BENEFICIAL USE DETERMINATION APPLICATION

The Key
(aka South Key/South Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1, Lot 3
East Providence, Rhode Island 02914

Submitted to:

Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Waste Facilities Management Program
235 Promenade Street
Providence, Rhode Island 02908

On Behalf of:

RI Waterfront Enterprises LLC
1080 Main Street
Pawtucket, Rhode Island 02860

Prepared by:

SAGE Environmental, Inc.
301 Friendship Street
Providence, Rhode Island 02903

SAGE Project No. S3291

June 16, 2023

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Mr. Ronald Gagnon
Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Waste Facilities Management Program
235 Promenade Street
Providence, RI 02908
Sent via Hard copy and E-mail: ron.gagnon@dem.ri.gov

RE: Beneficial Use Determination - Variance Application
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1, Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

Dear Mr. Gagnon:

Introduction

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, owner of the subject location (hereinafter, the "Site"), has prepared this Beneficial Use Determination – Variance Application (BUD) to request a variance from the *Rules and Regulations for Solid Waste Management Facilities and Organic Waste Management Facilities (Solid Waste Regulations)* in support of Site redevelopment which includes raising of the grade. SAGE prepared the subject package in response to a Beneficial Use Determination Application – Comment Letter issued by the Rhode Island Department of Environmental Management (RIDEM) on August 31, 2022. A copy of the RIDEM correspondence is included as **Appendix 1**.

This BUD has been prepared in general accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). A United States Geological Survey (USGS) Quadrangle Site Location Map is included in **Figure 1**. The approximate area of the proposed BUD material placement area is depicted on a plan included in **Figure 2**.

The Site comprises an approximately 60-acre area that is proposed for redevelopment during which raising of the existing grade is required and is currently being proposed to occur with the assistance of BUD materials. Currently, the total estimated quantity of material to be imported is 250,000 cubic yards. The redevelopment will include the construction of a state-of-the-art maritime port facility for shipping, commodity transport, heavy lift component transfer, and marshal industries. Construction of the maritime port facility and the subject BUD is supported by Mr. Roberto L. DaSilva, Mayor of the City of

East Providence, the East Providence Area Chamber of Commerce, the East Providence Waterfront Commission, Waterson Terminal Services, LLC, and the Rhode Island Building and Construction Trades Council. Copies of the letters of support from these entities are included in **Attachment A**.

Anticipated BUD material sources include excavation and construction projects in Rhode Island, Massachusetts, Connecticut, and New Hampshire. BUD materials anticipated to be utilized during the redevelopment project include the following:

- Native and non-native deposits of soil including sand, gravel, organic soils, estuarine deposits, and marine sands;
- Blasted or excavated ledge or bedrock;
- Non-painted asphalt, brick, and concrete (ABC);
- Urban fill (impacted soil);
- Street sweepings;
- Catch basin cleanings; and,
- Other acceptable materials in accordance with the Materials Management Plan (MMP) included in **Attachment B**.

Acceptance of dredge material is not proposed under the subject BUD. Any dredge material proposed for reuse at the Site will be permitted by the Coastal Resources Management Council (CRMC) and/or others.

BUD material intended for use in the project must strictly adhere to the specific chemical acceptance criteria outlined in the MMP (**Attachment B**). Additionally, BUD material will be required to adhere to geotechnical acceptance criteria. The target specification for fill that can be placed deeper than 3 feet from the final surface is as follows:

SIEVE SIZE	PERCENT FINER BY WEIGHT
2/3 of the loose lift thickness	100
No. 10	30-95
No. 40	10-70
No. 200	0-10

It is anticipated that the project will take approximately two (2) years to complete based upon its size, general projections of material volumes likely available, and anticipated daily operations at the Site.

As the project proceeds, the content of this plan will be reviewed and revised periodically to account for any changes in Site conditions, available material sources, environmental regulations, project objectives, and other perceptions. Revisions to the BUD must be approved in writing by all parties named in the Order of Approval (OA) issued for this project.
Please note, the RIDEM held a virtual meeting with SAGE on October 5, 2021, to review the submission

requirements for this BUD. The RIDEM requested that a copy of the meeting minutes be included to facilitate the review of this BUD. A copy of the RIDEM meeting minutes are included in **Attachment C**.

Parties Involved

Several parties will be involved with the BUD activities associated with the Site.

Site Location:

The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
Latitude: 41.809616 N
Longitude: -71.390551 W

Site Owner:

RI Waterfront Enterprises LLC
1080 Main Street
Pawtucket, Rhode Island 02860

BUD Material Acceptance Review, Approval of Submittal Packages, and Management/Oversight of BUD Management Operations:

SAGE Environmental, Inc.
301 Friendship Street
Providence, Rhode Island 02903
Phone: (401) 723-9900

Site Description and Background

The Site is located adjacent to the Providence River/Harbor and accessed from Waterfront Drive. Route 103 (Warren Avenue) is located approximately 0.35 of a mile northeast of the Site entrance.

The City of East Providence Assessor's Office records identifies the Site as Assessor's Plat Map 7, Block 1 Lot 3. According to information obtained from the City of East Providence Online resources, the Site is zoned "BPH" for Bold Point Harbor Waterfront District. Surrounding areas are included in the Bold Point Harbor District, the Veterans Memorial Parkway District (VMP), and the Cook Point (CP).

The Site was formerly a portion of the Providence Harbor. A Permit issued by the Department of the Army to the Providence and Worcester Railroad Company on August 22, 1978 (The ACOE Permit), authorized the construction of a rail/ship cargo terminal which included a hydraulically dredged berthing area adjacent to the Federal Channel in Providence Harbor and filling of a 45-acre area with the resultant dredge material. Approximately 255,000 cubic yards of dredge material consisting of river silts and

organic muds were to be placed in two permeable earth berm filter basins constructed of imported granular material. The basic purpose of this work was to provide a rail ship terminal for handling containerized and general cargo. The main purpose of the fill area was to place the dredged material generated by the dredging of the berthing facility. Once stabilized, the filled area would be used for cargo storage and handling facilities. According to available documentation, dredge material was interred throughout the Site in order to create the 60-acre parcel of land referred to as the "Main Key". The Providence Worcester Railroad Company was reportedly the Site owner at the time of the project. Historical documentation indicates that filling at the Site reportedly occurred between 1962 and 1997. A copy of the ACOE Permit is included in **Attachment D**.

Site Investigation Report

The Site is subject to the Rhode Island Department of Environmental Management (RIDEM) *Rules and Regulation for the Investigation and Remediation of Hazardous Material Releases* (*Remediation Regulations*) and has been assigned Case Numbers SR-10-1455 and SR-10-1954. A Site Investigation Report (SIR) which includes the Site, identified as the "Main Key" portion, is included as **Attachment E**.

Findings of the SIR indicate that soils throughout the Site appear to be impacted with typical contaminants of concern (COCs) commonly found in dredge material/urban soils, specifically polycyclic aromatic hydrocarbons (PAHs) and arsenic above their applicable RIDEM criteria and detections of total petroleum hydrocarbons (TPH) and metals below their applicable RIDEM criteria. Groundwater samples were collected from six on-Site monitoring wells for laboratory analysis of volatile organic compounds (VOCs) and no analytes were detected in excess of their applicable RIDEM criteria for any of the submitted groundwater samples.

Following BUD management activities, and as part of redevelopment activities, the currently proposed remedy (included in the SIR submitted to the RIDEM concurrently with the initial BUD application and currently undergoing RIDEM review) to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier and the implementation of an Environmental Land Use Restriction (ELUR) to prevent future human exposure to impacted soils. The proposed engineered barrier alternatives will consist of a 3-foot layer of dense grade aggregate (DGA) clean fill (to be sampled prior to importation to the Site in accordance with future RIDEM approvals), minimal crushed stone infiltration trenches (3-feet minimum thickness), and rip rap (3-feet minimum thickness) on the northern and southern Site slopes (as there currently is now).A capping plan and ELUR will be presented to the RIDEM for approval in future submittals.

Guidelines for Variance Application

The following sections provide responses for each of the specified BUD considerations outlined in the BUD Guidance.

1. How will any environmental hazards associated with the proposed recycling of solid waste be minimized or eliminated?

Anticipated BUD material sources include excavation and construction projects in Rhode Island,

Massachusetts, Connecticut, and New Hampshire. BUD materials intended for reuse in the Site redevelopment must strictly adhere to the specific chemical acceptance criteria outlined in the MMP established for this location, included in **Attachment B**. Additionally, BUD material will be required to adhere to geotechnical acceptance criteria as noted above. Acceptance of dredge material is not proposed under the subject BUD. Any dredge material proposed for reuse at the Site will be permitted by the Coastal Resources Management Council (CRMC) and/or others.

Upon completion of BUD material placement, and as part of redevelopment activities, the entire Site will be capped with a RIDEM-approved engineered barrier, and an ELUR will be implemented to prevent future human exposure to impacted soils. A capping plan and ELUR will be presented to the RIDEM for approval in future submittals.

BUD MATERIAL ACCEPTANCE CRITERIA EVALUATION AND SELECTION

The following sections provide an evaluation of several resources for criteria/standards and a technical justification for the selection of proposed BUD material acceptance levels. The resources considered in the below evaluations include the RIDEM, past-approved Coventry Landfill BUD, and Massachusetts Department of Environmental Protection (MassDEP).

RIDEM Industrial/Commercial Direct Exposure Criteria:

The RIDEM Industrial/Commercial Direct Exposure Criteria (I/C-DEC) standards were developed to address soil at properties that:

- Are currently limited to industrial/commercial actvitity;
- Access is limited to individuals working at or temporarily visiting the property;
- The current and reasonably foreseeable future human exposure to soil is not expected to occur beyond a depth of 2 feet below ground surface; and,
- An ELUR is in effect to ensure that the property is not used for Residential Activity in the future and that any future use is limited to industrial/commercial activity.

The I/C-DEC standards consider risk related to ingestion only and were developed by utilizing a less conservative Non-cancer Hazard Index (HI) of 1 and an Excess Lifetime Cancer Risk (ELCR) of $1x10^{-6}$.

GB Leachability Criteria:

The RIDEM GB Leachability Criteria (GB-LC) standards were developed to be protective of properties where:

- The GB groundwater objective is applicable to the groundwater of concern underlying and downgradient; and,
- The use of the GB-LC will not contribute to actual or potential impacts to surface water and/or sediments.

The GB-LC standards were derived utilizing the SESOIL and AT123D models to simulate the transport of organic oil and/or hazardous material (OHM) and estimate levels of soil contamination that are protective of the appropriate groundwater objectives. The GB-LC were derived for select chlorinated volatile organic compounds (CVOCs) as these models are primarily useful for mobile contaminants.

The proposed revised Acceptance Criteria were derived by the following decision-making process which interprets and incorporates RIDEM's August 31, 2022 comments:

1. Compare the lower of the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC) and Method 1 GB Leachability Criteria (GB-LC), as promulgated, for each analyte;
2. Simultaneously, compare the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standard, as promulgated, for each analyte;
3. Utilize the lower of the RIDEM Method 1 I/C-DEC, GB-LC, and MassDEP Method 1 S-2 GW-2/-3 Soil Standards as the Acceptance Criteria;
4. Where a RIDEM Method 1 I/C-DEC or GB-LC is not promulgated and a MassDEP Method 1 S-2 GW-2/-3 Soil Standard is, utilize the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standard as the Acceptance Criteria, and vice versa;
5. If no RIDEM Method 1 I/C-DEC, GB-LC, or MassDEP Method 1 S-2 GW-2/-3 Soil Standard is promulgated, the MassDEP S-2 Reportable Concentration (RCS-2) will be utilized to conservatively provide additional Acceptance Criteria for comparison/evaluation;
6. The Acceptance Criteria for five pyrogenic polycyclic aromatic hydrocarbons (PAHs) (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) will utilize the Proposed RIDEM Method 1 I/C-DEC as provided to SAGE by Ms. Ashley Blauvelt[1] of RIDEM, on October 21, 2022 *via* text message;
7. The Acceptance Criteria for two metals (arsenic and beryllium) will utilize the Site-specific Ecological Risk-Based Evaluation Soil Acceptance Criteria calculated by EcoTec, Inc. (EcoTec)[2];
8. The Acceptance Criteria for total petroleum hydrocarbons (TPH) will utilize the 1,000 milligrams per kilogram (mg/kg) value as noted below in RIDEM Comment #2(b)(I). In addition, TPH data must include the correct carbon ranges (gasoline range organics [GRO] and/or diesel range organics [DRO]) based upon the Site history. If TPH-GRO are not indicated as potential COCs, then TPH-DRO data is acceptable and vice versa. In the event TPH exceeds the Acceptance Criteria, MassDEP Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) analysis may be used to speciate detections for comparison to alternate Acceptance Criteria defined as the lower of either the MassDEP Method 1 S-2 GW-2 or GW-3 Soil Standards for each carbon range. (Note, no RIDEM *Remediation Regulations* Method 1 I/C-DEC or GB-LC exist for VPH or EPH); and,
9. For total chromium exceedances, speciation of the sample into chromium (III) and

[1] RIDEM Office of Land Revitalization & Sustainable Materials Management, Environmental Engineer IV.
[2] EcoTec, Inc. of Worcester, Massachusetts is an expert ecological risk assessment company with over 130 years of combined experience (https://ecotecinc.com/).

chromium (VI) can may be used for comparison to alternate approval/Acceptance Criteria defined as the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standards.

As documented in the *Beneficial Use Determination (BUD) – Variance Application*, MassDEP Method 1 Soil Standards consider both the potential risk of harm resulting from direct exposure and the potential impacts on groundwater. The applicability of a specific MassDEP Method 1 Soil Standard is thus a function of both the soil and groundwater category. The categories of soil (S-1, S-2, and/or S-3) and groundwater (GW-1, GW-2, and/or GW-3) are determined by each applicable exposure point.

The MassDEP Method 1 Category S-2 Soil Standards consider risk related to incidental ingestion and dermal contact with soil and its leaching potential (for volatile organic compounds [VOCs], select semi-volatile organic compounds [SVOCs], chlorinated benzenes, and certain chlorinated pesticides). Method 1 S-2 Soil Standards were developed considering moderate soil exposures by adults and light use by children in scenarios such as retail use and landscaping.

The MassDEP Method 1 GW-3 Groundwater Standards apply to all groundwater and are intended to address the adverse ecological effects that could result from the discharge of oil and/or hazardous materials (OHM) to surface water. Risk-based "target values" in surface water are modified by two dilution/attenuation factors to estimate an allowable concentration in groundwater. The two dilution attenuation factors are intended to conservatively account for dilution within the receiving waterbody and attenuation in the groundwater as the contaminant migrates towards the waterbody.

Note, the underlying RIDEM groundwater classification of the Site and surrounding area is “GB.” GB areas are defined as “groundwater resources which are known or presumed to be unsuitable for drinking water use without treatment”. As such, neither the RIDEM GA-LC nor the MassDEP GW-1 standards apply to this Site as these apply to groundwater areas that are either a current or a potential future source of drinking water.

As the proposed revised Acceptance Criteria considers the lower of both the Method 1 S-2 GW-2 and GW-3 Soil Standards, the S-2 GW-3 Soil Standards are protective of surface water (i.e., Narragansett Bay) and/or any potential adverse ecological effects and are even more conservative as Acceptance Criteria when lower than the Method 1 I/C-DEC and/or GB-LC. In addition, the Method 1 S-2 GW-2/-3 account for:

- Soil leachability of various analytical sub-groups (including more analytes than the RIDEM Method 1 GB-LC);
- Were developed utilizing a more conservative risk assumption for the Non-cancer Hazard Index (HI) of 0.2 (versus the Method 1 I/C-DEC of 1); and,
- They evaluate for not only ingestion of soil (as evaluated by the RIDEM Method 1 I/C-DEC), but also for dermal absorption and inhalation of airborne particulates.

Therefore, the MassDEP Method 1 S-2 GW-2/-3 Soil Standards provide a more accurate representation and evaluation of potential exposure routes and risks. However, for conservancy, by utilizing the lower of the RIDEM’s Method 1 I/C-DEC, GB-LC, and MassDEP Method 1 S-2 GW-2/-3 Soil Standards, this proposed approach provides the most conservative, risk-based, compromise to the initially proposed Acceptance Criteria. Also, use of the MassDEP RCS-2 when RIDEM or MassDEP standards are not available

conservatively provides additional Acceptance Criteria for comparison/evaluation. The proposed revised Acceptance Criteria are summarized in the attached **Table 1**.

As noted above, the Acceptance Criteria for five pyrogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) will utilize the Proposed RIDEM Method 1 I/C-DEC as provided to SAGE by Ms. Ashley Blauvelt of RIDEM, on October 21, 2022. According to Ms. Blauvelt, the proposed revised Method 1 I/C-DEC for these PAHs were developed by utilizing more recent toxicity and/or risk information documented by the United States Environmental Protection Agency (U.S. EPA). The Proposed RIDEM Method 1 I/C-DEC and associated proposed revised Acceptance Criteria for these five pyrogenic PAHs are documented in the attached **Table 1**.

As noted in RIDEM Comment #2(c.), the RIDEM is receptive to proposed Acceptance Criteria exceeding RIDEM standards if justification is provided in the form of an ecological risk assessment for each contaminant which considers marine life, the water quality of the bay, human health and the environment. As noted above, the Acceptance Criteria for two metals (arsenic and beryllium) will utilize the Site-specific ecological risk based evaluation/documentation soil acceptance criteria values calculated by EcoTec (the Ecotec Ecological Risk-Based Evaluation Soil Acceptance Criteria) based upon a review of the Site and surrounding area in combination with all available ecological screening benchmarks. The Ecological Risk-Based Evaluation Soil Acceptance Criteria proposed by EcoTec were developed to be conservatively protective of marine life, the water quality of the bay, human health, and the environment. The Ecotec Ecological Risk-Based Evaluation Soil Acceptance Criteria and associated proposed revised Acceptance Criteria for arsenic and beryllium are documented in the attached **Table 1**. A copy of EcoTec's ecological risk based evaluation/documentation is provided in **Attachment F**.

