assume those soils will not be suitable for re-use on-Site and will be characterized for disposal at an appropriate disposal or recycling facility. The excavation will be dewatered, and the water will be pumped to a fractionation storage tank. The water will be characterized and disposed of as remediation waste.

After removal of subsurface soils to a depth of approximately 10 feet bgs in the Transformer 21 Area, a geotextile fabric will be placed at the bottom of the excavation and a low permeability cap will be constructed. As shown on Figure 5B, the low permeability cap will consist of approximately 3 feet of crushed stone, 2 feet of flowable fill, a geotextile marker layer, and approximately 5 feet of clean imported granular fill.

The Phase II subsurface excavation will be completed for the Transformer 1 and 2 Area to the top of the subsurface concrete structure (approximately 3 to 5 feet bgs). Due to the subsurface concrete structure, no confirmatory end point soil samples will be collected from the Transformer 1 and 2 Area. Before backfilling of the excavation, the subsurface concrete structure will be sampled and characterized. If necessary, this concrete surface will be remediated in a similar manner to the aboveground surfaces remediated during Phase I. The area will then be backfilled to grade with clean imported granular fill.

Following completion of the Phase II work, Mystic Station will record a modification to the AUL that was previously recorded at the completion of the Phase I work. The modification to the AUL will document post-remedial conditions.

GZA is evaluating if groundwater remedial actions for VOCs are necessary as part of response actions under the MCP. Those evaluations will be included in the Supplemental MCP Phase II, Revised Phase III RAP and TSS that will be submitted to MassDEP later in 2018. If groundwater remediation is necessary for VOCs, that work will be the subject of a separate future MCP submittal (e.g., Release Abatement Measure Plan).



5.0 DEED RESTRICTIONS

Use of the low occupancy cleanup goal requires a deed restriction as an institutional control. In this case, an MCP AUL will be recorded for the former transformer locations of the Mystic Station property to serve as the institutional control for both TSCA and the MCP. The AUL will address soils and concrete surfaces left in place that exhibit PCB concentrations greater than 1 mg/kg but less than 25 mg/kg at former the Transformer 1, 2, and 21 Area.

Exposed concrete surfaces with PCB concentrations above Cleanup goal (25 mg/kg) will be remediated or removed for disposal during Phase I work in the late summer or early fall 2018. However, subsurface soil and concrete exhibiting PCB concentrations above cleanup goals (25 mg/kg) will be remediated or removed before the end of 2022. During this time, Mystic Station anticipates having a clearer timetable for building demolition. Removal of the building will allow for unrestricted access for soil remediation in the former transformer areas.

Within 60 days of the completion of Phase I remediation of the former transformer areas, Mystic Station will file the required deed restriction(s) at the Middlesex South Registry of Deeds, and will submit a certification to the EPA Region 1 Administrator notifying EPA that the required deed restrictions have been filed. The AUL will be modified/updated after the completion of the Phase II remedial work.

6.0 REFERENCES

Commonwealth of Massachusetts. June 20, 2014. *Massachusetts Contingency Plan. 310 CMR 40.0000*. Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Site Cleanup.

GZA, December 7, 2011. Phase I Initial Site Investigation and Tier Classification, Exelon Mystic Station Former Transformer Areas 3, 5, and 6, Exelon Mystic Power Station, Charlestown, Massachusetts. RTN 3-29680. Prepared by GZA of Norwood, Massachusetts. December 7, 2011.

GZA, December 6, 2013. Phase II Comprehensive Site Assessment, Phase III Remedial Action Plan, and Class C-1 Response Action Outcome, Exelon Mystic Station Former Transformer Areas 3, 5, and 6, Exelon Mystic Station, Charlestown, Massachusetts. RTN 3-29680. Prepared by GZA of Norwood, Massachusetts. December 6, 2013.

GZA, November 4, 2016. Supplemental Phase II Comprehensive Site Assessment (CSA), Revised Phase III Remedial Action Plan (RAP) and Revised Temporary Solution Statement (TSS), Exelon Mystic Station Former Transformer Areas 3, 4, 5, 6, and 11 Exelon Mystic Station, Charlestown, Massachusetts. RTN 3-29680. Prepared by GZA of Norwood, Massachusetts.



Tables

Table 1A
Soil Samples
Exelon - Mystic Station
173 Alford Street, Charlestown, MA

Sample ID Laboratory ID Sample Date Sample Depth (ft)	Transformer #1, #2, and #21 Area													
	Transformer #1 Vicinity						Transformer #2 Vicinity							
	T1B1-S1 1707662-01 7/28/2017 2-4'	T1B1-S2 1707662-02 7/28/2017 4-5'	T1B2-S1 1707662-03 7/28/2017 2-4'	T1N 1709292-01 9/13/2017 0-2'	T1S 1709292-02 9/13/2017 0-2'	T1E 1709292-03 9/13/2017 0-2'	T2B1-S1 1707663-01 7/28/2017 2-4'	T2B2-S1 1707662-04 7/28/2017 2-4'	T2B4-S1 1707662-05 7/28/2017 2-4'	T2B5-S1 1707662-06 7/28/2017 2-4'	T2N 1709292-04 9/13/2017 0-2'	T2S 1709292-05 9/13/2017 0-2'	T2E 1709292-06 9/13/2017 0-2'	
PCBs														
Aroclor 1016	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1221	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1232	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1242	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1248	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1254	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1260	20.0	28.1	0.07	2.9	1.8	192	43.8	45.8	23.6	39.2	83.8	0.5	0.7	
Aroclor 1262	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	
Aroclor 1268	<2.8	<3.1	<0.06	<0.05	<0.05	<53.6	<5.7	<5.7	<3.0	<5.6	<10.3	<0.05	<0.05	

Notes:

1. Concentrations presented in parts per million or milligrams per kilogram (mg/kg).
2. < X = result was below the laboratory detection limit.
3. Due to elevated detections of Arochlor 1260 in certain samples, the laboratory detection limits for other Arochlors were raised as a function of required sample dilutions needed for Arochlor 1260 to be within the instrument calibration range.

Table 1A
Soil Samples
Exelon - Mystic Station
173 Alford Street, Charlestown, MA

Sample ID Laboratory ID Sample Date Sample Depth (ft)	Transformer #1, #2, and #21 Area																														
	Transformer #21 Vicinity																														
	T21B1-S1 1707662-07 7/28/2017 2-4'	T21B2-S1 1707663-02 7/28/2017 2-4'	T21B2-S2 1707663-03 7/28/2017 4-6'	T21B2-S3 1707662-17 7/28/2017 6-8'	T21B2-S4A 1707662-08 7/28/2017 8-9'	T21B2-S4B 1707662-09 7/28/2017 9-10'	T21B2-S5A 1707662-10 7/28/2017 10-11.5'	T21B2-S5B 1707662-11 7/28/2017 11.5-12'	T21B2-S6 1707662-12 7/28/2017 12-14'	T21B3-S1 1707663-04 7/28/2017 2-4'	T21B3-S3 1707663-05 7/28/2017 6-8'	T21B3-S4 1707662-13 7/28/2017 8-10'	T21B3-S5 1707662-14 7/28/2017 10-12'	T21B3-S6 1707662-15 7/28/2017 12-14'	T21B4-S1 1707662-16 7/28/2017 2-4'	T21B5 S-4 1709269-01 9/7/2017 3-4'	T21B5 S-7A 1709269-13 9/8/2017 9-10'	T21B5 S-7B 1709269-06 9/8/2017 10-11'	T21B6 S-2 1709269-02 9/7/2017 1-2'	T21B6 S-3 1709269-03 9/7/2017 2-3'	T21B6 S-4 1709269-08 9/8/2017 7-9'	T21B6 S-7 1709269-07 9/8/2017 13-15'	T21B7 S-1 1709269-04 9/7/2017 0-1'	T21B7 S-2A 1709269-05 9/8/2017 7-8'	T21B7 S-3 1709269-09 9/8/2017 9-11'	T21B8C S-2 1709269-11 9/8/2017 17-19'	T21B8C S-3 1709269-12 9/8/2017 20-22'	T21N 1709292-07 9/13/2017 0-2'	T21S 1709292-08 9/13/2017 0-2'		
PCBs																															
Aroclor 1016	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1221	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1232	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1242	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1248	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1254	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1260	4,720	128	104	1,540	17,000	172	563	272	147	20.6	6.9	68.5	19.9	1,590	1,490	4.6	1.80	0.09	5.1	8.1	2.2	0.09	1.3	1.0	<0.06	6,120	71.4	2.8	2.7		
Aroclor 1262	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05
Aroclor 1268	<586	<10.7	<6.2	<321	<3,110	<34.3	<67.2	<32.7	<30.2	<2.9	<1.3	<12.7	<3.1	<343	<301	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.06	<0.06	<578	<8.8	<0.05	<0.05

Notes:

1. Concentrations presented in parts per million or milligrams per kilogram (mg/kg).
2. < X = result was below the laboratory detection limit.
3. Due to elevated detections of Arochlor 1260 in certain samples, the laboratory detection limits for other Arochlors were raised as a function of required sample dilutions needed for Arochlor 1260 to be within the instrument calibration range.

Table 1B
Soil Samples
Exelon - Mystic Station
173 Alford Street, Charlestown, MA

	Transformer #1, #2, and #21 Area										
	Trans. #1 Vicinity	Transformer #21 Vicinity									
Sample ID	T1B2-S1	T21B2-S3	T21B2-S4A	T21B5 S-6	T21B5 S-7B	T21B6 S-4	T21B6 S-7	T21B7 S-2A	T21B7 S-3	T21B8C S-2	T21B8C S-3
Laboratory ID	1707662-03	1707662-17	1707662-08	1709269-10	1709269-06	1709269-08	1709269-07	1709269-05	1709269-09	1709269-11	1709269-12
Sample Date	7/28/2017	7/28/2017	7/28/2017	9/8/2017	9/8/2017	9/8/2017	9/8/2017	9/8/2017	9/8/2017	9/8/2017	9/8/2017
Sample Depth (ft)	2-4'	6-8'	8-9'	7-9'	10-11'	7-9'	13-15'	7-8'	9-11'	17-19'	20-22'
VOCs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
1,2,3-Trichlorobenzene	<0.0041	33.7	1,400	<0.450	<0.336	<0.361	<0.418	<0.395	<0.413	208	<0.894
1,2,4-Trichlorobenzene	<0.0041	155	6,000	<0.450	<0.336	<0.361	<0.418	<0.395	<0.413	1,010	<0.894
1,2-Dichlorobenzene	<0.0041	<0.436	8.47	<0.450	<0.336	<0.361	<0.418	<0.395	<0.413	3.55	<0.894
1,3-Dichlorobenzene	<0.0041	10.1	161	<0.450	0.534	<0.361	<0.418	<0.395	<0.413	17.7	<0.894
1,4-Dichlorobenzene	<0.0041	1.39	59.4	<0.450	2.47	<0.361	<0.418	<0.395	<0.413	18.6	<0.894
Chlorobenzene	<0.0041	<0.436	<0.540	<0.450	<0.336	<0.361	<0.418	<0.395	<0.413	1.57	<0.894

Notes:

1. Concentrations presented in parts per million or milligrams per kilogram (mg/kg).
2. < X = result was below the laboratory detection limit.

Table 2
Concrete Samples
Exelon - Mystic Station
173 Alford Street, Charlestown, MA

Sample Location	Transformer #1, 2 and 21 Area													
	Wall	Wall	Pad	Pad	Wall	Wall	Wall	Wall	Wall	Pedastal	Pedastal	Wall	Wall	Wall
Sample ID	T1-CS-1	T1-CS-2	T1-CS-3	T1-CS-3D	T2-CS-4	T2-CS-5	T2-CS-5D	T2-CS-6	T2-CS-6D	T2-CS-7	T2-CS-7D	T21-CS-8	T21-CS-9	T21-CS-10
Approximate Depth (inches)	0-0.5"	0-0.5"	0-0.5"	1-2"	0-0.5"	0-0.5"	1-2"	0-0.5"	1-2"	0-0.5"	1-2"	0-0.5"	0-0.5"	0-0.5"
Laboratory Sample ID	1704421-01	1704421-02	1704421-03	170623-19	1704421-04	1704421-05	1706231-21	1704421-06	1706231-20	1704421-07	1706231-18	1704421-08	1704421-09	1704421-10
Sample Date	04/13/2017	04/13/2017	04/13/2017	6/7/2017	04/13/2017	04/13/2017	6/7/2017	04/13/2017	6/7/2017	04/13/2017	6/7/2017	04/13/2017	04/13/2017	04/13/2017
PCBs	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Aroclor 1016	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1221	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1232	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1242	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1248	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1254	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1260	0.9	0.5	5,430	0.2	1.3	78.4	<0.2	45.9	2.9	71.8	<0.2	11.8	0.8	18.6
Aroclor 1262	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2
Aroclor 1268	<0.2	<0.2	<925	<0.2	<0.2	<9.3	<0.2	<3.9	<0.2	<3.7	<0.2	<0.2	<0.2	<0.2

Notes:

1. Concentrations presented in parts per million or milligrams per kilogram (mg/kg).
2. < X = result was below the laboratory detection limit.

Table 3A
Groundwater Samples
Exelon - Mystic Station
173 Alford Street, Charlestown, MA

Sample ID	Transformer #1, #2, and #21 Area					
	Transformer #2 Vicinity	Transformer #21 Vicinity				
	T2-MW	T21B5-MW	T21B6-MW	T21B7-MW	T21B8C-MW ³	
Laboratory ID	1709472-05	1709472-01	1709472-02	1709472-03	1709472-04	1710616-01
Sample Date	9/14/2017	9/14/2017	9/14/2017	9/14/2017	9/14/2017	10/24/2017
PCBs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Aroclor 1016	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Aroclor 1221	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Aroclor 1232	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Aroclor 1242	<0.09	0.270	<0.09	<0.09	0.470	<0.09
Aroclor 1248	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Aroclor 1254	<0.09	0.170	0.410	<0.09	1.85	<0.09
Aroclor 1260	<0.09	<0.09	<0.09	<0.09	0.930	<0.09
Aroclor 1262	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09
Aroclor 1268	<0.09	<0.09	<0.09	<0.09	<0.09	<0.09

Notes:

1. Concentrations presented in parts per billion or micrograms per liter (µg/L).
2. < X = result was below the laboratory detection limit.
3. The sample collected from T21B8C-MW on 9/14/17 was not field filtered, whereas the sample collected on 10/24/17 was field filtered.

Table 3B
 Groundwater Samples
 Exelon - Mystic Station
 173 Alford Street, Charlestown, MA

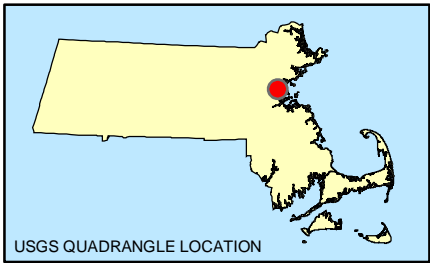
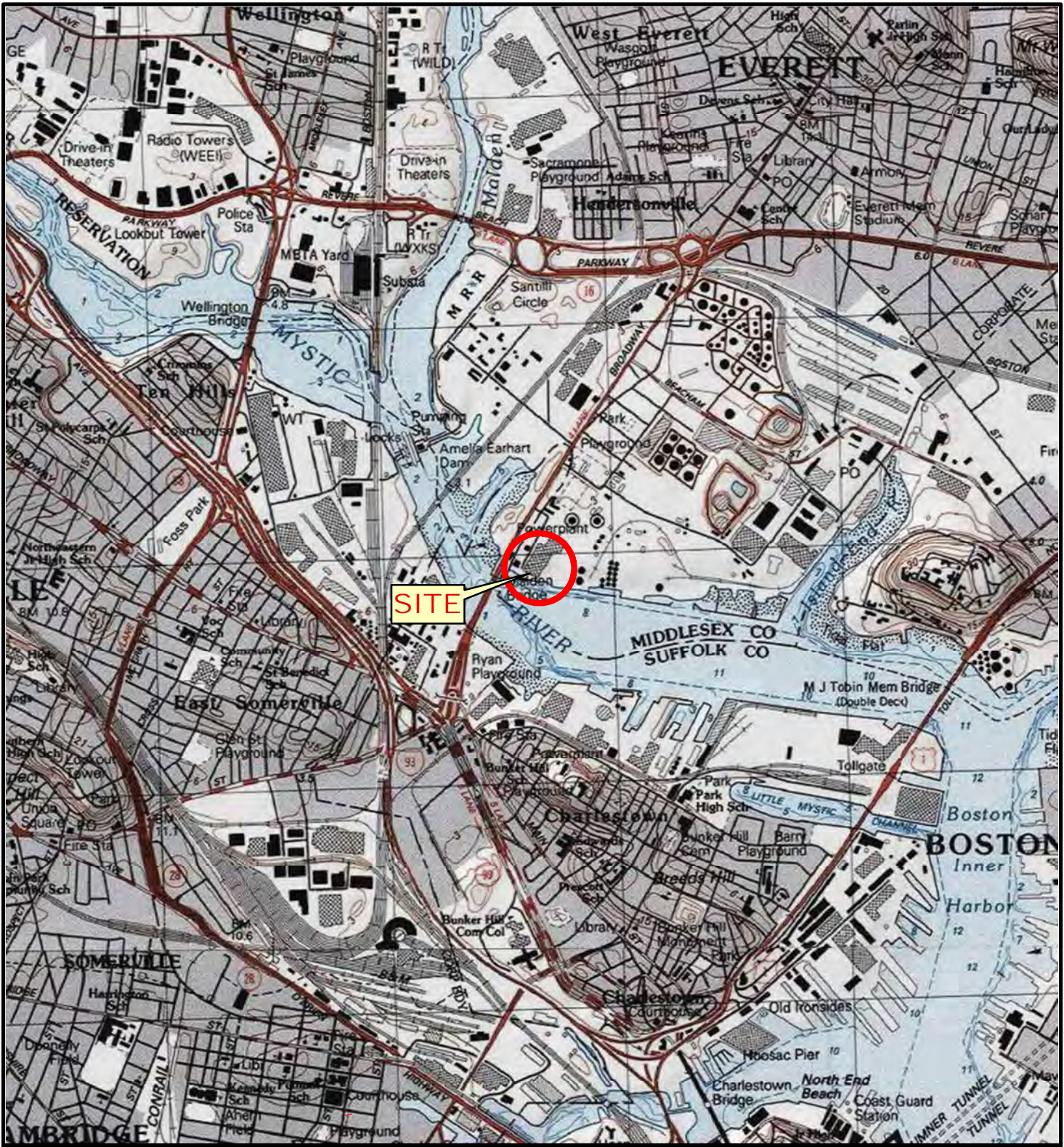
Sample ID Laboratory ID Sample Date	Transformer #1, #2, and #21 Area					
	Trans. #2 Vicinity	Transformer #21 Vicinity				
	T2-MW 1709472-05 9/14/2017	T21B5-MW 1709472-01 9/14/2017	T21B6-MW 1709472-02 9/14/2017	T21B7-MW 1709472-03 9/14/2017	T21B8C-MW 1709472-04 1710616-01 9/14/2017 10/24/2017	
VOCs	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
1,2,3-Trichlorobenzene	<1.0	3.5	<1.0	<1.0	123	147
1,2,4-Trichlorobenzene	<1.0	13.6	<1.0	<1.0	493	475
1,2-Dichlorobenzene	<1.0	<1.0	<1.0	<1.0	8.8	4.2
1,3-Dichlorobenzene	<1.0	23.4	<1.0	<1.0	60.9	45.7
1,4-Dichlorobenzene	<1.0	119	<1.0	2.3	174	231
Chlorobenzene	<1.0	5.4	<1.0	<1.0	6.3	7.4

Notes:

1. Concentrations presented in parts per billion or micrograms per liter (µg/L).
2. < X = result was below the laboratory detection limit.



Figures



SOURCE : THIS MAP CONTAINS THE ESRI ARCGIS ONLINE USA TOPOGRAPHIC MAP SERVICE, PUBLISHED DECEMBER 12, 2009 BY ESRI ARCGIS SERVICES AND UPDATED AS NEEDED. THIS SERVICE USES UNIFORM NATIONALLY RECOGNIZED DATUM AND CARTOGRAPHY STANDARDS AND A VARIETY OF AVAILABLE SOURCES FROM SEVERAL DATA PROVIDERS.

Data Supplied by :



PROJ. MGR.: JRC
 DESIGNED BY: JRC
 REVIEWED BY: GWM
 OPERATOR: EMD
 DATE: 08-29-2017

LOCUS PLAN
 MYSTIC STATION
 173 ALFORD STREET
 CHARLESTOWN, MASSACHUSETTS

PROJECT NO.
 01.0015442.76
 FIGURE NO.
 1



LEGEND

APPROXIMATE BOUNDARIES OF TRANSFORMER AREAS (SEE INDIVIDUAL AREA PLANS FOR DETAILS AND SAMPLING INFORMATION)

SOURCE:

1. THE BING AERIAL BACKGROUND IMAGERY WAS PROVIDED BY MICROSOFT CORPORATION IN 2017.



DECOMMISSIONED TRANSFORMERS 1, 2 & 21

DECOMMISSIONED TRANSFORMER 3

DECOMMISSIONED TRANSFORMER 4

DECOMMISSIONED TRANSFORMER 11

DECOMMISSIONED TRANSFORMER 5

DECOMMISSIONED TRANSFORMER 6

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MYSTIC STATION
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

EXPLORATION LOCATION PLAN

PREPARED BY:
 GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

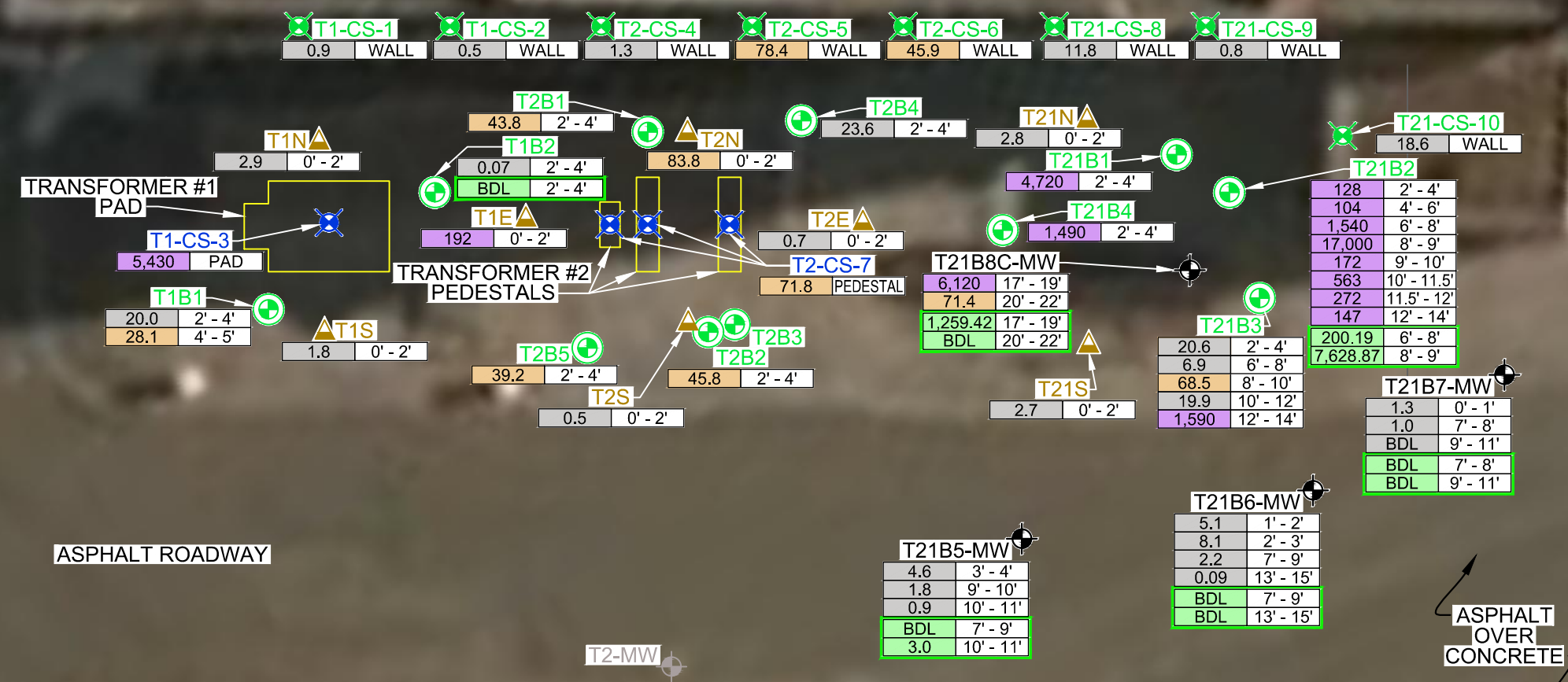
PREPARED FOR:
CONSTELLATION
MYSTIC POWER, LLC

PROJ MGR: JRC	REVIEWED BY: GWM	CHECKED BY: GWM
DESIGNED BY: JRC	DRAWN BY: EMD	SCALE: 1" = 50 FEET
DATE: 12-06-2017	PROJECT NO. 01.0015442.76	REVISION NO.

FIGURE
2

© 2018 - GZA GeoEnvironmental, Inc. GZA-U:\15,000-16,999\15442.1\F6\15442-76.JRC\Figures\CAD\15442-76_BasePlans_v3B.dwg [TR1-2-21_FIG-3] April 23, 2018 - 3:32pm elaine.donohue

MYSTIC UNIT 1



LEGEND

- T1B1 (Green circle with crosshair) APPROXIMATE LOCATION OF SOIL BORING
- T1-CS-3 (Blue X) APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM PEDESTAL OR PAD
- T2-CS-6 (Green X) APPROXIMATE AREA OF CONCRETE SAMPLE TAKEN FROM WALL
- T21N (Yellow triangle) APPROXIMATE LOCATION OF SURFACE SAMPLE COLLECTED SEPTEMBER 13, 2017
- T21B5-MW (Black circle with crosshair) APPROXIMATE LOCATION OF MONITORING WELL
- T2-MW (Grey circle with crosshair) APPROXIMATE LOCATION OF HISTORIC MONITORING WELL

SOIL SAMPLE LOCATION AROCLOR 1260 CONCENTRATION (mg/kg)

45.9	WALL
BDL	2' - 4'

Legend for Aroclor 1260 concentrations:

- Orange: AROCLOR 1260 (>100 mg/kg)
- Yellow: AROCLOR 1260 (25 - 100 mg/kg)
- Green: AROCLOR 1260 (<25 mg/kg)

SOIL SAMPLE LOCATION TOTAL VOLATILE ORGANIC COMPOUNDS (VOCs) AS A SUMMATION OF CHLORO BENZENE ISOMERS (mg/kg)

BDL - RESULT WAS BELOW THE LABORATORY DETECTION LIMIT

- NOTES:**
- THE BING AERIAL BACKGROUND IMAGERY WAS PROVIDED BY MICROSOFT CORPORATION IN 2017.
 - THE FORMER TRANSFORMER FOUNDATIONS WERE APPROXIMATELY LOCATED FROM AN UNDATED PAPER PLAN ENTITLED "ATTACHMENT 1", AND FROM FIELD MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
 - THE CONCRETE AND SOIL SAMPLES WERE COLLECTED BY GZA PERSONNEL ON APRIL 13, 2017, JUNE 7, 2017 AND JULY 28, 2017.
 - THE SOIL BORINGS WERE PERFORMED BY TECHNICAL DRILLING SERVICES, INC. ON JULY 28, 2017 AND SEPTEMBER 7-8, 2017 AND WERE OBSERVED BY GZA PERSONNEL.
 - THE LOCATIONS OF THE CONCRETE SAMPLES AND SOIL BORINGS WERE APPROXIMATELY DETERMINED BY LINE OF SIGHT AND TAPE MEASUREMENTS FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.
- 0 5' 10' 20'
SCALE IN FEET

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

MYSTIC STATION - TRANSFORMERS 1, 2 & 21 AREA
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

SAMPLE LOCATION SKETCH
TRANSFORMERS #1 AND #2

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC		
PROJ MGR: JRC	REVIEWED BY: GWM	CHECKED BY: GWM	FIGURE
DESIGNED BY: JRC/MF	DRAWN BY: EMD	SCALE: 1" = 10 FEET	3
DATE: 03-23-2018	PROJECT NO. 01.0015442.76	REVISION NO.	