Please note, under no circumstance will the material delivered to the Site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations. Samples must be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) if analytes exceed 20x TCLP standard. Also, results of VOCs analysis will be required to meet a detection limit of 10x less than the Acceptance Criteria (unless detection limits are not achievable with available laboratory technology and documented as such in approval application paperwork) to safeguard against the delivery of potential listed hazardous waste to the Site.

The proposed redevelopment of the Site is for industrial/commercial use, and following the placement of BUD materials, the Site will be capped. Access to soils currently and following redevelopment is considered to be minimal and solely related to a utility and/or construction worker exposure. Therefore, the proposed combination of RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), the Acceptance Criteria, are conservatively protective of current and future risk to marine life, surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment. In addition, this combination of standards includes a greater number of contaminants for comparison than do the RIDEM soil standards alone, thus providing a more detailed understanding of the risk of proposed materials for import. Flowcharts depicting the afore outlined decision-making process are included as **Attachment G**.

As noted above, the proposed revised Acceptance Criteria utilize current risk and toxicity information that are also protective of soil leachability, protective of surface water, address the adverse ecological effects

that could result from the discharge of OHM to surface water, and meet the RIDEM promulgated GB groundwater classification for the Site. Additionally, Section 4.2 of the MMP and the BUD – Variance Application state that "under no circumstance will the material delivered to the site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations", thereby further eliminating the risk for potential leachability of contaminants from BUD materials. Therefore, no materials imported for reuse under the BUD will affect groundwater underlying the Site nor surface water surrounding the Site or existing/designated uses at concentrations with the potential to significantly contribute to adverse effects to any Environmentally Sensitive Area or which would likely lower water quality or affect existing or designated uses in accordance with CFR 131.12.

As you are aware, Section 3.1 of the MMP documents soil erosion and sediment controls to be installed and maintained throughout the duration of the project to protect the waters of the State of Rhode Island from pollution. Following BUD management activities, and as part of redevelopment activities, the currently proposed remedy (included in the Site Investigation Report [SIR] submitted to the RIDEM concurrently with the initial BUD application and currently undergoing RIDEM review) to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier and the implementation of an ELUR to prevent future human exposure to impacted soils.

The proposed engineered barrier will consist of a 3-foot layer of dense grade aggregate (DGA) clean fill (to be sampled prior to importation to the Site in accordance with future RIDEM approvals), minimal crushed stone infiltration trenches, and rip rap on the northern and southern Site slopes (as there currently is now). The DGA shall meet M.1.02.2 and the gradations in M1.09 in the Rhode Island Department of Transportation (RIDOT) BlueBook. Given the proposed future use of the Site, the DGA will be densely compacted in place to greater than 95% of its modified proctor value, creating a strong wearing surface capable of handling and transporting large components. Therefore, the engineered barrier (combination of the DGA, stone, and rip rap) and ELUR will also serve to protect any future BUD materials erosion. The Site grades have been designed to slope away from surface water (i.e., Narragansett Bay), from west to east towards the center of the Site, at which stormwater management infrastructure will be present. A copy of the conceptual plan for raising the Site's elevation is included as **Attachment H**.

In addition, during redevelopment, an engineered bulkhead structure will be built along the western, northern, and southern Site boundaries. The proposed bulkhead shall consist of twenty-five 61-foot diameter large cofferdam cells and twenty-four 22-foot by 61-foot smaller (interconnect) cofferdam cells, comprised of marine grade steel sheet pilings driven down to proper bearing soils estimated at approximately 100-feet below ground surface. The bulkhead will be approximately 1,380 linear feet along the western Site boundary and 380 linear feet along the northern and southern Site boundaries. This engineered bulkhead structure will aid in further stabilizing Site soils and eliminating erosion of Site soils due to tidal action or storm events. Copies of the plans outlining the engineered bulkhead structure locations are included as **Attachment H**.

In order to protect the surrounding natural resources and prevent erosion and sedimentation, this project has been designed and will be constructed in Compliance with the Rhode Island Soil Erosion and Control Handbook (updated 2016) and will be subject to a Rhode Island Pollutant Discharge Elimination System

(RIPDES) Construction General Permit (CGP). In addition, a draft Soil Erosion and Sediment Control Plan (SESC Plan) has been developed to detail controls and best practices on filling the Site. The general contractor and all earthwork subcontractors will be required to review, acknowledge and follow all of the requirements in the SESC Plan as part of the construction of the project. A copy of the draft SESC Plan is included for your review in **Attachment I**. Important notes include the following:

- Existing slopes located on the northern and southern portions of the Site will be maintained and not be changed beyond extending upward to meet the new Site grades. Along the western Site boundary, sheet piles will be driven to contain the Site fill to provide stability against any un-engineered slopes. No permanent slopes will exceed the 30% threshold and any design slopes will be installed at a maximum grade of 4:1 (25%) or 5:1 (20%).
- For the existing Site materials, they will be leveled out and spread across the Site as part of the interim grading plan and then the overall property will be filled evenly up to the final grades (see conceptual plan in **Attachment H**) with imported, compacted materials.
- All of the areas of soils to be disturbed as part of the project will likely be used as part of Site development. However, in the event that there are upland soil areas that are disturbed as part of the construction but not part of the final developed Site (e.g., along a top of slope), in compliance with the project SESC Plan, these areas will be graded to a stable slope (based on their physical characteristics) and re-vegetated if left undisturbed for more than 14 days.
- Materials that will be reused on-Site will have been characterized and with the environmental controls and methodologies prescribed for this project, do not represent a risk to pollute the tidal waters.
- All of the proposed work is being conducted within the footprint of previously disturbed Site areas, from the toe of the embankment landward. There will be new filling over a coastal bank and all filling will occur within the sheet pile cells and within the adjacent upland portions of the Site.
- Construction materials and excavated soils shall not be placed or stored on any shoreline feature excepting manmade shorelines. Materials staging areas will be located within the upland portion of the Site, only in designated areas, as indicated in the SESC Plan.
- All disturbed soils that are not to be included in the operating areas of the Site shall be graded smooth to a maximum 5:1 slope, unless otherwise called out on the project plans, and re-vegetated immediately after construction, or temporarily stabilized with mulch, jute matting or similar means until seasonal conditions permit such re-vegetation.
- A silt fence/straw wattle line will encircle the work along the downgradient slopes to keep soils from eroding/migrating off-Site during precipitation events. All disturbed slopes will be stabilized and returned to original or design grades, as indicated on the project drawings. If the slopes do become susceptible to erosion, they shall be stabilized and re-vegetated. Temporary stormwater management best management practices (BMPs) will be constructed and maintained such that no stormwater flows will be allowed to discharge off-Site or to the permanent stormwater BMPs (e.g., drains, sub-grade piping, etc.), until the site has been stabilized.
- The project does not propose to disturb any steep slopes (with the exception of dredging in front of the embankment, which will be handled separately). New design slopes will be less than 20%. However, the majority of the Site will be graded at 0.5%. The only slopes steeper than 0.5% will be the existing slopes along the embankment, and those will be maintained

and supported with hardened shoreline materials like rip rap and granite block.

Therefore, throughout the duration of the project/redevelopment activities and future Site use, the existing MMP sufficiently documents that BUD materials will be managed in accordance with Section 1.9.1(A)(3) of the *Remediation Regulations* and the Code of Federal Regulations (CFR) Title 40, Chapter I, Subchapter D, Part 131, Subpart B, § 131.12 – Antidegradation Policy and Implementation Methods.

2. To what degree will the recycled solid waste material be analogous to commonly used raw materials and how will the use of this material result in a viable and beneficial substitution of a discarded material for a commercial product or raw material?

The materials proposed for reuse will be analogous to commonly used materials (i.e., processed gravel, common borrow, etc.) and are proposed as a beneficial substitution to locally obtained soil and gravel. The use of these materials will shorten the time until project completion and further minimize the mining of native soil and gravel. All materials imported to the Site will need to meet geotechnical acceptance criteria as noted above.

To ensure that the imported materials meet geotechnical requirements and are analogous and a beneficial substitution for commercial products or raw materials, some imported materials may be processed to increase their quality prior to emplacement on-Site.

3. How will the proposed recycling and reuse of the solid waste in question protect the natural resources of the State? In addition to discussing how and to what extent the reuse of the solid waste in question will conserve the limited and finite capacity of the State's solid waste landfills, your response must also address why the proposed use of the recycled solid waste will not present a threat to public health or the State's groundwater, surface water, air, or other environmental resources.

As noted in the question itself, this BUD will allow for the reuse of otherwise unsuitable materials which would require disposal in a solid waste landfill (i.e., Central Landfill in Johnston, Rhode Island). Therefore, by approving this BUD, the limited and finite state landfill capacity will be preserved for better suited uses (i.e., municipal solid waste). In addition, the BUD materials will reduce and/or eliminate the soil or gravel that would have to be mined from a natural source.

As described in Question No. 1 above, the Material Reuse Acceptance Criteria are conservatively protective of human health, the environment, groundwater, and surface water. To that end, the use of the proposed standards will not present a threat to public health, groundwater, surface water, air, or other environmental resources as all materials to be accepted will be less than the Material Reuse Acceptance Criteria.

4. To what extent is there a guaranteed end market for the recycled solid waste material to be produced?

No material is being produced at the Site. Approximately 250,000 cubic yards of materials will be imported to the Site and there is no other end market.

5. Why will the proposed recycling and reuse of solid waste not degrade the environment.

This was answered in Questions Nos. 1 and 3 above.

6. Identify and discuss the controls (e.g., environmental, engineering, institutional, etc.) that will be used to properly and safely recycle and reuse the solid waste. This discussion should include, but not be limited to, information regarding the following:

- *The quantity of solid waste material to be received and recycled, and the maximum quantity of solid waste material to be stored at the site at any one time;*
- *The maximum quantity of solid waste material to be stored at the site at any one time; the source of the solid waste, including the name and address of the generator;*
- *A detailed narrative and schematic diagram of the production, manufacturing, and/or residue process by which the waste material is produced;*
- *The expected consistency of the waste material; how the generator has minimized the quantity and toxicity of the waste material;*
- *Adequate and regular inspection of the waste material upon receipt;*
- *Adequate site controls relating to the storage, handling and processing of the waste material, including the extent to which the recycled solid waste material will be handled to minimize loss;*
- *Adequate controls for handling and disposing of any residual solid wastes, including the location of final disposal for any residual solid wastes; and,*
- *Appropriate odor, sediment, stormwater (runoff), and erosion control measures, etc.*

The controls that will be used to properly and safely recycle and reuse the BUD materials are described in the MMP included in **Attachment B**.

7. Explain why the proposed recycling of solid waste is not simply an alternate method of disposal. The Director may require information regarding the estimated value of the solid waste material both before and after it is recycled.

The reuse of BUD materials at the Site will provide a beneficial use for materials that would otherwise be disposed of in a solid waste landfill. The proposed material will be used to raise the grade for future redevelopment opportunities, which will add construction jobs in the short-term and also long-term employment opportunities once the redevelopment is complete. The area will be revitalized and will fulfill the long outstanding goal of development. In addition, utilization of these materials has the added benefit of extending the useful life of nearby active landfill facilities and virgin soil or gravel quarries.

8. What degree of processing has the solid waste material undergone and degree of further processing is required, if any? The applicant must demonstrate that any mixing of different types of material improves the usefulness of the recycled solid waste material.

The materials being imported to the Site may or may not have undergone any processing and will be accepted or denied in accordance with the MMP. As noted in Question No. 2 above, to ensure that the imported materials meet geotechnical requirements, some imported materials may be processed to increase their quality prior to emplacement on-Site. SAGE will evaluate options to process BUD materials, as necessary, and will include the selected remedy in an addendum to the MMP.

9. Where the project in question includes the reuse of any soil impacted by known or suspected contamination, or the use of any recycled solid waste as a "manufactured soil product" (i.e.: solid waste that is or has been altered or rendered into a material with soil type properties), the applicant must demonstrate the use of these materials at the location in question:

- *Is compliant with the Residential Direct Exposure Criteria for soils listed in Rule 8.02 of the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases;*
- *Is compliant with the Compost Quality and Distribution Standards listed in Rule 8.8.00 (Compost Product Requirements and Distribution) of the Solid Waste Regulations.; and,*
- *Will not result in degradation of the environment.*

As noted in Question Nos. 1 through 3 above, SAGE has proposed the use of the aforementioned Material Reuse Acceptance Criteria. Upon completion of BUD materials placement, and as part of redevelopment activities, the entire Site will be capped with a RIDEM-approved engineered barrier, and an ELUR will be implemented to prevent future human exposure to impacted soils. Current and future use of the Site will be industrial/commercial in nature. The proposed materials for reuse will not present a threat to public health, groundwater, surface water, air, or other environmental resources.

Proposed materials for reuse do not include compost, and therefore compliance with Rule 8.8 is not applicable.

10. Whenever the proposed end use for a recycled product involves land application, the applicant shall address the need for applicable engineering standards and controls in accordance with the Solid Waste Regulations(e.g. final cover systems, leachate collection and removal systems, and gas control and recovery systems) to provide for the safe land application end use of BUD materials. End uses involving land application shall be presumed to be low utility uses subject to heightened scrutiny as to whether the use constitutes beneficial reuse or is simply an alternative means of disposal.

Pursuant to the Solid Waste Regulations and 40 C.F.R. § 257.2, the definition of a land application unit means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for agricultural purposes or for treatment and disposal. Treatment means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. Disposal means permanent isolation of spent nuclear fuel or radioactive waste from the accessible environment with no intent of recovery, whether or not such isolation permits the recovery of such fuel or waste. For example, disposal of waste in a mined geologic repository occurs when

all of the shafts to the repository are backfilled and sealed.

Wastes are not being applied onto or incorporated into the soil surface for agricultural purposes or for treatment and disposal as so aforementioned defined. Therefore, this question does not apply to this BUD.

11. Provide a characterization plan that includes protocols for sample collection and analyses designed to provide a representative characterization of the waste material. The characterization plan shall address:

- *How the samples will be collected (i.e. locations, times, frequency per volume etc.);*
- *The types of samples to be collected (i.e., discrete, grab, composite, etc.);*
- *How substances in the solid waste will be identified;*
- *The physical and chemical analyses to be performed (i.e. size, density, percent solids, liquid content, pH, reactivity, leachability [TCLP test], etc.);*
- *Analysis for biological properties of the waste (i.e. pathogens);*
- *The variability of the substances present in the solid waste;*
- *The number of samples required (grab and/or composite) to be collected and analyzed in order to adequately determine the physical, chemical, and biological properties of the waste;*
- *The human health and ecological risks associated with the proposed reuse of the solid waste in the proposed manner and location; and,*
- *Verification that the sampling and analytical methods used have identified all constituents present in the waste, and a detailed written report describing the concentration and distribution of all substances which may be contained in the waste material.*

The characterization plan that includes protocols for sample collection and analysis designed to provide a representative characterization of the material is described in the MMP included as **Attachment B**.

12. Any person involved in the storage, handling, processing or use of solid waste for beneficial reuse shall be required to provide financial assurance that:

- *The project approved in the BUD will be completed; and/or,*
- *Any unused solid waste/beneficial reuse material will be properly removed and disposed of upon completion of the project or if project operations cease for any reason.*

The Site owner acknowledges the requirement for the project approved in this BUD to be completed. The potential for BUD material, once delivered to the Site, to be unused is minimal. Materials that are delivered to the Site will be tipped and graded in a relatively short period of time, and there is no foreseeable reason to subsequently remove the graded materials from the Site.

13. Additional information, as required, at the discretion of the Department.

Additional information will be provided to the RIDEM, as requested.

14. Certify that the applicant, the facility(ies) where the solid waste is processed for reuse and the facility(ies) where the processed material is to be used are not the subject of any actual or potential statutory or regulatory environmental violations (state or federal), or, if actual or potential violations exist, that the processing of the waste or its use are part of a final settlement or remedy approved by DEM.

The Site owner acknowledges that the applicant, the facility(ies) where the BUD Material is processed for reuse and the facility(ies) where the BUD material is to be used are not the subject of any actual or potential statutory or regulatory environmental violations (state or federal). A SIR which includes the Site, identified as the "Main Key" portion, is included as **Attachment E**.

Public Notification

As required in Section 4.0 of the BUD Guidelines, a copy of this BUD has been provided to the City of East Providence. Prior to the RIDEM rendering a final decision on this BUD, SAGE will post a public notice in a newspaper of general circulation regarding the proposed BUD and will hold a public hearing in East Providence to allow public participation. Public notice will also be provided to the City Mayor of East Providence. If required, SAGE will provide additional notification to abutters of the Site. Revised/additional draft public notification documentation has been included in **Attachment J** for the RIDEM's review and approval.

Project Completion

Upon completion of the project, SAGE will compile and retain documentation of submittal packages, approvals, and tonnage received. If requested, SAGE will provide all disposal documentation to the RIDEM. At project completion, SAGE will request the RIDEM terminate the BUD for this Site.

Should you have any questions, please contact the undersigned at (401) 723-9900.

Sincerely,
SAGE Environmental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS, LSP
Project Manager	Vice President

_____
Richard J. Mandile
Principal

cc: Melissa Martin, RI Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.