FIGURE 4A
PHOTO LOG OF CONCRETE SURFACE (0-0.5")
SAMPLE LOCATIONS AND DATA

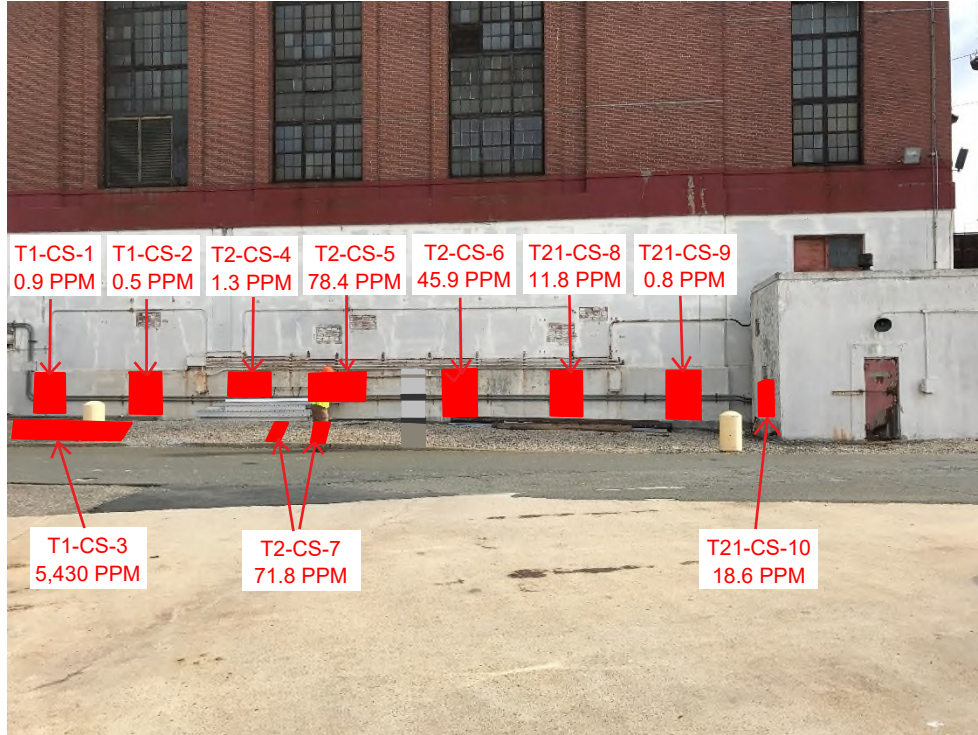


Photo 1- Transformer 1, 2, and 21 Area looking north at Mystic 1 building

NOT TO SCALE

SAMPLE LOCATIONS APPROXIMATE

FIGURE 4B
PHOTO LOG OF DEEP (1-2") CONCRETE
SAMPLE LOCATIONS AND DATA

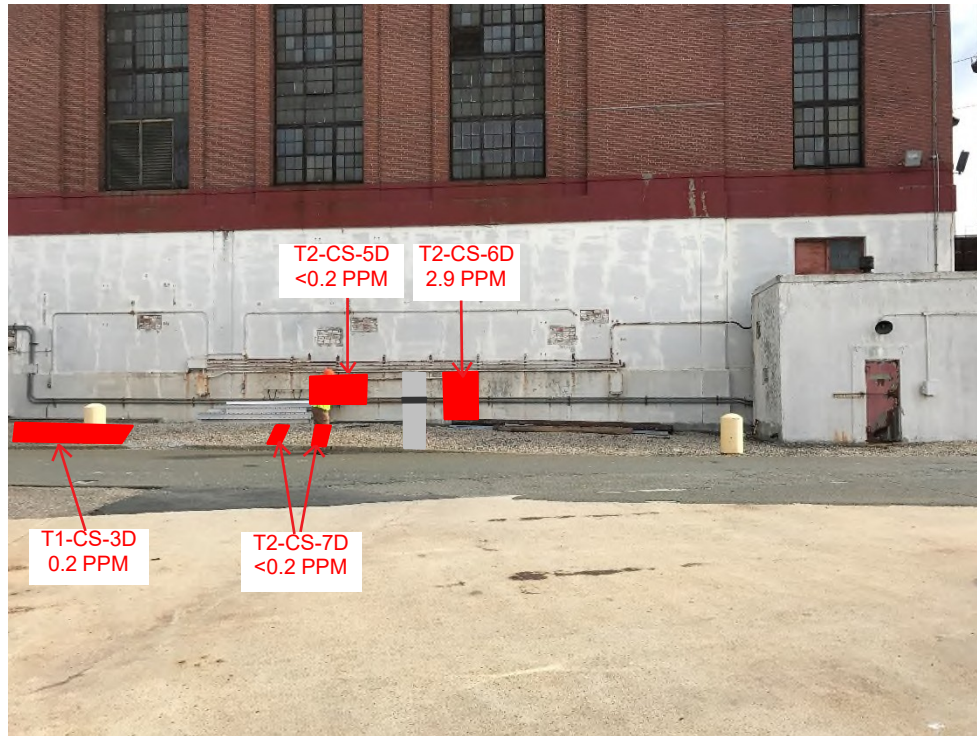
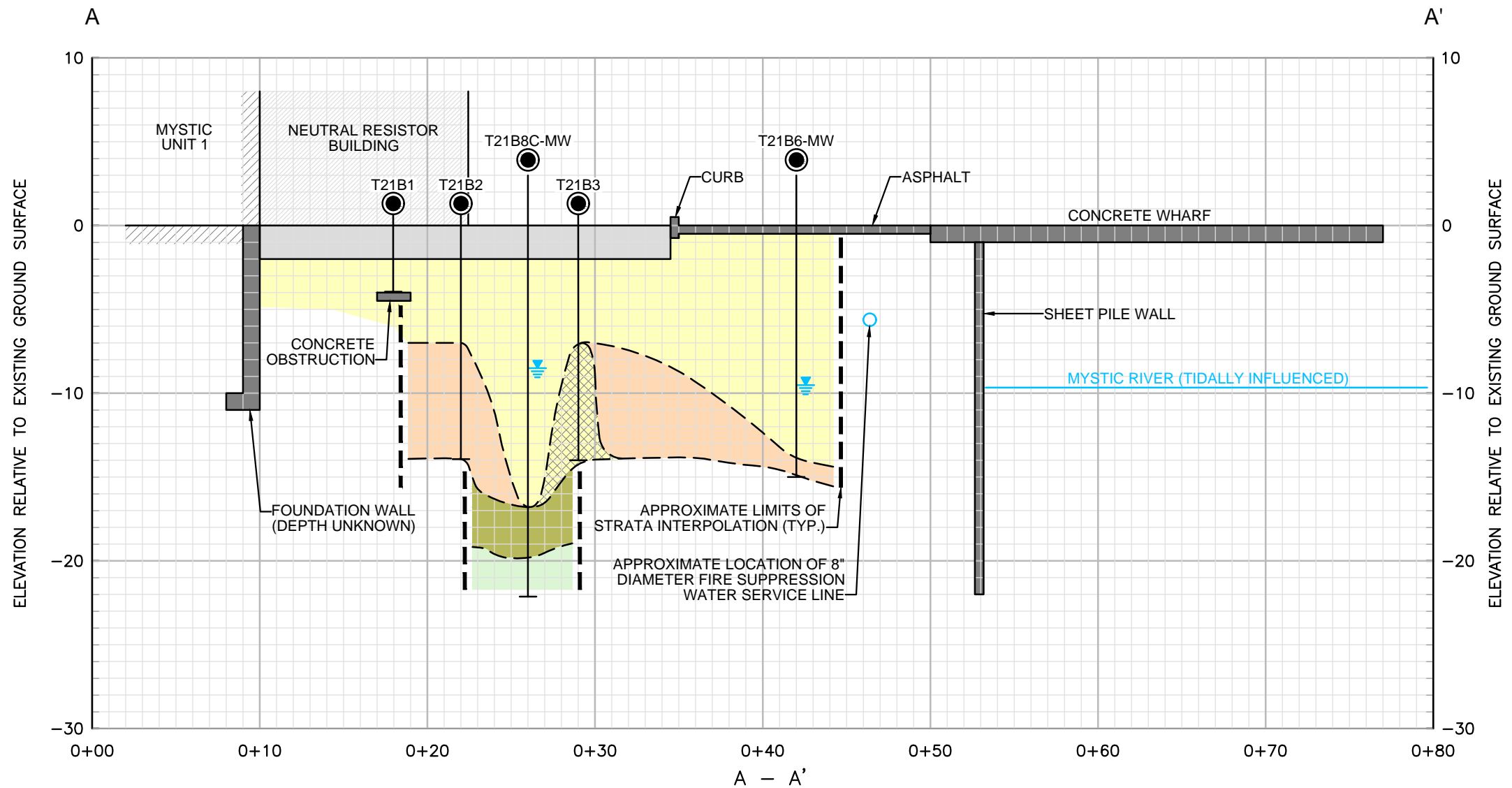


Photo 1- Transformer 1, 2, and 21 Area looking north at Mystic 1 building

NOT TO SCALE

SAMPLE LOCATIONS APPROXIMATE



LEGEND

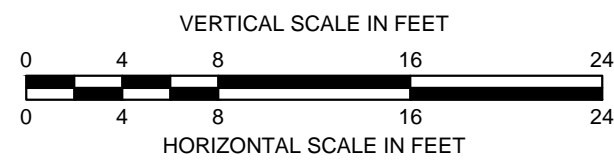
- T21B1 — BORING I.D.
- WATER TABLE ELEVATION
- BOTTOM OF BORING

LITHOLOGY KEY

- TRAP ROCK & GRAVEL
- SAND & GRAVEL
- SILTY CLAY WITH INTERBEDDED SAND & GRAVEL LENSES
- SILTY CLAY
- F-M SAND
- CLAY WITH PEAT FIBERS

NOTES:

1. MYSTIC UNITS 1-6 BUILDING FOUNDATION IS ASSUMED TO BE ON WOODEN PILES.
2. ELEVATIONS SHOWN ARE RELATIVE TO THE EXISTING GROUND SURFACE.



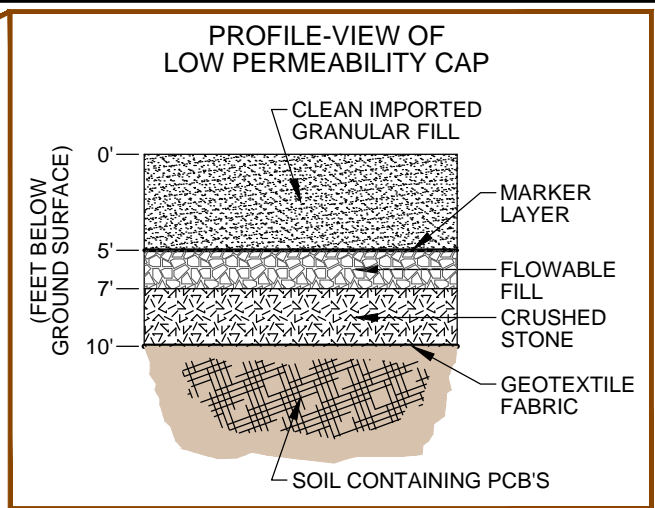
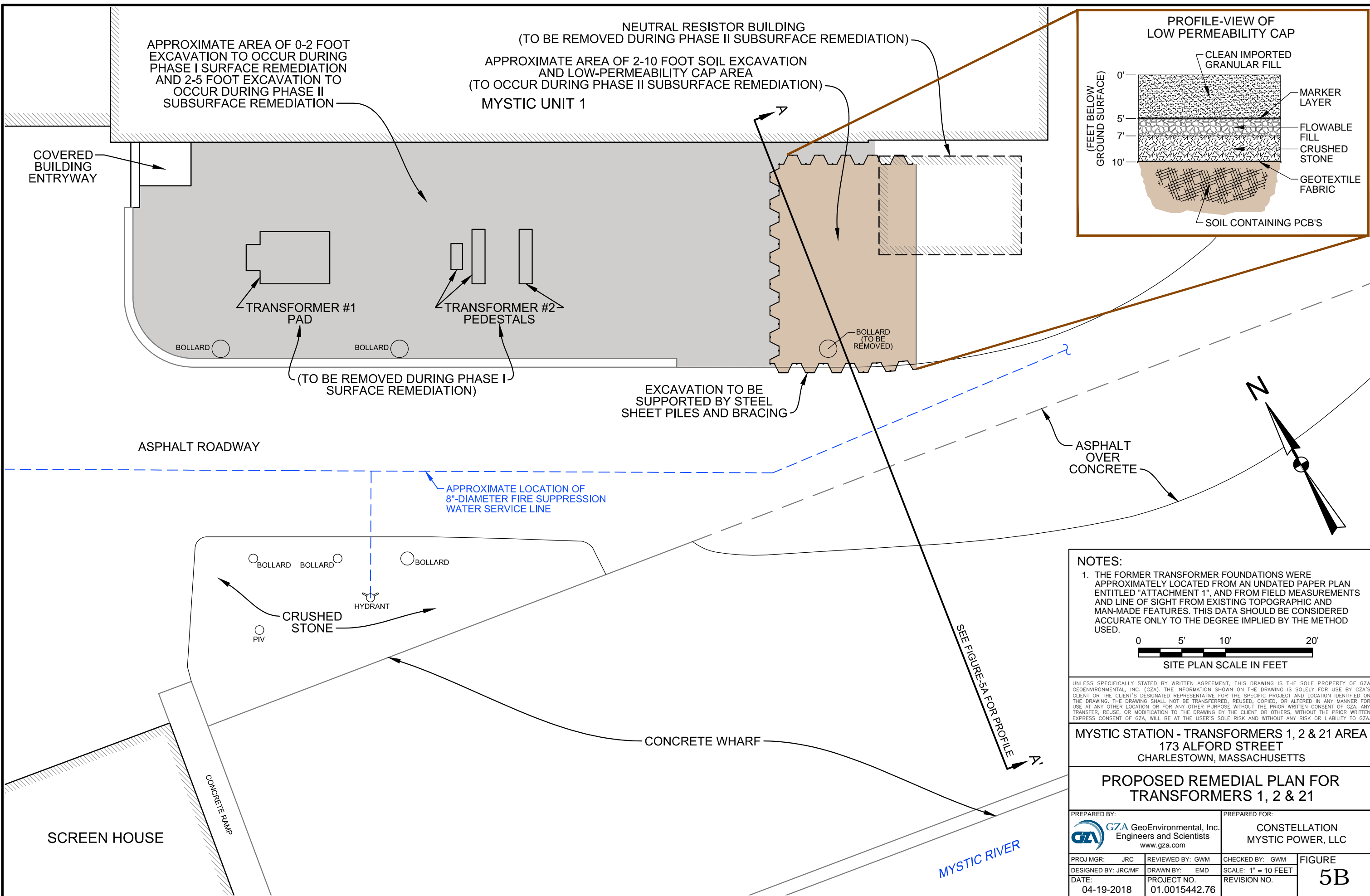
UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

MYSTIC STATION - TRANSFORMERS 1, 2 & 21 AREA
 173 ALFORD STREET
 CHARLESTOWN, MASSACHUSETTS

PROFILE A-A'

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC	
PROJ MGR: JRC	REVIEWED BY: GWM	CHECKED BY: GWM	FIGURE 5A
DESIGNED BY: JRC	DRAWN BY: ADP	SCALE: 1" = 8 FEET	
DATE: 12-08-2017	PROJECT NO. 01.0015442.76	REVISION NO.	

© 2018 - GZA GeoEnvironmental, Inc. GZA-U:\15,000-16,999\15442.1\F6\15442-76.JRC\Figures\CAD\15442-76_BasePlans_v3B.dwg [TR1-2-21_FIG-5B] April 19, 2018 - 12:12pm elaine.donohue



NOTES:

1. THE FORMER TRANSFORMER FOUNDATIONS WERE APPROXIMATELY LOCATED FROM AN UNDATED PAPER PLAN ENTITLED "ATTACHMENT 1", AND FROM FIELD MEASUREMENTS AND LINE OF SIGHT FROM EXISTING TOPOGRAPHIC AND MAN-MADE FEATURES. THIS DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

0 5' 10' 20'
SITE PLAN SCALE IN FEET

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

MYSTIC STATION - TRANSFORMERS 1, 2 & 21 AREA
173 ALFORD STREET
CHARLESTOWN, MASSACHUSETTS

PROPOSED REMEDIAL PLAN FOR TRANSFORMERS 1, 2 & 21

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: CONSTELLATION MYSTIC POWER, LLC	
PROJ MGR: JRC	REVIEWED BY: GWM	CHECKED BY: GWM	FIGURE
DESIGNED BY: JRC/MF	DRAWN BY: EMD	SCALE: 1" = 10 FEET	5B
DATE: 04-19-2018	PROJECT NO. 01.0015442.76	REVISION NO.	



Appendix A – Certification in Accordance with 40 CFR 761.61(A)(3)(I)(E)

CERTIFICATION IN ACCORDANCE WITH 40 CFR 761.61(a)(3)(i)(E)

All sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site that is the subject of this document are on file at the following location:

GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, Massachusetts 02062

Contact: Gregg W. McBride, LSP
Phone: (781) 278-3828



Mr. Todd Cutler
Assistant Secretary
Constellation Mystic Power, LLC
173 Alford Street, Charlestown
todd.cutler@exeloncorp.com
Tel.: 617-293-8366



Gregg W. McBride, LSP
Senior Principal
GZA GeoEnvironmental, Inc.
gregg.mcbride@gza.com



Appendix B – Limitations



USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Proposal for Services and/or Report and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by a local, state or federal agency.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

SUBSURFACE CONDITIONS

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. Water level readings have been made, as described in this Report, in and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The observed water table may be other than indicated in the Report.

COMPLIANCE WITH CODES AND REGULATIONS

7. We used reasonable care in identifying and interpreting applicable codes and regulations necessary to execute our scope of work. These codes and regulations are subject to various, and possibly contradictory, interpretations. Interpretations and compliance with codes and regulations by other parties is beyond our control.



SCREENING AND ANALYTICAL TESTING

8. GZA collected environmental samples at the locations identified in the Report. These samples were analyzed for the specific parameters identified in the report. Additional constituents, for which analyses were not conducted, may be present in soil, groundwater, surface water, sediment and/or air. Future Site activities and uses may result in a requirement for additional testing.
9. Our interpretation of field screening and laboratory data is presented in the Report. Unless otherwise noted, we relied upon the laboratory's QA/QC program to validate these data.
10. Variations in the types and concentrations of contaminants observed at a given location or time may occur due to release mechanisms, disposal practices, changes in flow paths, and/or the influence of various physical, chemical, biological or radiological processes. Subsequently observed concentrations may be other than indicated in the Report.

INTERPRETATION OF DATA

11. Our opinions are based on available information as described in the Report, and on our professional judgment. Additional observations made over time, and/or space, may not support the opinions provided in the Report.

ADDITIONAL INFORMATION

12. In the event that the Client or others authorized to use this report obtain additional information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

ADDITIONAL SERVICES

13. GZA recommends that we be retained to provide services during any future investigations, design, implementation activities, construction, and/or property development/ redevelopment at the Site. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

CONCEPTUAL SITE MODEL

14. Our opinions were developed, in part, based upon a comparison of site data to conditions anticipated within our Conceptual Site Model (CSM). The CSM is based on available information, and professional judgment. There are rarely sufficient data to develop a unique CSM. Therefore observations over time, and/or space, may vary from those depicted in the CSM provided in this report. In addition, the CSM should be evaluated and refined (as appropriate) whenever significant new information and/or data is obtained.

COST ESTIMATES

15. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.



RISK CHARACTERIZATION

16. Our risk evaluation was performed in accordance with generally accepted practices of appropriate Federal and/or state regulatory agencies, and of other consultants undertaking similar studies at the same time, for similar purposes, and under similar circumstances. The findings of the risk evaluation are dependent on the numerous assumptions and uncertainties inherent in the risk characterization process. Sources of the uncertainty may include Site conditions; Site use; the nature, extent, concentration and distribution of contaminants; and the available toxicity and/or health/risk based regulatory information. Consequently, the findings of the risk characterization are not an absolute characterization of actual risks; but rather serve to highlight potential incremental risks associated with activities indicated in the Report. Actual risks may be other than indicated in the Report.



Appendix C – Exploration Logs

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T1B1
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 5	V. Datum:
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D. (in.): 4 1/4" / 6 1/4"	I.D./O.D. (in.): 1-3/8" / 2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"	Stab. Time	
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	24	6	5 3 3 6	6	S-1: Moist, loose, brown, coarse SAND and GRAVEL.	1			SAND AND GRAVEL	
		S-2	4-5	12	9	6 R		S-2: Moist, brown, fine to medium SAND.	2		5'		
								Bottom of boring at 5 feet.				CONCRETE	
10													
15													
20													
25													
30													

REMARKS

- Soil Samples S-1 and S-2 submitted for PCBs analysis.
- Refusal on concrete at approximately 5 feet below ground surface (bgs).

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T1B1

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T1B2
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	V. Datum:
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 5	
		Date Start - Finish: 7/28/2017 - 7/28/2017	
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"		Stab. Time
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	24	14	3 2 2 1	4	S-1: 0-4": Moist, very loose, gray, GRAVEL. 4-14": Moist, brown, fine to medium SAND, trace Silt.	1		1'	GRAVEL	
	S-2	4-6	24	0	3 R	S-2: No recovery.					5'	SAND	
							Bottom of boring at 5 feet.	2				CONCRETE	

REMARKS

- Soil Samples S-1 submitted for PCBs and VOCs analyses.
- Refusal at approximately 5 feet below ground surface (bgs).

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T1B2

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T21B1
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 4	V. Datum:
		Date Start - Finish: 7/28/2017 - 7/28/2017	

Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)		
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time	Water Depth
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs			Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"			Stab. Time
Other: Auto Hammer	Other:			

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
		S-1	2-4	24	5	6 R		S-1: Moist, gray, brown, GRAVEL, some fine to coarse SAND and SILT.	1			GRAVEL	
5								Bottom of boring at 4 feet.	2		4'	CONCRETE	
10													
15													
20													
25													
30													

REMARKS

- Soil Sample S-1 submitted for PCBs analysis.
- Refusal on concrete at approximately 4 feet below ground surface (bgs).

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B1

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T21B2
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 14	V. Datum:
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"		Stab. Time
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	24	12	6 4 3 6	7	S-1: Top 8": Moist, loose, gray, GRAVEL, trace fine to medium SAND. Bottom 4": Moist, loose, gray, fine to coarse SAND, some Gravel. S-2: Moist, gray-brown, fine to coarse SAND and GRAVEL, trace Brick Slag. S-3: Top 4": Wet, medium dense, tan-gray, GRAVEL, little fine to coarse Sand. S-4A: Top 3": Wet, loose, black, GRAVEL, little fine to coarse Sand, strong aromatic-like odor. S-4B: Bottom 12": Moist, medium stiff, gray, Silty CLAY, moderate aromatic-like odor. S-5A: Top 12": Moist, soft, gray, Silty CLAY, moderate aromatic-like odor. S-5B: Bottom 3": Wet, very loose, black, fine SAND and SILT, moderate aromatic-like odor. S-6: Top 8": Wet, soft, gray, Silty CLAY. Middle 5": Moist, stiff, gray, Silty CLAY. Bottom 2": Wet, soft, gray, Silty CLAY, Gravel, trace fine to coarse Sand, slight aromatic odor. Bottom of boring at 14 feet.	1		7'	SAND AND GRAVEL	
		S-2	4-6	24	6	3 4 4 8	8						
		S-3	6-8	24	7	6 7 6 11	13						
		S-4	8-10	24	15	3 5 2 2	7						
		S-5	10-12	24	15	2 1 1 2	2						
		S-6	12-14	24	17	3 1 1 1	2						
10										14'	SILTY CLAY		
15													
20													
25													
30													

REMARKS

1. Soil Samples S-1, S-2, S-3, S-4A, S-4B, S-5A, S-5B, and S-6 analyzed for PCBs. Soil Samples S-3 and S-4A were analyzed for VOCs.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B2

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
 173 Alford Street
 Charlestown, Massachusetts

BORING NO.: T21B3
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 14	V. Datum:
		Date Start - Finish: 7/28/2017 - 7/28/2017	

Depth (ft)	Casing Blows/Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	20	8	10 10 12 R	22	S-1: Moist, medium dense, gray, GRAVEL, trace fine to coarse Sand.	1		7'	SAND AND GRAVEL	
		S-2	4-6	8	2	6 R		S-2: Moist, gray, GRAVEL, trace fine to coarse Sand. Not enough material to sample.					
		S-3	6-8	24	6	13 10 8 9	18	S-3: Top 4": Wet, medium dense, gray, GRAVEL, little fine to coarse Sand, trace Silt, slight aromatic-like odor. Bottom 2": Wet, gray Silty CLAY.					
		S-4	8-10	24	9	3 4 4 3		S-4: Wet, medium stiff, gray-brown, Silty CLAY, trace Gravel.					
		S-5	10-12	24	19	4 3 3 3	6	S-5: Top 4": Wet, medium stiff, gray Silty CLAY. Intermittent layer 1: (4-6"): wet brown, medium to coarse SAND.					
		S-6	12-14	24	18	WOH		Intermittent layer 2: (6-10"): Wet, brown, Silty CLAY. Intermittent layer 3 (10-13"): Wet, brown, medium to coarse SAND, trace Gravel.					
15							Bottom 6": Wet, gray Silty CLAY. S-6: Top 6": Wet, very soft, gray, Silty CLAY, little medium to coarse SAND. Bottom 12": Wet, very soft, gray, Silty CLAY, faint aromatic-like odor.			14'			
20							Bottom of boring at 14 feet.						
25													
30													

REMARKS

1. Soil Samples S-1, S-3, S-4, S-5, and S-6 submitted for PCBs analysis.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B3

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T21B4
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 4	V. Datum:
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D. (in.): 4 1/4" / 6 1/4"	I.D./O.D. (in.): 1-3/8" / 2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"	Stab. Time	
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	19	10	3 11 11 12	22	S-1: 0-10": Moist, medium dense, gray, GRAVEL, some fine to coarse SAND.	1			SAND AND GRAVEL	
								Bottom of boring at 4 feet.	2			4'	CONCRETE
10													
15													
20													
25													
30													

REMARKS

1. Soil Sample S-1 submitted for PCBs analysis.
2. Refusal on concrete at approximately 4 feet below ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B4

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
 173 Alford Street
 Charlestown, Massachusetts

BORING NO.: T2B1
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 4	V. Datum:
		Date Start - Finish: 7/28/2017 - 7/28/2017	

Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)		
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time	Water Depth
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs			Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"			Stab. Time
Other: Auto Hammer	Other:			

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	24	12	5 5 8 12	13	S-1: Moist, medium dense, brown/gray, GRAVEL, little fine to coarse SAND, little Concrete fragments, trace Silt.	1		4'	SAND AND GRAVEL	
								Bottom of boring at 4 feet.	2			CONCRETE	
10													
15													
20													
25													
30													

REMARKS

1. Soil Sample S-1 submitted for PCBs analysis.
2. Refusal on concrete at approximately 4 feet below ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T2B1

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
 173 Alford Street
 Charlestown, Massachusetts

BORING NO.: T2B2
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 3.5	V. Datum:
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"	Stab. Time	
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
		S-1	2-3.5	18	10	6 R	S-1: Moist, gray/brown, GRAVEL, little fine to coarse Sand.	1					
5							Bottom of boring at 3.5 feet.	2			3.5'	CONCRETE	
10													
15													
20													
25													
30													

REMARKS

- Soil Sample S-1 submitted for PCBs analysis.
- Refusal on concrete at approximately 3.5 feet below ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T2B2

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T2B3
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 3	V. Datum:
		Date Start - Finish: 7/28/2017 - 7/28/2017	

Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)		
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time	Water Depth
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs			Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"			Stab. Time
Other: Auto Hammer	Other:			

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
		S-1	2-3	12	0		S-1: No recovery.						
5							Bottom of boring at 3 feet.	1			3'	CONCRETE	
10													
15													
20													
25													
30													

REMARKS

1. Refusal on concrete at approximately 3 feet below ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T2B3

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T2B4
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 4	V. Datum:
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"	Stab. Time	
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
5		S-1	2-4	24	10	3 4 4 6	8	S-1: Moist, loose, brown/gray, GRAVEL, little fine to coarse Sand, trace Silt.	1			SAND AND GRAVEL	
								Bottom of boring at 4 feet.	2		4'	CONCRETE	
10													
15													
20													
25													
30													

REMARKS

1. Soil Sample S-1 submitted for PCBs analysis.
2. Refusal on concrete at approximately 4 feet below ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T2B4

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T2B5
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.	Type of Rig: Deidrich	Boring Location: See Plan	H. Datum:
Foreman: Brett	Rig Model: D50	Ground Surface Elev. (ft.):	V. Datum:
Logged By: Andrew Sargent	Drilling Method: HSA	Final Boring Depth (ft.): 4	
		Date Start - Finish: 7/28/2017 - 7/28/2017	
Auger/Casing Type: HSA	Sampler Type: Split Spoon	Groundwater Depth (ft.)	
I.D./O.D.(in): 4 1/4"/6 1/4"	I.D./O.D. (in.): 1-3/8"/2"	Date	Time
Hammer Weight (lb.): 140 lbs	Sampler Hmr Wt (lb): 140 lbs	Water Depth	Casing
Hammer Fall (in.): 30"	Sampler Hmr Fall (in): 30"		Stab. Time
Other: Auto Hammer	Other:		

Depth (ft)	Casing Blows/ Core Rate	Sample					SPT Value	Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)							
		S-1	2-4	24	5	3 1 1 2	2	S-1: Moist, very loose, brown/gray, GRAVEL, little fine to coarse Sand, trace Silt.	1			SAND AND GRAVEL	
5								Bottom of boring at 4 feet.	2		4'	CONCRETE	
10													
15													
20													
25													
30													

REMARKS

- Soil Sample S-1 submitted for PCBs analysis.
- Refusal on concrete at approximately 4 feet below ground surface.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T2B5

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STRATUM ONLY; 8/14/2017

TEST BORING LOG

GZA GeoEnvironmental, Inc. <i>Engineers and Scientists</i>	Mystic Station 173 Alford Street Charlestown, Massachusetts	BORING NO.: T21B5-MW SHEET: 1 of 1 PROJECT NO: 15442.76 REVIEWED BY: JRC
--------------------------------------------------------------------------------	----------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

Drilling Co.: Technical Drilling Services, Inc. Foreman: Gary Logged By: Andrew Sargent	Type of Rig: Truck Rig Model: DT466 Drilling Method: HSA	Boring Location: See PlanRoadway Ground Surface Elev. (ft.): Final Boring Depth (ft.): 15 Date Start - Finish: 9/7/2017 - 9/8/2017	H. Datum: V. Datum:
--------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------

Auger/Casing Type: HSA I.D./O.D.: 4 1/4"/6 1/4" Hmr Weight (lb.): N/A Hmr Fall (in.): N/A Other:	Sampler Type: Split Spoon I.D./O.D (in.): 1-3/8"/2" Sampler Hmr Wt: 140 lbs Sampler Hmr Fall: 30" Other:	Groundwater Depth (ft.) <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th>Date</th> <th>Time</th> <th>Water Depth</th> <th>Casing</th> <th>Stab. Time</th> </tr> </thead> <tbody> <tr> <td>9/8/18</td> <td>1130</td> <td>8.7</td> <td></td> <td>3 hrs.</td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Date	Time	Water Depth	Casing	Stab. Time	9/8/18	1130	8.7		3 hrs.										
Date	Time	Water Depth	Casing	Stab. Time																		
9/8/18	1130	8.7		3 hrs.																		

Depth (ft)	Casing Blows/Core Rate	Sample					Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)									
5		S-1	0-1	6	6			S-1: Moist, brown-red, medium to coarse SAND and GRAVEL, trace Silt.	1	ND	0.25'			
		S-2	1-2	0	0			S-2: No sample.		0.3				
		S-3	2-3	6	6			S-3: Moist, brown, fine to coarse SAND and GRAVEL, trace Silt.		11.7				
		S-4	3-4	6	6			S-4: Moist, brown, fine to coarse SAND and GRAVEL, trace Silt.		0.3				
		S-5	4-6	6	6			S-5: Moist, brown, fine to coarse SAND and GRAVEL, trace Silt.		1.4				
		S-6	7-9	24	6	6 4	8	S-6: Loose, wet, brown, fine to coarse SAND and GRAVEL, trace Silt.		2.5				
		S-7A/B	9-11	24	8	4 4	8	S-7A: Top 4": Loose, wet, brown, fine to coarse SAND, little Gravel.		3.3				
		S-8	11-13	24	8	4 3	8	S-7B: Bottom 4": Loose, wet, black, fine to coarse SAND, little Gravel.		0.7				
		S-8	11-13	24	8	5 6	8	S-8: Medium stiff, wet, gray, Clayey SILT.		2.2				
15		S-9A/B	13-15	24	20	1 1	2	S-9A: Top 10": Soft, wet, gray, Silty CLAY, occasional lenses of fine Sand.	4.8	15'				
		S-9B	13-15	24	20	1 1	2	S-9B: Bottom 10": Soft, wet, black Silty CLAY.						
Bottom of boring at 15 feet.														

REMARKS

- Field testing results represent total organic vapor levels, referenced to a benzene standard, measured in the headspace of sealed soil sample jars using a Ion Science Phoccheck Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates nothing detected (<0.1 ppmv).
- Borehole initiated via vacuum excavation techniques to an approximate depth of 7 feet below ground surface. Soil samples collected with hand auger when possible in advance of vacuum excavator in this depth range.
- Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Water level readings have been made at time and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B5-MW

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STANDARD BORING W/E W/O SMP 2PG2; 9/19/2017

TEST BORING LOG



Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T21B6-MW
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.
Foreman: Gary
Logged By: Andrew Sargent

Type of Rig: Truck
Rig Model: DT466
Drilling Method: HSA

Boring Location: See Plan/Roadway
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 15
Date Start - Finish: 9/7/2017 - 9/8/2017

H. Datum:
V. Datum:

Auger/Casing Type: HSA
I.D./O.D.: 4 1/4"/6 1/4"
Hmr Weight (lb.): N/A
Hmr Fall (in.): N/A
Other:

Sampler Type: Split Spoon
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
9/8/17	0922	9.7		0.5 hr.

Depth (ft)	Casing Blows/ Core Rate	Sample				Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Stratum Description	Equipment Installed
		No.	Depth (ft.)	Pen. (in)	Rec. (in)							
5		S-1	0-1	6	6			S-1: Moist, red-brown, fine to coarse SAND and GRAVEL, trace Silt. Geotextile layer at 18" bgs.	1	0.1	ASPHALT	
		S-2	1-2	6	6			S-2: Moist, brown, fine to coarse SAND, some Gravel, trace Silt.	2	0.1		
		S-3	2-3	6	6			S-3: Moist, brown, fine to coarse SAND, some Gravel, trace Silt.	3			
									4			
		S-4	7-9	24	7	2 3 3 2	6	S-4: Loose, wet, brown, fine to coarse SAND and GRAVEL.		8.0	SAND AND GRAVEL	
		S-5	9-11	24	3	4 2 1 4	3	S-5: Very loose, wet, brown, fine to coarse SAND and GRAVEL.		1.7		
		S-6	11-13	24	0	4 3 2 1	5	S-6: No recovery.				
15		S-7	13-15	24	4	4	WOH/18"	S-7: Very soft, wet, gray, Silty CLAY, trace fine Sand.		19.1		
								Bottom of boring at 15 feet.		14' 15'	SILTY CLAY	
30												

REMARKS

- Field testing results represent total organic vapor levels, referenced to a benzene standard, measured in the headspace of sealed soil sample jars using a Ion Science Phoccheck Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates nothing detected (<0.1 ppmv).
- Borehole initiated via vacuum excavation techniques to an approximate depth of 7 feet below ground surface. Soil samples collected with hand auger when possible in advance of vacuum excavator in this depth range.
- Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Water level readings have been made at time and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.
- No recovery from approximately 3 to 7 feet below ground surface; material was gravel.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B6-MW

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STANDARD BORING W/IE W/O SMP 2PG2; 9/19/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T21B7-MW
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.
Foreman: Gary
Logged By: Andrew Sargent

Type of Rig: Truck
Rig Model: DT466
Drilling Method: HSA

Boring Location: See Plan
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 15
Date Start - Finish: 9/7/2017 - 9/8/2017

H. Datum:
V. Datum:

Auger/Casing Type: HSA
I.D./O.D.: 4 1/4"/6 1/4"
Hmr Weight (lb.): N/A
Hmr Fall (in.): N/A
Other:

Sampler Type: Split Spoon
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)				
Date	Time	Water Depth	Casing	Stab. Time
9/8/17	1107	8.8		1 hr.

Depth (ft)	Casing Blows/ Core Rate	Sample						Sample Description Modified Burmister	Remark	Field Test Data	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)	SPT Value					FLUSH MOUNTED ROAD BOX	Soil Cuttings 0-3'
		S-1	0-5					S-1: (0-1') Moist, red-brown, fine to coarse SAND, some Gravel, trace Silt. (1.5') Geotextile layer. (2-5') GRAVEL. No samples obtained.	1 2 3	ND	GRAVEL	FLUSH MOUNTED ROAD BOX	Soil Cuttings 0-3'
5		S-2	7-9	24	18	7 4 4 4	8	S-2A: (7-8') Top 9": Loose, wet, brown, fine to coarse SAND and GRAVEL.	4.1			2" PVC Riser 0-5'	Bentonite 3-4'
10		S-3	9-11	24	5	2 1 2 2	3	S-2B: (8-9') Bottom 9": Soft, wet, gray, Silty CLAY.		0.2		2" PVC Screen 5-15'	
		S-4	11-13	24	0	1 1 1 1	2	S-3: Soft, wet, gray, Silty CLAY. S-4: No recovery.		2.0			
15		S-5	13-15	24	9	2 1 2 2	3	S-5: Soft, wet, gray, Silty CLAY, trace fine Sand.		1.0			#2 Sand 4-15'
15								Bottom of boring at 15 feet.			15'		

REMARKS

- Field testing results represent total organic vapor levels, referenced to a benzene standard, measured in the headspace of sealed soil sample jars using a Ion Science Phoccheck Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates nothing detected (<0.1 ppmv).
- Borehole initiated via vacuum excavation techniques to an approximate depth of 7 feet below ground surface. Soil samples collected with hand auger when possible in advance of vacuum excavator in this depth range.
- Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Water level readings have been made at time and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B7-MW

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STANDARD BORING W/IE W/O SMP 2PG2; 9/19/2017

TEST BORING LOG



GZA
GeoEnvironmental, Inc.
Engineers and Scientists

Mystic Station
173 Alford Street
Charlestown, Massachusetts

BORING NO.: T21B8C-MW
SHEET: 1 of 1
PROJECT NO: 15442.76
REVIEWED BY: JRC

Drilling Co.: Technical Drilling Services, Inc.
Foreman: Gary
Logged By: Andrew Sargent

Type of Rig: Truck
Rig Model: DT466
Drilling Method: HSA

Boring Location: See PlanGravel
Ground Surface Elev. (ft.):
Final Boring Depth (ft.): 22
Date Start - Finish: 9/7/2017 - 9/8/2017

H. Datum:
V. Datum:

Auger/Casing Type: HSA
I.D./O.D.: 4 1/4"/6 1/4"
Hmr Weight (lb.): N/A
Hmr Fall (in.): N/A
Other:

Sampler Type: Split Spoon
I.D./O.D (in.): 1-3/8"/2"
Sampler Hmr Wt: 140 lbs
Sampler Hmr Fall: 30"
Other:

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
9/8/17	1115	8.55		15 min.

Depth (ft)	Casing Blows/ Core Rate	Sample				Blows (per 6 in.)	SPT Value	Sample Description Modified Burmister	Remark	Field Test Data	Depth (ft)	Stratum Description Elev. (ft)	Equipment Installed	
		No.	Depth (ft.)	Pen. (in)	Rec. (in)								FLUSH MOUNTED ROAD BOX	
							See soil descriptions from borings T21B2 and T21B3.	1					Soil Cuttings 0-3'	
								2					2" PVC Riser 0-5'	
								3					Bentonite 3-4'	
5													2" PVC Screen 5-15'	
											NOT CHARACTERIZED		#2 Sand 4-15'	
10														
15		S-1	15-17	24	2	WOR	S-1: Very loose, wet, brown, fine to coarse SAND and GRAVEL.			68.9	15'			
		S-2	17-19	24	9	WOR	S-2: Very loose, wet, gray-brown, fine to medium SAND.			119.6	17'			
20		S-3	20-22	24	24	WOR	S-3: Very soft, wet, gray, CLAY with interbedded Peat Fibers.			36.3	20'			
											22'			Bentonite 15-22'
							Bottom of boring at 22 feet.							
25														
30														

REMARKS

- Field testing results represent total organic vapor levels, referenced to a benzene standard, measured in the headspace of sealed soil sample jars using a Ion Science Phoccheck Tiger organic vapor meter equipped with a photoionization detector (PID) and 10.6eV lamp. Results in parts per million by volume (ppmv). ND indicates nothing detected (<0.1 ppmv).
- Borehole initiated via vacuum excavation techniques to an approximate depth of 7 feet below ground surface. Soil samples collected with hand auger when possible in advance of vacuum excavator in this depth range.
- Stratification lines represent approximate boundaries between soil types; transitions may be gradual. Water level readings have been made at time and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

See log key for explanation of sample descriptions and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

Boring No.:
T21B8C-MW

15442.76 MYSTIC STATION-123 ALFORD STREET-CHARLESTOWN, MA.GPJ; STANDARD BORING W/E W/O SMP 2PG2; 9/19/2017



Appendix D – Laboratory Analytical Reports

CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1704421

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED**By ESS Laboratory at 8:31 am, Apr 28, 2017****Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

SAMPLE RECEIPT

The following samples were received on April 17, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Revision 1 April 28, 2017: This report has been revised to include sample ID correction for 1704421-23.

Lab Number	Sample Name	Matrix	Analysis
1704421-01	T1-CS-1	Solid	8082A
1704421-02	T1-CS-2	Solid	8082A
1704421-03	T1-CS-3	Solid	8082A
1704421-04	T2-CS-4	Solid	8082A
1704421-05	T2-CS-5	Solid	8082A
1704421-06	T2-CS-6	Solid	8082A
1704421-07	T2-CS-7	Solid	8082A
1704421-08	T21-CS-8	Solid	8082A
1704421-09	T21-CS-9	Solid	8082A
1704421-10	T21-CS-10	Solid	8082A
1704421-11	T3-CS-11	Solid	8082A
1704421-12	T3-CS-12	Solid	8082A
1704421-13	T4-CS-13	Solid	8082A
1704421-14	T4-CS-14	Solid	8082A
1704421-15	T11-CS-15	Solid	8082A
1704421-16	T11-CS-16	Solid	8082A
1704421-17	T11-CS-17	Solid	8082A
1704421-18	T11-CS-18	Solid	8082A
1704421-19	T11-CS-19	Solid	8082A
1704421-20	T5-CS-20	Solid	8082A
1704421-21	T5-CS-21	Solid	8082A
1704421-22	T5-CS-22	Solid	8082A



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
1704421-23 T6-CS-23

Solid

ESS Laboratory Work Order: 1704421
8082A

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1704421-03 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-05 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-06 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-07 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-11 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (105% @ 30-150%), Decachlorobiphenyl [2C] (113% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (106% @ 30-150%)

1704421-15 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-16 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-20 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-21 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1704421-23 Surrogate recovery(ies) diluted below the MRL (SD).
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1704421-01 through 1704421-23**

Matrices: () Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air (X) Other: Solid

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---------------------------------------------|--------------------------------|-------------------------------------------|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAH
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV B | () 8081 Pesticides
CAM V C | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- 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 (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No (X)*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes (X) No ()*

**All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: April 25, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1-CS-1
 Date Sampled: 04/13/17 11:50
 Percent Solids: 98
 Initial Volume: 5.21
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-01
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1260	0.9 (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/19/17 22:12		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/19/17 22:12		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	92 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	108 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	93 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	97 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1-CS-2
 Date Sampled: 04/13/17 12:10
 Percent Solids: 99
 Initial Volume: 5.37
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-02
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1260	0.5 (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/19/17 22:31		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/19/17 22:31		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	73 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	68 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	74 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1-CS-3
 Date Sampled: 04/13/17 13:22
 Percent Solids: 97
 Initial Volume: 5.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-03
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1221	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1232	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1242	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1248	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1254	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1260	5430 (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1262	ND (925)		8082A		5000	04/23/17 5:45		CD71805
Aroclor 1268	ND (925)		8082A		5000	04/23/17 5:45		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-4
 Date Sampled: 04/13/17 12:19
 Percent Solids: 99
 Initial Volume: 5.22
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-04
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1260	1.3 (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/23/17 6:04		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/23/17 6:04		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	61 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	49 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	54 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T2-CS-5
Date Sampled: 04/13/17 12:25
Percent Solids: 98
Initial Volume: 5.48
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
ESS Laboratory Sample ID: 1704421-05
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1221	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1232	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1242	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1248	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1254	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1260	78.4 (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1262	ND (9.3)		8082A		50	04/23/17 6:22		CD71805
Aroclor 1268	ND (9.3)		8082A		50	04/23/17 6:22		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-6
 Date Sampled: 04/13/17 12:35
 Percent Solids: 99
 Initial Volume: 5.21
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-06
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1221	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1232	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1242	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1248	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1254	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1260	45.9 (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1262	ND (3.9)		8082A		20	04/23/17 6:41		CD71805
Aroclor 1268	ND (3.9)		8082A		20	04/23/17 6:41		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-7
 Date Sampled: 04/13/17 13:41
 Percent Solids: 97
 Initial Volume: 5.63
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-07
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1221	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1232	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1242	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1248	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1254	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1260	71.8 (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1262	ND (3.7)		8082A		20	04/23/17 7:00		CD71805
Aroclor 1268	ND (3.7)		8082A		20	04/23/17 7:00		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21-CS-8
 Date Sampled: 04/13/17 12:46
 Percent Solids: 99
 Initial Volume: 5.18
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-08
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1260	11.8 (2.0)		8082A		10	04/23/17 7:19		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 2:17		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 2:17		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	96 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	127 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	102 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21-CS-9
 Date Sampled: 04/13/17 12:55
 Percent Solids: 98
 Initial Volume: 5.57
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-09
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1260	0.8 (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 2:35		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 2:35		CD71805

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	75 %		30-150
Surrogate: Decachlorobiphenyl [2C]	87 %		30-150
Surrogate: Tetrachloro-m-xylene	70 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	70 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21-CS-10
 Date Sampled: 04/13/17 13:12
 Percent Solids: 98
 Initial Volume: 5.45
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-10
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1260	18.6 (1.9)		8082A		10	04/23/17 7:38		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 2:54		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 2:54		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	83 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	99 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	66 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	82 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T3-CS-11
Date Sampled: 04/13/17 14:13
Percent Solids: 98
Initial Volume: 5.68
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
ESS Laboratory Sample ID: 1704421-11
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1221	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1232	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1242	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1248	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1254	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1260	66.7 (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1262	ND (3.6)		8082A		20	04/23/17 7:56		CD71805
Aroclor 1268	ND (3.6)		8082A		20	04/23/17 7:56		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	105 %	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	113 %	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	106 %	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T3-CS-12
 Date Sampled: 04/13/17 14:46
 Percent Solids: 99
 Initial Volume: 5.51
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-12
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1260	0.4 (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 3:32		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 3:32		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	72 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	84 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	67 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T4-CS-13
 Date Sampled: 04/14/17 06:39
 Percent Solids: 99
 Initial Volume: 5.11
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-13
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1260	1.2 (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 3:51		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 3:51		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	103 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	120 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	105 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	109 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T4-CS-14
 Date Sampled: 04/14/17 07:00
 Percent Solids: 99
 Initial Volume: 5.34
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-14
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1260	0.3 (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 4:10		CD71805
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 4:10		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	88 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	102 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	86 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	90 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-15
 Date Sampled: 04/14/17 07:50
 Percent Solids: 97
 Initial Volume: 5.53
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-15
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1221	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1232	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1242	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1248	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1254	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1260	90.1 (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1262	ND (7.5)		8082A		40	04/24/17 9:32		CD71805
Aroclor 1268	ND (7.5)		8082A		40	04/24/17 9:32		CD71805

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T11-CS-16
Date Sampled: 04/14/17 07:59
Percent Solids: 96
Initial Volume: 5.73
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
ESS Laboratory Sample ID: 1704421-16
Sample Matrix: Solid
Units: mg/kg dry
Analyst: JXS
Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1221	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1232	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1242	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1248	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1254	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1260	259 (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1262	ND (18.3)		8082A		100	04/23/17 8:34		CD71806
Aroclor 1268	ND (18.3)		8082A		100	04/23/17 8:34		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-17
 Date Sampled: 04/14/17 07:17
 Percent Solids: 98
 Initial Volume: 5.52
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-17
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1260	0.8 (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 6:02		CD71806
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 6:02		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	98 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	112 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	96 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	101 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-18
 Date Sampled: 04/14/17 07:26
 Percent Solids: 99
 Initial Volume: 5.21
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-18
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1260	2.4 (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 6:21		CD71806
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 6:21		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	98 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	113 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	98 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	97 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-19
 Date Sampled: 04/14/17 07:37
 Percent Solids: 99
 Initial Volume: 5.15
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-19
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1221	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1232	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1242	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1248	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1254	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1260	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1262	ND (0.2)		8082A		1	04/20/17 6:40		CD71806
Aroclor 1268	ND (0.2)		8082A		1	04/20/17 6:40		CD71806

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	96 %		30-150
Surrogate: Decachlorobiphenyl [2C]	111 %		30-150
Surrogate: Tetrachloro-m-xylene	99 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	99 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-CS-20
 Date Sampled: 04/14/17 08:07
 Percent Solids: 99
 Initial Volume: 5.05
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-20
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1221	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1232	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1242	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1248	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1254	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1260	25.1 (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1262	ND (20.0)		8082A		100	04/23/17 8:53		CD71806
Aroclor 1268	ND (20.0)		8082A		100	04/23/17 8:53		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-CS-21
 Date Sampled: 04/14/17 08:20
 Percent Solids: 98
 Initial Volume: 5.68
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-21
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1221	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1232	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1242	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1248	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1254	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1260	621 (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1262	ND (89.8)		8082A		500	04/23/17 9:12		CD71806
Aroclor 1268	ND (89.8)		8082A		500	04/23/17 9:12		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-CS-22
 Date Sampled: 04/14/17 08:30
 Percent Solids: 98
 Initial Volume: 5.24
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
 ESS Laboratory Sample ID: 1704421-22
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: JXS
 Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1221	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1232	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1242	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1248	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1254	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1260	0.4 (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1262	ND (0.2)		8082A		1	04/23/17 9:30		CD71806
Aroclor 1268	ND (0.2)		8082A		1	04/23/17 9:30		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	97 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	104 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	92 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	93 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T6-CS-23
Date Sampled: 04/14/17 08:45
Percent Solids: 98
Initial Volume: 5.35
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1704421
ESS Laboratory Sample ID: 1704421-23
Sample Matrix: Solid
Units: mg/kg dry
Analyst: SMR
Prepared: 4/18/17 16:10

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1221	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1232	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1242	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1248	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1254	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1260	2580 (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1262	ND (191)		8082A		1000	04/24/17 12:08		CD71806
Aroclor 1268	ND (191)		8082A		1000	04/24/17 12:08		CD71806

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CD71805 - 3540C

Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0201		mg/kg wet	0.02500		80	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			

LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		90	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		88	40-140			

Surrogate: Decachlorobiphenyl	0.0229		mg/kg wet	0.02500		92	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0268		mg/kg wet	0.02500		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0233		mg/kg wet	0.02500		93	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0225		mg/kg wet	0.02500		90	30-150			

LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		97	40-140	7	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	9	30	

Surrogate: Decachlorobiphenyl	0.0252		mg/kg wet	0.02500		101	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0297		mg/kg wet	0.02500		119	30-150			
Surrogate: Tetrachloro-m-xylene	0.0249		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0243		mg/kg wet	0.02500		97	30-150			

Batch CD71806 - 3540C

Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0239		mg/kg wet	0.02500		96	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0276		mg/kg wet	0.02500		110	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CD71806 - 3540C

<i>Surrogate: Tetrachloro-m-xylene</i>	0.0215		mg/kg wet	0.02500		86	30-150			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	0.0224		mg/kg wet	0.02500		90	30-150			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140			
<i>Surrogate: Decachlorobiphenyl</i>	0.0246		mg/kg wet	0.02500		98	30-150			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.0284		mg/kg wet	0.02500		114	30-150			
<i>Surrogate: Tetrachloro-m-xylene</i>	0.0239		mg/kg wet	0.02500		96	30-150			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	0.0231		mg/kg wet	0.02500		92	30-150			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140	4	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		89	40-140	4	30	
<i>Surrogate: Decachlorobiphenyl</i>	0.0235		mg/kg wet	0.02500		94	30-150			
<i>Surrogate: Decachlorobiphenyl [2C]</i>	0.0270		mg/kg wet	0.02500		108	30-150			
<i>Surrogate: Tetrachloro-m-xylene</i>	0.0225		mg/kg wet	0.02500		90	30-150			
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	0.0218		mg/kg wet	0.02500		87	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1704421

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1704421

Date Received: 4/17/2017

Shipped/Delivered Via: ESS Courier

Project Due Date: 4/24/2017

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA

6. Does COC match bottles? Yes

2. Were custody seals present? No

7. Is COC complete and correct? Yes

3. Is radiation count <100 CPM? Yes

8. Were samples received intact? Yes

4. Is a Cooler Present? Yes
Temp: 2.9 Iced with: Ice

9. Were labs informed about short holds & rushes? Yes / No / NA

5. Was COC signed and dated by client? Yes

10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No / NA
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	119329	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	119328	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	119327	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	119326	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	119325	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	119324	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	119323	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	119322	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	119321	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	119320	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	119319	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	119318	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	119317	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	119316	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	119315	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	119314	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	119313	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	119312	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
19	119311	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
20	119310	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
21	119309	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
22	119308	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
23	119307	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1704421

Date Received: 4/17/2017

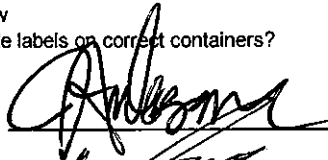
2nd Review

Are barcode labels on correct containers?

Yes / No

Completed

By:



Date & Time:

4/17/17 1727

Reviewed

By:

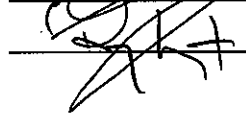


Date & Time:

4/17/17 1731

Delivered

By:



4/17/17

1731

1/3

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time std Rush
 Regulatory State
 Is this project for any of the following?:
 OCT RCP DMA MCP ORGP

ESS Lab # 1704421
 Reporting Limits S-1
 Electronic Deliverables Limit Checker Standard Excel
 Other (Please Specify →) PDP

Company Name SEA Project # 01.0015442.76 Project Name Mystic Station
 Contact Person Jason Chrzanowski Address 249 Vanderbilt Ave
 City Norwood State Ma Zip Code 02062 PO #
 Telephone Number 781 278 3740 FAX Number Email Address Jason.Chrzanowski@sea.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis
1	4-13-17	1150	C	Concrete Dust	T1-CS-1	X
2	4-13-17	1210	C	Concrete Dust	T1-CS-2	X
3	4-13-17	1322	C	Concrete Dust	T1-CS-3	X
4		1219			T2-CS-4	X
5		1225			T2-CS-5	X
6		1235			T2-CS-6	X
7		1341			T2-CS-7	X
8		1246			T21-CS-8	X
9		1255			T21-CS-9	X
10	4-13-17	1312	C	Concrete Dust	T21-CS-10	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-OI H2O 11-Ascorbic Acid 12-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals Intact: NA
 Cooler Temperature: 29 °C JLC ⊕

Sampled by: Andy Sargent
 Comments: Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 4-14-17 1045	Received By: (Signature, Date & Time) <u>[Signature]</u> 4-17-17 1600	Relinquished By: (Signature, Date & Time) <u>[Signature]</u> 4-17-17 1650	Received By: (Signature, Date & Time) <u>[Signature]</u> 4/17/17 1652
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CHAIN OF CUSTODY

ESS Lab # 1704421
 Reporting Limits 51
 Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify →) PPT

Turn Time Std Rush
 Regulatory State
 Is this project for any of the following?:
 CT RCP MA MCP ORG

Company Name G-2A Project # 01/0015442.76 Project Name Mystic SLR
 Contact Person, Jason Chrzanowski Address 249 Vanderbilt Ave
 City Norwood State Ma Zip Code 02062 PO #
 Telephone Number 781 278 7700 FAX Number Email Address jason.chrzanowski@grc.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis															
11	4-13-17	1413	C	concrete dust	T3-CS-11	X															
12	4-13-17	1446	C	concrete dust	T3-CS-12	X															
13	4-14-17	0639	C	concrete dust	T4-CS-13	X															
14	4-14-17	0700			T4-CS-14	X															
15	4-14-17	0750			T11-CS-15	X															
16		0759			T11-CS-16	X															
17		0717			T11-CS-17	X															
18		0726			T11-CS-18	X															
19		0737			T11-CS-19	X															
20	4-14-17	0807	C	concrete dust	T5-CS-20	X															

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc2, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present: Seals Intact: NK Cooler Temperature: 2.9 °C Ice @
 Sampled by: Andy Senth
 Comments: Please specify "Other" preservative and containers types in this space
 Relinquished by: (Signature, Date & Time) Received By: (Signature, Date & Time) Relinquished By: (Signature, Date & Time) Received By: (Signature, Date & Time)
[Signature] 4-14-17 1045 [Signature] 4-17-17 1000 [Signature] 4-17-17 1650 [Signature] 4/17/17 1652

3/3

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 www:esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1704421

Turn Time *std* Rush

Reporting Limits *S-1*

Regulatory State
 Is this project for any of the following?:
 CT RCP MA MCP ORGP

Electronic Deliverables Limit Checker Standard Excel
 Other (Please Specify ->) *PDF*

Company Name *GZA*

Project # *01-0015442.70* Project Name

Contact Person *Jesun Chrzanoski*

Address *249 Vanderbilt A*

City *Norwood* State *Ma*

Zip Code *02062* PO #

Telephone Number *781 278 3700*

FAX Number Email Address *Jesun.Chrzanoski@GZA.com*

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis
<i>21</i>	<i>4-14-17</i>	<i>0820</i>	<i>C</i>	<i>concrete dust</i>	<i>T5-CS-21</i>	<i>X</i>
<i>22</i>	<i>4-14-17</i>	<i>0830</i>	<i>C</i>	<i>concrete dust</i>	<i>T5-CS-22</i>	<i>X</i>
<i>23</i>	<i>4-14-17</i>	<i>0845</i>	<i>C</i>	<i>concrete dust</i>	<i>T6-CS-23</i>	<i>X</i>

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc2, NaOH 9-NH4Cl 10-DI H2O 11-Ascorbic Acid 12-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals Intact: *N/A*
 Cooler Temperature: *2.9* °C *ice*

Sampled by: *Andy Sargent*
 Comments: Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) <i>[Signature]</i> 4-14-17 1048	Received By: (Signature, Date & Time) <i>[Signature]</i> 4-17-17 1600	Relinquished By: (Signature, Date & Time) <i>[Signature]</i> 4-17-17 1650	Received By: (Signature, Date & Time) <i>[Signature]</i> 4/17/17 1652
------------------------------------------------------------------------------	--------------------------------------------------------------------------	------------------------------------------------------------------------------	--------------------------------------------------------------------------

CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1706231

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 1:33 pm, Jun 19, 2017

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

SAMPLE RECEIPT

The following samples were received on June 08, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Revision 1 June 19, 2017: This report has been revised to include updated sample ID for 1706231-04.