FIGURES

Figure 1: USGS Quadrangle Site Location Map
Figure 2: Site Plan

TABLE

Table 1: Proposed Reuse Acceptance Criteria

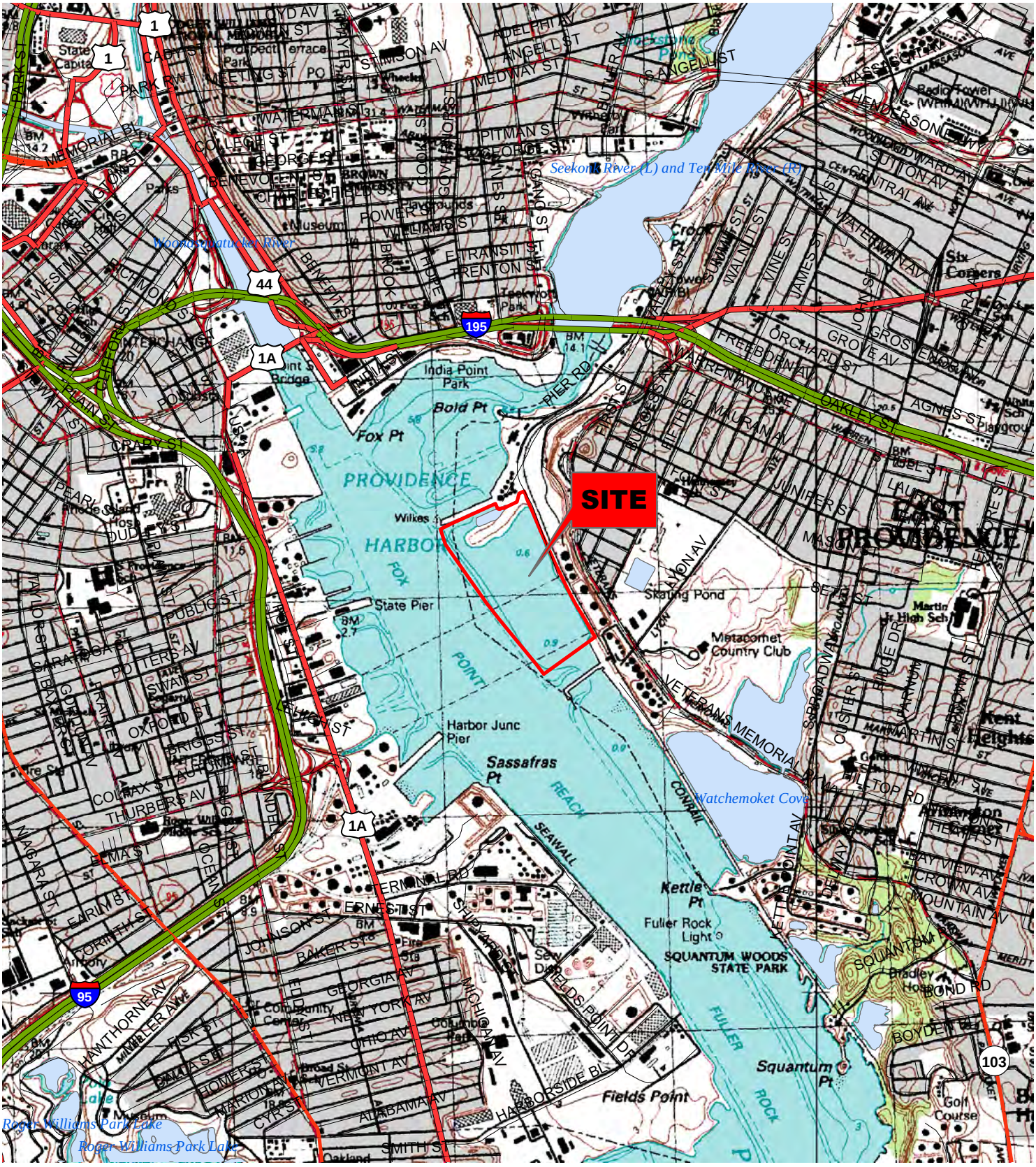
APPENDICES

Appendix 1: RIDEM Beneficial Use Determination Application – Comment Letter dated August 31, 2023

ATTACHMENTS

Attachment A: Community Letters of Support
Attachment B: Materials Management Plan
Attachment C: RIDEM Meeting Minutes
Attachment D: ACOE Permit
Attachment E: Site Investigation Report
Attachment F: Ecotec, Inc. Ecological Risk-Based Evaluation Report
Attachment G: Material Reuse Acceptance Criteria Flowcharts
Attachment H: Civil Plans
Attachment I: Soil Erosion and Sediment Control Plan
Attachment J: Revised Draft Public Notification

FIGURES



USGS QUADRANGLE
PROVIDENCE, RHODE ISLAND

Site Location

USGS Quadrangle Site Location Map

649 Waterfront Drive
East Providence, Rhode Island

DATE: 09/29/2021

JOB #: S3291

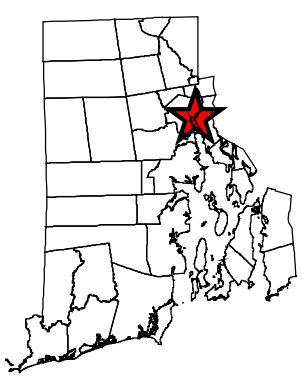
CREATED BY: ALM

Data Provided by RIGIS

0 600 1,200 2,400 3,600 4,800 Feet

Figure 1

SAGE ENVIRONMENTAL



Site Plan

649 Waterfront Drive
East Providence, Rhode Island

Figure 2

Date: 09/29/2021

Job #: S3291

Created By: ALM

Approximate Site Boundary

Approximate Extents of Proposed BUD Filling and Grading

Current LIDAR Elevation Contours (Feet)

N

0 90 180 360 540 720 Feet

Data Provided by RIGIS
Orthoimagery provided by nearmap

SAGE ENVIRONMENTAL

TABLES

SAGE ENVIRONMENTAL

Table 1 - Proposed Reuse Acceptance Criteria

Volatile Organic Compounds (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/ Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/ Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
Acetone	50	400	50	50	10000	NE	NE	10000	NE	**50**
Benzene	200	200	200	200	200	NE	4.3	4.3	NE	**4.3**
Bromobenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Bromochloromethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Bromodichloromethane	0.1	100	0.1	0.1	92	NE	NE	92	NE	**0.1**
Bromoform	1	800	1	1	720	NE	NE	720	NE	**1**
Bromomethane	0.5	30	0.5	0.5	2900	NE	NE	2900	NE	**0.5**
2-Butanone	50	400	50	50	10000	NE	NE	10000	NE	**50**
tert-Butyl alcohol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
sec-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
n-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
tert-Butylbenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Methyl t-butyl ether (MTBE)	100	500	100	100	10000	NE	100	100	NE	**100**
Carbon Disulfide	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Carbon Tetrachloride	5	100	5	5	44	NE	5	5	NE	**5**
Chlorobenzene	3	100	3	3	10000	NE	100	100	NE	**3**
Chloroethane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Chloroform	0.2	1000	0.2	0.2	940	NE	NE	940	NE	**0.2**
Chloromethane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
4-Chlorotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2-Chlorotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,2-Dibromo-3-chloropropane (DBCP)	NE	NE	NE	100	4.1	NE	NE	4.1	NE	**4.1**
Dibromochloromethane	0.03	100	0.03	0.03	68	NE	NE	68	NE	**0.03**
1,2-Dibromoethane (EDB)	0.1	5	0.1	0.1	0.07	NE	NE	0.07	NE	**0.07**
Dibromomethane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
1,2-Dichlorobenzene	100	300	100	100	10000	NE	NE	10000	NE	**100**
1,3-Dichlorobenzene	200	500	200	200	10000	NE	NE	10000	NE	**200**
1,4-Dichlorobenzene	1	400	1	1	240	NE	NE	240	NE	**1**
1,1-Dichloroethane	9	1000	9	9	10000	NE	NE	10000	NE	**9**
1,2-Dichloroethane	0.1	100	0.1	0.1	63	NE	2.3	2.3	NE	**0.1**
trans-1,2-Dichloroethene	1	1000	1	1	10000	NE	92	92	NE	**1**
cis-1,2-Dichloroethene	0.1	500	0.1	0.1	10000	NE	60	60	NE	**0.1**
1,1-Dichloroethene	40	1000	40	40	9.5	NE	0.7	0.7	NE	**0.7**
1,2-Dichloropropane	0.1	100	0.1	0.1	84	NE	70	70	NE	**0.1**
2,2-Dichloropropane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
cis-1,3-Dichloropropene	NE	NE	NE	0.1	NE	NE	NE	NE	NE	**0.1**
trans-1,3-Dichloropropene	NE	NE	NE	0.1	NE	NE	NE	NE	NE	**0.1**
1,1-Dichloropropene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,3-Dichloropropene (cis + trans)	0.4	90	0.4	0.4	NE	NE	NE	NE	NE	**0.4**
Diethyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,4-Dioxane	6	90	6	6	NE	NE	NE	NE	NE	**6**
Ethylbenzene	1000	1000	1000	1000	10000	NE	62	62	NE	**62**
Hexachlorobutadiene	100	100	100	100	NE	NE	NE	NE	NE	**100**
2-Hexanone	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Isopropylbenzene	NE	NE	NE	10000	10000	NE	NE	10000	NE	**10000**
p-Isopropyltoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Methylene Chloride	4	700	4	4	760	NE	NE	760	NE	**4**
4-Methyl-2-pentanone	50	400	50	50	10000	NE	NE	10000	NE	**50**
Naphthalene	20	1000	20	20	10000	NE	NE	10000	NE	**20**
n-Propylbenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Styrene	4	300	4	4	190	NE	64	64	NE	**4**
1,1,1,2-Tetrachloroethane	0.1	400	0.1	0.1	220	NE	NE	220	NE	**0.1**
Tetrachloroethene	10	200	10	10	110	NE	4.2	4.2	NE	**4.2**
Tetrahydrofuran	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Toluene	1000	1000	1000	1000	10000	NE	54	54	NE	**54**
1,2,4-Trichlorobenzene	6	3000	6	6	10000	NE	NE	10000	NE	**6**
1,2,3-Trichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,1,2-Trichloroethane	2	200	2	2	100	NE	NE	100	NE	**2**
1,1,1-Trichloroethane	600	1000	600	600	10000	NE	160	160	NE	**160**
Trichloroethene	0.3	60	0.3	0.3	520	NE	20	20	NE	**0.3**
1,2,3-Trichloropropane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,3,5-Trimethylbenzene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
1,2,4-Trimethylbenzene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Vinyl Chloride	0.7	7	0.7	0.7	3	NE	NE	3	NE	**0.7**
o-Xylene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
m&p-Xylene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Total xylenes	100	1000	100	100	10000	NE	NE	10000	NE	**100**
1,1,2,2-Tetrachloroethane	0.02	50	0.02	0.02	29	NE	NE	29	NE	**0.02**
tert-Amyl methyl ether	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,3-Dichloropropane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Ethyl tert-butyl ether	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Diisopropyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Trichlorofluoromethane	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dichlorodifluoromethane	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
2-Isopropyltoluene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Acrylonitrile	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
trans-1,4-dichloro-2-butene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Trichlorotrifluoroethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**

Semivolatile Organic Compounds (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
1,1-Biphenyl	6	3000	6	6	10000	NE	NE	10000	NE	**6**
1,2,4-Trichlorobenzene	6	3000	6	6	NE	NE	NE	NE	NE	**6**
1,2-Dichlorobenzene	100	300	100	100	10000	NE	NE	10000	NE	**100**
1,2-Diphenylhydrazine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
1,2,4,5-Tetrachlorobenzene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
1,3-Dichlorobenzene	200	500	200	200	10000	NE	NE	10000	NE	**200**
1,4-Dichlorobenzene	1	400	1	1	240	NE	NE	240	NE	**1**
Phenol	50	20	20	20	10000	NE	NE	10000	NE	**20**
2,4,5-Trichlorophenol	1000	600	600	600	10000	NE	NE	10000	NE	**600**
2,4,6-Trichlorophenol	20	20	20	20	520	NE	NE	520	NE	**20**
2,4-Dichlorophenol	60	40	40	40	6100	NE	NE	6100	NE	**40**
2,4-Dimethylphenol	100	1000	100	100	10000	NE	NE	10000	NE	**100**
2,4-Dinitrophenol	50	100	50	50	4100	NE	NE	4100	NE	**50**
2,4-Dinitrotoluene	10	10	10	10	8.4	NE	NE	8.4	NE	**8.4**
2,6-Dinitrotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2-Chloronaphthalene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
2-Chlorophenol	100	300	100	100	10000	NE	NE	10000	NE	**100**
2-Methylnaphthalene	80	500	80	80	10000	NE	NE	10000	NE	**80**
Nitrobenzene	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
2-Methylphenol	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
2-Nitroaniline	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
2-Nitrophenol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
3,3'-Dichlorobenzidine	20	20	20	20	13	NE	NE	13	NE	**13**
3-Nitroaniline	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
4,6-Dinitro-2-methylphenol	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
4-Bromophenyl phenyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
4-Chloro-3-methylphenol	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Chloroaniline	40	3	3	3	8200	NE	NE	8200	NE	**3**
4-Chlorophenyl phenyl ether	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Nitroaniline	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Nitrophenol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Acenaphthene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Acenaphthylene	600	10	10	10	10000	NE	NE	10000	NE	**10**
Acetophenone	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Aniline	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Anthracene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Benzo(a)anthracene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Benzo(a)pyrene	7	7	7	7	0.8	5.7	NE	NE	NE	**5.7**
Benzo(b)fluoranthene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Benzo(g,h,i)perylene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Benzo(k)fluoranthene	400	400	400	400	78	NE	NE	78	NE	**78**
Benzidine	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Benzoic acid	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Bis(2-chloroethoxy)methane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Bis(2-chloroethyl)ether	0.7	8	0.7	0.7	5.2	NE	NE	5.2	NE	**0.7**
Bis(2-chloroisopropyl)ether	0.7	100	0.7	0.7	82	NE	NE	82	NE	**0.7**
Bis(2-ethylhexyl)phthalate	600	600	600	600	410	NE	NE	410	NE	**410**
Butyl benzyl phthalate	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Carbazole	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Chrysene	400	400	400	400	780	NE	NE	780	NE	**400**
Di(n)octyl phthalate	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dibenz(a,h)anthracene	4	4	4	4	0.8	5.7	NE	NE	NE	**5.7**
Dibenzofuran	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Diethyl phthalate	200	300	200	200	10000	NE	NE	10000	NE	**200**
Dimethyl phthalate	50	600	50	50	10000	NE	NE	10000	NE	**50**
Di-n-butylphthalate	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
Fluoranthene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Fluorene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Hexachlorobenzene	0.8	0.8	0.8	0.8	0.4	NE	NE	0.4	NE	**0.4**
Hexachlorobutadiene	100	100	100	100	73	NE	NE	73	NE	**73**
Hexachlorocyclopentadiene	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
Hexachloroethane	3	200	3	3	410	NE	NE	410	NE	**3**
Indeno(1,2,3-cd)pyrene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Isophorone	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Naphthalene	20	1000	20	20	10000	NE	NE	10000	NE	**20**
N-Nitrosodimethylamine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
N-Nitrosodi-n-propylamine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
N-Nitrosodiphenylamine	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Pentachloronitrobenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Pentachlorophenol	20	10	10	10	48	NE	NE	48	NE	**10**
Phenanthrene	1000	1000	1000	1000	10000	NE	NE	10000	NE	**1000**
Pyrene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
m&p-Cresol	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Pyridine	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**

Notes:

NE = Not established for this analyte.

SAGE ENVIRONMENTAL

Table 1 - Proposed Reuse Acceptance Criteria

Total Petroleum Hydrocarbons (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
Total Petroleum Hydrocarbons	3000	3000	3000	3000	2500	NE	2500	2500	NE	**1000**
Volatile Petroleum Hydrocarbons (MADEP-VPH) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
C5-C8 Aliphatic Hydrocarbons	500	500	500	500	NE	NE	NE	NE	NE	**500**
C9-C12 Aliphatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
C9-C10 Aromatic Hydrocarbons	500	500	500	500	NE	NE	NE	NE	NE	**500**
Extractable Petroleum Hydrocarbons (MADEP-EPH) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
C9-C18 Aliphatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
C19-C36 Aliphatic Hydrocarbons	5000	5000	5000	5000	NE	NE	NE	NE	NE	**5000**
C11-C22 Aromatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
Total Metals (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Antimony	30	30	30	30	820	NE	NE	820	NE	**30**
Arsenic	20	20	20	20	7	NE	NE	7	14.48	**14.48**
Barium	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Beryllium	200	200	200	200	1.5	NE	NE	1.5	3	**3**
Cadmium	100	100	100	100	1000	NE	NE	1000	NE	**100**
Chromium (Total)	200	200	200	200	10000	NE	NE	10000	NE	**200**
Chromium (III)	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Chromium (VI)	200	200	200	200	10000	NE	NE	10000	NE	**200**
Copper	NE	NE	NE	10000	10000	NE	NE	10000	NE	**10000**
Cyanide	100	100	100	100	10000	NE	NE	10000	NE	**100**
Lead	600	600	600	600	500	NE	NE	500	NE	**500**
Manganese	NE	NE	NE	NE	10000	NE	NE	10000	NE	**10000**
Nickel	1000	1000	1000	1000	10000	NE	NE	10000	NE	**1000**
Selenium	700	700	700	700	10000	NE	NE	10000	NE	**700**
Silver	200	200	200	200	10000	NE	NE	10000	NE	**200**
Vanadium	700	700	700	700	10000	NE	NE	10000	NE	**700**
Zinc	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Thallium	60	60	60	60	140	NE	NE	140	NE	**60**
Mercury	30	30	30	30	610	NE	NE	610	NE	**30**
Polychlorinated Biphenyls (PCBs) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Aroclor-1016	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1221	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1232	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1242	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1248	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1254	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1260	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1262	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Aroclor-1268	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
PCBs (Total)	4	4	4	4	10	NE	10	10	NE	**4**
Chlorinated Pesticides & Herbicides (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Alachlor	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Aldrin	0.5	0.5	0.5	0.5	NE	NE	NE	NE	NE	**0.5**
a-BHC	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
1-BHC	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
v-BHC (Lindane, y-HCH)	2	0.5	0.5	0.5	NE	NE	NE	NE	NE	**0.5**
0-BHC	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Chlordane	30	30	30	30	4.4	NE	NE	4.4	NE	**4.4**
4,4-DDD (p,p')	40	40	40	40	NE	NE	NE	NE	NE	**40**
4,4-DDE (p,p')	30	30	30	30	NE	NE	NE	NE	NE	**30**
4,4-DDT (p,p')	30	30	30	30	NE	NE	NE	NE	NE	**30**
Dieldrin	0.5	0.5	0.5	0.5	0.4	NE	NE	0.4	NE	**0.4**
a-Endosulfan (I)	500	1	1	1	NE	NE	NE	NE	NE	**1**
1-Endosulfan (II)	500	1	1	1	NE	NE	NE	NE	NE	**1**
Endosulfan Sulfate				See Listed Constituents						**NE**
Endrin	20	20	20	20	NE	NE	NE	NE	NE	**20**
Endrin Aldehyde	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Endrin ketone	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Heptachlor	2	2	2	2	NE	NE	NE	NE	NE	**2**
Heptachlor Epoxide	0.9	0.9	0.9	0.9	NE	NE	NE	NE	NE	**0.9**
Hexachlorobenzene	0.8	0.8	0.8	0.8	3.6	NE	NE	3.6	NE	**0.8**
Methoxychlor	400	400	400	400	NE	NE	NE	NE	NE	**400**
Toxaphene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
2,4-D	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2,4-DB	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Dalapon	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dicamba	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Dichlorprop	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Dinoseb	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
MCPA	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
MCPP	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
2,3,7,8-TCDD (equivalents)	0.00005	0.00005	0.00005	0.00005	NE	NE	NE	NE	NE	**0.00005**
2,4,5-T	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2,4,5-TP (Silvex)	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
General Chemistry	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Free Liquid - Paint Filter	NE	NE	NE	NE	NE	NE	NE	NE	NE	**No Free Liquids**
pH (SU)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**5.0-9.0 S.U.**
Corrosivity (positive/negative)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**Negative**
Specific Conductance (µmhos/cm)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**2000**
Flashpoint (°F)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**Non-Ignitable**
Ignitability (°F)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**>140 °F**
Reactive Cyanide (mg/kg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**<250**
Reactive Sulfide (mg/kg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**<500**

Notes:
NE = Not established for this analyte.