Lab Number	Sample Name	Matrix	Analysis
1706231-01	T3-S2-CDD	Solid	8082A
1706231-02	T3-CS-11D	Solid	8082A
1706231-03	T3-S1-CDD	Solid	8082A
1706231-04	T4-CS-1D	Solid	8082A
1706231-05	T11-CS-15D	Solid	8082A
1706231-06	T11-CS-4D	Solid	8082A
1706231-07	T5-S1-CDD	Solid	8082A
1706231-08	T5-CS-21D	Solid	8082A
1706231-09	T5-CS-20D	Solid	8082A
1706231-10	T5-W1-CDD	Solid	8082A
1706231-11	T5-S2-CDD	Solid	8082A
1706231-12	T6-W2-CDD	Solid	8082A
1706231-13	T6-S1-CDD	Solid	8082A
1706231-14	T6-W1-CDD	Solid	8082A
1706231-15	T6-CS-23D	Solid	8082A
1706231-16	T6-S2-CDD	Solid	8082A
1706231-17	T11-CS-16D	Solid	8082A
1706231-18	T2-CS-7D	Solid	8082A
1706231-19	T1-CS-3D	Solid	8082A
1706231-20	T2-CS-6D	Solid	8082A
1706231-21	T2-CS-5D	Solid	8082A

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 1706231-01 [Surrogate recovery\(ies\) below lower control limit \(S-\).](#)
Tetrachloro-m-xylene (27% @ 30-150%)
- 1706231-06 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1706231-13 [Surrogate recovery\(ies\) outside of criteria. Reextraction/Reanalysis confirms results \(SC\).](#)
Decachlorobiphenyl (22% @ 30-150%), Decachlorobiphenyl [2C] (22% @ 30-150%),
Tetrachloro-m-xylene (15% @ 30-150%), Tetrachloro-m-xylene [2C] (19% @ 30-150%)
- 1706231-15 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1706231-20 [Surrogate recovery\(ies\) outside of criteria. Reextraction/Reanalysis confirms results \(SC\).](#)
Decachlorobiphenyl (28% @ 30-150%), Decachlorobiphenyl [2C] (28% @ 30-150%),
Tetrachloro-m-xylene (21% @ 30-150%), Tetrachloro-m-xylene [2C] (26% @ 30-150%)
- 1706231-21 [Surrogate recovery\(ies\) below lower control limit \(S-\).](#)
Tetrachloro-m-xylene (29% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1706231-01 through 1706231-21**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAH
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV B | <input type="checkbox"/> 8081 Pesticides
CAM V C | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- 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 No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: June 16, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T3-S2-CDD
 Date Sampled: 06/07/17 08:00
 Percent Solids: 95
 Initial Volume: 5.01
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-01
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:41

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1221	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1232	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1242	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1248	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1254	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1260 [2C]	20.3 (2.1)		8082A		10	06/15/17 13:54		CF71206
Aroclor 1262	ND (0.2)		8082A		1	06/13/17 20:03		CF71206
Aroclor 1268	ND (0.2)		8082A		1	06/13/17 20:03		CF71206

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	42 %		30-150
Surrogate: Decachlorobiphenyl [2C]	48 %		30-150
Surrogate: Tetrachloro-m-xylene	27 %	S-	30-150
Surrogate: Tetrachloro-m-xylene [2C]	33 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T3-CS-11D
 Date Sampled: 06/07/17 08:10
 Percent Solids: 98
 Initial Volume: 5.08
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-02
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:41

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1221	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1232	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1242	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1248	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1254	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1260 [2C]	0.6 (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1262	ND (0.2)		8082A		1	06/13/17 20:22		CF71206
Aroclor 1268	ND (0.2)		8082A		1	06/13/17 20:22		CF71206

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	76 %		30-150
Surrogate: Decachlorobiphenyl [2C]	75 %		30-150
Surrogate: Tetrachloro-m-xylene	68 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	74 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T3-S1-CDD
 Date Sampled: 06/07/17 08:20
 Percent Solids: 98
 Initial Volume: 5.01
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-03
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:41

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1221	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1232	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1242	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1248	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1254	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1260	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1262	ND (0.2)		8082A		1	06/13/17 20:41		CF71206
Aroclor 1268	ND (0.2)		8082A		1	06/13/17 20:41		CF71206

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	55 %		30-150
Surrogate: Decachlorobiphenyl [2C]	54 %		30-150
Surrogate: Tetrachloro-m-xylene	44 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	49 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T4-CS-1D
 Date Sampled: 06/07/17 08:35
 Percent Solids: 98
 Initial Volume: 5.02
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-04
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:41

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1221	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1232	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1242	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1248	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1254	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1260 [2C]	0.8 (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1262	ND (0.2)		8082A		1	06/13/17 22:54		CF71206
Aroclor 1268	ND (0.2)		8082A		1	06/13/17 22:54		CF71206

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	69 %		30-150
Surrogate: Decachlorobiphenyl [2C]	70 %		30-150
Surrogate: Tetrachloro-m-xylene	44 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	61 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-15D
 Date Sampled: 06/07/17 11:00
 Percent Solids: 96
 Initial Volume: 5.03
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-05
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:41

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1221	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1232	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1242	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1248	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1254	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1260	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1262	ND (0.2)		8082A		1	06/13/17 23:13		CF71206
Aroclor 1268	ND (0.2)		8082A		1	06/13/17 23:13		CF71206

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	85 %		30-150
Surrogate: Decachlorobiphenyl [2C]	83 %		30-150
Surrogate: Tetrachloro-m-xylene	77 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	81 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-4D
 Date Sampled: 06/07/17 08:45
 Percent Solids: 91
 Initial Volume: 5.02
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-06
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:41

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1221	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1232	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1242	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1248	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1254	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1260	58.7 (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1262	ND (4.4)		8082A		20	06/15/17 14:11		CF71206
Aroclor 1268	ND (4.4)		8082A		20	06/15/17 14:11		CF71206

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-S1-CDD
 Date Sampled: 06/07/17 10:30
 Percent Solids: 93
 Initial Volume: 5.02
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-07
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/14/17 17:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1221	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1232	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1242	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1248	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1254	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1260 [2C]	30.7 (2.1)		8082A		10	06/15/17 15:32		CF71408
Aroclor 1262	ND (0.2)		8082A		1	06/15/17 12:01		CF71408
Aroclor 1268	ND (0.2)		8082A		1	06/15/17 12:01		CF71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	59 %		30-150
Surrogate: Decachlorobiphenyl [2C]	72 %		30-150
Surrogate: Tetrachloro-m-xylene	41 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	48 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-CS-21D
 Date Sampled: 06/07/17 08:50
 Percent Solids: 97
 Initial Volume: 5.03
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-08
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1260	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 1:06		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 1:06		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	65 %		30-150
Surrogate: Decachlorobiphenyl [2C]	63 %		30-150
Surrogate: Tetrachloro-m-xylene	47 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	58 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-CS-20D
 Date Sampled: 06/07/17 09:15
 Percent Solids: 96
 Initial Volume: 5.11
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-09
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1260	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 1:25		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 1:25		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	80 %		30-150
Surrogate: Decachlorobiphenyl [2C]	80 %		30-150
Surrogate: Tetrachloro-m-xylene	67 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	74 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-W1-CDD
 Date Sampled: 06/07/17 09:25
 Percent Solids: 95
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-10
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/14/17 17:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1221	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1232	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1242	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1248	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1254	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1260 [2C]	2.9 (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1262	ND (0.2)		8082A		1	06/15/17 12:20		CF71408
Aroclor 1268	ND (0.2)		8082A		1	06/15/17 12:20		CF71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	61 %		30-150
Surrogate: Decachlorobiphenyl [2C]	65 %		30-150
Surrogate: Tetrachloro-m-xylene	42 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	54 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T5-S2-CDD
 Date Sampled: 06/07/17 09:35
 Percent Solids: 96
 Initial Volume: 5.12
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-11
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1260 [2C]	4.0 (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 2:03		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 2:03		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	58 %		30-150
Surrogate: Decachlorobiphenyl [2C]	64 %		30-150
Surrogate: Tetrachloro-m-xylene	47 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	53 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T6-W2-CDD
 Date Sampled: 06/07/17 10:10
 Percent Solids: 96
 Initial Volume: 5.04
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-12
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1260	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 2:22		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 2:22		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	43 %		30-150
Surrogate: Decachlorobiphenyl [2C]	43 %		30-150
Surrogate: Tetrachloro-m-xylene	30 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	37 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T6-S1-CDD
 Date Sampled: 06/07/17 09:55
 Percent Solids: 97
 Initial Volume: 5.03
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-13
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1260	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 2:41		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 2:41		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	22 %	SC	30-150
Surrogate: Decachlorobiphenyl [2C]	22 %	SC	30-150
Surrogate: Tetrachloro-m-xylene	15 %	SC	30-150
Surrogate: Tetrachloro-m-xylene [2C]	19 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T6-S1-CDD
 Date Sampled: 06/07/17 09:55
 Percent Solids: 97
 Initial Volume: 5.01
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-13RE1
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/14/17 17:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1221	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1232	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1242	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1248	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1254	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1260 [2C]	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1262	ND (0.2)		8082A		1	06/15/17 12:40		CF71408
Aroclor 1268	ND (0.2)		8082A		1	06/15/17 12:40		CF71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	21 %	SC	30-150
Surrogate: Decachlorobiphenyl [2C]	22 %	SC	30-150
Surrogate: Tetrachloro-m-xylene	15 %	SC	30-150
Surrogate: Tetrachloro-m-xylene [2C]	20 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T6-W1-CDD
 Date Sampled: 06/07/17 09:50
 Percent Solids: 96
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-14
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1260 [2C]	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 3:00		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 3:00		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	66 %		30-150
Surrogate: Decachlorobiphenyl [2C]	65 %		30-150
Surrogate: Tetrachloro-m-xylene	57 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	61 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T6-CS-23D
Date Sampled: 06/07/17 10:15
Percent Solids: 97
Initial Volume: 5.02
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
ESS Laboratory Sample ID: 1706231-15
Sample Matrix: Solid
Units: mg/kg dry
Analyst: SMR
Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1221	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1232	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1242	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1248	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1254	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1260	59.6 (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1262	ND (4.1)		8082A		20	06/15/17 14:34		CF71207
Aroclor 1268	ND (4.1)		8082A		20	06/15/17 14:34		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T6-S2-CDD
 Date Sampled: 06/07/17 10:05
 Percent Solids: 96
 Initial Volume: 5.07
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-16
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1260	30.9 (2.1)		8082A		10	06/15/17 14:51		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 3:37		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 3:37		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	94 %		30-150
Surrogate: Decachlorobiphenyl [2C]	109 %		30-150
Surrogate: Tetrachloro-m-xylene	79 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	67 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T11-CS-16D
 Date Sampled: 06/07/17 11:15
 Percent Solids: 96
 Initial Volume: 5.05
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-17
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/14/17 17:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1221	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1232	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1242	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1248	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1254	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1260 [2C]	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1262	ND (0.2)		8082A		1	06/15/17 12:59		CF71408
Aroclor 1268	ND (0.2)		8082A		1	06/15/17 12:59		CF71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	46 %		30-150
Surrogate: Decachlorobiphenyl [2C]	48 %		30-150
Surrogate: Tetrachloro-m-xylene	33 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	40 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-7D
 Date Sampled: 06/07/17 11:30
 Percent Solids: 97
 Initial Volume: 5.03
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-18
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1260	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 4:15		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 4:15		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	39 %		30-150
Surrogate: Decachlorobiphenyl [2C]	38 %		30-150
Surrogate: Tetrachloro-m-xylene	29 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	35 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1-CS-3D
 Date Sampled: 06/07/17 11:50
 Percent Solids: 96
 Initial Volume: 5.04
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-19
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1260	0.2 (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 4:34		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 4:34		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	68 %		30-150
Surrogate: Decachlorobiphenyl [2C]	72 %		30-150
Surrogate: Tetrachloro-m-xylene	58 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	63 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-6D
 Date Sampled: 06/07/17 07:45
 Percent Solids: 97
 Initial Volume: 5.03
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-20
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/12/17 15:52

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1221	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1232	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1242	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1248	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1254	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1260 [2C]	1.0 (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1262	ND (0.2)		8082A		1	06/14/17 4:53		CF71207
Aroclor 1268	ND (0.2)		8082A		1	06/14/17 4:53		CF71207

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	28 %	SC	30-150
Surrogate: Decachlorobiphenyl [2C]	28 %	SC	30-150
Surrogate: Tetrachloro-m-xylene	21 %	SC	30-150
Surrogate: Tetrachloro-m-xylene [2C]	26 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-6D
 Date Sampled: 06/07/17 07:45
 Percent Solids: 97
 Initial Volume: 5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-20RE1
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/14/17 17:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1221	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1232	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1242	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1248	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1254	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1260 [2C]	2.9 (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1262	ND (0.2)		8082A		1	06/15/17 13:18		CF71408
Aroclor 1268	ND (0.2)		8082A		1	06/15/17 13:18		CF71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	18 %	SC	30-150
Surrogate: Decachlorobiphenyl [2C]	23 %	SC	30-150
Surrogate: Tetrachloro-m-xylene	12 %	SC	30-150
Surrogate: Tetrachloro-m-xylene [2C]	15 %	SC	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-CS-5D
 Date Sampled: 06/07/17 07:30
 Percent Solids: 97
 Initial Volume: 5.0l
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1706231
 ESS Laboratory Sample ID: 1706231-21
 Sample Matrix: Solid
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 6/14/17 17:30

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1221	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1232	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1242	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1248	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1254	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1260	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1262	ND (0.2)		8082A		1	06/15/17 13:37		CF71408
Aroclor 1268	ND (0.2)		8082A		1	06/15/17 13:37		CF71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	39 %		30-150
Surrogate: Decachlorobiphenyl [2C]	40 %		30-150
Surrogate: Tetrachloro-m-xylene	29 %	S-	30-150
Surrogate: Tetrachloro-m-xylene [2C]	36 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CF71206 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet
Aroclor 1016 [2C]	ND	0.05	mg/kg wet
Aroclor 1221	ND	0.05	mg/kg wet
Aroclor 1221 [2C]	ND	0.05	mg/kg wet
Aroclor 1232	ND	0.05	mg/kg wet
Aroclor 1232 [2C]	ND	0.05	mg/kg wet
Aroclor 1242	ND	0.05	mg/kg wet
Aroclor 1242 [2C]	ND	0.05	mg/kg wet
Aroclor 1248	ND	0.05	mg/kg wet
Aroclor 1248 [2C]	ND	0.05	mg/kg wet
Aroclor 1254	ND	0.05	mg/kg wet
Aroclor 1254 [2C]	ND	0.05	mg/kg wet
Aroclor 1260	ND	0.05	mg/kg wet
Aroclor 1260 [2C]	ND	0.05	mg/kg wet
Aroclor 1262	ND	0.05	mg/kg wet
Aroclor 1262 [2C]	ND	0.05	mg/kg wet
Aroclor 1268	ND	0.05	mg/kg wet
Aroclor 1268 [2C]	ND	0.05	mg/kg wet

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500	94	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500	93	30-150
Surrogate: Tetrachloro-m-xylene	0.0230		mg/kg wet	0.02500	92	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0226		mg/kg wet	0.02500	91	30-150

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000	106	40-140
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000	105	40-140
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000	101	40-140
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000	102	40-140

Surrogate: Decachlorobiphenyl	0.0257		mg/kg wet	0.02500	103	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0254		mg/kg wet	0.02500	102	30-150
Surrogate: Tetrachloro-m-xylene	0.0236		mg/kg wet	0.02500	94	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0236		mg/kg wet	0.02500	94	30-150

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000	109	40-140	3	30
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000	106	40-140	1	30
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000	103	40-140	2	30
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000	107	40-140	5	30

Surrogate: Decachlorobiphenyl	0.0261		mg/kg wet	0.02500	104	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0273		mg/kg wet	0.02500	109	30-150
Surrogate: Tetrachloro-m-xylene	0.0250		mg/kg wet	0.02500	100	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0248		mg/kg wet	0.02500	99	30-150

Batch CF71207 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CF71207 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet
Aroclor 1016 [2C]	ND	0.05	mg/kg wet
Aroclor 1221	ND	0.05	mg/kg wet
Aroclor 1221 [2C]	ND	0.05	mg/kg wet
Aroclor 1232	ND	0.05	mg/kg wet
Aroclor 1232 [2C]	ND	0.05	mg/kg wet
Aroclor 1242	ND	0.05	mg/kg wet
Aroclor 1242 [2C]	ND	0.05	mg/kg wet
Aroclor 1248	ND	0.05	mg/kg wet
Aroclor 1248 [2C]	ND	0.05	mg/kg wet
Aroclor 1254	ND	0.05	mg/kg wet
Aroclor 1254 [2C]	ND	0.05	mg/kg wet
Aroclor 1260	ND	0.05	mg/kg wet
Aroclor 1260 [2C]	ND	0.05	mg/kg wet
Aroclor 1262	ND	0.05	mg/kg wet
Aroclor 1262 [2C]	ND	0.05	mg/kg wet
Aroclor 1268	ND	0.05	mg/kg wet
Aroclor 1268 [2C]	ND	0.05	mg/kg wet

Surrogate: Decachlorobiphenyl	0.0226		mg/kg wet	0.02500	90	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0233		mg/kg wet	0.02500	93	30-150
Surrogate: Tetrachloro-m-xylene	0.0201		mg/kg wet	0.02500	80	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0205		mg/kg wet	0.02500	82	30-150

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000	102	40-140
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000	96	40-140
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000	96	40-140
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000	99	40-140

Surrogate: Decachlorobiphenyl	0.0239		mg/kg wet	0.02500	96	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0250		mg/kg wet	0.02500	100	30-150
Surrogate: Tetrachloro-m-xylene	0.0216		mg/kg wet	0.02500	86	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500	85	30-150

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000	102	40-140	0.5	30
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000	95	40-140	1	30
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000	96	40-140	0.3	30
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000	97	40-140	2	30

Surrogate: Decachlorobiphenyl	0.0236		mg/kg wet	0.02500	94	30-150
Surrogate: Decachlorobiphenyl [2C]	0.0234		mg/kg wet	0.02500	93	30-150
Surrogate: Tetrachloro-m-xylene	0.0218		mg/kg wet	0.02500	87	30-150
Surrogate: Tetrachloro-m-xylene [2C]	0.0211		mg/kg wet	0.02500	85	30-150

Batch CF71408 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CF71408 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0214		mg/kg wet	0.02500		85	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0218		mg/kg wet	0.02500		87	30-150			
Surrogate: Tetrachloro-m-xylene	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		109	40-140			

Surrogate: Decachlorobiphenyl	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0261		mg/kg wet	0.02500		104	30-150			
Surrogate: Tetrachloro-m-xylene	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0229		mg/kg wet	0.02500		91	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140	12	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	12	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		88	40-140	14	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	13	30	

Surrogate: Decachlorobiphenyl	0.0205		mg/kg wet	0.02500		82	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0220		mg/kg wet	0.02500		88	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0195		mg/kg wet	0.02500		78	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- SC Surrogate recovery(ies) outside of criteria. Reextraction/Reanalysis confirms results (SC).
- S- Surrogate recovery(ies) below lower control limit (S-).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1706231

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1706231

Date Received: 6/8/2017

Shipped/Delivered Via: ESS Courier

Project Due Date: 6/15/2017

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA

6. Does COC match bottles? Yes

2. Were custody seals present? No

7. Is COC complete and correct? Yes

3. Is radiation count <100 CPM? Yes

8. Were samples received intact? Yes

4. Is a Cooler Present? Yes
Temp: 5.2 Iced with: Ice

9. Were labs informed about short holds & rushes? Yes / No NA

5. Was COC signed and dated by client? Yes

10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	139507	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	139506	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	139505	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	139504	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	139503	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	139502	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	139501	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	139500	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	139499	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	139498	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	139497	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	139496	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	139495	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	139494	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	139493	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	139492	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	139491	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
18	139490	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
19	139489	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
20	139488	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
21	139487	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1706231

Date Received: 6/8/2017

Are barcode labels on correct containers?

Yes / No

Completed By: [Signature]

Date & Time: 6/8/17 2226

Reviewed By: [Signature]

Date & Time: 6/8/17 2230

Delivered By: [Signature]

Date & Time: 6/8/17 2230

10f2

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1706231

Turn Time Standard Other _____

Reporting Limits - S-1

Regulatory State: MA RI CT NH NJ NY ME Other _____

Is this project for any of the following: (please circle)
 MA-MCP Navy USACE CT DEP Other _____

Electronic Deliverables Excel Access PDF

Co. Name <u>GZA</u>		Project # <u>15442.76</u>	Project Name <u>Mystic Station</u>
Contact Person <u>Jason Chrcanowski</u>		Address <u>249 Vanderbilt Ave</u>	
City <u>Norwood</u>	State <u>Ma</u>	Zip <u>02062</u>	PO #
Tel. <u>781 278 3700</u>	Fax.	email: <u>jason.chrcanowski@gza.com</u>	

Analysis
ACB w/serb

ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container
1	6-7-17	0800	C	S	T3-S2-CDD	1	1	G	X
2	6-7-17	0810	C	S	T3-CS-11D	1	1	G	X
3	6-7-17	0820	C	S	T3-S1-CDD	1	1	G	X
4		0835			T4-CS-10	1	1	G	X
5		1100			T11-CS-15D	1	1	G	X
6		0845			T11-CS-4D	1	1	G	X
7		1030			T5-S1-CDD	1	1	G	X
8		0850			T5-CS-21D	1	1	G	X
9		0915			T5-CS-20D	1	1	G	X
10	6-7-17	0925	C	S	T5-W1-CDD	1	1	G	X

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Internal Use Only <input type="checkbox"/>	Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9- _____
Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No NA: _____	<input checked="" type="checkbox"/> Pickup	Sampled by: <u>A. Sargent</u>
Cooler Temperature: <u>J. Licran</u>	<input type="checkbox"/> Technician	Comments:

Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 6/7/17 13:10	Received by: (Signature, Date & Time) <u>[Signature]</u> 6/8/17 22:55	Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 6/8/17 12:00	Received by: (Signature, Date & Time) <u>[Signature]</u> 6/8/17 12:00
Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 6/8/17 17:00	Received by: (Signature, Date & Time) <u>[Signature]</u> 6/8/17 22:55	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

ESS Laboratory

Division of Thielsch Engineering, Inc.

185 Frances Avenue, Cranston, RI 02910-2211

Tel. (401) 461-7181 Fax (401) 461-4486

www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1706231

Turn Time 1 Standard Other _____

Regulatory State: MA RI CT NH NJ NY ME Other _____

Is this project for any of the following: (please circle)

MA-MCP Navy USACE CT DEP Other _____

Reporting Limits - S-1

Electronic Deliverables Excel Access PDF

Co. Name <u>GZA</u>		Project # <u>15442.76</u>	Project Name <u>Mystic Station</u>
Contact Person <u>Jason Chrzanoski</u>		Address <u>249 Vanderbilt Av</u>	
City <u>Norwood</u>	State <u>Ma</u>	Zip <u>02062</u>	PO #
Tel. <u>781 278 3700</u>	Fax.	email: <u>jason.chrzanoski@gsa.com</u>	

Analysis	<u>PCB w/SoxhLx</u>																			
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ESS Lab ID	Date	Collection Time	Grab -G Composite-C	Matrix	Sample ID	Pres Code	# of Containers	Type of Container	Vol of Container											
<u>11</u>	<u>6-7-17</u>	<u>0935</u>	<u>G</u>	<u>S</u>	<u>T5-S2-CDD</u>	<u>1</u>	<u>1</u>	<u>AG</u>		<u>X</u>										
<u>12</u>	<u>6-7-17</u>	<u>1010</u>	<u>C</u>	<u>S</u>	<u>T6-W2-CDD</u>	<u>1</u>	<u>1</u>	<u>AG</u>		<u>X</u>										
<u>13</u>	<u>6-7-17</u>	<u>0955</u>	<u>C</u>	<u>S</u>	<u>T6-S1-CDD</u>	<u>1</u>	<u>1</u>	<u>AG</u>		<u>X</u>										
<u>14</u>	<u>↓</u>	<u>0950</u>	<u>↓</u>	<u>↓</u>	<u>T6-W1-CDD</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>15</u>	<u>↓</u>	<u>1015</u>	<u>↓</u>	<u>↓</u>	<u>T6-CS-23D</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>16</u>	<u>↓</u>	<u>1005</u>	<u>↓</u>	<u>↓</u>	<u>T6-S2-CDD</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>17</u>	<u>↓</u>	<u>1115</u>	<u>↓</u>	<u>↓</u>	<u>T11-CS-16D</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>18</u>	<u>↓</u>	<u>1130</u>	<u>↓</u>	<u>↓</u>	<u>T2-CS-7D</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>19</u>	<u>↓</u>	<u>1150</u>	<u>↓</u>	<u>↓</u>	<u>T1-CS-3D</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>20</u>	<u>↓</u>	<u>0745</u>	<u>↓</u>	<u>↓</u>	<u>T2-CS-6D</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>		<u>X</u>										
<u>21</u>	<u>6-7-17</u>	<u>0730</u>	<u>C</u>	<u>S</u>	<u>T2-CS-5D</u>	<u>1</u>	<u>1</u>	<u>AG</u>		<u>X</u>										

Container Type: P-Poly G-Glass AG-Amber Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge WW-Wastewater GW-Groundwater SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filter

Cooler Present Yes No Internal Use Only Preservation Code: 1-NP, 2-HCl, 3-H2SO4, 4-HNO3, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9-_____

Seals Intact Yes No NA: _____ Pickup

Cooler Temperature: 5.2 KEM Technician _____

Sampled by: Andy Segal

Comments: _____

Relinquished by: (Signature, Date & Time) <u>[Signature]</u> <u>6/17 1310</u>	Received by: (Signature, Date & Time) <u>[Signature]</u> <u>6/17 1700</u>	Relinquished by: (Signature, Date & Time) <u>[Signature]</u> <u>6/17 12:40</u>	Received by: (Signature, Date & Time) <u>[Signature]</u> <u>6/17 12:40</u>
Relinquished by: (Signature, Date & Time) <u>[Signature]</u> <u>6/17 1700</u>	Received by: (Signature, Date & Time) <u>[Signature]</u> <u>6/17 2015</u>	Relinquished by: (Signature, Date & Time)	Received by: (Signature, Date & Time)

* By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VIIA

Please fax to the laboratory all changes to Chain of Custody

1 (White) Lab Copy
2 (Yellow) Client Receipt

CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1707662

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED**By ESS Laboratory at 4:20 pm, Aug 07, 2017****Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

SAMPLE RECEIPT

The following samples were received on July 31, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for VOA were analyzed for a subset of the required MCP list per the client's request.

Vials for low level VOA analysis were not frozen within the 48 hour hold time.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1707662-01	T1B1-S1 (2-4')	Soil	8082A
1707662-02	T1B1-S2 (4-5')	Soil	8082A
1707662-03	T1B2-S1 (2-4')	Soil	8082A, 8260B Low
1707662-04	T2B2-S1 (2-4')	Soil	8082A
1707662-05	T2B4-S1 (2-4')	Soil	8082A
1707662-06	T2B5-S1 (2-4')	Soil	8082A
1707662-07	T21B1-S1 (2-4')	Soil	8082A
1707662-08	T21B2-S4A (8-9')	Soil	8082A, 8260B
1707662-09	T21B2-S4B (9-10')	Soil	8082A
1707662-10	T21B2-S5A (10-11.5')	Soil	8082A
1707662-11	T21B2-S5B (11.5-12')	Soil	8082A
1707662-12	T21B2-S6 (12-14')	Soil	8082A
1707662-13	T21B3-S4 (8-10')	Soil	8082A
1707662-14	T21B3-S5 (10-12')	Soil	8082A
1707662-15	T21B3-S6 (12-14')	Soil	8082A
1707662-16	T21B4-S1 (2-4')	Soil	8082A
1707662-17	T21B2-S3 (6-8')	Soil	8082A, 8260B

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

1707662-01	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-02	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-04	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-05	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-06	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-07	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-08	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-09	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-10	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-11	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-12	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-13	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-14	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u> Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
1707662-15	<u>Surrogate recovery(ies) diluted below the MRL (SD).</u>

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1707662-16

[Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1707662-17

[Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)

Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

CG73106-BSD1

[Relative percent difference for duplicate is outside of criteria \(D+\).](#)

Aroclor 1016 (35% @ 30%), Aroclor 1016 [2C] (34% @ 30%), Aroclor 1260 (35% @ 30%), Aroclor 1260 [2C] (33% @ 30%)

No other observations noted.**End of Project Narrative.**

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)[Semivolatile Organics Internal Standard Information](#)[Semivolatile Organics Surrogate Information](#)[Volatile Organics Internal Standard Information](#)[Volatile Organics Surrogate Information](#)[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1707662-01 through 1707662-17**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|----------------------------------------------------------|-------------------------------|---------------------------------------------|---------------------------------------------------------|-------------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV B | () 8081 Pesticides
CAM V C | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 () No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes () No ()
- 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 () No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes () No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
- b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 () No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes () No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No ()*

**All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 07, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1B1-S1 (2-4')
 Date Sampled: 07/28/17 09:25
 Percent Solids: 88
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1221	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1232	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1242	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1248	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1254	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1260	20.0 (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1262	ND (2.8)		8082A		50	08/03/17 13:01		CG73106
Aroclor 1268	ND (2.8)		8082A		50	08/03/17 13:01		CG73106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1B1-S2 (4-5')
 Date Sampled: 07/28/17 09:30
 Percent Solids: 82
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1221	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1232	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1242	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1248	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1254	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1260	28.1 (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1262	ND (3.1)		8082A		50	08/03/17 13:18		CG73106
Aroclor 1268	ND (3.1)		8082A		50	08/03/17 13:18		CG73106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1B2-S1 (2-4')
 Date Sampled: 07/28/17 10:05
 Percent Solids: 92
 Initial Volume: 6.6
 Final Volume: 10
 Extraction Method: 5035

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.0041)		8260B Low		1	08/01/17 21:29	C7H0007	CH70126
1,2,4-Trichlorobenzene	ND (0.0041)		8260B Low		1	08/01/17 21:29	C7H0007	CH70126
1,2-Dichlorobenzene	ND (0.0041)		8260B Low		1	08/01/17 21:29	C7H0007	CH70126
1,3-Dichlorobenzene	ND (0.0041)		8260B Low		1	08/01/17 21:29	C7H0007	CH70126
1,4-Dichlorobenzene	ND (0.0041)		8260B Low		1	08/01/17 21:29	C7H0007	CH70126
Chlorobenzene	ND (0.0041)		8260B Low		1	08/01/17 21:29	C7H0007	CH70126

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	129 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	98 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	116 %		70-130
<i>Surrogate: Toluene-d8</i>	101 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T1B2-S1 (2-4')
Date Sampled: 07/28/17 10:05
Percent Solids: 92
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
ESS Laboratory Sample ID: 1707662-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1221	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1232	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1242	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1248	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1254	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1260 [2C]	0.07 (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1262	ND (0.06)		8082A		1	08/02/17 20:41		CG73106
Aroclor 1268	ND (0.06)		8082A		1	08/02/17 20:41		CG73106

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	75 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	73 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	61 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	69 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2B2-S1 (2-4')
 Date Sampled: 07/28/17 10:30
 Percent Solids: 90
 Initial Volume: 19.4
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1221	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1232	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1242	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1248	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1254	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1260	45.8 (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1262	ND (5.7)		8082A		100	08/03/17 13:37		CG73106
Aroclor 1268	ND (5.7)		8082A		100	08/03/17 13:37		CG73106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2B4-S1 (2-4')
 Date Sampled: 07/28/17 10:50
 Percent Solids: 87
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1221	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1232	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1242	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1248	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1254	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1260	23.6 (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1262	ND (3.0)		8082A		50	08/03/17 13:56		CG73106
Aroclor 1268	ND (3.0)		8082A		50	08/03/17 13:56		CG73106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2B5-S1 (2-4')
 Date Sampled: 07/28/17 13:40
 Percent Solids: 91
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1221	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1232	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1242	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1248	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1254	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1260	39.2 (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1262	ND (5.6)		8082A		100	08/03/17 14:15		CG73106
Aroclor 1268	ND (5.6)		8082A		100	08/03/17 14:15		CG73106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B1-S1 (2-4')
 Date Sampled: 07/28/17 11:10
 Percent Solids: 89
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1221	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1232	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1242	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1248	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1254	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1260	4720 (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1262	ND (586)		8082A		10000	08/03/17 18:02		CH70106
Aroclor 1268	ND (586)		8082A		10000	08/03/17 18:02		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S4A (8-9')
 Date Sampled: 07/28/17 11:50
 Percent Solids: 77
 Initial Volume: 8.1
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	1400 (54.0)		8260B		100	08/03/17 13:02	C7H0030	CH70226
1,2,4-Trichlorobenzene	6000 (270)		8260B		500	08/03/17 17:27	C7H0030	CH70226
1,2-Dichlorobenzene	8.47 (0.540)		8260B		1	08/02/17 13:02	C7H0030	CH70226
1,3-Dichlorobenzene	161 (54.0)		8260B		100	08/03/17 13:02	C7H0030	CH70226
1,4-Dichlorobenzene	59.4 (54.0)		8260B		100	08/03/17 13:02	C7H0030	CH70226
Chlorobenzene	ND (0.540)		8260B		1	08/02/17 13:02	C7H0030	CH70226