APPENDIX 1

November 4, 2022

Ms. Kasie McKenzie and Mr. Ronald Gagnon
Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Waste Facilities Management Program
235 Promenade Street
Providence, Rhode Island 02908
Sent via Hard copy and E-mail: kasandra.mckenzie@dem.ri.gov & ron.gagnon@dem.ri.gov

RE: Beneficial Use Determination -Variance Application
Comment Letter Response
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1, Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

Dear Ms. McKenzie and Mr. Gagnon:

Introduction

SAGE Environmental, Inc. (SAGE), on behalf of Rhode Island Waterfront Enterprises LLC, owner of the subject location (hereinafter, the "Site"), has prepared the subject package in response to a Beneficial Use Determination Application – Comment Letter issued by the Rhode Island Department of Environmental Management (RIDEM) on August 31, 2022. A copy of the RIDEM correspondence is included as **Attachment A**.

Response to Comments

RIDEM's comments are provided below in italics, followed by SAGE's response to each comment.

RIDEM Comment #1: Pages 7-10 of 121 of the BUD application provides the following justification for the selection of the proposed BUD material acceptance levels.

a. *Coventry Landfill BUD Reuse Levels: The Department will not accept this previously approved BUD as justification for a Lead level that is over 4 times the Remediation Regulations Table 1 Industrial/Commercial Direct Exposure Criteria (I/CDEC) for the South Quay Project. The approved BUD for the Coventry Landfill did not contaminate the site more than what was already there. Also, Coventry Landfill utilized an impermeable LDPE cap to prevent water infiltration into the BUD materials. The BUD soils were also not in direct contact with the water table. For the above reasons, the Coventry BUD is not acceptable to use for establishing acceptable BUD material levels*

for the South Quay Project.

Acknowledged. Please refer to Comment #1(b.), below, for a more detailed explanation of the proposed revisions to the South Quay Material Reuse Acceptance Criteria (Acceptance Criteria), including the proposed revised value for lead, which are a combination of both RIDEM and Massachusetts Department of Environmental Protection (MassDEP) standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), documented as being protective of marine life, the surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

b. *MassDEP Method 1 S-3/ GW-2 or GW-3 Soil Standards: When determining acceptable levels, the Department will not accept Massachusetts standards unless one for RI does not exist. Therefore, Massachusetts S-2 Soil and GW-1 standards can only be used for parameters that do not have a RIDEM I/CDEC. The Department cannot accept a soil standard that is not protective of the bay waters. Please update the allowable contaminant levels for the materials in Attachment B - Table C accordingly.*

The proposed revised Acceptance Criteria were derived by the following decision-making process which interprets and incorporates the RIDEM's comments:

1. Compare the lower of the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC) and Method 1 GB Leachability Criteria (GB-LC), as promulgated, for each analyte;
2. Simultaneously, compare the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standard, as promulgated, for each analyte;
3. Utilize the lower of the RIDEM Method 1 I/C-DEC, GB-LC, and MassDEP Method 1 S-2 GW-2/-3 Soil Standards as the Acceptance Criteria;
4. Where a RIDEM Method 1 I/C-DEC or GB-LC is not promulgated and a MassDEP Method 1 S-2 GW-2/-3 Soil Standard is, utilize the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standard as the Acceptance Criteria, and vice versa;
5. If no RIDEM Method 1 I/C-DEC, GB-LC, or MassDEP Method 1 S-2 GW-2/-3 Soil Standard is promulgated, the MassDEP S-2 Reportable Concentration (RCS-2) will be utilized to conservatively provide additional Acceptance Criteria for comparison/evaluation;
6. The Acceptance Criteria for five pyrogenic polycyclic aromatic hydrocarbons (PAHs) (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) will utilize the Proposed RIDEM Method 1 I/C-DEC as provided to SAGE by Ms. Ashley Blauvelt[1] of RIDEM, on October 21, 2022 *via* text message;
7. The Acceptance Criteria for two metals (arsenic and beryllium) will utilize the Site-specific Ecological Risk-Based Evaluation Soil Acceptance Criteria calculated by EcoTec, Inc.

[1] RIDEM Office of Land Revitalization & Sustainable Materials Management, Environmental Engineer IV.

(EcoTec)[2];

8. The Acceptance Criteria for total petroleum hydrocarbons (TPH) will utilize the 1,000 milligrams per kilogram (mg/kg) value as noted below in RIDEM Comment #2(b)(I). In addition, TPH data must include the correct carbon ranges (gasoline range organics [GRO] and/or diesel range organics [DRO]) based upon the Site history. If TPH-GRO are not indicated as potential COCs, then TPH-DRO data is acceptable and vice versa. In the event TPH exceeds the Acceptance Criteria, MassDEP Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) analysis may be used to speciate detections for comparison to alternate Acceptance Criteria defined as the lower of either the MassDEP Method 1 S-2 GW-2 or GW-3 Soil Standards for each carbon range (Note, no RIDEM *Remediation Regulations* Method 1 I/C-DEC or GB-LC exist for VPH or EPH); and,
9. For total chromium exceedances, speciation of the sample into chromium (III) and chromium (VI) can may be used for comparison to alternate approval/Acceptance Criteria defined as the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standards.

As documented in the *Beneficial Use Determination (BUD) – Variance Application*, MassDEP Method 1 Soil Standards consider both the potential risk of harm resulting from direct exposure and the potential impacts on groundwater. The applicability of a specific MassDEP Method 1 Soil Standard is thus a function of both the soil and groundwater category. The categories of soil (S-1, S-2, and/or S-3) and groundwater (GW-1, GW-2, and/or GW-3) are determined by each applicable exposure point.

The MassDEP Method 1 Category S-2 Soil Standards consider risk related to incidental ingestion and dermal contact with soil and its leaching potential (for volatile organic compounds [VOCs], select semi-volatile organic compounds [SVOCs], chlorinated benzenes, and certain chlorinated pesticides). Method 1 S-2 Soil Standards were developed considering moderate soil exposures by adults and light use by children in scenarios such as retail use and landscaping.

The MassDEP Method 1 GW-3 Groundwater Standards apply to all groundwater and are intended to address the adverse ecological effects that could result from the discharge of oil and/or hazardous materials (OHM) to surface water. Risk-based "target values" in surface water are modified by two dilution/attenuation factors to estimate an allowable concentration in groundwater. The two dilution attenuation factors are intended to conservatively account for dilution within the receiving waterbody and attenuation in the groundwater as the contaminant migrates towards the waterbody.

Note, the underlying RIDEM groundwater classification of the Site and surrounding area is “GB.” GB areas are defined as “groundwater resources which are known or presumed to be unsuitable for drinking water use without treatment”. As such, neither the RIDEM GA-LC nor the MassDEP GW-1 standards apply to this Site as these apply to groundwater areas that are either a current

[2] EcoTec, Inc. of Worcester, Massachusetts is an expert ecological risk assessment company with over 130 years of combined experience (https://ecotecinc.com/).

or a potential future source of drinking water.

As noted in RIDEM Comment #2(d.), it appears that the RIDEM was not receptive to the use of Method 1 S-3 Soil Standards, however, is receptive to the use of Method 1 S-2 Soil Standards as these were developed considering a greater degree of exposure. As the proposed revised Acceptance Criteria considers the lower of both the Method 1 S-2 GW-2 and GW-3 Soil Standards, the S-2 GW-3 Soil Standards are protective of surface water (i.e., Narragansett Bay) and/or any potential adverse ecological effects and are even more conservative as Acceptance Criteria when lower than the Method 1 I/C-DEC and/or GB-LC. In addition, the Method 1 S-2 GW-2/-3 account for:

- Soil leachability of various analytical sub-groups (including more analytes than the RIDEM Method 1 GB-LC);
- Were developed utilizing a more conservative risk assumption for the Non-cancer Hazard Index (HI) of 0.2 (versus the Method 1 I/C-DEC of 1); and,
- They evaluate for not only ingestion of soil (as evaluated by the RIDEM Method 1 I/C-DEC), but also for dermal absorption and inhalation of airborne particulates.

Therefore, the MassDEP Method 1 S-2 GW-2/-3 Soil Standards provide a more accurate representation and evaluation of potential exposure routes and risks. However, for conservancy, by utilizing the lower of the RIDEM's Method 1 I/C-DEC, GB-LC, and MassDEP Method 1 S-2 GW-2/-3 Soil Standards, this proposed approach provides the most conservative, risk-based, compromise to the initially proposed Acceptance Criteria. Also, use of the MassDEP RCS-2 when RIDEM or MassDEP standards are not available conservatively provides additional Acceptance Criteria for comparison/evaluation. The proposed revised Acceptance Criteria are summarized in the attached **Table 1**.

As noted above, the Acceptance Criteria for five pyrogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) will utilize the Proposed RIDEM Method 1 I/C-DEC as provided to SAGE by Ms. Ashley Blauvelt of RIDEM, on October 21, 2022. According to Ms. Blauvelt, the proposed revised Method 1 I/C-DEC for these PAHs were developed by utilizing more recent toxicity and/or risk information documented by the United States Environmental Protection Agency (U.S. EPA). The Proposed RIDEM Method 1 I/C-DEC and associated proposed revised Acceptance Criteria for these five pyrogenic PAHs are documented in the attached **Table 1**.

As noted in RIDEM Comment #2(c.), the RIDEM is receptive to proposed Acceptance Criteria exceeding RIDEM standards if justification is provided in the form of an ecological risk assessment for each contaminant which considers marine life, the water quality of the bay, human health and the environment. As noted above, the Acceptance Criteria for two metals (arsenic and beryllium) will utilize the Site-specific ecological risk based evaluation/documentation soil acceptance criteria values calculated by EcoTec (the Ecotec Ecological Risk-Based Evaluation Soil Acceptance Criteria) based upon a review of the Site and surrounding area in combination with all available

ecological screening benchmarks. The Ecological Risk-Based Evaluation Soil Acceptance Criteria proposed by EcoTec were developed to be conservatively protective of marine life, the water quality of the bay, human health, and the environment. The Ecotec Ecological Risk-Based Evaluation Soil Acceptance Criteria and associated proposed revised Acceptance Criteria for arsenic and beryllium are documented in the attached **Table 1**. A copy of EcoTec's ecological risk based evaluation/documentation is provided in **Attachment B**.

Please note, under no circumstance will the material delivered to the Site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations. Samples must be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) if analytes exceed 20x TCLP standard. Also, results of VOCs analysis will be required to meet a detection limit of 10x less than the Acceptance Criteria (unless detection limits are not achievable with available laboratory technology and documented as such in approval application paperwork) to safeguard against the delivery of potential listed hazardous waste to the Site.

The proposed redevelopment of the Site is for industrial/commercial use, and following the placement of BUD materials, the Site will be capped. Access to soils currently and following redevelopment is considered to be minimal and solely related to a utility and/or construction worker exposure. Therefore, the proposed combination of RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), the Acceptance Criteria, are conservatively protective of current and future risk to marine life, surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment. In addition, this combination of standards includes a greater number of contaminants for comparison than do the RIDEM soil standards alone, thus providing a more detailed understanding of the risk of proposed materials for import. Flowcharts depicting the afore outlined decision-making process are included as **Attachment C**.

RIDEM Comment #2: Prior to approval and accepting any BUD materials on site, the pre-characterization analytical data must be reviewed by RI Waterfront Enterprises LLC and/or their consulting engineers for conformance with the following chemical and physical characteristics:

a. *All BUD material must meet all parameters in the RIDEM I/CDEC and Table 2 - GA Leachability Standards due to the proximity of the site to the Narragansett Bay. Please update the allowable contaminant levels for the materials in Attachment B - Table C accordingly.*

   Please refer to Comment #1(b.), above, for a more detailed explanation of the proposed revisions to the Acceptance Criteria which are a combination of both RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), documented as being protective of marine life, the surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

b. *In addition to the I/CDEC limits, the following contaminant levels are applicable for the proposed BUD material:*

I. *Total Petroleum Hydrocarbons (TPH) – 1,000 parts per million (ppm) for Direct Exposure as well as Leachability Criteria.*

Acknowledged. As noted in Comment #1(b.), in the event TPH exceeds the Acceptance Criteria, MassDEP VPH and EPH analysis may be used to speciate detections for comparison to alternate Acceptance Criteria defined as the lower of either the MassDEP Method 1 S-2 GW-2 or GW-3 Soil Standards for each carbon range (Note, no RIDEM *Remediation Regulations* Method 1 I/C-DEC or GB-LC exist for VPH or EPH).

I. *Free Liquids – No free liquids*

Acknowledged. As you are aware, Table C – Proposed Reuse Acceptance Criteria of the Materials Management Plan (MMP) submitted to the RIDEM on May 13, 2022 as Attachment A within the BUD – Variance Application indicates the proposed Acceptance Criteria for Free Liquids is "No Free Liquids." Therefore, no change is necessary in the final MMP.

c. *To propose material acceptance levels that exceed the I/CDEC or the GA Leachability Criteria, please provide justification in the form of an ecological risk assessment for each contaminant. The risk assessment should consider marine life, the water quality of the bay, human health and the environment. The Department maintains the right to deny any proposed acceptance levels.*

Please refer to Comment #1(b.), above, for a more detailed explanation of the proposed revisions to the Acceptance Criteria which are a combination of both RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), documented as being protective of marine life, the surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

d. *If standards do not exist in RI for certain parameters, Massachusetts S-2 Soil and GW-1 standards may be used instead.*

Please refer to Comment #1(b.), above, for a more detailed explanation of the proposed revisions to the Acceptance Criteria which are a combination of both RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), documented as being protective of marine life, the surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

e. *Each source shall have at least 10 grab soil samples collected during an initial assessment to see if a source is viable. The samples must meet condition 2a above.*

Each sample shall consist of a composite of a minimum of ten grab samples from the source of material (i.e., stockpile, in-situ pre-characterization, etc.) proposed for reuse under the BUD. Each sample set shall include VOCs analysis, collected from a discrete location (i.e., highest detection of total volatile organic vapors

[TVOV] utilizing a photoionization detector [PID], indication of visual or olfactory evidence of contamination, etc.) from the source of the material proposed for reuse under the BUD. Source viability will be assessed following review of each Qualified Environmental Professional (QEP) Opinion Letter package submitted for potential approval under the BUD. Assuming this response is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

f. *Once a source is considered viable according to comment 2d above, there must then be a testing frequency according to Attachment B Table B of the application. The samples must also meet condition 2a above.*

As noted in Comment #2(e.) above, source viability will be assessed following review of each QEP Opinion Letter package submitted for potential approval under the BUD. As you are aware, Section 4.2 of the *MMP* outlines the pre-characterization requirements of each BUD material source and Table B – Requirements for Specific BUD Materials of the *MMP* as Attachment A within the *BUD – Variance Application* indicates material specific testing frequencies (i.e., one test profile per 1,000 cubic yards of material per source, etc.). If the material- and source-specific specified testing frequency is not documented in the QEP Opinion Letter package, said package will be denied until further information is provided. This information is documented in the existing *MMP* and therefore, no change is necessary in the final MMP.

Please refer to Comment #1(b.), above, for a more detailed explanation of the proposed revisions to the Acceptance Criteria which are a combination of both RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), documented as being protective of marine life, the surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

g. *As mentioned in Attachment B Table B of the application, please propose a specific testing procedure and testing frequency for the processed ABC materials.*

As you are aware, Table B – Requirements for Specific BUD Materials of the *MMP* states that testing of non-painted asphalt, brick, and concrete (ABC) materials is not required as no soil will be included in this source. Additionally, Section 4.2 of the *MMP* states that testing of non-painted asphalt, brick, and concrete (ABC) materials is not required. This information is documented in the existing *MMP* and therefore, no change is necessary in the final MMP.

To clarify, if trace amounts of soil are present in the ABC materials proposed for reuse under the BUD, the testing frequency for those soils will be determined based on the material and source-specific testing criteria in accordance with Table B – Requirements for Specific BUD Materials of the *MMP*. The testing

procedure for those soils is as outlined in Section 4.2 of the *MMP*. Assuming this response is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

h. *As mentioned in Attachment B Table B, please provide the analytical method that will be used to test the rock material for perchlorate and sulfide materials.*

As you are aware, Section 4.2 of the *MMP* states that "Testing for acid base accounting and net acid generation potential unless the Generator demonstrates the rock is not known or suspected to contain sulfide minerals." Therefore, rock (blasted or excavated ledge/bedrock) proposed for reuse under the BUD will require analysis for acid base accounting *via* Modified Acid Base Accounting (Lawrence, 1989) and net acid generation potential *via* Net Acid Generation (NAG) Test unless the QEP/Generator sufficiently demonstrate the source rock is not known or suspected to contain sulfide materials. Additional testing data, although not required, may include Net Acid Production (NAP) Test, Diagnostic Mineralogy (to identify sulfur mineral speciation, non-iron bearing sulphides, and the reactivity of sulphide minerals) using X-Ray Diffraction (XRD), X-Ray Fluorescence (XRF), Explomin, and/or Optical Microscopy, Standard Humidity Cell Testing (ASTM D5744-96), and/or Column Testing (sub-aqueous and/or sub-aerial).

Rock (blasted or excavated ledge/bedrock) proposed for reuse under the BUD will require analysis for perchlorate *via* U.S. EPA Method 6850 unless technical justification is provided by the QEP for the Generator to document that perchlorate testing is not required.

Assuming these responses are acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

i. *RI Waterfront Enterprises LLC and/or their consulting engineers are responsible for ensuring that soils taken onto site do not significantly contribute to adverse effects to any Environmentally Sensitive Areas at or in the vicinity of the site in accordance with Section 1.9.1(A)(3) of the Remediation Regulations. Additionally, the soils taken onto site must not degrade the state's water quality according to CFR 131.12 – Antidegradation policy. Antidegradation applies to all projects or activities subject to the Rhode Island Water Quality Regulation which will likely lower water quality or affect existing or designated uses.*

Note, the underlying groundwater classification of the Site and surrounding area is "GB." GB areas are defined as "groundwater resources which are known or presumed to be unsuitable for drinking water use without treatment".

Please refer to Comment #1(b.), above, for a more detailed explanation of the proposed revisions to the Acceptance Criteria which are a combination of both RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium

Acceptance Criteria), documented as being protective of marine life, the surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

As noted above, the proposed revised Acceptance Criteria utilize current risk and toxicity information that are also protective of soil leachability, protective of surface water, address the adverse ecological effects that could result from the discharge of OHM to surface water, and meet the RIDEM promulgated GB groundwater classification for the Site. Additionally, Section 4.2 of the *MMP* and the *BUD – Variance Application* state that "under no circumstance will the material delivered to the site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations", thereby further eliminating the risk for potential leachability of contaminants from BUD materials. Therefore, no materials imported for reuse under the BUD will affect groundwater underlying the Site nor surface water surrounding the Site or existing/designated uses at concentrations with the potential to significantly contribute to adverse effects to any Environmentally Sensitive Area or which would likely lower water quality or affect existing or designated uses in accordance with CFR 131.12.

As you are aware, Section 3.1 of the *MMP* documents soil erosion and sediment controls to be installed and maintained throughout the duration of the project to protect the waters of the State of Rhode Island from pollution. Following BUD management activities, and as part of redevelopment activities, the currently proposed remedy (included in the Site Investigation Report [SIR] submitted to the RIDEM concurrently with the initial BUD application and currently undergoing RIDEM review) to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier and the implementation of an Environmental Land Use Restriction (ELUR) to prevent future human exposure to impacted soils.

The proposed engineered barrier will consist of a 3-foot layer of dense grade aggregate (DGA) clean fill (to be sampled prior to importation to the Site in accordance with future RIDEM approvals), minimal crushed stone infiltration trenches, and rip rap on the northern and southern Site slopes (as there currently is now). The DGA shall meet M.1.02.2 and the gradations in M1.09 in the Rhode Island Department of Transportation (RIDOT) BlueBook. Given the proposed future use of the Site, the DGA will be densely compacted in place to greater than 95% of its modified proctor value, creating a strong wearing surface capable of handling and transporting large components. Therefore, the engineered barrier (combination of the DGA, stone, and rip rap) and ELUR will also serve to protect any future BUD materials erosion. The Site grades have been designed to slope away from surface water (i.e., Narragansett Bay), from west to east towards the center of the Site, at which stormwater management infrastructure will be present. A copy of the conceptual plan for raising the Site's elevation is included

as **Attachment D**.

In addition, during redevelopment, an engineered bulkhead structure will be built along the western, northern, and southern Site boundaries. The proposed bulkhead shall consist of twenty-five 61-foot diameter large cofferdam cells and twenty-four 22-foot by 61-foot smaller (interconnect) cofferdam cells, comprised of marine grade steel sheet pilings driven down to proper bearing soils estimated at approximately 100-feet below ground surface. The bulkhead will be approximately 1,380 linear feet along the western Site boundary and 380 linear feet along the northern and southern Site boundaries. This engineered bulkhead structure will aid in further stabilizing Site soils and eliminating erosion of Site soils due to tidal action or storm events. Copies of the plans outlining the engineered bulkhead structure locations are included as **Attachment D**.

In order to protect the surrounding natural resources and prevent erosion and sedimentation, this project has been designed and will be constructed in Compliance with the Rhode Island Soil Erosion and Control Handbook (updated 2016) and will be subject to a Rhode Island Pollutant Discharge Elimination System (RIPDES) Construction General Permit (CGP). In addition, a draft Soil Erosion and Sediment Control Plan (SESC Plan) has been developed to detail controls and best practices on filling the Site. The general contractor and all earthwork subcontractors will be required to review, acknowledge and follow all of the requirements in the SESC Plan as part of the construction of the project. A copy of the draft SESC Plan is included for your review in **Attachment E**. Important notes include the following:

- Existing slopes located on the northern and southern portions of the Site will be maintained and not be changed beyond extending upward to meet the new Site grades. Along the western Site boundary, sheet piles will be driven to contain the Site fill to provide stability against any un-engineered slopes. No permanent slopes will exceed the 30% threshold and any design slopes will be installed at a maximum grade of 4:1 (25%) or 5:1 (20%).
- For the existing Site materials, they will be leveled out and spread across the Site as part of the interim grading plan and then the overall property will be filled evenly up to the final grades (see conceptual plan in **Attachment D**) with imported, compacted materials.
- All of the areas of soils to be disturbed as part of the project will likely be used as part of Site development. However, in the event that there are upland soil areas that are disturbed as part of the construction but not part of the final developed Site (e.g., along a top of slope), in compliance with the project SESC Plan, these areas will be graded to a stable slope (based on their physical characteristics) and re-vegetated if left undisturbed for more than 14 days.

- Materials that will be reused on-Site will have been characterized and with the environmental controls and methodologies prescribed for this project, do not represent a risk to pollute the tidal waters.
- All of the proposed work is being conducted within the footprint of previously disturbed Site areas, from the toe of the embankment landward. There will be new filling over a coastal bank and all filling will occur within the sheet pile cells and within the adjacent upland portions of the Site.
- Construction materials and excavated soils shall not be placed or stored on any shoreline feature excepting manmade shorelines. Materials staging areas will be located within the upland portion of the Site, only in designated areas, as indicated in the SESC Plan.
- All disturbed soils that are not to be included in the operating areas of the Site shall be graded smooth to a maximum 5:1 slope, unless otherwise called out on the project plans, and re-vegetated immediately after construction, or temporarily stabilized with mulch, jute matting or similar means until seasonal conditions permit such re-vegetation.
- A silt fence/straw wattle line will encircle the work along the downgradient slopes to keep soils from eroding/migrating off-Site during precipitation events. All disturbed slopes will be stabilized and returned to original or design grades, as indicated on the project drawings. If the slopes do become susceptible to erosion, they shall be stabilized and re-vegetated. Temporary stormwater management best management practices (BMPs) will be constructed and maintained such that no stormwater flows will be allowed to discharge off-Site or to the permanent stormwater BMPs (e.g., drains, sub-grade piping, etc.), until the site has been stabilized.
- The project does not propose to disturb any steep slopes (with the exception of dredging in front of the embankment, which will be handled separately). New design slopes will be less than 20%. However, the majority of the Site will be graded at 0.5%. The only slopes steeper than 0.5% will be the existing slopes along the embankment, and those will be maintained and supported with hardened shoreline materials like rip rap and granite block.

Therefore, throughout the duration of the project/redevelopment activities and future Site use, the existing *MMP* sufficiently documents that BUD materials will be managed in accordance with Section 1.9.1(A)(3) of the *Remediation Regulations* and the Code of Federal Regulations (CFR) Title 40, Chapter I, Subchapter D, Part 131, Subpart B, § 131.12 – Antidegradation Policy and Implementation Methods. However, assuming these responses are acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review, to include this additional clarification.

j. *The analytical data must be conducted by a licensed environmental laboratory with the RIDOH, registered in the state of Rhode Island, and with accreditations as part of the National Environmental Laboratory Accreditation Program (NELAP).*

Acknowledged. The MMP will be revised to state in Section 4.2 that "Laboratory analytical data must be analyzed by a Rhode Island Department of Health (RIDOH) licensed environmental laboratory, registered in the State of Rhode Island, and accredited by the National Environmental Laboratory Accreditation Program (NELAP).

Assuming this response is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

k. *The proposed BUD material must not contribute to odors, propagation of vectors or blowing of litter and dust.*

As you are aware, Section 4.3 of the *MMP* states "Material will contain no nuisance odors such as petroleum, chemicals, solvent, and/or organic material/hydrogen sulfide as described on boring or test pit logs, stockpile sampling plans, and/or upon arrival at the Site unless otherwise previously permitted. Material with natural organic/hydrogen sulfide odor that is mixed with an odor reducing agent at the location of origin will be evaluated on a case-by-case basis." In addition, Section 4.6 of the *MMP* details an odor assessment and control plan.

Section 3.5 of the *MMP* states "By utilizing specific BUD materials in accordance with this MMP, reuse of these materials is not conducive to generation of nuisance conditions". Also, Sections 3.7 and 4.6 of the *MMP* detail dust monitoring and dust control measures to be implemented during BUD management activities. No litter will be present during BUD management activities.

This information is documented in the existing *MMP* and therefore, no change is necessary in the final MMP.

l. *All testing methods shall conform to Section 1.16 - Analytical Methods for Reporting in the Remediation Regulations.*

As you are aware, Section 4.2 of the *MMP* details the required test parameters and associated laboratory analytical methods to be considered for acceptance. All methods detailed in Section 4.2 conform to Section 1.16 – Analytical Methods for Reporting of the *Remediation Regulations* except as follows.

- The analytical method identified in Section 1.16 of the *Remediation*

Regulations for polychlorinated biphenyls (PCBs) is U.S. EPA Method 8080. U.S. EPA Method 8080 is a packed column gas chromatography method which the U.S. EPA removed from SW-846 as of Update III, is no longer recognized as a suggested method by the U.S. EPA, and was replaced with a capillary column gas chromatography method, U.S. EPA Method 8082[3]. In addition, the industry standard method for analysis of PCBs is U.S. EPA Method 8082. To meet current U.S. EPA Region 1 PCB Toxic Substances Control Act (TSCA) requirements, all samples must be analyzed *via* U.S. EPA Manual Soxhlet Extraction Method 3540. This information is documented in the existing *MMP* and therefore, no change is necessary in the final MMP.

- The analytical method identified in Section 1.16 of the *Remediation Regulations* for pesticides is U.S. EPA Method 8080. Please see the discussion above for PCBs regarding the removal of this method from SW-846 by the U.S. EPA. The U.S. EPA replaced Method 8080 with Method 8081 for pesticides analysis. In addition, the industry standard method for analysis of pesticides is U.S. EPA Method 8081. This information is documented in the existing *MMP* and therefore, no change is necessary in the final MMP.
- Section 4.2 of the MMP will be revised to include the following analytical methods:

    - RIDEM 16 Metals (Antimony, Arsenic, Barium, Beryllium, Cadmium, Total Chromium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc) *via* U.S. EPA Methods 6010/7471;
    - Hexavalent Chromium if Total Chromium > 100 mg/kg *via* U.S. EPA Method 7196 and extracted *via* U.S. EPA Method 3060;
    - Toxicity Characteristic Leaching Procedure (TCLP) for any analyte exceeding U.S EPA TCLP Trigger Values (20 times rule) *via* U.S. EPA Method 1311;
    - Others as deemed prudent based on material source site history including asbestos *via* OSHA Method 160/NIOSH Method 7400, total and amenable cyanide *via* U.S. EPA Method 9010, dioxins/furans *via* U.S. EPA Method 1613 or 8290, per- and polyfluoroalkyl substances *via* U.S. EPA Draft Method 1633 with isotope dilution, and acid rock drainage (acid base accounting *via* Modified Acid Base Accounting (Lawrence, 1989) and net acid generation potential *via* NAG Test)/perchlorate testing *via* U.S. EPA Method 6850 for blasted or excavated ledge or bedrock.

As noted above in Comment #2(b.), TPH laboratory analytical must include the correct carbon ranges (GRO and/or DRO) based upon the Site history. If TPH-GRO are not indicated as potential COCs, then TPH-DRO data is acceptable and vice versa. In the event TPH exceeds the Acceptance Criteria, MassDEP VPH and EPH analysis may be used to speciate

[3] https://www.govinfo.gov/content/pkg/FR-1997-06-13/pdf/97-15410.pdf

detections for comparison to alternate Acceptance Criteria defined as the lower of either the MassDEP Method 1 S-2 GW-2 or GW-3 Soil Standards for each carbon range (Note, no RIDEM *Remediation Regulations* Method 1 I/C-DEC or GB-LC exist for VPH or EPH).

Assuming this response is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

m. *Please note that the Department does not accept composite samples, only grab samples can be used.*

Please refer to Comment #2(e.) for a more detailed explanation of the proposed revised sampling protocol which shall provide a conservative data set for review during evaluation of QEP Opinion Letter packages. Note, the industry standard disposal characterization sampling procedures for land disposal follows this sampling protocol throughout the United States. Assuming this response is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

n. *Attachment B Table B- Requirements for Specific BUD Materials, states that the soils will include "no more than 5% of solid waste (including trash)". Please note that the Department will not accept any materials with the inclusion of trash. The Solid Waste Regulations would be triggered at 3 cubic yards of trash.*

The comment reference to "*no more than 5% of solid waste (including trash)*" was included to capture incidental amounts of solid waste present in the waste stream (i.e., 6-mil polyethylene sheeting used during soil stockpiling, incidental debris within urban fill soils, etc.).

To clarify, the proposed amendment to the above-quoted statement is "no solid waste, as defined in Section 1.5 of the RIDEM's *Rules and Regulations for Solid Waste Management Facilities and Organic Waste Management Facilities* (Solid Waste Regulations), will be accepted for reuse under the BUD with the exception of incidental amounts of 6-mil polyethylene sheeting used during soil stockpiling, incidental debris within urban fill soils, etc. If any amount of solid waste is present in the material proposed for reuse under the BUD, the Generator/QEP must include this information in the QEP Opinion Letter package or include a statement that no solid waste is present. Acceptance of proposed materials containing any level of solid waste will be reviewed on a case-by-case basis.

Assuming this response is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

o. *Please add the above-mentioned comments to the Materials Management Plan and the allowable contaminant levels and testing procedures for the materials in Attachment B - Table B and C accordingly.*

Assuming this Response to Comments is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

RIDEM Comment #3: A monthly summary shall be electronically sent to the Department listing the volume of soil accepted, the source location, the sampling analytical data and a figure that shows the location it was spread and/or stockpiled on the site. RI Waterfront Enterprises LLC and/or their consulting engineers are responsible for tracking the delivered tonnage and/or volume, source of the material and analytical data for this project.

Acknowledged. If the RIDEM prefers that this monthly summary be provided in a particular format, please provide a copy of the format requested for inclusion in the BUD – Variance Application – REV2 package.

RIDEM Comment #4: The Department reserves the right to split samples of any material received at the Site and to perform additional testing on the material upon its arrival at the site to ensure conformance.

Acknowledged. Please provide a list of the proposed additional testing parameters and methods the RIDEM intends to utilize. Please provide a proposed chain/order of distribution of the RIDEM laboratory analytical data report(s) to respective parties (i.e., Generator, Generator's consultant, QEP Opinion Letter reviewing consultant, etc.). This information will be included in the BUD – Variance Application – REV2 package.

RIDEM Comment #5: The Department shall be notified via email, 48 hours prior to accepting any BUD soils on site.

Acknowledged. Please clarify that if by "BUD soils" in the RIDEM Comment #5, the RIDEM intends this comment to be directed as Category 4 materials in Table B – Requirements for Specific BUD Materials of the *MMP* and Categories 1 through 3 are excluded from this requirement due to the inherent nature of their material types. This information will be included in the BUD – Variance Application – REV2 package.

RIDEM Comment #6: A public hearing is required for this project and a draft of the public notification must be pre-approved by the Department before being posted. The public notification must be posted in the East Providence and Providence Journal newspapers and must include date, time, project description, online location for the public hearing, as well as a translation in Portuguese and Spanish. A list of all abutters and town officials must also be pre-approved by the Department.

Acknowledged. As you are aware, the *BUD – Variance Application* included draft public notification documents for the RIDEM review. Those documents included a draft notice

to the City of East Providence Chief Municipal Officer (CMO) and a draft legal notice for print in a newspaper.

Pursuant to the RIDEM Comment #6, revised/additional draft public notification documentation has been included in **Attachment F** of this Comment Letter Response for the RIDEM's review and approval. Please note, RIWE is the owner of all abutting properties with the exception of 0 Pier Road (Parcel 007-01-001.10) owned by Sprague Operating Resources LLC and 0 ZZ Railroad Site (Parcel 007-01-004.00) owned by the State of Rhode Island and RIDOT.

Assuming the documentation presented in **Attachment F** is approved by the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review which includes these documents.

RIDEM Comment #7: Soils taken onto site shall only be delivered to the site between 7:30 am and 5:00 pm, Monday through Friday. Please add this to the Materials Management Plan.

Acknowledged. SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

RIDEM Comment #8: Please clarify if the BUD material will have contact with the bay and if there will be some sort of barrier used as the elevation is raised to prevent erosion or collapse of slopes. Conceptual plans on raising site elevation must be provided to the Department's Site Remediation group.

As you are aware, Section 3.1 of the *MMP* documents soil erosion and sediment controls to be installed and maintained throughout the duration of the project to protect the waters of the State of Rhode Island from pollution. Following BUD management activities, and as part of redevelopment activities, the currently proposed remedy (included in the SIR submitted to the RIDEM concurrently with the initial BUD application and currently undergoing RIDEM review) to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier (combination of the DGA, stone, and rip rap) and the implementation of an ELUR to prevent future human exposure to impacted soils. The engineered barrier and ELUR will also serve to prevent any future BUD materials erosion.

Please refer to Comment #2(i.) for a more detailed explanation of the soil erosion and sediment controls, engineered bulkhead structure, and slope management. A copy of the conceptual plan for raising the Site's elevation is included as **Attachment D**. A copy of the draft SESC Plan is included for your review in **Attachment E**.