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	113 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	111 %		70-130
<i>Surrogate: Toluene-d8</i>	113 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S4A (8-9')
 Date Sampled: 07/28/17 11:50
 Percent Solids: 77
 Initial Volume: 20.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1221	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1232	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1242	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1248	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1254	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1260	17000 (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1262	ND (3110)		8082A		50000	08/03/17 20:13		CH70106
Aroclor 1268	ND (3110)		8082A		50000	08/03/17 20:13		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S4B (9-10')
 Date Sampled: 07/28/17 11:50
 Percent Solids: 74
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1221	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1232	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1242	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1248	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1254	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1260	172 (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1262	ND (34.3)		8082A		500	08/03/17 15:12		CH70106
Aroclor 1268	ND (34.3)		8082A		500	08/03/17 15:12		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S5A (10-11.5')
 Date Sampled: 07/28/17 12:15
 Percent Solids: 76
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1221	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1232	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1242	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1248	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1254	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1260	563 (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1262	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106
Aroclor 1268	ND (67.2)		8082A		1000	08/03/17 15:31		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S5B (11.5-12')
 Date Sampled: 07/28/17 12:15
 Percent Solids: 80
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1221	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1232	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1242	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1248	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1254	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1260	272 (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1262	ND (32.7)		8082A		500	08/03/17 15:50		CH70106
Aroclor 1268	ND (32.7)		8082A		500	08/03/17 15:50		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S6 (12-14')
 Date Sampled: 07/28/17 12:25
 Percent Solids: 84
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1221	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1232	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1242	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1248	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1254	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1260	147 (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1262	ND (30.2)		8082A		500	08/03/17 16:09		CH70106
Aroclor 1268	ND (30.2)		8082A		500	08/03/17 16:09		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B3-S4 (8-10')
 Date Sampled: 07/28/17 12:55
 Percent Solids: 80
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-13
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1221	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1232	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1242	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1248	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1254	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1260	68.5 (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1262	ND (12.7)		8082A		200	08/03/17 16:28		CH70106
Aroclor 1268	ND (12.7)		8082A		200	08/03/17 16:28		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B3-S5 (10-12')
 Date Sampled: 07/28/17 13:00
 Percent Solids: 83
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-14
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1221	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1232	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1242	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1248	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1254	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1260	19.9 (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1262	ND (3.1)		8082A		50	08/03/17 16:47		CH70106
Aroclor 1268	ND (3.1)		8082A		50	08/03/17 16:47		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B3-S6 (12-14')
 Date Sampled: 07/28/17 13:15
 Percent Solids: 75
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-15
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1221	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1232	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1242	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1248	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1254	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1260	1590 (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1262	ND (343)		8082A		5000	08/04/17 9:52		CH70106
Aroclor 1268	ND (343)		8082A		5000	08/04/17 9:52		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B4-S1 (2-4')
 Date Sampled: 07/28/17 13:30
 Percent Solids: 86
 Initial Volume: 19.4
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-16
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1221	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1232	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1242	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1248	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1254	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1260	1490 (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1262	ND (301)		8082A		5000	08/04/17 10:11		CH70106
Aroclor 1268	ND (301)		8082A		5000	08/04/17 10:11		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S3 (6-8')
 Date Sampled: 07/28/17 11:40
 Percent Solids: 82
 Initial Volume: 9.4
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-17
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	33.7 (0.436)		8260B		1	08/02/17 12:36	C7H0030	CH70226
1,2,4-Trichlorobenzene	155 (4.36)		8260B		10	08/04/17 12:54	C7H0030	CH70226
1,2-Dichlorobenzene	ND (0.436)		8260B		1	08/02/17 12:36	C7H0030	CH70226
1,3-Dichlorobenzene	10.1 (0.436)		8260B		1	08/02/17 12:36	C7H0030	CH70226
1,4-Dichlorobenzene	1.39 (0.436)		8260B		1	08/02/17 12:36	C7H0030	CH70226
Chlorobenzene	ND (0.436)		8260B		1	08/02/17 12:36	C7H0030	CH70226

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	112 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	110 %		70-130
<i>Surrogate: Toluene-d8</i>	111 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S3 (6-8')
 Date Sampled: 07/28/17 11:40
 Percent Solids: 82
 Initial Volume: 19.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707662
 ESS Laboratory Sample ID: 1707662-17
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: SMR
 Prepared: 8/1/17 13:44

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1221	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1232	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1242	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1248	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1254	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1260	1540 (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1262	ND (321)		8082A		5000	08/04/17 10:30		CH70106
Aroclor 1268	ND (321)		8082A		5000	08/04/17 10:30		CH70106

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH70126 - 5035

Blank

1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0591		mg/kg wet	0.05000		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0488		mg/kg wet	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0547		mg/kg wet	0.05000		109	70-130			
Surrogate: Toluene-d8	0.0508		mg/kg wet	0.05000		102	70-130			

LCS

1,2,3-Trichlorobenzene	0.0424	0.0050	mg/kg wet	0.05000		85	70-130			
1,2,4-Trichlorobenzene	0.0409	0.0050	mg/kg wet	0.05000		82	70-130			
1,2-Dichlorobenzene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
1,3-Dichlorobenzene	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
1,4-Dichlorobenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
Chlorobenzene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0591		mg/kg wet	0.05000		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0507		mg/kg wet	0.05000		101	70-130			
Surrogate: Dibromofluoromethane	0.0563		mg/kg wet	0.05000		113	70-130			
Surrogate: Toluene-d8	0.0498		mg/kg wet	0.05000		100	70-130			

LCS Dup

1,2,3-Trichlorobenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	17	20	
1,2,4-Trichlorobenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	15	20	
1,2-Dichlorobenzene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	17	20	
1,3-Dichlorobenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	17	20	
1,4-Dichlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130	13	20	
Chlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	16	20	
Surrogate: 1,2-Dichloroethane-d4	0.0595		mg/kg wet	0.05000		119	70-130			
Surrogate: 4-Bromofluorobenzene	0.0509		mg/kg wet	0.05000		102	70-130			
Surrogate: Dibromofluoromethane	0.0561		mg/kg wet	0.05000		112	70-130			
Surrogate: Toluene-d8	0.0506		mg/kg wet	0.05000		101	70-130			

Batch CH70222 - 5035

Blank

1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	0.0589		mg/kg wet	0.05000		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0489		mg/kg wet	0.05000		98	70-130			
Surrogate: Dibromofluoromethane	0.0551		mg/kg wet	0.05000		110	70-130			
Surrogate: Toluene-d8	0.0511		mg/kg wet	0.05000		102	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Low Level

Batch CH70222 - 5035

LCS

1,2,3-Trichlorobenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
1,2,4-Trichlorobenzene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichlorobenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,3-Dichlorobenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
1,4-Dichlorobenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Chlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0590		mg/kg wet	0.05000		118	70-130			
Surrogate: 4-Bromofluorobenzene	0.0518		mg/kg wet	0.05000		104	70-130			
Surrogate: Dibromofluoromethane	0.0562		mg/kg wet	0.05000		112	70-130			
Surrogate: Toluene-d8	0.0507		mg/kg wet	0.05000		101	70-130			

LCS Dup

1,2,3-Trichlorobenzene	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	0.1	20	
1,2,4-Trichlorobenzene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	1	20	
1,2-Dichlorobenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	1	20	
1,3-Dichlorobenzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	0.7	20	
1,4-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	2	20	
Chlorobenzene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	2	20	
Surrogate: 1,2-Dichloroethane-d4	0.0610		mg/kg wet	0.05000		122	70-130			
Surrogate: 4-Bromofluorobenzene	0.0505		mg/kg wet	0.05000		101	70-130			
Surrogate: Dibromofluoromethane	0.0572		mg/kg wet	0.05000		114	70-130			
Surrogate: Toluene-d8	0.0486		mg/kg wet	0.05000		97	70-130			

5035/8260B Volatile Organic Compounds / Methanol

Batch CH70226 - 5035

Blank

1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.30		mg/kg wet	5.000		106	70-130			
Surrogate: 4-Bromofluorobenzene	5.15		mg/kg wet	5.000		103	70-130			
Surrogate: Dibromofluoromethane	5.00		mg/kg wet	5.000		100	70-130			
Surrogate: Toluene-d8	5.06		mg/kg wet	5.000		101	70-130			

LCS

1,2,3-Trichlorobenzene	2.28	0.200	mg/kg wet	2.000		114	70-130			
1,2,4-Trichlorobenzene	2.19	0.200	mg/kg wet	2.000		110	70-130			
1,2-Dichlorobenzene	2.05	0.200	mg/kg wet	2.000		102	70-130			
1,3-Dichlorobenzene	1.99	0.200	mg/kg wet	2.000		100	70-130			
1,4-Dichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130			
Chlorobenzene	2.07	0.200	mg/kg wet	2.000		103	70-130			
Surrogate: 1,2-Dichloroethane-d4	5.14		mg/kg wet	5.000		103	70-130			

CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CH70226 - 5035

Surrogate: 4-Bromofluorobenzene	5.21		mg/kg wet	5.000		104	70-130			
Surrogate: Dibromofluoromethane	5.00		mg/kg wet	5.000		100	70-130			
Surrogate: Toluene-d8	5.20		mg/kg wet	5.000		104	70-130			

LCS Dup

1,2,3-Trichlorobenzene	2.17	0.200	mg/kg wet	2.000		108	70-130	5	25	
1,2,4-Trichlorobenzene	2.03	0.200	mg/kg wet	2.000		101	70-130	8	25	
1,2-Dichlorobenzene	1.97	0.200	mg/kg wet	2.000		99	70-130	4	25	
1,3-Dichlorobenzene	1.93	0.200	mg/kg wet	2.000		97	70-130	3	25	
1,4-Dichlorobenzene	1.98	0.200	mg/kg wet	2.000		99	70-130	2	25	
Chlorobenzene	2.01	0.200	mg/kg wet	2.000		101	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	5.17		mg/kg wet	5.000		103	70-130			
Surrogate: 4-Bromofluorobenzene	5.30		mg/kg wet	5.000		106	70-130			
Surrogate: Dibromofluoromethane	5.08		mg/kg wet	5.000		102	70-130			
Surrogate: Toluene-d8	5.24		mg/kg wet	5.000		105	70-130			

8082A Polychlorinated Biphenyls (PCB)

Batch CG73106 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0207		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0217		mg/kg wet	0.02500		87	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CG73106 - 3540C										
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		85	40-140			
Surrogate: Decachlorobiphenyl	0.0226		mg/kg wet	0.02500		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0227		mg/kg wet	0.02500		91	30-150			
Surrogate: Tetrachloro-m-xylene	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0226		mg/kg wet	0.02500		90	30-150			
LCS Dup										
Aroclor 1016	0.3	0.05	mg/kg wet	0.5000		65	40-140	35	30	D+
Aroclor 1016 [2C]	0.3	0.05	mg/kg wet	0.5000		68	40-140	34	30	D+
Aroclor 1260	0.3	0.05	mg/kg wet	0.5000		64	40-140	35	30	D+
Aroclor 1260 [2C]	0.3	0.05	mg/kg wet	0.5000		60	40-140	33	30	D+
Surrogate: Decachlorobiphenyl	0.0159		mg/kg wet	0.02500		64	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0159		mg/kg wet	0.02500		64	30-150			
Surrogate: Tetrachloro-m-xylene	0.0148		mg/kg wet	0.02500		59	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0151		mg/kg wet	0.02500		60	30-150			
Batch CH70106 - 3540C										
Blank										
Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							
Surrogate: Decachlorobiphenyl	0.0204		mg/kg wet	0.02500		82	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0210		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene	0.0208		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0231		mg/kg wet	0.02500		93	30-150			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CH70106 - 3540C										
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Surrogate: Decachlorobiphenyl	0.0223		mg/kg wet	0.02500		89	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0224		mg/kg wet	0.02500		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0214		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0221		mg/kg wet	0.02500		88	30-150			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	4	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		89	40-140	4	30	
Surrogate: Decachlorobiphenyl	0.0237		mg/kg wet	0.02500		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0235		mg/kg wet	0.02500		94	30-150			
Surrogate: Tetrachloro-m-xylene	0.0213		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0215		mg/kg wet	0.02500		86	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D+ Relative percent difference for duplicate is outside of criteria (D+).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707662

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/mecdc/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZ/AMM

ESS Project ID: 1707662

Shipped/Delivered Via: ESS Courier

Date Received: 7/31/2017

Project Due Date: 8/7/2017

Days for Project: 5 Day

- | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. Air bill manifest present? <input type="checkbox"/> No
Air No.: <u>NA</u></p> <p>2. Were custody seals present? <input type="checkbox"/> No</p> <p>3. Is radiation count <100 CPM? <input type="checkbox"/> Yes</p> <p>4. Is a Cooler Present? <input type="checkbox"/> Yes
Temp: <u>4.1</u> Iced with: <u>Ice</u></p> <p>5. Was COC signed and dated by client? <input type="checkbox"/> Yes</p> | <p>6. Does COC match bottles? <input type="checkbox"/> Yes</p> <p>7. Is COC complete and correct? <input type="checkbox"/> Yes</p> <p>8. Were samples received intact? <input type="checkbox"/> Yes</p> <p>9. Were labs informed about short holds & rushes? Yes / No / <u>NA</u></p> <p>10. Were any analyses received outside of hold time? Yes / <u>No</u></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>11. Any Subcontracting needed? Yes / <u>No</u>
ESS Sample IDs: _____
Analysis: _____
TAT: _____</p> <p>13. Are the samples properly preserved? <u>Yes</u> / No
a. If metals preserved upon receipt: _____
b. Low Level VOA vials frozen: _____</p> | <p>12. Were VOAs received? <u>Yes</u> / No
a. Air bubbles in aqueous VOAs? <u>Yes</u> / No
b. Does methanol cover soil completely? <u>Yes</u> / No / NA</p> <p>Date: <u>7/31/17</u> Time: <u>1:57</u> By: <u>[Signature]</u></p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	151542	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	151541	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	151540	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	151544	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	151547	Yes	NA	Yes	VOA Vial - Other	Other	
03	151548	Yes	NA	Yes	VOA Vial - Other	Other	
04	151539	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	151538	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	151537	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	151536	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	151535	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	151543	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
08	151545	Yes	NA	Yes	VOA Vial - Other	Other	
08	151546	Yes	NA	Yes	VOA Vial - Other	Other	
09	151534	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	151533	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	151532	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
12	151531	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
13	151530	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
14	151529	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
15	151528	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
16	151527	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	151526	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
17	151571	Yes	NA	Yes	VOA Vial - Methanol	MeOH	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1707662

Date Received: 7/31/2017

17	151572	Yes	NA	Yes	VOA Vial - Other	Other
17	151573	Yes	NA	Yes	VOA Vial - Other	Other

2nd Review

Are barcode labels on correct containers? Yes / No

Completed By:  Date & Time: 7/31/17 1846

Reviewed By:  Date & Time: 7/31/17 1855

Delivered By:  Date & Time: 7/31/17 1856

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
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 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **1707662**

Turn Time 5-Day Rush
 Regulatory State
 Is this project for any of the following?:
 OCT RCP MA MCP ORGP

Reporting Limits **S-1**
 Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify ->)

Company Name **GCA** Project # **15442176** Project Name **Mystic Station**
 Contact Person **Jason Chrzanowski** Address **249 Vanderbilt Ave**
 City **Norwood** State **MA** Zip Code **02062** PO #
 Telephone Number **781-278-3700** FAX Number Email Address **jason.chrzanowski@GCA.com**

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis	PCB w/Sealant
1	7-28-17	0925	G	S	T1B1-S1 (2-4')	X	X
2	7-28-17	0930	G	S	T1B1-S2 (4-5')	X	X
3	7-28-17	1005	G	S	T1B2-S1 (2-4')	X	X
4		1030	G	S	T2B2-S1 (2-4')	X	X
5		1050	G	S	T2B4-S1 (2-4')	X	X
6		1340	G	S	T2B5-S1 (2-4')	X	X
7		1110	G	S	T21B1-S1 (2-4')	X	X
8		1150	G	S	T21B2-S4A (8-9')	X	X
9		1150	G	S	T21B2-S4B (9-10')	X	X
10	7-28-17	1215	G	S	T21B2-S5A (10-11.5')	X	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals Intact: N
 Cooler Temperature: Water @ 4.1°C (10:17 7-31-17)

Sampled by: Andy Sargent and Maria Finsterberg
 Comments: * Please run chlorobenzene and to methyl benzene only for 8260.
 Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 7-28-17 1720	Received By: (Signature, Date & Time) <u>[Signature]</u> 7-31-17 13:47	Relinquished By: (Signature, Date & Time) <u>[Signature]</u> 7-31-17 15:25	Received By: (Signature, Date & Time) <u>[Signature]</u> 7/31/17 1809
------------------------------------------------------------------------------	---------------------------------------------------------------------------	-------------------------------------------------------------------------------	--------------------------------------------------------------------------

ESS Laboratory

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 185 Frances Avenue, Cranston RI 02910
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 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 1707662

Turn Time 5-Day Rush
 Regulatory State

Reporting Limits S-1

Is this project for any of the following?:
 OCT RCP MA MCP ORGP

Electronic Deliverables Limit Checker Standard Excel
 Other (Please Specify --)

Company Name GZA Project # 15442.76 Project Name Mystic Station
 Contact Person Jason Chrozowski Address 249 Vanderbilt Ave
 City Norwood State Ma Zip Code 02062 PO #
 Telephone Number 781 278 1700 FAX Number Email Address Jason.Chrozowski@gza.com

Analysis PCB w/soxhd

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID																
<u>11</u>	<u>7-28-17</u>	<u>1215</u>	<u>G</u>	<u>S</u>	<u>T21B2-S5B (11.5-12')</u>	<u>X</u>															
<u>12</u>	<u>7-28-17</u>	<u>1225</u>	<u>G</u>	<u>S</u>	<u>T21B2-S6 (12-14')</u>	<u>X</u>															
<u>13</u>	<u>7-28-17</u>	<u>1255</u>	<u>G</u>	<u>S</u>	<u>T21B3-S4 (8-10')</u>	<u>X</u>															
<u>14</u>		<u>1300</u>	<u>G</u>	<u>S</u>	<u>T21B3-S5 (10-12')</u>	<u>X</u>															
<u>15</u>		<u>1315</u>	<u>G</u>	<u>S</u>	<u>T21B3-S6 (12-14')</u>	<u>X</u>															
<u>16</u>		<u>1330</u>	<u>G</u>	<u>S</u>	<u>T21B4-S1 (2-4')</u>	<u>X</u>															
			<u>G</u>	<u>S</u>																	
			<u>G</u>	<u>S</u>																	
			<u>G</u>	<u>S</u>																	
	<u>7-28-17</u>		<u>G</u>	<u>S</u>																	

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present: _____
 Seals Intact: ✓
 Cooler Temperature: 18.00 7-31-17
 Sampled by: Andy Sargent + Maria Florkeberg
 Comments: _____ Please specify "Other" preservative and container types in this space

Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 7-28-17 1220	Received By: (Signature, Date & Time) <u>[Signature]</u> 7-31-17 13:17	Relinquished By: (Signature, Date & Time) <u>[Signature]</u> 7-31-17 18:00	Received By: (Signature, Date & Time) <u>[Signature]</u> 7/31/17 1809
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CHAIN OF CUSTODY

ESS Lab # 1707663 1707662

Turn Time 5-Day Rush
Regulatory State
Is this project for any of the following?:
OCT RCP MA MCP RGP

Reporting Limits 5-1
Electronic Deliverables Limit Checker Standard Excel
Other (Please Specify --)

Company Name GZA
Project # 15442.76
Project Name MYSTIC STATION
Contact Person JASON CHRZANOWSKI
Address 249 VANDERBILT AVE
City NORWOOD State MA Zip Code 02062 PO #
Telephone Number 781-278-3700 FAX Number Email Address Jason.chrzanowski@gza.com

Analysis PCB w/soil PCB w/soil
HOLD PCB 8060

Table with columns: ESS Lab ID, Collection Date, Collection Time, Sample Type, Sample Matrix, Sample ID. Contains 6 rows of sample data.

Table with columns for analysis results. Includes handwritten 'X' marks and 'PCB' labels.

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc, NaOH 9-NH4Cl 10-DI H2O 11-Other*
Number of Containers per Sample:

Laboratory Use Only
Cooler Present:
Seals Intact:
Cooler Temperature: 4°C 18.0 7-31-17

Sampled by: Andy Scept and Maria Fristerberg
Comments: * Please hold the above 5 samples for PCB analysis

Table for signatures and dates: Relinquished by, Received By, Relinquished By, Received By.

** Run chlorobenzenes only



CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1707663

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 3:13 pm, Aug 18, 2017

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

SAMPLE RECEIPT

The following samples were received on August 10, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

These samples were originally received on hold on July 31, 2017.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1707663-01	T2B1-S1 (2-4')	Soil	8082A
1707663-02	T21B2-S1 (2-4')	Soil	8082A
1707663-03	T21B2-S2 (4-6')	Soil	8082A
1707663-04	T21B3-S1 (2-4')	Soil	8082A
1707663-05	T21B3-S3 (6-8')	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 1707663-01 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1707663-02 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1707663-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1707663-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1707663-05 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

1010A - Flashpoint
6010C - ICP
6020A - ICP MS
7010 - Graphite Furnace
7196A - Hexavalent Chromium
7470A - Aqueous Mercury
7471B - Solid Mercury
8011 - EDB/DBCP/TCP
8015C - GRO/DRO
8081B - Pesticides
8082A - PCB
8100M - TPH
8151A - Herbicides
8260B - VOA
8270D - SVOA
8270D SIM - SVOA Low Level
9014 - Cyanide
9038 - Sulfate
9040C - Aqueous pH
9045D - Solid pH (Corrosivity)
9050A - Specific Conductance
9056A - Anions (IC)
9060A - TOC
9095B - Paint Filter
MADEP 04-1.1 - EPH / VPH

Prep Methods

3005A - Aqueous ICP Digestion
3020A - Aqueous Graphite Furnace / ICP MS Digestion
3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
3060A - Solid Hexavalent Chromium Digestion
3510C - Separatory Funnel Extraction
3520C - Liquid / Liquid Extraction
3540C - Manual Soxhlet Extraction
3541 - Automated Soxhlet Extraction
3546 - Microwave Extraction
3580A - Waste Dilution
5030B - Aqueous Purge and Trap
5030C - Aqueous Purge and Trap
5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1707663-01 through 1707663-05**

Matrices: () Ground Water/Surface Water (x) Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---------------------------------------------|--------------------------------|-------------------------------------------|------------------------------------|
| () 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (x) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV B | () 8081 Pesticides
CAM V C | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 (x) No () |
| B | Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? | Yes (x) No () |
| 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 (x) No () |
| D | Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? | Yes (x) No () |
| E | VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). | Yes () No () |
| | b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? | Yes () No () |
| 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 (x) No () |

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- | | | |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| G | Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)?
<i>Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.</i> | Yes (x) No ()* |
| H | Were all QC performance standards specified in the CAM protocol(s) achieved? | Yes () No (x)* |
| I | Were results reported for the complete analyte list specified in the selected CAM protocol(s)? | Yes (x) No ()* |

****All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: August 18, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T2B1-S1 (2-4')
Date Sampled: 07/28/17 10:22
Percent Solids: 90
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1707663
ESS Laboratory Sample ID: 1707663-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/11/17 16:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1221	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1232	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1242	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1248	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1254	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1260	43.8 (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1262	ND (5.7)		8082A		100	08/17/17 1:22		CH71103
Aroclor 1268	ND (5.7)		8082A		100	08/17/17 1:22		CH71103

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S1 (2-4)
 Date Sampled: 07/28/17 11:25
 Percent Solids: 94
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707663
 ESS Laboratory Sample ID: 1707663-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/11/17 16:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1221	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1232	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1242	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1248	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1254	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1260	128 (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1262	ND (10.7)		8082A		200	08/17/17 1:41		CH71103
Aroclor 1268	ND (10.7)		8082A		200	08/17/17 1:41		CH71103

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B2-S2 (4-6')
 Date Sampled: 07/28/17 11:30
 Percent Solids: 82
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1707663
 ESS Laboratory Sample ID: 1707663-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 8/11/17 16:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1221	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1232	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1242	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1248	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1254	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1260	104 (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1262	ND (6.2)		8082A		100	08/17/17 2:00		CH71103
Aroclor 1268	ND (6.2)		8082A		100	08/17/17 2:00		CH71103

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T21B3-S1 (2-4)
Date Sampled: 07/28/17 12:40
Percent Solids: 89
Initial Volume: 19.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1707663
ESS Laboratory Sample ID: 1707663-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/11/17 16:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1221	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1232	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1242	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1248	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1254	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1260	20.6 (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1262	ND (2.9)		8082A		50	08/17/17 2:19		CH71103
Aroclor 1268	ND (2.9)		8082A		50	08/17/17 2:19		CH71103

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T21B3-S3 (6-8')
Date Sampled: 07/28/17 12:55
Percent Solids: 79
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1707663
ESS Laboratory Sample ID: 1707663-05
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 8/11/17 16:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1221	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1232	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1242	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1248	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1254	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1260	6.9 (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1262	ND (1.3)		8082A		20	08/17/17 2:38		CH71103
Aroclor 1268	ND (1.3)		8082A		20	08/17/17 2:38		CH71103

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	%	SD	30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	%	SD	30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CH71103 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0251		mg/kg wet	0.02500		100	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0244		mg/kg wet	0.02500		98	30-150			
Surrogate: Tetrachloro-m-xylene	0.0263		mg/kg wet	0.02500		105	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0300		mg/kg wet	0.02500		120	30-150			

LCS

Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		119	40-140			
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		117	40-140			
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		116	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140			

Surrogate: Decachlorobiphenyl	0.0260		mg/kg wet	0.02500		104	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0255		mg/kg wet	0.02500		102	30-150			
Surrogate: Tetrachloro-m-xylene	0.0276		mg/kg wet	0.02500		111	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0303		mg/kg wet	0.02500		121	30-150			

LCS Dup

Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		124	40-140	4	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		117	40-140	0.02	30	
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		118	40-140	2	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0257		mg/kg wet	0.02500		103	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0249		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0275		mg/kg wet	0.02500		110	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0299		mg/kg wet	0.02500		120	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1707663

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

samples off hold per J.C. mkm 8/10/17

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **1707603**
1707603
7/31/17
 Reporting Limits **S-1**
 Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify →)

Turn Time **5-Day** Rush
 Regulatory State
 Is this project for any of the following?:
 OCT RCP MA MCP ORGP

Company Name **GZA** Project # **15442.76** Project Name **MYSTIC STATION**
 Contact Person **JASON CHRZANOWSKI** Address **249 VANDERBILT AVE**
 City **NORWOOD** State **MA** Zip Code **02062** PO #
 Telephone Number **781-278-3700** FAX Number Email Address **Jason.chrzanowski@gza.com**

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis
1	7-28-17	1022	G	S	T2B1-S1 (2-4')	X
2	7-28-17	1125	G	S	T21B2-S1 (2-4')	X
	7-28-17	1140	G	S	T21B2-S3 (6-8')	X
3	7-28-17	1130	G	S	T21B2-S2 (4-6')	X
4	7-28-17	1240	G	S	T21B3-S1 (2-4')	X
5	7-28-17	1255	G	S	T21B3-S3 (6-8')	X

Analysis

HOLD PCB W/50.000

PCB W/50.000

8260

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAc, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals intact:
 Cooler Temperature: **Ice/4°C 18:00 7-31-17**
 Sampled by: **Andy Sargent and Maria Fisterberg**
 Comments: *** Please hold the above 5 samples for PCB analysis**
 Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) Al Ry 7-28-17 1720	Received By: (Signature, Date & Time) [Signature] 7-31-17 13:42	Relinquished By: (Signature, Date & Time) [Signature] 7-31-17 18:01	Received By: (Signature, Date & Time) [Signature] 7/31/17 1809
------------------------------------------------------------------------	---------------------------------------------------------------------------	-------------------------------------------------------------------------------	--------------------------------------------------------------------------

**** Run chlorobenzenes ~~and dinitrobenzenes~~ only**

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **1707603**
1707603
 Reporting Limits **S-1**
 Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify →)

Turn Time **5-Day** Rush
 Regulatory State
 Is this project for any of the following?:
 OCT RCP MA MCP ORGP

Company Name **GZA** Project # **15442.76** Project Name **MYSTIC STATION**
 Contact Person **JASON CHRZANOWSKI** Address **249 VANDERBILT AVE**
 City **NORWOOD** State **MA** Zip Code **02062** PO #
 Telephone Number **781-278-3700** FAX Number Email Address **Jason.chrzanowski@gza.com**

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis
1	7-28-17	1022	G	S	T2B1-S1 (2-4')	HOLD PCB W/Seal
2	7-28-17	1125	G	S	T21B2-S1 (2-4')	X
	7-28-17	1140	G	S	T21B2-S3 (6-8')	X X
3	7-28-17	1130	G	S	T21B2-S2 (4-6')	X
4	7-28-17	1240	G	S	T21B3-S1 (2-4')	X
5	7-28-17	1255	G	S	T21B3-S3 (6-8')	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals intact:
 Cooler Temperature: **Ice/4°C 18:00 7-31-17**
 Sampled by: **Andy Sargent and Maria Firstenberg**
 Comments: *** Please hold the above 5 samples for PCB analysis**
 Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) Al Ry 7-28-17 1720	Received By: (Signature, Date & Time) [Signature] 7-31-17 13:42	Relinquished By: (Signature, Date & Time) [Signature] 7-31-17 18:01	Received By: (Signature, Date & Time) [Signature] 7/31/17 1809
------------------------------------------------------------------------	---------------------------------------------------------------------------	-------------------------------------------------------------------------------	--------------------------------------------------------------------------

** Run chlorobenzenes ~~only~~ only

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1707663

Shipped/Delivered Via: ESS Courier

Date Received: 7/31/2017

Project Due Date: 8/7/2017

Days for Project: 5 Day

- 1. Air bill manifest present? No
Air No.: NA
- 2. Were custody seals present? No
- 3. Is radiation count <100 CPM? Yes
- 4. Is a Cooler Present? Yes
Temp: 4.1 Iced with: Ice
- 5. Was COC signed and dated by client? Yes

- 6. Does COC match bottles? Yes
- 7. Is COC complete and correct? Yes
- 8. Were samples received intact? Yes
- 9. Were labs informed about short holds & rushes? Yes / No / NA
- 10. Were any analyses received outside of hold time? Yes No

- 11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

- 12. Were VOAs received? Yes / No
 - a. Air bubbles in aqueous VOAs? Yes / No
 - b. Does methanol cover soil completely? Yes / No / NA

- 13. Are the samples properly preserved? Yes / No
 - a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 - b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes: Samples on hold (A 7/31/17)

- 14. Was there a need to contact Project Manager? Yes / No
 - a. Was there a need to contact the client? Yes / No
- Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	151553	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	151552	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	151551	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	151550	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	151549	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: [Signature] Date & Time: 7/31/17 1846

Reviewed By: [Signature] Date & Time: 7/31/17 1857

Delivered By: [Signature] Date & Time: 7/31/17 1857



ANALYTICAL REPORT

Lab Number:	L1730342
Client:	GZA GeoEnvironmental, Inc. 249 Vanderbilt Ave Norwood, MA 02062
ATTN:	Jason Chrzanowski
Phone:	(781) 278-6840
Project Name:	MYSTIC STATION
Project Number:	15442.76
Report Date:	09/01/17

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), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1730342-01	T6-CS-23DD	SOLID	CHARLESTOWN, MA	08/29/17 10:00	08/29/17

Project Name: MYSTIC STATION

Lab Number: L1730342

Project Number: 15442.76

Report Date: 09/01/17

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)?	NO
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)?	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: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

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 NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. 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. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. 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. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

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.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

Case Narrative (continued)

MCP Related Narratives

PCBs

In reference to question G:

One or more of the target analytes did not achieve the requested CAM reporting limits.