RIDEM Comment #9: Please clarify what type of cap, if any, is being proposed on top of the BUD material and when this plan will be submitted.

As noted above in response to RIDEM Comments #2(i.) and #8, following BUD

management activities, and as part of redevelopment activities, the currently proposed remedy (included in the SIR submitted to the RIDEM concurrently with the initial BUD application and currently undergoing RIDEM review) to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier and the implementation of an ELUR to prevent future human exposure to impacted soils. The proposed engineered barrier alternatives will consist of a 3-foot layer of dense grade aggregate (DGA) clean fill (to be sampled prior to importation to the Site in accordance with future RIDEM approvals), minimal crushed stone infiltration trenches (3-feet minimum thickness), and rip rap (3-feet minimum thickness) on the northern and southern Site slopes (as there currently is now).

RIDEM Comment #10: Please revise the BUD application to reflect and address these comments. Any revisions made to the plan must be approved by the LRSMM Solid Waste team before a BUD Approval Letter is issued.

Assuming this Response to Comments is acceptable to the RIDEM, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

Additional Items for Consideration and Approval

The following bulleted items are presented for the RIDEM's consideration and approval:

- As noted in the *BUD – Variance Application*, acceptance of dredge material is not proposed under the subject BUD. Any dredge material proposed for reuse at the Site will be permitted by the Coastal Resources Management Council (CRMC) and/or others. Please provide acknowledgement of the receipt and approval of this statement and agreement that dredge materials are non-jurisdictional and meet the BUD requirements for reuse under the engineered barrier.
- As documented in the Development Phase A Limited Remedial Action Closure Report for the Former Gulf Fuel Terminal located adjacent to the Site, prepared by Arcadis and dated December 2017, approximately 200,000 cubic yards of backfill material was placed at the property as approved by the RIDEM in the May 20, 2013 dated Remedial Approval Letter (RAL) and associated approval letters for various corresponding Limited Remedial Action Work Plan (LRAWP) submittals. Approximately 140,000 cubic yards of the backfill was from previously excavated areas of the property not requiring ex-situ soil stabilization/solidification (ESS/S) treatment or identified as meeting the remedial objective following treatment by ESS/S and approximately 60,000 cubic yards of clean fill (sampled and certified as clean fill in accordance with Arcadis' 2013 Soil Management Plan) was imported from off-property sources. These soils were approved by the RIDEM for reuse at the property beneath a pervious engineered cap (2-foot minimum) and filing of an ELUR. For reference, a copy of the Limited Remedial Action Closure Report is included as **Attachment G**.
    - Based on the RIDEM's previous approvals/acceptance of the reuse/use of these soils on

the adjacent Former Gulf Fuel Terminal property, please provide acknowledgement that these soils may also be excavated, transported, and utilized at the Site without any additional testing as the soils were previously authorized for reuse under a pervious engineered cap and the currently proposed remedy at the Site to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier and the implementation of an ELUR to prevent future human exposure to impacted soils.

Conclusions

By approving these comment responses and proposed Acceptance Criteria, the limited and finite state landfill capacity will be preserved for better suited uses (i.e., municipal solid waste) while maintaining an appropriate risk level for imported materials based on the current and future use of the Site. In addition, the BUD materials will reduce and/or eliminate the soil or gravel that would have to be mined from a natural source.

Assuming these responses are acceptable, SAGE will revise the BUD (including all figures, tables, and/or attachments) as necessary and provide the RIDEM a BUD – Variance Application – REV2 package for review.

Should you have any questions, please contact the undersigned at (401) 723-9900.

Sincerely,
SAGE Environmental, Inc.

Anthony Rossato
Project Manager

Jacob H. Butterworth, MS, LSP
Vice President

Richard J. Mandile
Principal

cc: Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.

TABLE

Table 1: Proposed Reuse Acceptance Criteria

ATTACHMENTS

Attachment A:	RIDEM Correspondence
Attachment B:	Ecotec, Inc. Ecological Risk-Based Evaluation Report
Attachment C:	Flowcharts
Attachment D:	Civil Plans
Attachment E:	Soil Erosion and Sediment Control Plan
Attachment F:	Draft Public Notification
Attachment G:	Copy of Arcadis' DPA LRACR

TABLES

SAGE ENVIRONMENTAL

Table 1 - Proposed Reuse Acceptance Criteria

Volatile Organic Compounds (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/ Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/ Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
Acetone	50	400	50	50	10000	NE	NE	10000	NE	**50**
Benzene	200	200	200	200	200	NE	4.3	4.3	NE	**4.3**
Bromobenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Bromochloromethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Bromodichloromethane	0.1	100	0.1	0.1	92	NE	NE	92	NE	**0.1**
Bromoform	1	800	1	1	720	NE	NE	720	NE	**1**
Bromomethane	0.5	30	0.5	0.5	2900	NE	NE	2900	NE	**0.5**
2-Butanone	50	400	50	50	10000	NE	NE	10000	NE	**50**
tert-Butyl alcohol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
sec-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
n-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
tert-Butylbenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Methyl t-butyl ether (MTBE)	100	500	100	100	10000	NE	100	100	NE	**100**
Carbon Disulfide	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Carbon Tetrachloride	5	100	5	5	44	NE	5	5	NE	**5**
Chlorobenzene	3	100	3	3	10000	NE	100	100	NE	**3**
Chloroethane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Chloroform	0.2	1000	0.2	0.2	940	NE	NE	940	NE	**0.2**
Chloromethane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
4-Chlorotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2-Chlorotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,2-Dibromo-3-chloropropane (DBCP)	NE	NE	NE	100	4.1	NE	NE	4.1	NE	**4.1**
Dibromochloromethane	0.03	100	0.03	0.03	68	NE	NE	68	NE	**0.03**
1,2-Dibromoethane (EDB)	0.1	5	0.1	0.1	0.07	NE	NE	0.07	NE	**0.07**
Dibromomethane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
1,2-Dichlorobenzene	100	300	100	100	10000	NE	NE	10000	NE	**100**
1,3-Dichlorobenzene	200	500	200	200	10000	NE	NE	10000	NE	**200**
1,4-Dichlorobenzene	1	400	1	1	240	NE	NE	240	NE	**1**
1,1-Dichloroethane	9	1000	9	9	10000	NE	NE	10000	NE	**9**
1,2-Dichloroethane	0.1	100	0.1	0.1	63	NE	2.3	2.3	NE	**0.1**
trans-1,2-Dichloroethene	1	1000	1	1	10000	NE	92	92	NE	**1**
cis-1,2-Dichloroethene	0.1	500	0.1	0.1	10000	NE	60	60	NE	**0.1**
1,1-Dichloroethene	40	1000	40	40	9.5	NE	0.7	0.7	NE	**0.7**
1,2-Dichloropropane	0.1	100	0.1	0.1	84	NE	70	70	NE	**0.1**
2,2-Dichloropropane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
cis-1,3-Dichloropropene	NE	NE	NE	0.1	NE	NE	NE	NE	NE	**0.1**
trans-1,3-Dichloropropene	NE	NE	NE	0.1	NE	NE	NE	NE	NE	**0.1**
1,1-Dichloropropene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,3-Dichloropropene (cis + trans)	0.4	90	0.4	0.4	NE	NE	NE	NE	NE	**0.4**
Diethyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,4-Dioxane	6	90	6	6	NE	NE	NE	NE	NE	**6**
Ethylbenzene	1000	1000	1000	1000	10000	NE	62	62	NE	**62**
Hexachlorobutadiene	100	100	100	100	NE	NE	NE	NE	NE	**100**
2-Hexanone	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Isopropylbenzene	NE	NE	NE	10000	10000	NE	NE	10000	NE	**10000**
p-Isopropyltoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Methylene Chloride	4	700	4	4	760	NE	NE	760	NE	**4**
4-Methyl-2-pentanone	50	400	50	50	10000	NE	NE	10000	NE	**50**
Naphthalene	20	1000	20	20	10000	NE	NE	10000	NE	**20**
n-Propylbenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Styrene	4	300	4	4	190	NE	64	64	NE	**4**
1,1,1,2-Tetrachloroethane	0.1	400	0.1	0.1	220	NE	NE	220	NE	**0.1**
Tetrachloroethene	10	200	10	10	110	NE	4.2	4.2	NE	**4.2**
Tetrahydrofuran	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Toluene	1000	1000	1000	1000	10000	NE	54	54	NE	**54**
1,2,4-Trichlorobenzene	6	3000	6	6	10000	NE	NE	10000	NE	**6**
1,2,3-Trichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,1,2-Trichloroethane	2	200	2	2	100	NE	NE	100	NE	**2**
1,1,1-Trichloroethane	600	1000	600	600	10000	NE	160	160	NE	**160**
Trichloroethene	0.3	60	0.3	0.3	520	NE	20	20	NE	**0.3**
1,2,3-Trichloropropane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,3,5-Trimethylbenzene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
1,2,4-Trimethylbenzene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Vinyl Chloride	0.7	7	0.7	0.7	3	NE	NE	3	NE	**0.7**
o-Xylene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
m&p-Xylene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Total xylenes	100	1000	100	100	10000	NE	NE	10000	NE	**100**
1,1,2,2-Tetrachloroethane	0.02	50	0.02	0.02	29	NE	NE	29	NE	**0.02**
tert-Amyl methyl ether	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,3-Dichloropropane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Ethyl tert-butyl ether	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Diisopropyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Trichlorofluoromethane	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dichlorodifluoromethane	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
2-Isopropyltoluene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Acrylonitrile	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
trans-1,4-dichloro-2-butene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Trichlorotrifluoroethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**

Semivolatile Organic Compounds (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
1,1-Biphenyl	6	3000	6	6	10000	NE	NE	10000	NE	**6**
1,2,4-Trichlorobenzene	6	3000	6	6	NE	NE	NE	NE	NE	**6**
1,2-Dichlorobenzene	100	300	100	100	10000	NE	NE	10000	NE	**100**
1,2-Diphenylhydrazine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
1,2,4,5-Tetrachlorobenzene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
1,3-Dichlorobenzene	200	500	200	200	10000	NE	NE	10000	NE	**200**
1,4-Dichlorobenzene	1	400	1	1	240	NE	NE	240	NE	**1**
Phenol	50	20	20	20	10000	NE	NE	10000	NE	**20**
2,4,5-Trichlorophenol	1000	600	600	600	10000	NE	NE	10000	NE	**600**
2,4,6-Trichlorophenol	20	20	20	20	520	NE	NE	520	NE	**20**
2,4-Dichlorophenol	60	40	40	40	6100	NE	NE	6100	NE	**40**
2,4-Dimethylphenol	100	1000	100	100	10000	NE	NE	10000	NE	**100**
2,4-Dinitrophenol	50	100	50	50	4100	NE	NE	4100	NE	**50**
2,4-Dinitrotoluene	10	10	10	10	8.4	NE	NE	8.4	NE	**8.4**
2,6-Dinitrotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2-Chloronaphthalene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
2-Chlorophenol	100	300	100	100	10000	NE	NE	10000	NE	**100**
2-Methylnaphthalene	80	500	80	80	10000	NE	NE	10000	NE	**80**
Nitrobenzene	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
2-Methylphenol	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
2-Nitroaniline	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
2-Nitrophenol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
3,3'-Dichlorobenzidine	20	20	20	20	13	NE	NE	13	NE	**13**
3-Nitroaniline	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
4,6-Dinitro-2-methylphenol	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
4-Bromophenyl phenyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
4-Chloro-3-methylphenol	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Chloroaniline	40	3	3	3	8200	NE	NE	8200	NE	**3**
4-Chlorophenyl phenyl ether	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Nitroaniline	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Nitrophenol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Acenaphthene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Acenaphthylene	600	10	10	10	10000	NE	NE	10000	NE	**10**
Acetophenone	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Aniline	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Anthracene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Benzo(a)anthracene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Benzo(a)pyrene	7	7	7	7	0.8	5.7	NE	NE	NE	**5.7**
Benzo(b)fluoranthene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Benzo(g,h,i)perylene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Benzo(k)fluoranthene	400	400	400	400	78	NE	NE	78	NE	**78**
Benzidine	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Benzoic acid	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Bis(2-chloroethoxy)methane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Bis(2-chloroethyl)ether	0.7	8	0.7	0.7	5.2	NE	NE	5.2	NE	**0.7**
Bis(2-chloroisopropyl)ether	0.7	100	0.7	0.7	82	NE	NE	82	NE	**0.7**
Bis(2-ethylhexyl)phthalate	600	600	600	600	410	NE	NE	410	NE	**410**
Butyl benzyl phthalate	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Carbazole	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Chrysene	400	400	400	400	780	NE	NE	780	NE	**400**
Di(n)octyl phthalate	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dibenz(a,h)anthracene	4	4	4	4	0.8	5.7	NE	NE	NE	**5.7**
Dibenzofuran	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Diethyl phthalate	200	300	200	200	10000	NE	NE	10000	NE	**200**
Dimethyl phthalate	50	600	50	50	10000	NE	NE	10000	NE	**50**
Di-n-butylphthalate	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
Fluoranthene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Fluorene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Hexachlorobenzene	0.8	0.8	0.8	0.8	0.4	NE	NE	0.4	NE	**0.4**
Hexachlorobutadiene	100	100	100	100	73	NE	NE	73	NE	**73**
Hexachlorocyclopentadiene	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
Hexachloroethane	3	200	3	3	410	NE	NE	410	NE	**3**
Indeno(1,2,3-cd)pyrene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Isophorone	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Naphthalene	20	1000	20	20	10000	NE	NE	10000	NE	**20**
N-Nitrosodimethylamine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
N-Nitrosodi-n-propylamine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
N-Nitrosodiphenylamine	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Pentachloronitrobenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Pentachlorophenol	20	10	10	10	48	NE	NE	48	NE	**10**
Phenanthrene	1000	1000	1000	1000	10000	NE	NE	10000	NE	**1000**
Pyrene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
m&p-Cresol	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Pyridine	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**

Notes:

NE = Not established for this analyte.

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Table 1 - Proposed Reuse Acceptance Criteria

Total Petroleum Hydrocarbons (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
Total Petroleum Hydrocarbons	3000	3000	3000	3000	2500	NE	2500	2500	NE	**1000**
Volatile Petroleum Hydrocarbons (MADEP-VPH) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
C5-C8 Aliphatic Hydrocarbons	500	500	500	500	NE	NE	NE	NE	NE	**500**
C9-C12 Aliphatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
C9-C10 Aromatic Hydrocarbons	500	500	500	500	NE	NE	NE	NE	NE	**500**
Extractable Petroleum Hydrocarbons (MADEP-EPH) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
C9-C18 Aliphatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
C19-C36 Aliphatic Hydrocarbons	5000	5000	5000	5000	NE	NE	NE	NE	NE	**5000**
C11-C22 Aromatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
Total Metals (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Antimony	30	30	30	30	820	NE	NE	820	NE	**30**
Arsenic	20	20	20	20	7	NE	NE	7	14.48	**14.48**
Barium	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Beryllium	200	200	200	200	1.5	NE	NE	1.5	3	**3**
Cadmium	100	100	100	100	1000	NE	NE	1000	NE	**100**
Chromium (Total)	200	200	200	200	10000	NE	NE	10000	NE	**200**
Chromium (III)	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Chromium (VI)	200	200	200	200	10000	NE	NE	10000	NE	**200**
Copper	NE	NE	NE	10000	10000	NE	NE	10000	NE	**10000**
Cyanide	100	100	100	100	10000	NE	NE	10000	NE	**100**
Lead	600	600	600	600	500	NE	NE	500	NE	**500**
Manganese	NE	NE	NE	NE	10000	NE	NE	10000	NE	**10000**
Nickel	1000	1000	1000	1000	10000	NE	NE	10000	NE	**1000**
Selenium	700	700	700	700	10000	NE	NE	10000	NE	**700**
Silver	200	200	200	200	10000	NE	NE	10000	NE	**200**
Vanadium	700	700	700	700	10000	NE	NE	10000	NE	**700**
Zinc	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Thallium	60	60	60	60	140	NE	NE	140	NE	**60**
Mercury	30	30	30	30	610	NE	NE	610	NE	**30**
Polychlorinated Biphenyls (PCBs) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Aroclor-1016	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1221	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1232	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1242	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1248	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1254	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1260	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1262	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Aroclor-1268	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
PCBs (Total)	4	4	4	4	10	NE	10	10	NE	**4**
Chlorinated Pesticides & Herbicides (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Alachlor	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Aldrin	0.5	0.5	0.5	0.5	NE	NE	NE	NE	NE	**0.5**
a-BHC	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
1-BHC	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
v-BHC (Lindane, y-HCH)	2	0.5	0.5	0.5	NE	NE	NE	NE	NE	**0.5**
0-BHC	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Chlordane	30	30	30	30	4.4	NE	NE	4.4	NE	**4.4**
4,4-DDD (p,p')	40	40	40	40	NE	NE	NE	NE	NE	**40**
4,4-DDE (p,p')	30	30	30	30	NE	NE	NE	NE	NE	**30**
4,4-DDT (p,p')	30	30	30	30	NE	NE	NE	NE	NE	**30**
Dieldrin	0.5	0.5	0.5	0.5	0.4	NE	NE	0.4	NE	**0.4**
a-Endosulfan (I)	500	1	1	1	NE	NE	NE	NE	NE	**1**
1-Endosulfan (II)	500	1	1	1	NE	NE	NE	NE	NE	**1**
Endosulfan Sulfate				See Listed Constituents						**NE**
Endrin	20	20	20	20	NE	NE	NE	NE	NE	**20**
Endrin Aldehyde	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Endrin ketone	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Heptachlor	2	2	2	2	NE	NE	NE	NE	NE	**2**
Heptachlor Epoxide	0.9	0.9	0.9	0.9	NE	NE	NE	NE	NE	**0.9**
Hexachlorobenzene	0.8	0.8	0.8	0.8	3.6	NE	NE	3.6	NE	**0.8**
Methoxychlor	400	400	400	400	NE	NE	NE	NE	NE	**400**
Toxaphene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
2,4-D	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2,4-DB	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Dalapon	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dicamba	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Dichlorprop	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Dinoseb	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
MCPA	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
MCPP	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
2,3,7,8-TCDD (equivalents)	0.00005	0.00005	0.00005	0.00005	NE	NE	NE	NE	NE	**0.00005**
2,4,5-T	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2,4,5-TP (Silvex)	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
General Chemistry	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Free Liquid - Paint Filter	NE	NE	NE	NE	NE	NE	NE	NE	NE	**No Free Liquids**
pH (SU)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**5.0-9.0 S.U.**
Corrosivity (positive/negative)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**Negative**
Specific Conductance (µmhos/cm)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**2000**
Flashpoint (°F)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**Non-Ignitable**
Ignitability (°F)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**>140 °F**
Reactive Cyanide (mg/kg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**<250**
Reactive Sulfide (mg/kg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**<500**

Notes:
NE = Not established for this analyte.