In reference to question H:

L1730342-01: The surrogate recoveries are below the acceptance criteria for 2,4,5,6-tetrachloro-m-xylene (0%) and decachlorobiphenyl (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

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:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/01/17

ORGANICS

PCBS

Project Name: MYSTIC STATION**Lab Number:** L1730342**Project Number:** 15442.76**Report Date:** 09/01/17**SAMPLE RESULTS**

Lab ID: L1730342-01 D
 Client ID: T6-CS-23DD
 Sample Location: CHARLESTOWN, MA

Date Collected: 08/29/17 10:00
 Date Received: 08/29/17
 Field Prep: Not Specified
 Extraction Method: EPA 3540C
 Extraction Date: 08/29/17 19:10
 Cleanup Method: EPA 3665A
 Cleanup Date: 08/30/17
 Cleanup Method: EPA 3660B
 Cleanup Date: 08/30/17

Matrix: Solid
 Analytical Method: 97,8082A
 Analytical Date: 09/01/17 00:35
 Analyst: HT
 Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
MCP Polychlorinated Biphenyls - Westborough Lab							
Aroclor 1016	ND		ug/kg	21800	--	400	A
Aroclor 1221	ND		ug/kg	21800	--	400	A
Aroclor 1232	ND		ug/kg	21800	--	400	A
Aroclor 1242	ND		ug/kg	21800	--	400	A
Aroclor 1248	ND		ug/kg	14500	--	400	A
Aroclor 1254	ND		ug/kg	21800	--	400	A
Aroclor 1260	455000		ug/kg	14500	--	400	B
Aroclor 1262	ND		ug/kg	7250	--	400	A
Aroclor 1268	ND		ug/kg	7250	--	400	A
PCBs, Total	455000		ug/kg	7250	--	400	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	A
Decachlorobiphenyl	0	Q	30-150	A
2,4,5,6-Tetrachloro-m-xylene	0	Q	30-150	B
Decachlorobiphenyl	0	Q	30-150	B

Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

Method Blank Analysis
Batch Quality Control

Analytical Method: 97,8082A
Analytical Date: 08/31/17 14:08
Analyst: HT

Extraction Method: EPA 3540C
Extraction Date: 08/29/17 19:10
Cleanup Method: EPA 3665A
Cleanup Date: 08/30/17
Cleanup Method: EPA 3660B
Cleanup Date: 08/30/17

Parameter	Result	Qualifier	Units	RL	MDL	Column
MCP Polychlorinated Biphenyls - Westborough Lab for sample(s): 01 Batch: WG1036658-1						
Aroclor 1016	ND		ug/kg	51.0	--	A
Aroclor 1221	ND		ug/kg	51.0	--	A
Aroclor 1232	ND		ug/kg	51.0	--	A
Aroclor 1242	ND		ug/kg	51.0	--	A
Aroclor 1248	ND		ug/kg	34.0	--	A
Aroclor 1254	ND		ug/kg	51.0	--	A
Aroclor 1260	ND		ug/kg	34.0	--	A
Aroclor 1262	ND		ug/kg	17.0	--	A
Aroclor 1268	ND		ug/kg	17.0	--	A
PCBs, Total	ND		ug/kg	17.0	--	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	70		30-150	A
Decachlorobiphenyl	61		30-150	A
2,4,5,6-Tetrachloro-m-xylene	78		30-150	B
Decachlorobiphenyl	65		30-150	B

Lab Control Sample Analysis Batch Quality Control

Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
MCP Polychlorinated Biphenyls - Westborough Lab Associated sample(s): 01 Batch: WG1036658-2 WG1036658-3									
Aroclor 1016	57		52		40-140	9		30	A
Aroclor 1260	57		50		40-140	13		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	68		60		30-150	A
Decachlorobiphenyl	60		52		30-150	A
2,4,5,6-Tetrachloro-m-xylene	76		67		30-150	B
Decachlorobiphenyl	64		55		30-150	B

INORGANICS & MISCELLANEOUS

Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

SAMPLE RESULTS

Lab ID: L1730342-01
Client ID: T6-CS-23DD
Sample Location: CHARLESTOWN, MA
Matrix: Solid

Date Collected: 08/29/17 10:00
Date Received: 08/29/17
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	97.1		%	0.100	NA	1	-	08/30/17 12:52	121,2540G	RI



Project Name: MYSTIC STATION

Project Number: 15442.76

Serial_No:09011711:45

Lab Number: L1730342

Report Date: 09/01/17

Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

Cooler Information

Cooler **Custody Seal**

A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1730342-01A	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L1730342-01B	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		MCP-8082LL-CNCRT(365)

Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

GLOSSARY

Acronyms

EDL	- Estimated 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 EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
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.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
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.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

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 ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report



Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

Data Qualifiers

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. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- 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 lower value for the two columns 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.
- 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.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Project Name: MYSTIC STATION
Project Number: 15442.76

Lab Number: L1730342
Report Date: 09/01/17

REFERENCES

- 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.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

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.



Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene

EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 300: DW: Bromide

EPA 6860: NPW and SCM: Perchlorate

EPA 9010: NPW and SCM: Amenable Cyanide Distillation

EPA 9012B: NPW: Total Cyanide

EPA 9050A: NPW: Specific Conductance

SM3500: NPW: Ferrous Iron

SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

SM5310C: DW: Dissolved Organic Carbon

Mansfield Facility

SM 2540D: TSS

EPA 3005A NPW

EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH, EPA 350.1: Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

EPA 624: Volatile Halocarbons & Aromatics,

EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

EPA 625: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E.**

Mansfield Facility:

Drinking Water

EPA 200.7: Ba, Be, Cd, Cr, Cu, Ni, Na, Ca. **EPA 200.8:** Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Ni, Se, TL. **EPA 245.1 Hg.**

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

EPA 245.1 Hg.

SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



8 Walkup Drive
Westboro, MA 01581
Tel: 508-898-9220

320 Forbes Blvd
Mansfield, MA 02048
Tel: 508-822-9300

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 8/29/17

ALPHA Job #: L1730342

Project Information

Project Name: Mastic Station
Project Location: Cherubtown, Ma
Project #: 15442.76
Project Manager: Jason Chrzanowski
ALPHA Quote #:

Report Information - Data Deliverables

ADEX EMAIL

Billing Information

Same as Client info PO #:

Client Information

Client: GZA
Address: 249 Vanderbilt Av
Norwood Ma 02062
Phone: 781 278 3700
Email: jason.chrzanowski@gza.com

Turn-Around Time

Standard RUSH (only confirmed if pre-approved!)
Date Due: 72-hour - confirmed by Nicole Hunt

Regulatory Requirements & Project Information Requirements

Yes No MA MCP Analytical Methods Yes No CT RCP Analytical Methods
 Yes No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
 Yes No GW1 Standards (Info Required for Metals & EPH with Targets)
 Yes No NPDES RGP
 Other State /Fed Program _____ Criteria _____

ANALYSIS		TOTAL # BOTTLES
VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	SAMPLE INFO Filtration <input type="checkbox"/> Field <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do Sample Comments	
SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH		
METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15		
METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8 <input type="checkbox"/> PPI3		
EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	PH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	<u>PCB w/sorbent</u>
TPH: <input type="checkbox"/> PCB <input type="checkbox"/> PEST	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint	

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
<u>30342-01</u>	<u>T6-CS-23 DD</u>	<u>8-29-17</u>	<u>1000</u>	<u>S</u>	<u>ADS</u>

Container Type
 P= Plastic
 A= Amber glass
 V= Vial
 G= Glass
 B= Bacteria cup
 C= Cube
 O= Other
 E= Encore
 D= BOD Bottle

Preservative
 A= None
 B= HCl
 C= HNO₃
 D= H₂SO₄
 E= NaOH
 F= MeOH
 G= NaHSO₄
 H= Na₂S₂O₃
 I= Ascorbic Acid
 J= NH₄Cl
 K= Zn Acetate
 O= Other

Container Type	<u>AG</u>
Preservative	<u>A</u>

Relinquished By:	Date/Time	Received By:	Date/Time
<u>Wayne Canza AAL</u>	<u>8-29-17 13:00</u>	<u>Wayne Canza AAL</u>	<u>8/29/17 14:30</u>
<u>Wayne Canza AAL</u>	<u>8/29/17 17:06</u>	<u>Jamille Matt</u>	<u>8/29/17 17:06</u>

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.
 FORM NO. 01-01 (rev. 12-Mar-2012)

CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1709269

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED*By ESS Laboratory at 12:19 pm, Sep 25, 2017***Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

SAMPLE RECEIPT

The following samples were received on September 12, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for VOA were analyzed for a subset of the required MCP list per the client's request.

Revision 1 September 25, 2017: This report has been revised to include PCB analysis for sample 1709269-12.

Lab Number	Sample Name	Matrix	Analysis
1709269-01	T21B5 S-4 (3-4')	Soil	8082A
1709269-02	T21B6 S-2 (1-2')	Soil	8082A
1709269-03	T21B6 S-3 (2-3')	Soil	8082A
1709269-04	T21B7 S-1 (0-1')	Soil	8082A
1709269-05	T21B7 S-2A (7-8')	Soil	8082A, 8260B
1709269-06	T21B5 S-7B (10-11')	Soil	8082A, 8260B
1709269-07	T21B6 S-7 (13-15')	Soil	8082A, 8260B
1709269-08	T21B6 S-4 (7-9')	Soil	8082A, 8260B
1709269-09	T21B7 S-3 (9-11')	Soil	8082A, 8260B
1709269-10	T21B5 S-6 (7-9')	Soil	8260B
1709269-11	T21B8C S-2 (17-19')	Soil	8082A, 8260B
1709269-12	T21B8C S-3 (20-22')	Soil	8082A, 8260B
1709269-13	T21B5 S-7A (9-10')	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Methanol

1709269-12 [Surrogate recovery\(ies\) above upper control limit \(S+\).](#)
Dibromofluoromethane (132% @ 70-130%)

8082A Polychlorinated Biphenyls (PCB)

1709269-11 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

1709269-12 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1709269-01 through 1709269-13**

Matrices: () Ground Water/Surface Water (X) Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|------------------------------|-------------------------------|---------------------------------------------|--------------------------------|-------------------------------------------|------------------------------------|
| (X) 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | (X) 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV B | () 8081 Pesticides
CAM V C | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 (X) No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes (X) No ()
- 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 (X) No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes (X) No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 (X) No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes (X) No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No (X)*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No (X)*

***All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 19, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5 S-4 (3-4')
 Date Sampled: 09/07/17 08:40
 Percent Solids: 94
 Initial Volume: 19
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1260	4.6 (0.6)		8082A		10	09/14/17 21:56		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 14:56		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 14:56		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	69 %		30-150
Surrogate: Decachlorobiphenyl [2C]	70 %		30-150
Surrogate: Tetrachloro-m-xylene	64 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	72 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6 S-2 (1-2')
 Date Sampled: 09/07/17 09:25
 Percent Solids: 93
 Initial Volume: 20.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1221	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1232	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1242	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1248	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1254	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1260	5.1 (0.5)		8082A		10	09/14/17 22:15		CI71314
Aroclor 1262	ND (0.05)		8082A		1	09/14/17 15:15		CI71314
Aroclor 1268	ND (0.05)		8082A		1	09/14/17 15:15		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	70 %		30-150
Surrogate: Decachlorobiphenyl [2C]	68 %		30-150
Surrogate: Tetrachloro-m-xylene	69 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T21B6 S-3 (2-3')
Date Sampled: 09/07/17 09:30
Percent Solids: 90
Initial Volume: 19
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
ESS Laboratory Sample ID: 1709269-03
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1260	8.1 (0.6)		8082A		10	09/14/17 22:34		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 15:34		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 15:34		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	70 %		30-150
Surrogate: Decachlorobiphenyl [2C]	71 %		30-150
Surrogate: Tetrachloro-m-xylene	68 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	73 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7 S-1 (0-1')
 Date Sampled: 09/07/17 10:10
 Percent Solids: 95
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-04
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1221	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1232	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1242	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1248	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1254	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1260	1.3 (0.3)		8082A		5	09/15/17 9:11		CI71314
Aroclor 1262	ND (0.05)		8082A		1	09/14/17 17:29		CI71314
Aroclor 1268	ND (0.05)		8082A		1	09/14/17 17:29		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	77 %		30-150
Surrogate: Decachlorobiphenyl [2C]	78 %		30-150
Surrogate: Tetrachloro-m-xylene	72 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	79 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7 S-2A (7-8')
 Date Sampled: 09/08/17 09:30
 Percent Solids: 92
 Initial Volume: 8.7
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.395)		8260B		1	09/13/17 14:36	C7I0186	CI71321
1,2,4-Trichlorobenzene	ND (0.395)		8260B		1	09/13/17 14:36	C7I0186	CI71321
1,2-Dichlorobenzene	ND (0.395)		8260B		1	09/13/17 14:36	C7I0186	CI71321
1,3-Dichlorobenzene	ND (0.395)		8260B		1	09/13/17 14:36	C7I0186	CI71321
1,4-Dichlorobenzene	ND (0.395)		8260B		1	09/13/17 14:36	C7I0186	CI71321
Chlorobenzene	ND (0.395)		8260B		1	09/13/17 14:36	C7I0186	CI71321

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	85 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	81 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	95 %		70-130
<i>Surrogate: Toluene-d8</i>	82 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7 S-2A (7-8')
 Date Sampled: 09/08/17 09:30
 Percent Solids: 92
 Initial Volume: 19.2
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1260	1.0 (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 17:48		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 17:48		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	74 %		30-150
Surrogate: Decachlorobiphenyl [2C]	72 %		30-150
Surrogate: Tetrachloro-m-xylene	77 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	74 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5 S-7B (10-11')
 Date Sampled: 09/08/17 08:02
 Percent Solids: 86
 Initial Volume: 11.6
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.336)		8260B		1	09/13/17 15:03	C7I0186	CI71321
1,2,4-Trichlorobenzene	ND (0.336)		8260B		1	09/13/17 15:03	C7I0186	CI71321
1,2-Dichlorobenzene	ND (0.336)		8260B		1	09/13/17 15:03	C7I0186	CI71321
1,3-Dichlorobenzene	0.534 (0.336)		8260B		1	09/13/17 15:03	C7I0186	CI71321
1,4-Dichlorobenzene	2.47 (0.336)		8260B		1	09/13/17 15:03	C7I0186	CI71321
Chlorobenzene	ND (0.336)		8260B		1	09/13/17 15:03	C7I0186	CI71321

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	77 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	73 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	80 %		70-130
<i>Surrogate: Toluene-d8</i>	74 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5 S-7B (10-11')
 Date Sampled: 09/08/17 08:02
 Percent Solids: 86
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1260	0.9 (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 18:07		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 18:07		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	70 %		30-150
Surrogate: Decachlorobiphenyl [2C]	70 %		30-150
Surrogate: Tetrachloro-m-xylene	87 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	69 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6 S-7 (13-15')
 Date Sampled: 09/08/17 08:50
 Percent Solids: 82
 Initial Volume: 9.8
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.418)		8260B		1	09/13/17 15:29	C7I0186	CI71321
1,2,4-Trichlorobenzene	ND (0.418)		8260B		1	09/13/17 15:29	C7I0186	CI71321
1,2-Dichlorobenzene	ND (0.418)		8260B		1	09/13/17 15:29	C7I0186	CI71321
1,3-Dichlorobenzene	ND (0.418)		8260B		1	09/13/17 15:29	C7I0186	CI71321
1,4-Dichlorobenzene	ND (0.418)		8260B		1	09/13/17 15:29	C7I0186	CI71321
Chlorobenzene	ND (0.418)		8260B		1	09/13/17 15:29	C7I0186	CI71321

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	123 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	110 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	131 %		70-130
<i>Surrogate: Toluene-d8</i>	114 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6 S-7 (13-15')
 Date Sampled: 09/08/17 08:50
 Percent Solids: 82
 Initial Volume: 20
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-07
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1260	0.09 (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 18:27		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 18:27		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	72 %		30-150
Surrogate: Decachlorobiphenyl [2C]	72 %		30-150
Surrogate: Tetrachloro-m-xylene	66 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	72 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6 S-4 (7-9')
 Date Sampled: 09/08/17 08:34
 Percent Solids: 81
 Initial Volume: 11.9
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.361)		8260B		1	09/13/17 15:55	C7I0186	CI71321
1,2,4-Trichlorobenzene	ND (0.361)		8260B		1	09/13/17 15:55	C7I0186	CI71321
1,2-Dichlorobenzene	ND (0.361)		8260B		1	09/13/17 15:55	C7I0186	CI71321
1,3-Dichlorobenzene	ND (0.361)		8260B		1	09/13/17 15:55	C7I0186	CI71321
1,4-Dichlorobenzene	ND (0.361)		8260B		1	09/13/17 15:55	C7I0186	CI71321
Chlorobenzene	ND (0.361)		8260B		1	09/13/17 15:55	C7I0186	CI71321

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	119 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	107 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	124 %		70-130
<i>Surrogate: Toluene-d8</i>	111 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6 S-4 (7-9')
 Date Sampled: 09/08/17 08:34
 Percent Solids: 81
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1260	2.2 (0.3)		8082A		5	09/15/17 9:30		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 18:46		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 18:46		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	66 %		30-150
Surrogate: Decachlorobiphenyl [2C]	66 %		30-150
Surrogate: Tetrachloro-m-xylene	65 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7 S-3 (9-11')
 Date Sampled: 09/08/17 09:36
 Percent Solids: 82
 Initial Volume: 9.9
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.413)		8260B		1	09/13/17 16:22	C7I0186	CI71321
1,2,4-Trichlorobenzene	ND (0.413)		8260B		1	09/13/17 16:22	C7I0186	CI71321
1,2-Dichlorobenzene	ND (0.413)		8260B		1	09/13/17 16:22	C7I0186	CI71321
1,3-Dichlorobenzene	ND (0.413)		8260B		1	09/13/17 16:22	C7I0186	CI71321
1,4-Dichlorobenzene	ND (0.413)		8260B		1	09/13/17 16:22	C7I0186	CI71321
Chlorobenzene	ND (0.413)		8260B		1	09/13/17 16:22	C7I0186	CI71321

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	120 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	108 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	128 %		70-130
<i>Surrogate: Toluene-d8</i>	115 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7 S-3 (9-11')
 Date Sampled: 09/08/17 09:36
 Percent Solids: 82
 Initial Volume: 19.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-09
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1260	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 19:05		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 19:05		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	72 %		30-150
Surrogate: Decachlorobiphenyl [2C]	72 %		30-150
Surrogate: Tetrachloro-m-xylene	66 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	70 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5 S-6 (7-9')
 Date Sampled: 09/08/17 07:53
 Percent Solids: 80
 Initial Volume: 9.4
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-10
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.450)		8260B		1	09/13/17 16:48	C7I0186	CI71321
1,2,4-Trichlorobenzene	ND (0.450)		8260B		1	09/13/17 16:48	C7I0186	CI71321
1,2-Dichlorobenzene	ND (0.450)		8260B		1	09/13/17 16:48	C7I0186	CI71321
1,3-Dichlorobenzene	ND (0.450)		8260B		1	09/13/17 16:48	C7I0186	CI71321
1,4-Dichlorobenzene	ND (0.450)		8260B		1	09/13/17 16:48	C7I0186	CI71321
Chlorobenzene	ND (0.450)		8260B		1	09/13/17 16:48	C7I0186	CI71321

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	103 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	119 %		70-130
<i>Surrogate: Toluene-d8</i>	108 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B8C S-2 (17-19')
 Date Sampled: 09/08/17 10:50
 Percent Solids: 85
 Initial Volume: 11.4
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	208 (34.4)		8260B		100	09/14/17 13:10	C7I0186	CI71321
1,2,4-Trichlorobenzene	1010 (34.4)		8260B		100	09/14/17 13:10	C7I0186	CI71321
1,2-Dichlorobenzene	3.55 (0.344)		8260B		1	09/13/17 17:15	C7I0186	CI71321
1,3-Dichlorobenzene	17.7 (0.344)		8260B		1	09/13/17 17:15	C7I0186	CI71321
1,4-Dichlorobenzene	18.6 (0.344)		8260B		1	09/13/17 17:15	C7I0186	CI71321
Chlorobenzene	1.57 (0.344)		8260B		1	09/13/17 17:15	C7I0186	CI71321

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: 1,2-Dichloroethane-d4	114 %		70-130
Surrogate: 4-Bromofluorobenzene	105 %		70-130
Surrogate: Dibromofluoromethane	118 %		70-130
Surrogate: Toluene-d8	106 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B8C S-2 (17-19')
 Date Sampled: 09/08/17 10:50
 Percent Solids: 85
 Initial Volume: 20.3
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-11
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1221	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1232	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1242	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1248	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1254	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1260	6120 (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1262	ND (578)		8082A		10000	09/15/17 10:26		CI71314
Aroclor 1268	ND (578)		8082A		10000	09/15/17 10:26		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B8C S-3 (20-22')
 Date Sampled: 09/08/17 11:00
 Percent Solids: 57
 Initial Volume: 7.1
 Final Volume: 15
 Extraction Method: 5035

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: MD

5035/8260B Volatile Organic Compounds / Methanol

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (0.894)		8260B		1	09/14/17 12:43	C7I0214	CI71433
1,2,4-Trichlorobenzene	ND (0.894)		8260B		1	09/14/17 12:43	C7I0214	CI71433
1,2-Dichlorobenzene	ND (0.894)		8260B		1	09/14/17 12:43	C7I0214	CI71433
1,3-Dichlorobenzene	ND (0.894)		8260B		1	09/14/17 12:43	C7I0214	CI71433
1,4-Dichlorobenzene	ND (0.894)		8260B		1	09/14/17 12:43	C7I0214	CI71433
Chlorobenzene	ND (0.894)		8260B		1	09/14/17 12:43	C7I0214	CI71433

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	127 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	114 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	132 %	S+	70-130
<i>Surrogate: Toluene-d8</i>	113 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B8C S-3 (20-22')
 Date Sampled: 09/08/17 11:00
 Percent Solids: 57
 Initial Volume: 19.9
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-12
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/20/17 17:03

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1221	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1232	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1242	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1248	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1254	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1260	71.4 (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1262	ND (8.8)		8082A		100	09/21/17 23:42		CI71912
Aroclor 1268	ND (8.8)		8082A		100	09/21/17 23:42		CI71912

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5 S-7A (9-10')
 Date Sampled: 09/08/17 07:56
 Percent Solids: 90
 Initial Volume: 20.1
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709269
 ESS Laboratory Sample ID: 1709269-13
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/13/17 16:05

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1221	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1232	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1242	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1248	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1254	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1260	1.8 (0.3)		8082A		5	09/15/17 10:08		CI71314
Aroclor 1262	ND (0.06)		8082A		1	09/14/17 19:43		CI71314
Aroclor 1268	ND (0.06)		8082A		1	09/14/17 19:43		CI71314

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	73 %		30-150
Surrogate: Decachlorobiphenyl [2C]	69 %		30-150
Surrogate: Tetrachloro-m-xylene	70 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CI71321 - 5035

Blank

1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.37		mg/kg wet	5.000		107	70-130			
Surrogate: 4-Bromofluorobenzene	4.56		mg/kg wet	5.000		91	70-130			
Surrogate: Dibromofluoromethane	5.58		mg/kg wet	5.000		112	70-130			
Surrogate: Toluene-d8	4.79		mg/kg wet	5.000		96	70-130			

LCS

1,2,3-Trichlorobenzene	2.18	0.200	mg/kg wet	2.000		109	70-130			
1,2,4-Trichlorobenzene	2.30	0.200	mg/kg wet	2.000		115	70-130			
1,2-Dichlorobenzene	2.23	0.200	mg/kg wet	2.000		112	70-130			
1,3-Dichlorobenzene	2.23	0.200	mg/kg wet	2.000		111	70-130			
1,4-Dichlorobenzene	2.25	0.200	mg/kg wet	2.000		113	70-130			
Chlorobenzene	2.24	0.200	mg/kg wet	2.000		112	70-130			
Surrogate: 1,2-Dichloroethane-d4	5.68		mg/kg wet	5.000		114	70-130			
Surrogate: 4-Bromofluorobenzene	5.36		mg/kg wet	5.000		107	70-130			
Surrogate: Dibromofluoromethane	6.30		mg/kg wet	5.000		126	70-130			
Surrogate: Toluene-d8	5.42		mg/kg wet	5.000		108	70-130			

LCS Dup

1,2,3-Trichlorobenzene	2.06	0.200	mg/kg wet	2.000		103	70-130	6	25	
1,2,4-Trichlorobenzene	2.11	0.200	mg/kg wet	2.000		105	70-130	9	25	
1,2-Dichlorobenzene	2.27	0.200	mg/kg wet	2.000		113	70-130	1	25	
1,3-Dichlorobenzene	2.19	0.200	mg/kg wet	2.000		109	70-130	2	25	
1,4-Dichlorobenzene	2.23	0.200	mg/kg wet	2.000		112	70-130	0.9	25	
Chlorobenzene	2.19	0.200	mg/kg wet	2.000		109	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	5.60		mg/kg wet	5.000		112	70-130			
Surrogate: 4-Bromofluorobenzene	5.38		mg/kg wet	5.000		108	70-130			
Surrogate: Dibromofluoromethane	6.12		mg/kg wet	5.000		122	70-130			
Surrogate: Toluene-d8	5.49		mg/kg wet	5.000		110	70-130			

Batch CI71433 - 5035

Blank

1,2,3-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.200	mg/kg wet							
1,2-Dichlorobenzene	ND	0.200	mg/kg wet							
1,3-Dichlorobenzene	ND	0.200	mg/kg wet							
1,4-Dichlorobenzene	ND	0.200	mg/kg wet							
Chlorobenzene	ND	0.200	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	5.14		mg/kg wet	5.000		103	70-130			
Surrogate: 4-Bromofluorobenzene	4.70		mg/kg wet	5.000		94	70-130			
Surrogate: Dibromofluoromethane	5.53		mg/kg wet	5.000		111	70-130			
Surrogate: Toluene-d8	4.90		mg/kg wet	5.000		98	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

Batch CI71433 - 5035

LCS

1,2,3-Trichlorobenzene	2.15	0.200	mg/kg wet	2.000		107	70-130			
1,2,4-Trichlorobenzene	2.22	0.200	mg/kg wet	2.000		111	70-130			
1,2-Dichlorobenzene	2.18	0.200	mg/kg wet	2.000		109	70-130			
1,3-Dichlorobenzene	2.17	0.200	mg/kg wet	2.000		109	70-130			
1,4-Dichlorobenzene	2.21	0.200	mg/kg wet	2.000		111	70-130			
Chlorobenzene	2.17	0.200	mg/kg wet	2.000		108	70-130			
Surrogate: 1,2-Dichloroethane-d4	5.62		mg/kg wet	5.000		112	70-130			
Surrogate: 4-Bromofluorobenzene	5.44		mg/kg wet	5.000		109	70-130			
Surrogate: Dibromofluoromethane	6.24		mg/kg wet	5.000		125	70-130			
Surrogate: Toluene-d8	5.53		mg/kg wet	5.000		111	70-130			

LCS Dup

1,2,3-Trichlorobenzene	1.96	0.200	mg/kg wet	2.000		98	70-130	9	25	
1,2,4-Trichlorobenzene	2.03	0.200	mg/kg wet	2.000		102	70-130	9	25	
1,2-Dichlorobenzene	2.21	0.200	mg/kg wet	2.000		111	70-130	2	25	
1,3-Dichlorobenzene	2.07	0.200	mg/kg wet	2.000		103	70-130	5	25	
1,4-Dichlorobenzene	2.19	0.200	mg/kg wet	2.000		110	70-130	1	25	
Chlorobenzene	2.10	0.200	mg/kg wet	2.000		105	70-130	3	25	
Surrogate: 1,2-Dichloroethane-d4	5.59		mg/kg wet	5.000		112	70-130			
Surrogate: 4-Bromofluorobenzene	5.27		mg/kg wet	5.000		105	70-130			
Surrogate: Dibromofluoromethane	6.10		mg/kg wet	5.000		122	70-130			
Surrogate: Toluene-d8	5.47		mg/kg wet	5.000		109	70-130			

8082A Polychlorinated Biphenyls (PCB)

Batch CI71314 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI71314 - 3540C

Surrogate: Decachlorobiphenyl	0.0188		mg/kg wet	0.02500		75	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0185		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene	0.0170		mg/kg wet	0.02500		68	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0190		mg/kg wet	0.02500		76	30-150			

LCS

Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		92	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			

Surrogate: Decachlorobiphenyl	0.0203		mg/kg wet	0.02500		81	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0198		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene	0.0178		mg/kg wet	0.02500		71	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0179		mg/kg wet	0.02500		72	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		93	40-140	1	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140	1	30	

Surrogate: Decachlorobiphenyl	0.0202		mg/kg wet	0.02500		81	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0196		mg/kg wet	0.02500		78	30-150			
Surrogate: Tetrachloro-m-xylene	0.0190		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0190		mg/kg wet	0.02500		76	30-150			

Batch CI71912 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI71912 - 3540C

Surrogate: Decachlorobiphenyl	0.0300		mg/kg wet	0.02500		120	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0236		mg/kg wet	0.02500		95	30-150			
Surrogate: Tetrachloro-m-xylene	0.0189		mg/kg wet	0.02500		76	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0207		mg/kg wet	0.02500		83	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		94	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		90	40-140			

Surrogate: Decachlorobiphenyl	0.0256		mg/kg wet	0.02500		102	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0248		mg/kg wet	0.02500		99	30-150			
Surrogate: Tetrachloro-m-xylene	0.0209		mg/kg wet	0.02500		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0206		mg/kg wet	0.02500		82	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		92	40-140	2	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	2	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		94	40-140	11	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		90	40-140	0.4	30	

Surrogate: Decachlorobiphenyl	0.0260		mg/kg wet	0.02500		104	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0252		mg/kg wet	0.02500		101	30-150			
Surrogate: Tetrachloro-m-xylene	0.0200		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0197		mg/kg wet	0.02500		79	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- S+ Surrogate recovery(ies) above upper control limit (S+).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709269

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179
<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750
http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002
<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002
<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424
<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313
<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006
http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752
<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM
 Shipped/Delivered Via: ESS Courier

ESS Project ID: 1709269
 Date Received: 9/12/2017
 Project Due Date: 9/19/2017
 Days for Project: 5 Day

1. Air bill manifest present? No
 Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
 Temp: 0.4 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? No
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
 ESS Sample IDs: _____
 Analysis: _____
 TAT: _____

12. Were VOAs received? Yes / No
 a. Air bubbles in aqueous VOAs? Yes / No
 b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
 a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
 b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

T21B5 S-4, T21B6 S-2, T21B6 S-3, and T21B7 S-1 Rec'd MeOH vial, no analysis indicated on COC 9/12/17 *g*

14. Was there a need to contact Project Manager? Yes / No
 a. Was there a need to contact the client? Yes / No
 Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	161965	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	161977	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	161964	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	161976	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
03	161963	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	161975	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
04	161962	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	161974	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
05	161961	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	161973	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
06	161960	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	161972	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
07	161959	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	161971	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
08	161958	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	161970	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
09	161957	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
09	161969	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
10	161956	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
10	161968	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
11	161955	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
11	161967	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
12	161954	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1709269

Date Received: 9/12/2017

12	161966	Yes	NA	Yes	VOA Vial - Methanol	MeOH
13	161953	Yes	NA	Yes	4 oz. Jar - Unpres	NP

2nd Review

Are barcode labels on correct containers?