ATTACHMENT A

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF LAND REVITALIZATION & SUSTAINABLE MATERIALS MANAGEMENT
235 Promenade Street, Room 380
Providence, Rhode Island 02908

August 31, 2022

BENEFICIAL USE DETERMINATION APPLICATION - COMMENT LETTER
File No's. WF-826 & SR-10-1455

Anthony Rossato
Project Manager
SAGE Environmental, Inc.
301 Friendship Street
Providence, RI 02903

RE: South Quay Beneficial Use Determination Application
5/13/2022 SAGE Environmental, Inc. submittal
649 Waterfront Drive - Plat Map 7, Block 1, Lot 3
East Providence, RI 02914

Dear Mr. Rossato:

The Department's Office of Land Revitalization and Sustainable Material Management (LRSMM) Solid Waste Section has reviewed the above referenced document submitted on behalf of the site owner, RI Waterfront Enterprises LLC. After careful review of the above- mentioned document, the Office of LRSMM requires a response to the attached comments, questions, and concerns about the submittals, which must be fully addressed in writing before a Beneficial Use Determination (BUD) approval is issued.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 2777177, or by e-mail at Kasandra.McKenzie@dem.ri.gov.

Sincerely,

Kasie McKenzie

Kasie McKenzie
Environmental Engineer II
Office of Land Revitalization and Sustainable Materials Management

cc: Mark Dennen – Supervising Environmental Scientist – RIDEM/LRSMM/SOLID WASTE
Nate Arruda – Environmental Scientist – RIDEM/LRSMM/SOLID WASTE
Jeff Crawford – Principal Environmental Scientist – RIDEM/LRSMM/SITE REM
Ashley Blauvelt – Environmental Engineer IV – RIDEM/LRSMM/SITE REM
Ron Gagnon – Administrator – RIDEM/OCTA
Dan Goulet – CRMC

Department Comments – 08/31/2022
South Quay BUD Application

1. Pages 7-10 of 121 of the BUD application provides the following justification for the selection of the proposed BUD material acceptance levels.
   a. Coventry Landfill BUD Reuse Levels:

      The Department will not accept this previously approved BUD as justification for a Lead level that is over 4 times the Remediation Regulations Table 1 Industrial/Commercial Direct Exposure Criteria (I/CDEC) for the South Quay Project. The approved BUD for the Coventry Landfill did not contaminate the site more than what was already there. Also, Coventry Landfill utilized an impermeable LDPE cap to prevent water infiltration into the BUD materials. The BUD soils were also not in direct contact with the water table. For the above reasons, the Coventry BUD is not acceptable to use for establishing acceptable BUD material levels for the South Quay Project.

   b. MassDEP Method 1 S-3/ GW-2 or GW-3 Soil Standards:

      When determining acceptable levels, the Department will not accept Massachusetts standards unless one for RI does not exist. Therefore, Massachusetts S-2 Soil and GW-1 standards can only be used for parameters that do not have a RIDEM I/CDEC. The Department cannot accept a soil standard that is not protective of the bay waters. Please update the allowable contaminant levels for the materials in Attachment B - Table C accordingly.

2. Prior to approval and accepting any BUD materials on site, the pre-characterization analytical data must be reviewed by RI Waterfront Enterprises LLC and/or their consulting engineers for conformance with the following chemical and physical characteristics:
   a. All BUD material must meet all parameters in the RIDEM I/CDEC and Table 2 - GA Leachability Standards due to the proximity of the site to the Narragansett Bay. Please update the allowable contaminant levels for the materials in Attachment B - Table C accordingly.
   b. In addition to the I/CDEC limits, the following contaminant levels are applicable for the proposed BUD material:
      I. Total Petroleum Hydrocarbons (TPH) – 1,000 parts per million (ppm) for Direct Exposure as well as Leachability Criteria.
      II. Free Liquids – No free liquids
   c. To propose material acceptance levels that exceed the I/CDEC or the GA Leachability Criteria, please provide justification in the form of an ecological risk assessment for each contaminant. The risk assessment should consider marine life, the water quality of the bay, human health and the environment. The Department maintains the right to deny any proposed acceptance levels.
   d. If standards do not exist in RI for certain parameters, Massachusetts S-2 Soil and GW-1 standards may be used instead.
   e. Each source shall have at least 10 grab soil samples collected during an initial assessment to see if a source is viable. The samples must meet condition 2a above.
   f. Once a source is considered viable according to comment 2d above, there must then be a testing frequency according to Attachment B Table B of the application. The samples must also meet condition 2a above.

g. As mentioned in Attachment B Table B of the application, please propose a specific testing procedure and testing frequency for the processed ABC materials.

h. As mentioned in Attachment B Table B, please provide the analytical method that will be used to test the rock material for perchlorate and sulfide materials.

i. RI Waterfront Enterprises LLC and/or their consulting engineers are responsible for ensuring that soils taken onto site do not significantly contribute to adverse effects to any Environmentally Sensitive Areas at or in the vicinity of the site in accordance with Section 1.9.1(A)(3) of the Remediation Regulations. Additionally, the soils taken onto site must not degrade the state's water quality according to CFR 131.12 – Antidegradation policy. Antidegradation applies to all projects or activities subject to the Rhode Island Water Quality Regulation which will likely lower water quality or affect existing or designated uses.

j. The analytical data must be conducted by a licensed environmental laboratory with the RIDOH, registered in the state of Rhode Island, and with accreditations as part of the National Environmental Laboratory Accreditation Program (NELAP).

k. The proposed BUD material must not contribute to odors, propagation of vectors or blowing of litter and dust.

l. All testing methods shall conform to Section 1.16 - Analytical Methods for Reporting in the Remediation Regulations.

m. Please note that the Department does not accept composite samples, only grab samples can be used.

n. Attachment B Table B- Requirements for Specific BUD Materials, states that the soils will include "no more than 5% of solid waste (including trash)". Please note that the Department will not accept any materials with the inclusion of trash. The Solid Waste Regulations would be triggered at 3 cubic yards of trash.

o. Please add the above-mentioned comments to the Materials Management Plan and the allowable contaminant levels and testing procedures for the materials in Attachment B - Table B and C accordingly.

3. A monthly summary shall be electronically sent to the Department listing the volume of soil accepted, the source location, the sampling analytical data and a figure that shows the location it was spread and/or stockpiled on the site. RI Waterfront Enterprises LLC and/or their consulting engineers are responsible for tracking the delivered tonnage and/or volume, source of the material and analytical data for this project.

4. The Department reserves the right to split samples of any material received at the Site and to perform additional testing on the material upon its arrival at the site to ensure conformance.

5. The Department shall be notified via email, 48 hours prior to accepting any BUD soils on site.

6. A public hearing is required for this project and a draft of the public notification must be pre-approved by the Department before being posted. The public notification must be posted in the East Providence and Providence Journal newspapers and must include date, time, project description, online location for the public hearing, as well as a translation in Portuguese and Spanish. A list of all abutters and town officials must also be pre-approved by the Department.

7. Soils taken onto site shall only be delivered to the site between 7:30 am and 5:00 pm, Monday through Friday. Please add this to the Materials Management Plan.
8. Please clarify if the BUD material will have contact with the bay and if there will be some sort of barrier used as the elevation is raised to prevent erosion or collapse of slopes. Conceptual plans on raising site elevation must be provided to the Department's Site Remediation group.
9. Please clarify what type of cap, if any, is being proposed on top of the BUD material and when this plan will be submitted.
10. Please revise the BUD application to reflect and address these comments. Any revisions made to the plan must be approved by the LRSMM Solid Waste team before a BUD Approval Letter is issued.

ATTACHMENT B

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

November 3, 2022

Jacob H. Butterworth, MS, LSP
SAGE Environmental, Inc.
301 Friendship Street
Providence, RI 02903 Via email: Jbutterworth@Sage-Enviro.com

Re: Site-Specific Ecological Risk-Based Evaluation of Ecological Screening Benchmarks in the Providence River Marine Environment and Development of Soil Acceptance Criteria for Arsenic and Beryllium

Dear Mr. Butterworth:

It is my understanding that you are working with the Rhode Island Department of Environmental Management (RIDEM) to identify conservative concentration limits for arsenic and beryllium in potential soils proposed for reuse near (but not in) a marine environment of the Providence River at the property identified as The Key (aka South Key/Quay) located at 649 Waterfront Drive in East Providence, Rhode Island (hereinafter, the "Site"). The published marine ecological screening benchmarks for these two metals, an approach for calculating conservative soil acceptance criteria for the Site, and my proposed conservative Ecological Risk-Based Soil Acceptance Criteria (Acceptance Criteria) are presented within this report.

As you know, ecological screening benchmarks are utilized to identify concentrations of contaminants in environmental media which are unlikely to represent significant risk to environmental receptors. Benchmarks are designed to be conservative, and an exceedance of a benchmark does not necessarily mean that significant risk to the environment is present.

Please also note that the benchmarks discussed below are pertinent in evaluating potential concentrations in a marine environment that might result from either leaching of placed soils or incidental movement (e.g., by erosion) of placed soils into the Providence River. For sediment, movement of placed soils to the river is neither planned nor likely to occur accidentally to a substantial degree, and the effects of any such inputs would be diluted by native sediment and surface water concentrations. Therefore, I find it conservatively acceptable that for soils placed in the upland, Acceptance Criteria would be a factor significantly higher than the sediment benchmarks.

Evaluation of Available Ecological Screening Benchmarks

The NOAA Screening Quick Reference Tables ("SQuiRT") values are typically utilized as the industry-standard source of ecological screening benchmarks. Note, however, that the SQuiRTs

include a range of values with different meanings, calculated by different investigators and agencies. There is not a single generally accepted criterion for use as an ecological screening benchmark. For this Site-specific analysis, the following values are pertinent to consider:

SQuiRT Values for Possible Use as Ecological Screening Benchmarks (mg/Kg)

Benchmark	Arsenic	Beryllium	Comment
TEL = Threshold Effects Level	7.24	Not listed	Lowest value with observed effect
ERL = Effects Range Low	8.2	Not listed	Value below which negative effects are expected to be rare
T-50 = Toxicity 50% probability	20	Not listed	Use of a benchmark that indicates toxicity 50% of the time would generally not be appropriate
T-20 = Toxicity 20% probability	7.4	Not listed	Similar to TEL and ERL; indicative of unlikely risk
PEL = Probable Effects level	41.6	Not listed	Generally, a "probable" effects concentration is not suitable as a conservative screening benchmark without additional justification

Of note, there are no SQuiRT sediment values for beryllium. The United States Environmental Protection Agency (U.S. EPA) Region III has also developed ecological screening benchmarks which do not include beryllium. Additionally, the U.S. EPA Ecotox database (which contains information from more than 1 million references) was referenced related to beryllium toxicity in marine environments and very limited information was available for review.

Recommended Ecological Risk-Based Soil Acceptance Criteria

- Arsenic: Based upon a review of the SQuiRTs values above, the most conservative target concentration for the TEL of 7.24 mg/Kg is protective of the Site-specific Providence River flora and fauna. Therefore, assuming reasonable controls are in place to minimize the potential transport of placed soils to the Providence River, I recommend that a factor of 2 or more times the TEL, [i.e., **2 X 7.24 mg/Kg = 14.48 mg/Kg**] be utilized as the Soil Acceptance Criterion for arsenic, as this concentration in nearby placed soils would be conservatively protective of marine ecological receptors in the adjacent Providence River.
- Beryllium: Because there is no applicable sediment benchmark for beryllium, reasonable controls are assumed to be in place to minimize the potential transport of placed soils to the Providence River, and discharge of placed soils into the river should be minimal and diluted, I recommend that a factor of 2 times the Rhode Island background concentration of beryllium [i.e., **2 X 1.5 mg/Kg = 3 mg/Kg**] be utilized as the Soil Acceptance Criterion for beryllium, as this concentration in nearby placed soils would be

conservatively protective of marine ecological receptors in the adjacent Providence River.

I hope that this information is informative and helpful. Please feel free to reach out to me with any questions you may have.

Sincerely,

Paul J. McManus, LSP, PWS
President & Ecological Risk Assessor

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

Paul J. McManus, LSP, PWS
President

Paul McManus is the President and owner of EcoTec, Inc., which he founded in 1990. He is a certified Senior Professional Wetlands Scientist (SPWS) from the International Society of Wetlands Scientists (SWS), the leading professional organization in the field, where he served as President of the New England Chapter of SWS, representing the Chapter on the International Board of Directors for several years, and currently serves as Chapter Treasurer. Mr. McManus is also a Massachusetts Licensed Site Professional (LSP) with experience including a wide range of projects, focused on ecological risk assessment at sites with contaminated wetland resources. Prior to the founding of EcoTec, Mr. McManus was employed at other Massachusetts consulting firms and as an aquatic ecologist at the Massachusetts Division of Water Pollution Control. Mr. McManus brings a wide variety of environmental consulting experience to EcoTec, including oil and hazardous materials ecological risk assessment, wetland evaluation and delineation, lake and stream assessment, wildlife habitat evaluation, and a variety of other types of environmental impact assessment. He has conducted detailed wetland community surveys and impact restoration specifications in "Areas of Critical Environmental Concern" (ACECs), and led the local, state and federal wetland permitting, including vernal pool mitigation design and a Wetlands Protection Act Variance. He has directed thousands of other wetlands projects at sites including large and small residential and commercial developments and major utility infrastructure projects. He has completed all phases of environmental permitting work, including wetland delineation, replication and mitigation design, implementation, and monitoring in freshwater wetlands and salt marsh, as well as general wildlife and rare species assessments and trapping, including marbled salamander, 4-toed salamander, wood turtle, and eastern box turtle, under the MA Wetlands and Endangered Species Act Regulations. Permitting efforts regularly include federal, local and state permitting, including filings under the Massachusetts Environmental Policy Act (MEPA) regulations. Additional projects he has directed include major biological and chemical marine sampling programs; he has been involved in a variety of freshwater system evaluations, and conducted evaluations and sampling for proposed fresh water and marine dredging projects. He also has experience in large scale soil reuse projects, where he completed required environmental permitting and serves as the independent third-party monitor in accordance with voluntary Administrative Consent Orders for multiple sites. Mr. McManus serves as a consultant on behalf of government, business, private citizens, utility companies, the development community, conservation commissions, and concerned citizens' groups. He presently serves on a continual basis as technical wetlands consultant for the Town of Dover Conservation Commission, and works regularly for Boylston, Shrewsbury, and other Commissions providing peer review expertise for varied projects.

Education: Master of Science: Applied Marine Ecology - University of Massachusetts/Boston, 1988
Bachelor of Arts: Biology (Ecology emphasis) – College of the Holy Cross, Worcester, MA, 1984
U.S. Fish and Wildlife Service: Habitat Evaluation Procedure (HEP) Certification
Massachusetts Division of Water Pollution Control: Algal Assay (eutrophication) Short Course

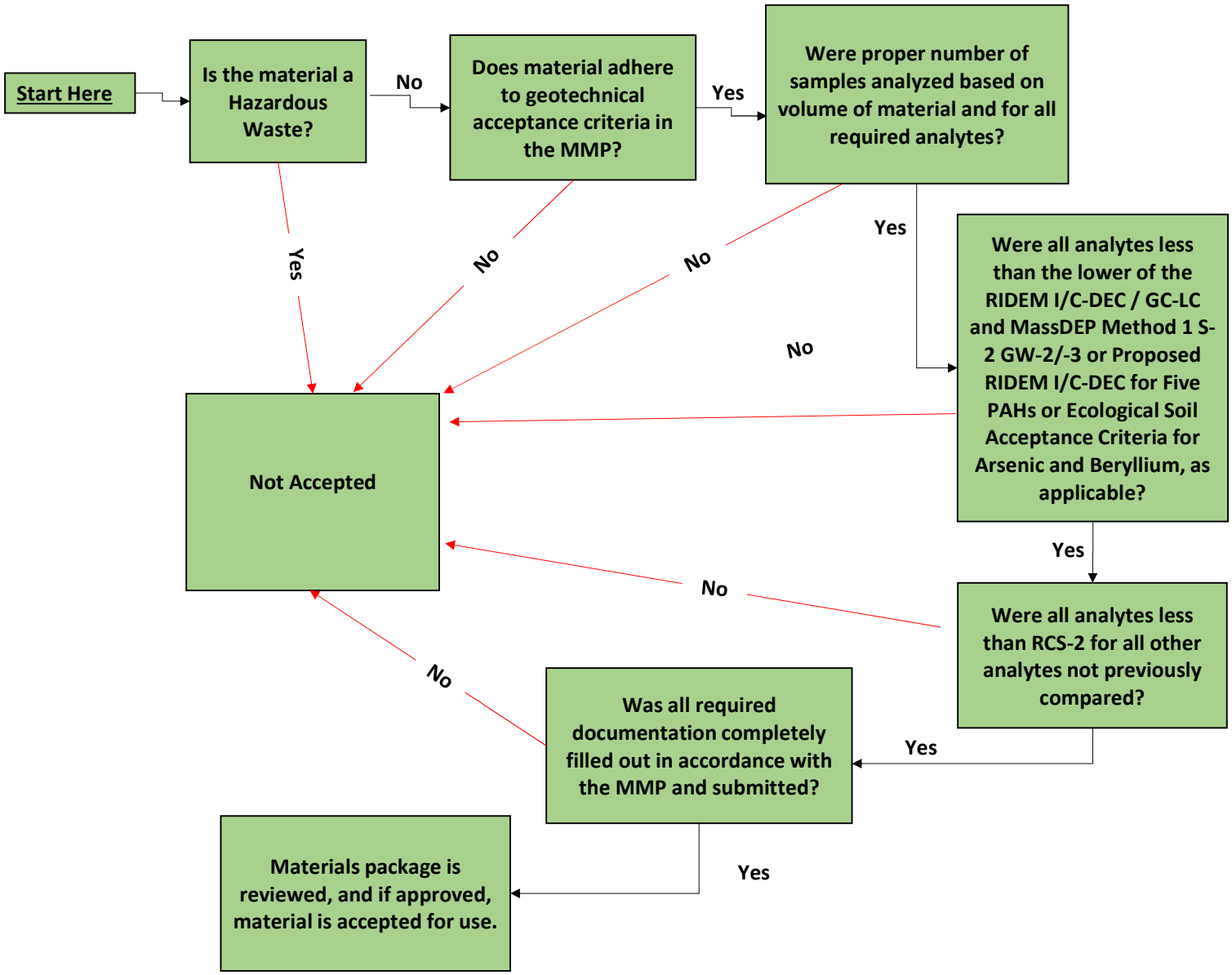
Professional Affiliations: Massachusetts Association of Conservation Commissioners (past Board of Directors)
(Partial list) Society of Wetland Scientists (Treasurer and former President of the New England Chapter)
Association of Massachusetts Wetlands Scientists
Licensed Site Professional Association