Yes No

Completed

By: [Signature]

Date & Time: 9/12/17 1847

Reviewed

By: [Signature]

Date & Time: 9/12/17 1930

Delivered

By: [Signature]

Date & Time: 9/12/17 1930

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **1709269**

Turn Time **5-Day** Rush
 Regulatory State

Reporting Limits **S-1**

Is this project for any of the following?:
 OCT RCP MA MCP ORGP

Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify →) **PDF**

Company Name **GZA** Project # **15442.76** Project Name **Mystic Station**
 Contact Person **Jason Chrzanowski** Address **249 Vanderbilt Av**
 City **Norwood** State **Ma** Zip Code **02062** PO #
 Telephone Number **781 278 3700** FAX Number Email Address **Jason.chrzanowski@gza.com**

Analysis
 PCB w/soil
 8060 *
 Hold Pending Results

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID															
5	9-8-17	0930	G	S	T21B7 S-2A (7-8')	X	X													
	9-8-17	0805	G	S	T21B5 S-8 (11-13')															X
6	9-8-17	0802	G	S	T21B5 S-7B (10-11')	X	X													
		0850			T21B6 S-7 (13-15')	X	X													
8		0834			T21B6 S-4 (7-9')	X	X													
		0815			T21B5 S-9B (14-15')															X
9		0945			T21B7 S-5 (13-15')															X
		0936			T21B7 S-3 (7-11')	X	X													
	9-8-17	0932			T21B7 S-2B (8-9')															X
	9-8-17	0811	G	S	T21B5 S-9A (13-14')															X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals Intact:
 Cooler Temperature: **0.4 FGC**

Sampled by: **Andy Sargent**
 Comments: Please specify "Other" preservative and containers types in this space
*** only report: 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene and Chlorobenzene**

Relinquished by: (Signature, Date & Time)
9-8-17 1600

Received By: (Signature, Date & Time)
9/12/17 18:46

Relinquished By: (Signature, Date & Time)
9/12/17 16:34

Received By: (Signature, Date & Time)
9/12/17 1754

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
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 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 0709269
 Reporting Limits S-1
 Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify ->) PDF

Turn Time 5-Day Rush
 Regulatory State
 Is this project for any of the following?:
 OCT RCP MA MCP RGP

Company Name GZA Project # 15442.76 Project Name
 Contact Person Jason Chrenowski Address 249 Vanderbilt Ave
 City Norwood State MA Zip Code 02062 PO #
 Telephone Number 781 278 3760 FAX Number Email Address jason.chrenowski@gza.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID
10	9-8-17	0753	G	S	T21 B5 S-6 (7-9')
11	9-8-17	1050	G	S	T21 B8C S-2 (17-19')
12	9-8-17	1100	G	S	T21 B8C S-3 (20-22')
	9-8-17	0840	G	S	T21 B6 S-5 (9-11')
13	9-8-17	0756	G	S	T21 B5 S-7A (9-10')

Analysis	PCB w/Soxhlet	8260*	Hold Pending Results
	X		
	X	X	
	X		
			X
	X		

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals Intact:
 Cooler Temperature: 0.4 Ice

Sampled by: Andy Sargent
 Comments: Please specify "Other" preservative and containers types in this space
* Only report: 1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, and Chlorobenzene

Relinquished by: (Signature, Date & Time) <u>[Signature]</u> 9-8-17 1600	Received By: (Signature, Date & Time) <u>[Signature]</u> 9/12/17 14:46	Relinquished By: (Signature, Date & Time) <u>[Signature]</u> 9/12/17 16:34	Received By: (Signature, Date & Time) <u>[Signature]</u> 9/12/17 1754
-----------------------------------------------------------------------------	---------------------------------------------------------------------------	-------------------------------------------------------------------------------	--------------------------------------------------------------------------

CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1709472

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED**By ESS Laboratory at 11:13 am, Sep 26, 2017****Analytical Summary**

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

SAMPLE RECEIPT

The following samples were received on September 18, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for VOA were analyzed for a subset of the required MCP list per the client's request.

Revision 1 September 26, 2017: This report has been revised to include sample ID correction for sample 1709472-04.

Lab Number	Sample Name	Matrix	Analysis
1709472-01	T21B5-MW	Ground Water	8082A, 8260B
1709472-02	T21B6-MW	Ground Water	8082A, 8260B
1709472-03	T21B7-MW	Ground Water	8082A, 8260B
1709472-04	T21B8C-MW	Ground Water	8082A, 8260B
1709472-05	T2-MW	Ground Water	8082A, 8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1709472-01 through 1709472-05**

Matrices: Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|----------------------------------------------------------|-------------------------------|---------------------------------------------|---------------------------------------------------------|-------------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV B | () 8081 Pesticides
CAM V C | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- 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 No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: September 25, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5-MW
 Date Sampled: 09/14/17 12:40
 Percent Solids: N/A
 Initial Volume: 1070
 Final Volume: 1
 Extraction Method: 3510C

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-01
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: CAD
 Prepared: 9/20/17 9:57

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1221	ND (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1232	ND (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1242 [2C]	0.27 (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1248	ND (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1254 [2C]	0.17 (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1260	ND (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1262	ND (0.09)		8082A		1	09/20/17 12:59		CI72028
Aroclor 1268	ND (0.09)		8082A		1	09/20/17 12:59		CI72028

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	104 %		30-150
Surrogate: Decachlorobiphenyl [2C]	115 %		30-150
Surrogate: Tetrachloro-m-xylene	107 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	85 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B5-MW
 Date Sampled: 09/14/17 12:40
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-01
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	3.5 (1.0)		8260B		1	09/19/17 14:30	C7I0299	CI71925
1,2,4-Trichlorobenzene	13.6 (1.0)		8260B		1	09/19/17 14:30	C7I0299	CI71925
1,2-Dichlorobenzene	ND (1.0)		8260B		1	09/19/17 14:30	C7I0299	CI71925
1,3-Dichlorobenzene	23.4 (1.0)		8260B		1	09/19/17 14:30	C7I0299	CI71925
1,4-Dichlorobenzene	119 (10.0)		8260B		10	09/20/17 13:44	C7I0299	CI71925
Chlorobenzene	5.4 (1.0)		8260B		1	09/19/17 14:30	C7I0299	CI71925

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
Surrogate: 1,2-Dichloroethane-d4	98 %		70-130
Surrogate: 4-Bromofluorobenzene	89 %		70-130
Surrogate: Dibromofluoromethane	94 %		70-130
Surrogate: Toluene-d8	107 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6-MW
 Date Sampled: 09/14/17 15:20
 Percent Solids: N/A
 Initial Volume: 1070
 Final Volume: 1
 Extraction Method: 3510C

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-02
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: CAD
 Prepared: 9/20/17 9:57

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1221	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1232	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1242	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1248	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1254	0.41 (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1260	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1262	ND (0.09)		8082A		1	09/20/17 13:18		CI72028
Aroclor 1268	ND (0.09)		8082A		1	09/20/17 13:18		CI72028

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	105 %		30-150
Surrogate: Decachlorobiphenyl [2C]	117 %		30-150
Surrogate: Tetrachloro-m-xylene	91 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	93 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B6-MW
 Date Sampled: 09/14/17 15:20
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-02
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	09/19/17 14:58	C7I0299	CI71925
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	09/19/17 14:58	C7I0299	CI71925
1,2-Dichlorobenzene	ND (1.0)		8260B		1	09/19/17 14:58	C7I0299	CI71925
1,3-Dichlorobenzene	ND (1.0)		8260B		1	09/19/17 14:58	C7I0299	CI71925
1,4-Dichlorobenzene	ND (1.0)		8260B		1	09/19/17 14:58	C7I0299	CI71925
Chlorobenzene	ND (1.0)		8260B		1	09/19/17 14:58	C7I0299	CI71925

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	97 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	88 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	93 %		70-130
<i>Surrogate: Toluene-d8</i>	107 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7-MW
 Date Sampled: 09/14/17 14:20
 Percent Solids: N/A
 Initial Volume: 1070
 Final Volume: 1
 Extraction Method: 3510C

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-03
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: CAD
 Prepared: 9/20/17 9:57

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1221	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1232	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1242	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1248	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1254	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1260	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1262	ND (0.09)		8082A		1	09/20/17 13:37		CI72028
Aroclor 1268	ND (0.09)		8082A		1	09/20/17 13:37		CI72028

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	103 %		30-150
Surrogate: Decachlorobiphenyl [2C]	116 %		30-150
Surrogate: Tetrachloro-m-xylene	79 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	86 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B7-MW
 Date Sampled: 09/14/17 14:20
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-03
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	09/19/17 15:25	C7I0299	CI71925
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	09/19/17 15:25	C7I0299	CI71925
1,2-Dichlorobenzene	ND (1.0)		8260B		1	09/19/17 15:25	C7I0299	CI71925
1,3-Dichlorobenzene	ND (1.0)		8260B		1	09/19/17 15:25	C7I0299	CI71925
1,4-Dichlorobenzene	2.3 (1.0)		8260B		1	09/19/17 15:25	C7I0299	CI71925
Chlorobenzene	ND (1.0)		8260B		1	09/19/17 15:25	C7I0299	CI71925

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	96 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	90 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	90 %		70-130
<i>Surrogate: Toluene-d8</i>	106 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B8C-MW
 Date Sampled: 09/14/17 12:15
 Percent Solids: N/A
 Initial Volume: 1070
 Final Volume: 1
 Extraction Method: 3510C

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-04
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: CAD
 Prepared: 9/20/17 9:57

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1221	ND (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1232	ND (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1242 [2C]	0.47 (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1248	ND (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1254	1.85 (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1260	0.93 (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1262	ND (0.09)		8082A		1	09/20/17 13:56		CI72028
Aroclor 1268	ND (0.09)		8082A		1	09/20/17 13:56		CI72028

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	102 %		30-150
Surrogate: Decachlorobiphenyl [2C]	113 %		30-150
Surrogate: Tetrachloro-m-xylene	94 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	71 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21B8C-MW
 Date Sampled: 09/14/17 12:15
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-04
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	123 (10.0)		8260B		10	09/20/17 14:10	C7I0299	CI71925
1,2,4-Trichlorobenzene	493 (10.0)		8260B		10	09/20/17 14:10	C7I0299	CI71925
1,2-Dichlorobenzene	8.8 (1.0)		8260B		1	09/19/17 15:53	C7I0299	CI71925
1,3-Dichlorobenzene	60.9 (1.0)		8260B		1	09/19/17 15:53	C7I0299	CI71925
1,4-Dichlorobenzene	174 (10.0)		8260B		10	09/20/17 14:10	C7I0299	CI71925
Chlorobenzene	6.3 (1.0)		8260B		1	09/19/17 15:53	C7I0299	CI71925

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	99 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	90 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	95 %		70-130
<i>Surrogate: Toluene-d8</i>	105 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T2-MW
Date Sampled: 09/14/17 16:50
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1709472
ESS Laboratory Sample ID: 1709472-05
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 9/20/17 9:57

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1221	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1232	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1242	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1248	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1254 [2C]	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1260	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1262	ND (0.09)		8082A		1	09/20/17 14:16		CI72028
Aroclor 1268	ND (0.09)		8082A		1	09/20/17 14:16		CI72028

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	106 %		30-150
Surrogate: Decachlorobiphenyl [2C]	119 %		30-150
Surrogate: Tetrachloro-m-xylene	81 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	84 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2-MW
 Date Sampled: 09/14/17 16:50
 Percent Solids: N/A
 Initial Volume: 5
 Final Volume: 5
 Extraction Method: 5030B

ESS Laboratory Work Order: 1709472
 ESS Laboratory Sample ID: 1709472-05
 Sample Matrix: Ground Water
 Units: ug/L
 Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	ND (1.0)		8260B		1	09/20/17 12:26	C7I0318	CI72031
1,2,4-Trichlorobenzene	ND (1.0)		8260B		1	09/20/17 12:26	C7I0318	CI72031
1,2-Dichlorobenzene	ND (1.0)		8260B		1	09/20/17 12:26	C7I0318	CI72031
1,3-Dichlorobenzene	ND (1.0)		8260B		1	09/20/17 12:26	C7I0318	CI72031
1,4-Dichlorobenzene	ND (1.0)		8260B		1	09/20/17 12:26	C7I0318	CI72031
Chlorobenzene	ND (1.0)		8260B		1	09/20/17 12:26	C7I0318	CI72031

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	108 %		70-130
<i>Surrogate: 4-Bromofluorobenzene</i>	92 %		70-130
<i>Surrogate: Dibromofluoromethane</i>	104 %		70-130
<i>Surrogate: Toluene-d8</i>	105 %		70-130



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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5035/8260B Volatile Organic Compounds / Methanol

8082A Polychlorinated Biphenyls (PCB)

Batch CI72028 - 3510C

Blank

Aroclor 1016	ND	0.10	ug/L							
Aroclor 1016 [2C]	ND	0.10	ug/L							
Aroclor 1221	ND	0.10	ug/L							
Aroclor 1221 [2C]	ND	0.10	ug/L							
Aroclor 1232	ND	0.10	ug/L							
Aroclor 1232 [2C]	ND	0.10	ug/L							
Aroclor 1242	ND	0.10	ug/L							
Aroclor 1242 [2C]	ND	0.10	ug/L							
Aroclor 1248	ND	0.10	ug/L							
Aroclor 1248 [2C]	ND	0.10	ug/L							
Aroclor 1254	ND	0.10	ug/L							
Aroclor 1254 [2C]	ND	0.10	ug/L							
Aroclor 1260	ND	0.10	ug/L							
Aroclor 1260 [2C]	ND	0.10	ug/L							
Aroclor 1262	ND	0.10	ug/L							
Aroclor 1262 [2C]	ND	0.10	ug/L							
Aroclor 1268	ND	0.10	ug/L							
Aroclor 1268 [2C]	ND	0.10	ug/L							

Surrogate: Decachlorobiphenyl	0.0472		ug/L	0.05000		94	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0545		ug/L	0.05000		109	30-150			
Surrogate: Tetrachloro-m-xylene	0.0324		ug/L	0.05000		65	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0367		ug/L	0.05000		73	30-150			

LCS

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140			
Aroclor 1016 [2C]	1.05	0.10	ug/L	1.000		105	40-140			
Aroclor 1260	0.95	0.10	ug/L	1.000		95	40-140			
Aroclor 1260 [2C]	1.06	0.10	ug/L	1.000		106	40-140			

Surrogate: Decachlorobiphenyl	0.0530		ug/L	0.05000		106	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0595		ug/L	0.05000		119	30-150			
Surrogate: Tetrachloro-m-xylene	0.0482		ug/L	0.05000		96	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0498		ug/L	0.05000		100	30-150			

LCS Dup

Aroclor 1016	0.92	0.10	ug/L	1.000		92	40-140	0.6	20	
Aroclor 1016 [2C]	1.12	0.10	ug/L	1.000		112	40-140	6	20	
Aroclor 1260	0.95	0.10	ug/L	1.000		95	40-140	0.4	20	
Aroclor 1260 [2C]	1.07	0.10	ug/L	1.000		107	40-140	1	20	

Surrogate: Decachlorobiphenyl	0.0473		ug/L	0.05000		95	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0533		ug/L	0.05000		107	30-150			
Surrogate: Tetrachloro-m-xylene	0.0421		ug/L	0.05000		84	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0438		ug/L	0.05000		88	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CI71925 - 5030B

Blank

1,2,3-Trichlorobenzene	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,3-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
Chlorobenzene	ND	1.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	24.3		ug/L	25.00		97	70-130			
Surrogate: 4-Bromofluorobenzene	21.9		ug/L	25.00		88	70-130			
Surrogate: Dibromofluoromethane	22.8		ug/L	25.00		91	70-130			
Surrogate: Toluene-d8	25.9		ug/L	25.00		104	70-130			

LCS

1,2,3-Trichlorobenzene	9.3		ug/L	10.00		93	70-130			
1,2,4-Trichlorobenzene	9.2		ug/L	10.00		92	70-130			
1,2-Dichlorobenzene	9.5		ug/L	10.00		95	70-130			
1,3-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,4-Dichlorobenzene	9.6		ug/L	10.00		96	70-130			
Chlorobenzene	9.5		ug/L	10.00		95	70-130			
Surrogate: 1,2-Dichloroethane-d4	24.5		ug/L	25.00		98	70-130			
Surrogate: 4-Bromofluorobenzene	24.4		ug/L	25.00		98	70-130			
Surrogate: Dibromofluoromethane	24.5		ug/L	25.00		98	70-130			
Surrogate: Toluene-d8	26.1		ug/L	25.00		104	70-130			

LCS Dup

1,2,3-Trichlorobenzene	9.3		ug/L	10.00		93	70-130	0.2	25	
1,2,4-Trichlorobenzene	9.3		ug/L	10.00		93	70-130	1	25	
1,2-Dichlorobenzene	9.4		ug/L	10.00		94	70-130	0.5	25	
1,3-Dichlorobenzene	9.5		ug/L	10.00		95	70-130	2	25	
1,4-Dichlorobenzene	9.6		ug/L	10.00		96	70-130	0.3	25	
Chlorobenzene	9.5		ug/L	10.00		95	70-130	0	25	
Surrogate: 1,2-Dichloroethane-d4	24.1		ug/L	25.00		96	70-130			
Surrogate: 4-Bromofluorobenzene	25.0		ug/L	25.00		100	70-130			
Surrogate: Dibromofluoromethane	23.6		ug/L	25.00		95	70-130			
Surrogate: Toluene-d8	26.1		ug/L	25.00		104	70-130			

Batch CI72031 - 5030B

Blank

1,2,3-Trichlorobenzene	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,3-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
Chlorobenzene	ND	1.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	26.9		ug/L	25.00		108	70-130			
Surrogate: 4-Bromofluorobenzene	23.2		ug/L	25.00		93	70-130			
Surrogate: Dibromofluoromethane	26.2		ug/L	25.00		105	70-130			
Surrogate: Toluene-d8	26.6		ug/L	25.00		106	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CI72031 - 5030B

LCS

1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2,4-Trichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2-Dichlorobenzene	9.7		ug/L	10.00		97	70-130			
1,3-Dichlorobenzene	10.1		ug/L	10.00		101	70-130			
1,4-Dichlorobenzene	10.2		ug/L	10.00		102	70-130			
Chlorobenzene	10.0		ug/L	10.00		100	70-130			
Surrogate: 1,2-Dichloroethane-d4	26.7		ug/L	25.00		107	70-130			
Surrogate: 4-Bromofluorobenzene	22.3		ug/L	25.00		89	70-130			
Surrogate: Dibromofluoromethane	26.8		ug/L	25.00		107	70-130			
Surrogate: Toluene-d8	25.4		ug/L	25.00		102	70-130			

LCS Dup

1,2,3-Trichlorobenzene	9.6		ug/L	10.00		96	70-130	6	25	
1,2,4-Trichlorobenzene	9.5		ug/L	10.00		95	70-130	7	25	
1,2-Dichlorobenzene	10.1		ug/L	10.00		101	70-130	4	25	
1,3-Dichlorobenzene	9.8		ug/L	10.00		98	70-130	3	25	
1,4-Dichlorobenzene	9.9		ug/L	10.00		99	70-130	2	25	
Chlorobenzene	9.9		ug/L	10.00		99	70-130	1	25	
Surrogate: 1,2-Dichloroethane-d4	27.5		ug/L	25.00		110	70-130			
Surrogate: 4-Bromofluorobenzene	23.4		ug/L	25.00		94	70-130			
Surrogate: Dibromofluoromethane	26.6		ug/L	25.00		106	70-130			
Surrogate: Toluene-d8	25.5		ug/L	25.00		102	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

Notes and Definitions

- U Analyte included in the analysis, but not detected
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709472

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1709472

Shipped/Delivered Via: ESS Courier

Date Received: 9/18/2017

Project Due Date: 9/25/2017

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 4.2 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA NA
10. Were any analyses received outside of hold time? Yes No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	164382	Yes	NA	Yes	1L Amber - Unpres	NP	
01	164383	Yes	NA	Yes	1L Amber - Unpres	NP	
01	164396	Yes	No	Yes	VOA Vial - HCl	HCl	
01	164397	Yes	No	Yes	VOA Vial - HCl	HCl	
01	164398	Yes	No	Yes	VOA Vial - HCl	HCl	
02	164380	Yes	NA	Yes	1L Amber - Unpres	NP	
02	164381	Yes	NA	Yes	1L Amber - Unpres	NP	
02	164393	Yes	No	Yes	VOA Vial - HCl	HCl	
02	164394	Yes	No	Yes	VOA Vial - HCl	HCl	
02	164395	Yes	No	Yes	VOA Vial - HCl	HCl	
03	164378	Yes	NA	Yes	1L Amber - Unpres	NP	
03	164379	Yes	NA	Yes	1L Amber - Unpres	NP	
03	164390	Yes	No	Yes	VOA Vial - HCl	HCl	
03	164391	Yes	No	Yes	VOA Vial - HCl	HCl	
03	164392	Yes	No	Yes	VOA Vial - HCl	HCl	
04	164376	Yes	NA	Yes	1L Amber - Unpres	NP	
04	164377	Yes	NA	Yes	1L Amber - Unpres	NP	
04	164387	Yes	No	Yes	VOA Vial - HCl	HCl	
04	164388	Yes	No	Yes	VOA Vial - HCl	HCl	
04	164389	Yes	No	Yes	VOA Vial - HCl	HCl	
05	164374	Yes	NA	Yes	1L Amber - Unpres	NP	
05	164375	Yes	NA	Yes	1L Amber - Unpres	NP	
05	164384	Yes	No	Yes	VOA Vial - HCl	HCl	
05	164385	Yes	No	Yes	VOA Vial - HCl	HCl	

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1709472

05 164386 Yes No Yes

Date Received: 9/18/2017

VOA Vial - HCl

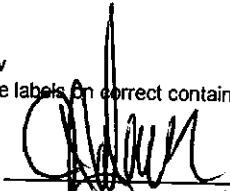
HCl

2nd Review

Are barcode labels on correct containers?

Yes / No

Completed
By:



Date & Time:

9/18/17 1817

Reviewed
By:



Date & Time:

9/18/17 1913

Delivered
By:



9/18/17 1913

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # **1709472**

Turn Time **5-Day** Rush
 Regulatory State **MA**

Reporting Limits **S-1**

Is this project for any of the following?:
 OCT RCP MA MCP ORGP

Electronic Deliverables Limit Checker Standard Excel
 Other (Please Specify ->) **PDF**

Company Name **GZA Geo Environmental, Inc** Project # **15442.76** Project Name **Mystic Station**
 Contact Person **Jason Chrzanowski** Address **249 Vanderbilt Avenue**
 City **Norwood** State **MA** Zip Code **02062** PO #
 Telephone Number **781-278-5816** FAX Number Email Address **Jason.chrzanowski@gza.com**

Analysis	8260 B (VOC)	8082 (PCB)	8100 M (TPH)	8270 C (SVOC)	6010 B - As, Cd, Cr, Pb, Hg	9045 D (PH)	2510 B (Conductivity)
	X	X					
	X	X					
	X	X					
	X	X					
	X	X	X	X	X	X	X

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID
1	9/14/17	1240	Grab	GW	T21B5-MW
2		1520			T21B6-MW
3		1420			T21B7-MW
4		1215			T21B8C-MW
5		1650			T2-MW
	9/14/17	1715	Grab	GW	Purge Water Drum

Container Type:	AC-Air Cassette	AG-Amber Glass	B-BOD Bottle	C-Cubitainer	G - Glass	O-Other	P-Poly	S-Sterile	V-Vial	V	AG	AG	AG	P	P	P		
Container Volume:	1-100 mL	2-2.5 gal	3-250 mL	4-300 mL	5-500 mL	6-1L	7-VOA	8-2 oz	9-4 oz	10-8 oz	11-Other*	7	46	46	3	3	3	
Preservation Code:	1-Non Preserved	2-HCl	3-H2SO4	4-HNO3	5-NaOH	6-Methanol	7-Na2S2O3	8-ZnAce, NaOH	9-NH4Cl	10-DI H2O	11-Other*	2	1	1	1	4	1	1
Number of Containers per Sample:	3	2	1	2	1	1	1	1	1	1	1							

Laboratory Use Only
 Cooler Present:
 Seals Intact:
 Cooler Temperature: **42 °C 1L MC**

Sampled by: **Maria Firostenberg**
 Comments: **pH and conductivity in same bottle**
 Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) Maria Firostenberg 9/14/17 22:15	Received By: (Signature, Date & Time) [Signature] 9/18/17 11:40	Relinquished By: (Signature, Date & Time) [Signature] 9/18/17 11:40	Received By: (Signature, Date & Time) [Signature] 9/18/17 11:46
Relinquished by: (Signature, Date & Time) [Signature] 9/18/17 1638	Received By: (Signature, Date & Time) [Signature] 9/18/17 1803	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1709292

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.



Laurel Stoddard
Laboratory Director

REVIEWED

By ESS Laboratory at 12:16 pm, Sep 20, 2017

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

SAMPLE RECEIPT

The following samples were received on September 13, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Data Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

<u>Lab Number</u>	<u>Sample Name</u>	<u>Matrix</u>	<u>Analysis</u>
1709292-01	T1N (0-2')	Soil	8082A
1709292-02	T1S (0-2')	Soil	8082A
1709292-03	T1E (0-2')	Soil	8082A
1709292-04	T2N (0-2')	Soil	8082A
1709292-05	T2S (0-2')	Soil	8082A
1709292-06	T2E (0-2')	Soil	8082A
1709292-07	T21N (0-2')	Soil	8082A
1709292-08	T21S (0-2')	Soil	8082A



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

PROJECT NARRATIVE

8082A Polychlorinated Biphenyls (PCB)

- 1709292-03 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)
- 1709292-04 [Surrogate recovery\(ies\) diluted below the MRL \(SD\).](#)
 Decachlorobiphenyl (% @ 30-150%), Decachlorobiphenyl [2C] (% @ 30-150%), Tetrachloro-m-xylene (% @ 30-150%), Tetrachloro-m-xylene [2C] (% @ 30-150%)

No other observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

- [Definitions of Quality Control Parameters](#)
- [Semivolatile Organics Internal Standard Information](#)
- [Semivolatile Organics Surrogate Information](#)
- [Volatile Organics Internal Standard Information](#)
- [Volatile Organics Surrogate Information](#)
- [EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1709292-01 through 1709292-08**

Matrices: () Ground Water/Surface Water Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|---------------------------------------------------|----------------------------------------------------|------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> 8260 VOC
CAM II A | <input type="checkbox"/> 7470/7471 Hg
CAM III B | <input type="checkbox"/> MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | <input type="checkbox"/> 9014 Total
Cyanide/PAC
CAM VI A | <input type="checkbox"/> 6860 Perchlorate
CAM VIII B |
| <input type="checkbox"/> 8270 SVOC
CAM II B | <input type="checkbox"/> 7010 Metals
CAM III C | <input type="checkbox"/> MassDEP VPH
(GC/MS)
CAM IV B | <input type="checkbox"/> 8081 Pesticides
CAM V C | <input type="checkbox"/> 7196 Hex Cr
CAM VI B | <input type="checkbox"/> MassDEP APH
CAM IX A |
| <input type="checkbox"/> 6010 Metals
CAM III A | <input type="checkbox"/> 6020 Metals
CAM III D | <input type="checkbox"/> MassDEP EPH
CAM IV B | <input type="checkbox"/> 8151 Herbicides
CAM V C | <input type="checkbox"/> Explosives
CAM VIII A | <input type="checkbox"/> TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- 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 No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
 b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.*
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes () No *
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes No ()*

**All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
 Printed Name: Laurel Stoddard

Date: September 20, 2017
 Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1N (0-2')
 Date Sampled: 09/13/17 07:45
 Percent Solids: 98
 Initial Volume: 19
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
 ESS Laboratory Sample ID: 1709292-01
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/14/17 15:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1221	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1232	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1242	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1248	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1254	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1260	2.9 (0.3)		8082A		5	09/16/17 13:35		CI71408
Aroclor 1262	ND (0.05)		8082A		1	09/15/17 14:30		CI71408
Aroclor 1268	ND (0.05)		8082A		1	09/15/17 14:30		CI71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	88 %		30-150
Surrogate: Decachlorobiphenyl [2C]	91 %		30-150
Surrogate: Tetrachloro-m-xylene	78 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	88 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1S (0-2')
 Date Sampled: 09/13/17 08:06
 Percent Solids: 96
 Initial Volume: 19.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
 ESS Laboratory Sample ID: 1709292-02
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/14/17 15:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1221	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1232	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1242	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1248	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1254	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1260	1.8 (0.3)		8082A		5	09/16/17 13:54		CI71408
Aroclor 1262	ND (0.05)		8082A		1	09/15/17 14:49		CI71408
Aroclor 1268	ND (0.05)		8082A		1	09/15/17 14:49		CI71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	63 %		30-150
Surrogate: Decachlorobiphenyl [2C]	75 %		30-150
Surrogate: Tetrachloro-m-xylene	63 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	71 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T1E (0-2')
 Date Sampled: 09/13/17 08:22
 Percent Solids: 95
 Initial Volume: 19.6
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
 ESS Laboratory Sample ID: 1709292-03
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/14/17 15:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1221	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1232	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1242	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1248	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1254	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1260 [2C]	192 (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1262	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408
Aroclor 1268	ND (53.6)		8082A		1000	09/16/17 14:14		CI71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T2N (0-2')
Date Sampled: 09/13/17 08:40
Percent Solids: 97
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
ESS Laboratory Sample ID: 1709292-04
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/14/17 15:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1221	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1232	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1242	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1248	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1254	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1260	83.8 (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1262	ND (10.3)		8082A		200	09/16/17 14:33		CI71408
Aroclor 1268	ND (10.3)		8082A		200	09/16/17 14:33		CI71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	%	SD	30-150
Surrogate: Decachlorobiphenyl [2C]	%	SD	30-150
Surrogate: Tetrachloro-m-xylene	%	SD	30-150
Surrogate: Tetrachloro-m-xylene [2C]	%	SD	30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2S (0-2')
 Date Sampled: 09/13/17 09:01
 Percent Solids: 96
 Initial Volume: 19.5
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
 ESS Laboratory Sample ID: 1709292-05
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/14/17 15:25

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1221	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1232	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1242	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1248	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1254	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1260	0.5 (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1262	ND (0.05)		8082A		1	09/15/17 15:47		CI71408
Aroclor 1268	ND (0.05)		8082A		1	09/15/17 15:47		CI71408

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	88 %		30-150
Surrogate: Decachlorobiphenyl [2C]	85 %		30-150
Surrogate: Tetrachloro-m-xylene	82 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T2E (0-2')
 Date Sampled: 09/13/17 09:15
 Percent Solids: 96
 Initial Volume: 20.7
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
 ESS Laboratory Sample ID: 1709292-06
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/14/17 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1221	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1232	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1242	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1248	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1254	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1260	0.7 (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1262	ND (0.05)		8082A		1	09/15/17 12:01		CI71409
Aroclor 1268	ND (0.05)		8082A		1	09/15/17 12:01		CI71409

	<u>%Recovery</u>	<u>Qualifier</u>	<u>Limits</u>
Surrogate: Decachlorobiphenyl	79 %		30-150
Surrogate: Decachlorobiphenyl [2C]	90 %		30-150
Surrogate: Tetrachloro-m-xylene	76 %		30-150
Surrogate: Tetrachloro-m-xylene [2C]	89 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T21N (0-2')
Date Sampled: 09/13/17 09:30
Percent Solids: 96
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
ESS Laboratory Sample ID: 1709292-07
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 9/14/17 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1221	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1232	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1242	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1248	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1254	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1260 [2C]	2.8 (0.3)		8082A		5	09/16/17 14:52		CI71409
Aroclor 1262	ND (0.05)		8082A		1	09/15/17 12:18		CI71409
Aroclor 1268	ND (0.05)		8082A		1	09/15/17 12:18		CI71409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	95 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	72 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	98 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
 Client Project ID: Mystic Station
 Client Sample ID: T21S (0-2')
 Date Sampled: 09/13/17 09:45
 Percent Solids: 96
 Initial Volume: 19.8
 Final Volume: 10
 Extraction Method: 3540C

ESS Laboratory Work Order: 1709292
 ESS Laboratory Sample ID: 1709292-08
 Sample Matrix: Soil
 Units: mg/kg dry
 Analyst: CAD
 Prepared: 9/14/17 16:00

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1221	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1232	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1242	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1248	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1254	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1260	2.7 (0.3)		8082A		5	09/16/17 15:12		CI71409
Aroclor 1262	ND (0.05)		8082A		1	09/15/17 12:40		CI71409
Aroclor 1268	ND (0.05)		8082A		1	09/15/17 12:40		CI71409

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	78 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	94 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	77 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	94 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI71408 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0200		mg/kg wet	0.02500		80	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0199		mg/kg wet	0.02500		80	30-150			
Surrogate: Tetrachloro-m-xylene	0.0185		mg/kg wet	0.02500		74	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0209		mg/kg wet	0.02500		84	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140			

Surrogate: Decachlorobiphenyl	0.0214		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0211		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0206		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0206		mg/kg wet	0.02500		82	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		96	40-140	0.1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	0.3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140	2	30	

Surrogate: Decachlorobiphenyl	0.0216		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0212		mg/kg wet	0.02500		85	30-150			
Surrogate: Tetrachloro-m-xylene	0.0197		mg/kg wet	0.02500		79	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0197		mg/kg wet	0.02500		79	30-150			

Batch CI71409 - 3540C



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CI71409 - 3540C

Blank

Aroclor 1016	ND	0.05	mg/kg wet							
Aroclor 1016 [2C]	ND	0.05	mg/kg wet							
Aroclor 1221	ND	0.05	mg/kg wet							
Aroclor 1221 [2C]	ND	0.05	mg/kg wet							
Aroclor 1232	ND	0.05	mg/kg wet							
Aroclor 1232 [2C]	ND	0.05	mg/kg wet							
Aroclor 1242	ND	0.05	mg/kg wet							
Aroclor 1242 [2C]	ND	0.05	mg/kg wet							
Aroclor 1248	ND	0.05	mg/kg wet							
Aroclor 1248 [2C]	ND	0.05	mg/kg wet							
Aroclor 1254	ND	0.05	mg/kg wet							
Aroclor 1254 [2C]	ND	0.05	mg/kg wet							
Aroclor 1260	ND	0.05	mg/kg wet							
Aroclor 1260 [2C]	ND	0.05	mg/kg wet							
Aroclor 1262	ND	0.05	mg/kg wet							
Aroclor 1262 [2C]	ND	0.05	mg/kg wet							
Aroclor 1268	ND	0.05	mg/kg wet							
Aroclor 1268 [2C]	ND	0.05	mg/kg wet							

Surrogate: Decachlorobiphenyl	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0244		mg/kg wet	0.02500		98	30-150			
Surrogate: Tetrachloro-m-xylene	0.0206		mg/kg wet	0.02500		82	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0215		mg/kg wet	0.02500		86	30-150			

LCS

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140			

Surrogate: Decachlorobiphenyl	0.0217		mg/kg wet	0.02500		87	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0245		mg/kg wet	0.02500		98	30-150			
Surrogate: Tetrachloro-m-xylene	0.0209		mg/kg wet	0.02500		83	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0210		mg/kg wet	0.02500		84	30-150			

LCS Dup

Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		103	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		102	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140	3	30	

Surrogate: Decachlorobiphenyl	0.0224		mg/kg wet	0.02500		90	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0251		mg/kg wet	0.02500		100	30-150			
Surrogate: Tetrachloro-m-xylene	0.0215		mg/kg wet	0.02500		86	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0212		mg/kg wet	0.02500		85	30-150			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

Notes and Definitions

- U Analyte included in the analysis, but not detected
- SD Surrogate recovery(ies) diluted below the MRL (SD).
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1709292

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutofStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1709292

Date Received: 9/13/2017

Shipped/Delivered Via: ESS Courier

Project Due Date: 9/20/2017

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA

6. Does COC match bottles? Yes

2. Were custody seals present? No

7. Is COC complete and correct? Yes

3. Is radiation count <100 CPM? Yes

8. Were samples received intact? Yes

4. Is a Cooler Present? Yes
Temp: 0.8 Iced with: Ice

9. Were labs informed about **short holds & rushes**? Yes / No NA

5. Was COC signed and dated by client? Yes

10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes / No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

14. Was there a need to contact Project Manager? Yes / No
a. Was there a need to contact the client? Yes / No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	162401	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
02	162400	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
03	162399	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
04	162398	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
05	162397	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
06	162396	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
07	162395	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
08	162394	Yes	NA	Yes	4 oz. Jar - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: [Signature] Date & Time: 9/13/17 1735
Reviewed By: [Signature] Date & Time: 9/13/17 1813
Delivered By: [Signature] Date & Time: 9/13/17 1813

ESS Laboratory

Division of Thielsch Engineering, Inc.
 185 Frances Avenue, Cranston RI 02910
 Tel. (401) 461-7181 Fax (401) 461-4486
 www.esslaboratory.com

CHAIN OF CUSTODY

Turn Time 5-Day Rush
 Regulatory State Mass
 Is this project for any of the following?:
 OCT RCP MA MCP ORGP

ESS Lab # 1709292
 Reporting Limits S-1
 Electronic Limit Checker Standard Excel
 Deliverables Other (Please Specify →)

Company Name GZA Project # 15442.76 Project Name Mystic Station
 Contact Person Jason Chrzanoski Address 249 Vanderbilt Av
 City Norwood State Ma Zip Code 02062 PO #
 Telephone Number 781 228 3200 FAX Number Email Address jason.chrzanoski@gza.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis																		
1	9-13-17	0745	G	S	T1N (0-2')	X																		
2	9-13-17	0806	G	S	T1S (0-2')	X																		
3	9-13-17	0822	G	S	T1E (0-2')	X																		
4		0840	G	S	T2N (0-2')	X																		
5		0901	C	S	T2S (0-2')	X																		
6		0915	C	S	T2E (0-2')	X																		
7		0930	C	S	T21N (0-2')	X																		
8	9-13-17	0945	C	S	T21S (0-2')	X																		

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G-Glass O-Other P-Poly S-Sterile V-Vial
 Container Volume: 1-100 mL 2-2.5 gal 3-250 mL 4-300 mL 5-500 mL 6-1L 7-VOA 8-2 oz 9-4 oz 10-8 oz 11-Other*
 Preservation Code: 1-Non Preserved 2-HCl 3-H2SO4 4-HNO3 5-NaOH 6-Methanol 7-Na2S2O3 8-ZnAce, NaOH 9-NH4Cl 10-DI H2O 11-Other*
 Number of Containers per Sample:

Laboratory Use Only
 Cooler Present:
 Seals Intact:
 Cooler Temperature: 0.8 Ice

Sampled by: Andy Sarge
 Comments: Please specify "Other" preservative and containers types in this space

Relinquished by: (Signature, Date & Time) <u>Col M 9-13-17 11:11</u>	Received By: (Signature, Date & Time) <u>[Signature] 9/13/17 12:01</u>	Relinquished By: (Signature, Date & Time) <u>[Signature] 9/13/17 16:37</u>	Received By: (Signature, Date & Time) <u>[Signature] 9/13/17 17:05</u>
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CERTIFICATE OF ANALYSIS

Jason Chrzanowski
GZA GeoEnvironmental, Inc.
249 Vanderbilt Avenue
Norwood, MA 02062

RE: Mystic Station (01.0015442.76)
ESS Laboratory Work Order Number: 1710616

This signed Certificate of Analysis is our approved release of your analytical results. These results are only representative of sample aliquots received at the laboratory. ESS Laboratory expects its clients to follow all regulatory sampling guidelines. Beginning with this page, the entire report has been paginated. This report should not be copied except in full without the approval of the laboratory. Samples will be disposed of thirty days after the final report has been delivered. If you have any questions or concerns, please feel free to call our Customer Service Department.

Laurel Stoddard
Laboratory Director

REVIEWED
By ESS Laboratory at 12:24 pm, Oct 31, 2017

Analytical Summary

The project as described above has been analyzed in accordance with the ESS Quality Assurance Plan. This plan utilizes the following methodologies: US EPA SW-846, US EPA Methods for Chemical Analysis of Water and Wastes per 40 CFR Part 136, APHA Standard Methods for the Examination of Water and Wastewater, American Society for Testing and Materials (ASTM), and other recognized methodologies. The analyses with these noted observations are in conformance to the Quality Assurance Plan. In chromatographic analysis, manual integration is frequently used instead of automated integration because it produces more accurate results.

The test results present in this report are in compliance with TNI and relative state standards, and/or client Quality Assurance Project Plans (QAPP). The laboratory has reviewed the following: Sample Preservations, Hold Times, Initial Calibrations, Continuing Calibrations, Method Blanks, Blank Spikes, Blank Spike Duplicates, Duplicates, Matrix Spikes, Matrix Spike Duplicates, Surrogates and Internal Standards. Any results which were found to be outside of the recommended ranges stated in our SOPs will be noted in the Project Narrative.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

SAMPLE RECEIPT

The following samples were received on October 24, 2017 for the analyses specified on the enclosed Chain of Custody Record.

To achieve CAM compliance for MCP data, ESS Laboratory has reviewed all QA/QC Requirements and Performance Standards listed in each method. Holding times and preservation have also been reviewed. All CAM requirements have been performed and achieved unless noted in the project narrative.

Each method has been set-up in the laboratory to reach required MCP standards. The methods for aqueous VOA and Soil Methanol VOA have known limitations for certain analytes. The regulatory standards may not be achieved due to these limitations. In addition, for all methods, matrix interferences, dilutions, and %Solids may elevate method reporting limits above regulatory standards. ESS Laboratory can provide, upon request, a Limit Checker (regulatory standard comparison spreadsheet) electronic deliverable which will highlight these exceedances.

Question I: All samples for VOC were analyzed for a subset of the required MCP list per the client's request.

Lab Number	Sample Name	Matrix	Analysis
1710616-01	T21B8C-MW-10-24-17	Ground Water	8082A, 8260B



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

PROJECT NARRATIVE

No unusual observations noted.

End of Project Narrative.

DATA USABILITY LINKS

To ensure you are viewing the most current version of the documents below, please clear your internet cookies for www.ESSLaboratory.com. Consult your IT Support personnel for information on how to clear your internet cookies.

[Definitions of Quality Control Parameters](#)

[Semivolatile Organics Internal Standard Information](#)

[Semivolatile Organics Surrogate Information](#)

[Volatile Organics Internal Standard Information](#)

[Volatile Organics Surrogate Information](#)

[EPH and VPH Alkane Lists](#)



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

MassDEP Analytical Protocol Certification Form

MADEP RTN: _____

This form provides certification for the following data set: **1710616-01**

Matrices: Ground Water/Surface Water () Soil/Sediment () Drinking Water () Air () Other: _____

CAM Protocol (check all that apply below):

- | | | | | | |
|----------------------------------------------------------|-------------------------------|---------------------------------------------|---------------------------------------------------------|-------------------------------------------|------------------------------------|
| <input checked="" type="checkbox"/> 8260 VOC
CAM II A | () 7470/7471 Hg
CAM III B | () MassDEP VPH
(GC/PID/FID)
CAM IV A | <input checked="" type="checkbox"/> 8082 PCB
CAM V A | () 9014 Total
Cyanide/PAC
CAM VI A | () 6860 Perchlorate
CAM VIII B |
| () 8270 SVOC
CAM II B | () 7010 Metals
CAM III C | () MassDEP VPH
(GC/MS)
CAM IV B | () 8081 Pesticides
CAM V C | () 7196 Hex Cr
CAM VI B | () MassDEP APH
CAM IX A |
| () 6010 Metals
CAM III A | () 6020 Metals
CAM III D | () MassDEP EPH
CAM IV B | () 8151 Herbicides
CAM V C | () Explosives
CAM VIII A | () TO-15 VOC
CAM IX B |

Affirmative responses to questions A through F are 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 No ()
- B Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed? Yes No ()
- 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 No ()
- D Does the laboratory report comply with all the reporting requirements specified in the CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"? Yes No ()
- E VPH, EPH, APH and TO-15 only: a. Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). Yes () No ()
b. APH and TO-15 Methods only: Was the complete analyte list reported for each method? Yes () No ()
- 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 No ()

Responses to Questions G, H and I below are required for "Presumptive Certainty" status

- G Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocols(s)? Yes No ()*
- Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.**
- H Were all QC performance standards specified in the CAM protocol(s) achieved? Yes No ()*
- I Were results reported for the complete analyte list specified in the selected CAM protocol(s)? Yes () No *

**All negative responses must be addressed in an attached laboratory 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: Laurel Stoddard
Printed Name: Laurel Stoddard

Date: October 30, 2017
Position: Laboratory Director



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

CURRENT SW-846 METHODOLOGY VERSIONS

Analytical Methods

- 1010A - Flashpoint
- 6010C - ICP
- 6020A - ICP MS
- 7010 - Graphite Furnace
- 7196A - Hexavalent Chromium
- 7470A - Aqueous Mercury
- 7471B - Solid Mercury
- 8011 - EDB/DBCP/TCP
- 8015C - GRO/DRO
- 8081B - Pesticides
- 8082A - PCB
- 8100M - TPH
- 8151A - Herbicides
- 8260B - VOA
- 8270D - SVOA
- 8270D SIM - SVOA Low Level
- 9014 - Cyanide
- 9038 - Sulfate
- 9040C - Aqueous pH
- 9045D - Solid pH (Corrosivity)
- 9050A - Specific Conductance
- 9056A - Anions (IC)
- 9060A - TOC
- 9095B - Paint Filter
- MADEP 04-1.1 - EPH / VPH

Prep Methods

- 3005A - Aqueous ICP Digestion
- 3020A - Aqueous Graphite Furnace / ICP MS Digestion
- 3050B - Solid ICP / Graphite Furnace / ICP MS Digestion
- 3060A - Solid Hexavalent Chromium Digestion
- 3510C - Separatory Funnel Extraction
- 3520C - Liquid / Liquid Extraction
- 3540C - Manual Soxhlet Extraction
- 3541 - Automated Soxhlet Extraction
- 3546 - Microwave Extraction
- 3580A - Waste Dilution
- 5030B - Aqueous Purge and Trap
- 5030C - Aqueous Purge and Trap
- 5035 - Solid Purge and Trap

SW846 Reactivity Methods 7.3.3.2 (Reactive Cyanide) and 7.3.4.1 (Reactive Sulfide) have been withdrawn by EPA. These methods are reported per client request and are not NELAP accredited.



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T21B8C-MW-10-24-17
Date Sampled: 10/24/17 12:48
Percent Solids: N/A
Initial Volume: 1070
Final Volume: 1
Extraction Method: 3510C

ESS Laboratory Work Order: 1710616
ESS Laboratory Sample ID: 1710616-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: CAD
Prepared: 10/26/17 10:51

8082A Polychlorinated Biphenyls (PCB)

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
Aroclor 1016	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1221	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1232	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1242	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1248	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1254	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1260	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1262	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609
Aroclor 1268	ND (0.09)		8082A		1	10/26/17 22:28		CJ72609

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: Decachlorobiphenyl</i>	94 %		30-150
<i>Surrogate: Decachlorobiphenyl [2C]</i>	94 %		30-150
<i>Surrogate: Tetrachloro-m-xylene</i>	64 %		30-150
<i>Surrogate: Tetrachloro-m-xylene [2C]</i>	68 %		30-150



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station
Client Sample ID: T21B8C-MW-10-24-17
Date Sampled: 10/24/17 12:48
Percent Solids: N/A
Initial Volume: 5
Final Volume: 5
Extraction Method: 5030B

ESS Laboratory Work Order: 1710616
ESS Laboratory Sample ID: 1710616-01
Sample Matrix: Ground Water
Units: ug/L
Analyst: MD

8260B Volatile Organic Compounds

<u>Analyte</u>	<u>Results (MRL)</u>	<u>MDL</u>	<u>Method</u>	<u>Limit</u>	<u>DF</u>	<u>Analyzed</u>	<u>Sequence</u>	<u>Batch</u>
1,2,3-Trichlorobenzene	147 (10.0)		8260B		10	10/30/17 12:35	C7J0394	CJ72536
1,2,4-Trichlorobenzene	475 (10.0)		8260B		10	10/30/17 12:35	C7J0394	CJ72536
1,2-Dichlorobenzene	4.2 (1.0)		8260B		1	10/25/17 15:01	C7J0394	CJ72536
1,3-Dichlorobenzene	45.7 (1.0)		8260B		1	10/25/17 15:01	C7J0394	CJ72536
1,4-Dichlorobenzene	231 (10.0)		8260B		10	10/30/17 12:35	C7J0394	CJ72536
Chlorobenzene	7.4 (1.0)		8260B		1	10/25/17 15:01	C7J0394	CJ72536

	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>111 %</i>		<i>70-130</i>
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>92 %</i>		<i>70-130</i>
<i>Surrogate: Dibromofluoromethane</i>	<i>116 %</i>		<i>70-130</i>
<i>Surrogate: Toluene-d8</i>	<i>102 %</i>		<i>70-130</i>



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8082A Polychlorinated Biphenyls (PCB)

Batch CJ72609 - 3510C

Blank

Aroclor 1016	ND	0.10	ug/L							
Aroclor 1016 [2C]	ND	0.10	ug/L							
Aroclor 1221	ND	0.10	ug/L							
Aroclor 1221 [2C]	ND	0.10	ug/L							
Aroclor 1232	ND	0.10	ug/L							
Aroclor 1232 [2C]	ND	0.10	ug/L							
Aroclor 1242	ND	0.10	ug/L							
Aroclor 1242 [2C]	ND	0.10	ug/L							
Aroclor 1248	ND	0.10	ug/L							
Aroclor 1248 [2C]	ND	0.10	ug/L							
Aroclor 1254	ND	0.10	ug/L							
Aroclor 1254 [2C]	ND	0.10	ug/L							
Aroclor 1260	ND	0.10	ug/L							
Aroclor 1260 [2C]	ND	0.10	ug/L							
Aroclor 1262	ND	0.10	ug/L							
Aroclor 1262 [2C]	ND	0.10	ug/L							
Aroclor 1268	ND	0.10	ug/L							
Aroclor 1268 [2C]	ND	0.10	ug/L							
<hr/>										
Surrogate: Decachlorobiphenyl	0.0456		ug/L	0.05000		91	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0449		ug/L	0.05000		90	30-150			
Surrogate: Tetrachloro-m-xylene	0.0350		ug/L	0.05000		70	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0394		ug/L	0.05000		79	30-150			

LCS

Aroclor 1016	0.87	0.10	ug/L	1.000		87	40-140			
Aroclor 1016 [2C]	0.86	0.10	ug/L	1.000		86	40-140			
Aroclor 1260	0.85	0.10	ug/L	1.000		85	40-140			
Aroclor 1260 [2C]	0.83	0.10	ug/L	1.000		83	40-140			
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Surrogate: Decachlorobiphenyl	0.0485		ug/L	0.05000		97	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0483		ug/L	0.05000		97	30-150			
Surrogate: Tetrachloro-m-xylene	0.0348		ug/L	0.05000		70	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0371		ug/L	0.05000		74	30-150			

LCS Dup

Aroclor 1016	0.96	0.10	ug/L	1.000		96	40-140	10	20	
Aroclor 1016 [2C]	0.93	0.10	ug/L	1.000		93	40-140	9	20	
Aroclor 1260	0.96	0.10	ug/L	1.000		96	40-140	12	20	
Aroclor 1260 [2C]	0.94	0.10	ug/L	1.000		94	40-140	12	20	
<hr/>										
Surrogate: Decachlorobiphenyl	0.0494		ug/L	0.05000		99	30-150			
Surrogate: Decachlorobiphenyl [2C]	0.0492		ug/L	0.05000		98	30-150			
Surrogate: Tetrachloro-m-xylene	0.0404		ug/L	0.05000		81	30-150			
Surrogate: Tetrachloro-m-xylene [2C]	0.0402		ug/L	0.05000		80	30-150			

8260B Volatile Organic Compounds



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
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8260B Volatile Organic Compounds

Batch CJ72536 - 50308

Blank

1,2,3-Trichlorobenzene	ND	1.0	ug/L							
1,2,4-Trichlorobenzene	ND	1.0	ug/L							
1,2-Dichlorobenzene	ND	1.0	ug/L							
1,3-Dichlorobenzene	ND	1.0	ug/L							
1,4-Dichlorobenzene	ND	1.0	ug/L							
Chlorobenzene	ND	1.0	ug/L							
Surrogate: 1,2-Dichloroethane-d4	25.7		ug/L	25.00		103	70-130			
Surrogate: 4-Bromofluorobenzene	22.4		ug/L	25.00		89	70-130			
Surrogate: Dibromofluoromethane	27.4		ug/L	25.00		110	70-130			
Surrogate: Toluene-d8	24.8		ug/L	25.00		99	70-130			

LCS

1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130			
1,2,4-Trichlorobenzene	9.9		ug/L	10.00		99	70-130			
1,2-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,3-Dichlorobenzene	10.6		ug/L	10.00		106	70-130			
1,4-Dichlorobenzene	10.9		ug/L	10.00		109	70-130			
Chlorobenzene	10.5		ug/L	10.00		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	29.6		ug/L	25.00		118	70-130			
Surrogate: 4-Bromofluorobenzene	26.8		ug/L	25.00		107	70-130			
Surrogate: Dibromofluoromethane	31.2		ug/L	25.00		125	70-130			
Surrogate: Toluene-d8	26.3		ug/L	25.00		105	70-130			

LCS Dup

1,2,3-Trichlorobenzene	10.2		ug/L	10.00		102	70-130	0.2	25	
1,2,4-Trichlorobenzene	9.4		ug/L	10.00		94	70-130	5	25	
1,2-Dichlorobenzene	10.4		ug/L	10.00		104	70-130	2	25	
1,3-Dichlorobenzene	10.9		ug/L	10.00		109	70-130	4	25	
1,4-Dichlorobenzene	11.0		ug/L	10.00		110	70-130	0.6	25	
Chlorobenzene	10.0		ug/L	10.00		100	70-130	4	25	
Surrogate: 1,2-Dichloroethane-d4	28.3		ug/L	25.00		113	70-130			
Surrogate: 4-Bromofluorobenzene	25.8		ug/L	25.00		103	70-130			
Surrogate: Dibromofluoromethane	30.6		ug/L	25.00		122	70-130			
Surrogate: Toluene-d8	25.0		ug/L	25.00		100	70-130			



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.

Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

Notes and Definitions

- U Analyte included in the analysis, but not detected
- D Diluted.
- ND Analyte NOT DETECTED at or above the MRL (LOQ), LOD for DoD Reports, MDL for J-Flagged Analytes
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- MDL Method Detection Limit
- MRL Method Reporting Limit
- LOD Limit of Detection
- LOQ Limit of Quantitation
- DL Detection Limit
- I/V Initial Volume
- F/V Final Volume
- § Subcontracted analysis; see attached report
- 1 Range result excludes concentrations of surrogates and/or internal standards eluting in that range.
- 2 Range result excludes concentrations of target analytes eluting in that range.
- 3 Range result excludes the concentration of the C9-C10 aromatic range.
- Avg Results reported as a mathematical average.
- NR No Recovery
- [CALC] Calculated Analyte
- SUB Subcontracted analysis; see attached report
- RL Reporting Limit
- EDL Estimated Detection Limit



CERTIFICATE OF ANALYSIS

Client Name: GZA GeoEnvironmental, Inc.
Client Project ID: Mystic Station

ESS Laboratory Work Order: 1710616

ESS LABORATORY CERTIFICATIONS AND ACCREDITATIONS

ENVIRONMENTAL

Rhode Island Potable and Non Potable Water: LAI00179

<http://www.health.ri.gov/find/labs/analytical/ESS.pdf>

Connecticut Potable and Non Potable Water, Solid and Hazardous Waste: PH-0750

http://www.ct.gov/dph/lib/dph/environmental_health/environmental_laboratories/pdf/OutOfStateCommercialLaboratories.pdf

Maine Potable and Non Potable Water, and Solid and Hazardous Waste: RI00002

<http://www.maine.gov/dhhs/meecd/environmental-health/dwp/partners/labCert.shtml>

Massachusetts Potable and Non Potable Water: M-RI002

<http://public.dep.state.ma.us/Labcert/Labcert.aspx>

New Hampshire (NELAP accredited) Potable and Non Potable Water, Solid and Hazardous Waste: 2424

<http://des.nh.gov/organization/divisions/water/dwgb/nhelap/index.htm>

New York (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: 11313

<http://www.wadsworth.org/labcert/elap/comm.html>

New Jersey (NELAP accredited) Non Potable Water, Solid and Hazardous Waste: RI006

http://datamine2.state.nj.us/DEP_OPRA/OpraMain/pi_main?mode=pi_by_site&sort_order=PI_NAMEA&Select+a+Site:=58715

United States Department of Agriculture Soil Permit: P330-12-00139

Pennsylvania: 68-01752

<http://www.dep.pa.gov/Business/OtherPrograms/Labs/Pages/Laboratory-Accreditation-Program.aspx>

ESS Laboratory Sample and Cooler Receipt Checklist

Client: GZA - Norwood, MA - GZA/MM

ESS Project ID: 1710616

Shipped/Delivered Via: ESS Courier

Date Received: 10/24/2017

Project Due Date: 10/31/2017

Days for Project: 5 Day

1. Air bill manifest present? No
Air No.: NA
2. Were custody seals present? No
3. Is radiation count <100 CPM? Yes
4. Is a Cooler Present? Yes
Temp: 1.5 Iced with: Ice
5. Was COC signed and dated by client? Yes

6. Does COC match bottles? Yes
7. Is COC complete and correct? Yes
8. Were samples received intact? Yes
9. Were labs informed about short holds & rushes? Yes / No / NA
10. Were any analyses received outside of hold time? Yes / No

11. Any Subcontracting needed? Yes No
ESS Sample IDs: _____
Analysis: _____
TAT: _____

12. Were VOAs received? Yes / No
a. Air bubbles in aqueous VOAs? Yes / No
b. Does methanol cover soil completely? Yes / No / NA

13. Are the samples properly preserved? Yes / No
a. If metals preserved upon receipt: Date: _____ Time: _____ By: _____
b. Low Level VOA vials frozen: Date: _____ Time: _____ By: _____

Sample Receiving Notes:

1 Sample per client on 10/24/17

14. Was there a need to contact Project Manager? Yes No
a. Was there a need to contact the client? Yes No
Who was contacted? _____ Date: _____ Time: _____ By: _____

Sample Number	Container ID	Proper Container	Air Bubbles Present	Sufficient Volume	Container Type	Preservative	Record pH (Cyanide and 608 Pesticides)
01	175577	Yes	No	Yes	VOA Vial - HCl	HCl	
01	175578	Yes	No	Yes	VOA Vial - HCl	HCl	
01	175579	Yes	No	Yes	VOA Vial - HCl	HCl	
01	175580	Yes	NA	Yes	1L Amber - Unpres	NP	
01	175581	Yes	NA	Yes	1L Amber - Unpres	NP	

2nd Review
Are barcode labels on correct containers? Yes / No

Completed By: [Signature] Date & Time: 10/24/17 1917
Reviewed By: [Signature] Date & Time: 10/24/17 1937
Delivered By: [Signature] Date & Time: 10/24/17 1937



GZA GeoEnvironmental, Inc.