Certifications: Society of Wetlands Scientists: Senior Professional Wetlands Scientist # 962
Commonwealth of Massachusetts Licensed Site Professional # 5711
OSHA Health & Safety Hazardous Waste Safety Training, 29 CFR 1910.120 (40 hr & refresher)

ATTACHMENT C

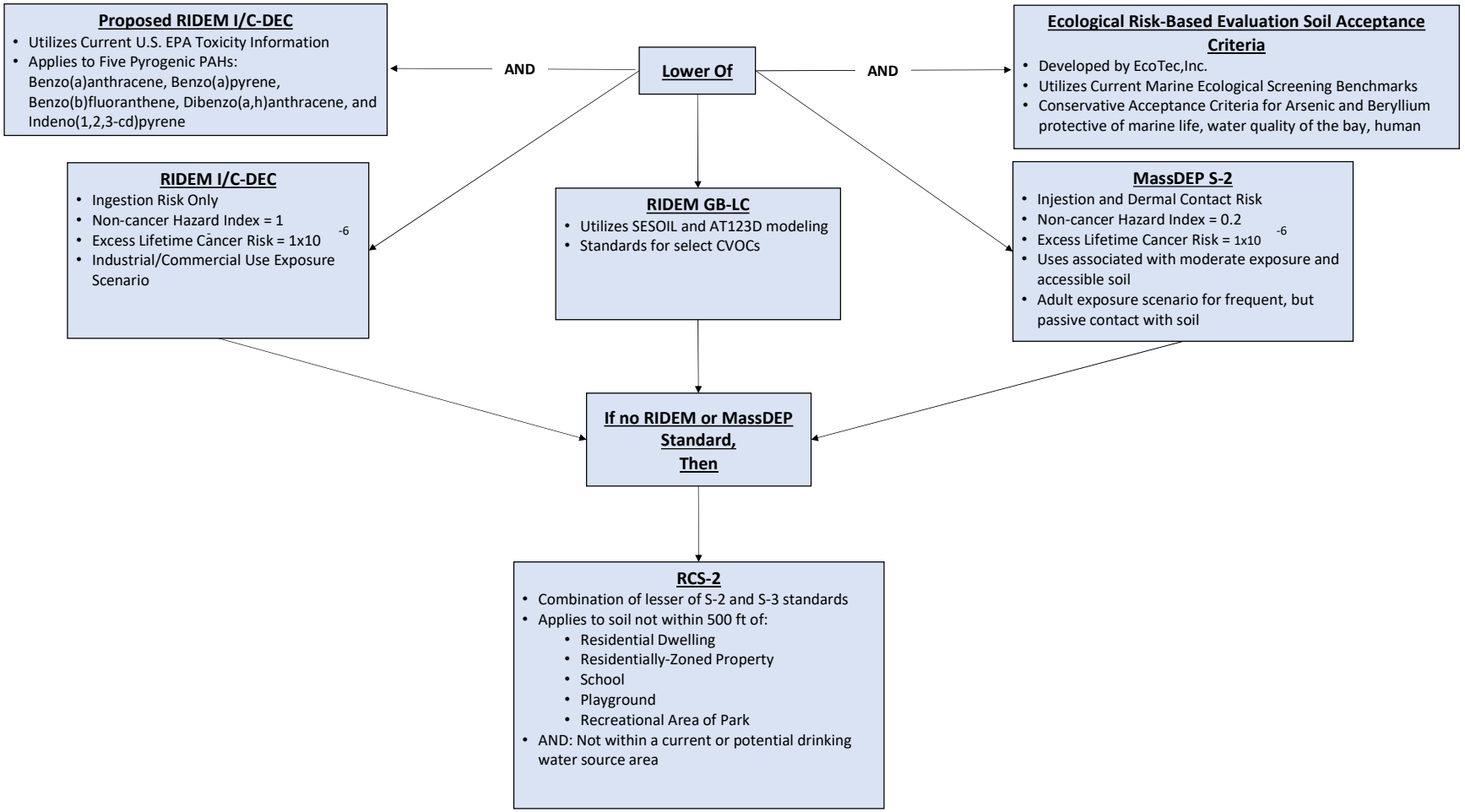
SAGE ENVIRONMENTAL

Material Acceptance



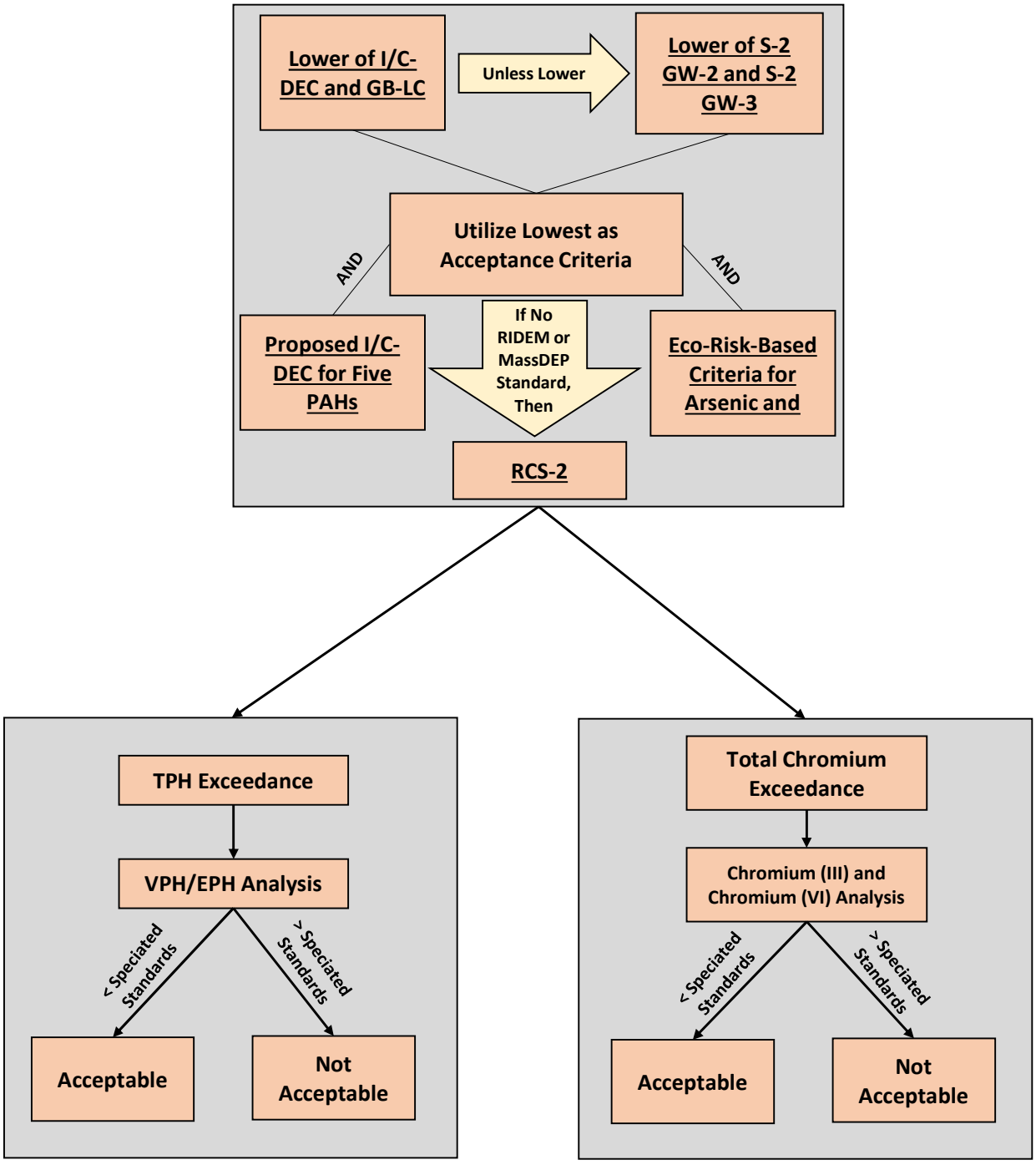
SAGE ENVIRONMENTAL

Material Reuse Acceptance Criteria Evaluation



SAGE ENVIRONMENTAL

Selection of Material Reuse Acceptance Criteria



ATTACHMENT D

LIMIT OF THE FEDERAL NAVIGATIONAL CHANNEL LINE (PER USACE COORDINATES)

APPROXIMATE LIMIT OF THE MARSH LINE

-18.570

-17.370

-19.900

DRAFT –
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MCALLISTER MARINE ENGINEERING

JOHN MCALLISTER
No. 11685
REGISTERED PROFESSIONAL ENGINEER
CIVIL

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RI WATERFRONT ENTERPRISES, LLC
564 SOUTH WATER STREET
PROVIDENCE, RI 02903

NO.	DATE	DESCRIPTION	BY
4	3/2/2022	REVISIONS FOR ASSENT	JBM
3	6/24 /2021	ASSENT PACKAGE	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 100'

GRAPHIC SCALE

SHEET TITLE

GRADING AND DRAINAGE PLAN

DRAWING NO.

GD-1

16 OF 33

PLOT SCALE 1/16"=1'-0"

C:\Users\Jobon\OneDrive\Documents\JBM\LR\RIWF\Plans\RIWF_SOUTH QUAY BASE PLAN MLLW REV7A recover.dwg

DOCK BULKHEAD DESIGN CRITERIA:

QUAY TOP ELEVATION: 19.5 FT. MLW

BERTH 1: INBOUND: 525 FT. X 97 FT.
BEARING CAPACITY: 2,000 PSF
DRAFT: 32 FT.

BERTH 2: OUTBOUND: 460 FT. X 127 FT.
BEARING CAPACITY: 6,144 PSF
DRAFT: 32 FT.

UNIFORM LOAD BEARING CAPACITY: 5,120 PSF

QUAYSIDE CRAWLER CRANE CORRIDOR: 180 FT. WIDE

BOLLARD CAPACITY: 150 TON

BOLLARD SPACING:

RORO RAMP WIDTH: 150 FT.

JACK-UP PAD WIDTH: 400 FT.

TOP OF DECK ELEVATION:

RORO WATERSIDE ELEVATION: 10.0 MLW

REMOVABLE CURB LOCATIONS:

DRAFT
SEPTEMBER 10, 2020

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PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	
CADD FILE	
DESIGNED BY	KWH
DRAWN BY	LMC
CHECKED BY	KWH
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 150'

GRAPHIC SCALE

Scale: 1"=100'
0 50' 100' 200'

SHEET TITLE

PROPOSED WATERFRONT PLAN

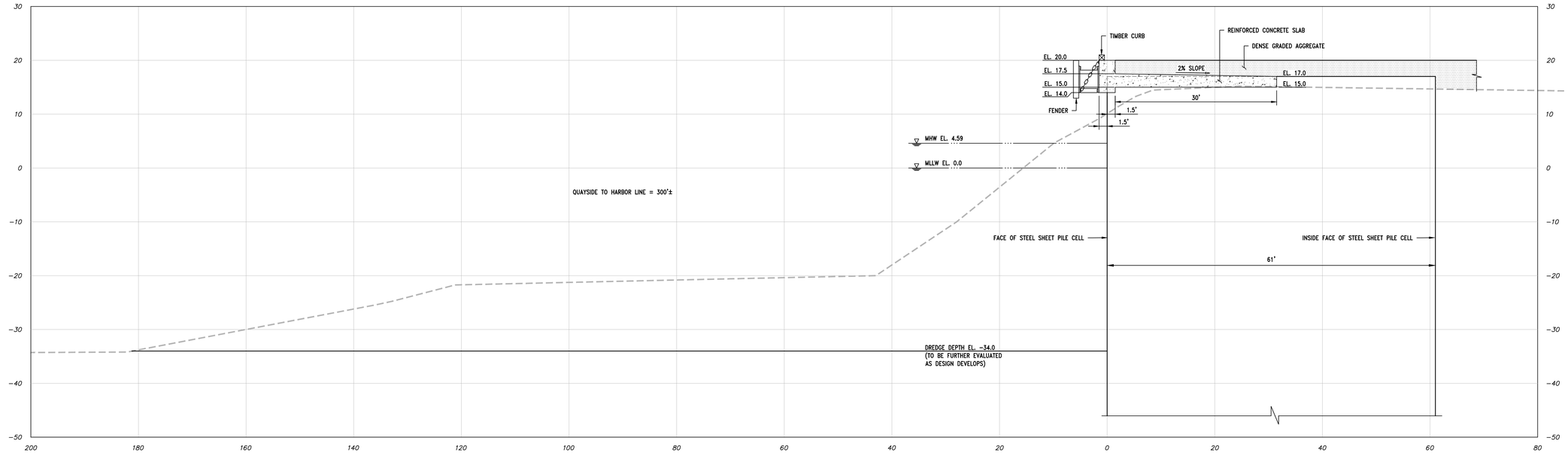
DRAWING NO.

W-1

22 . 33

PLOT SCALE

C:\Users\lehmm\OneDrive\Documents\LRA\RIWE\Plans\PARE\W-1 Proposed Waterfront Plan_updated 11.18.20.dwg



JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	
CADD FILE	
DESIGNED BY	KWH
DRAWN BY	LMC
CHECKED BY	KWH
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 150'

GRAPHIC SCALE

Scale: 1"=10'
0 5' 10' 20'

SHEET TITLE

PROPOSED
WATERFRONT
SECTION

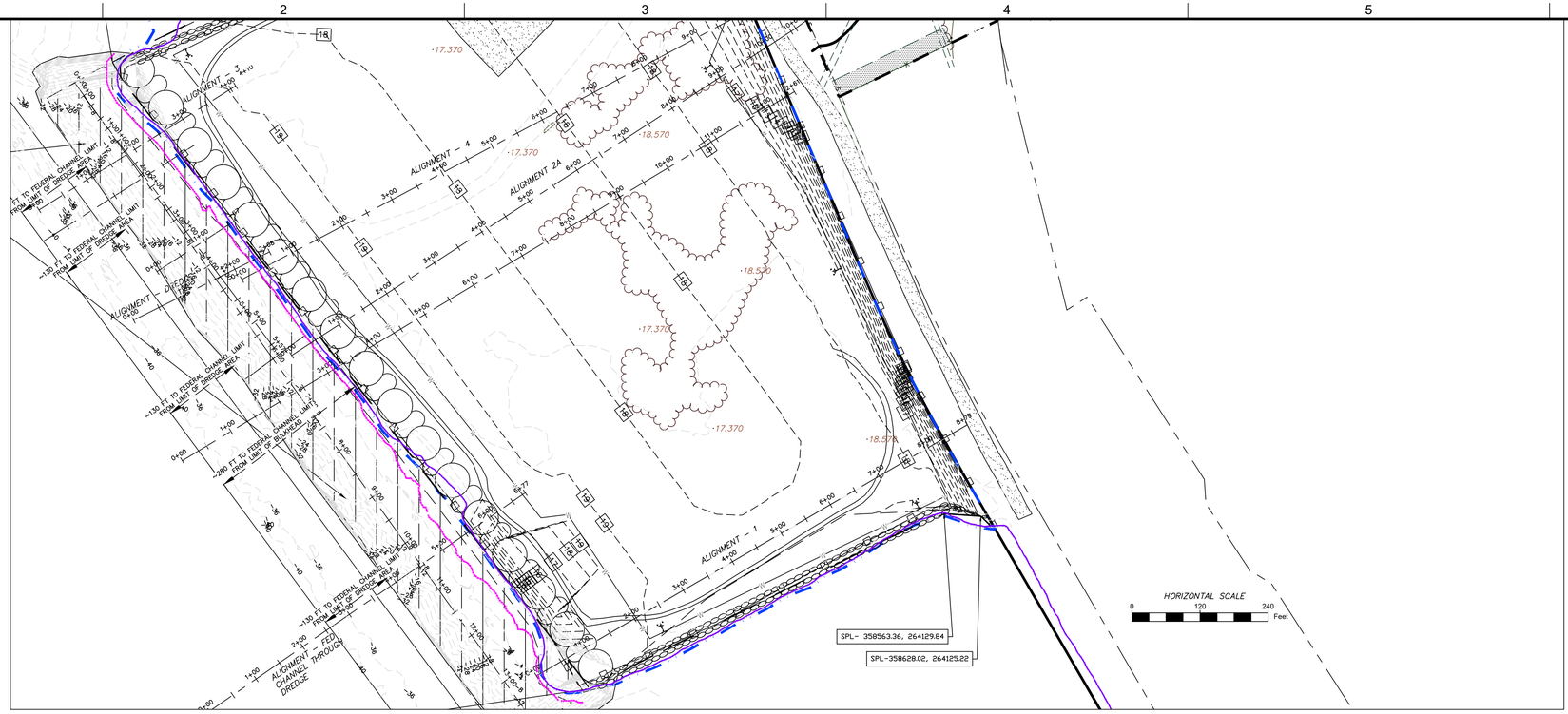
DRAWING NO.

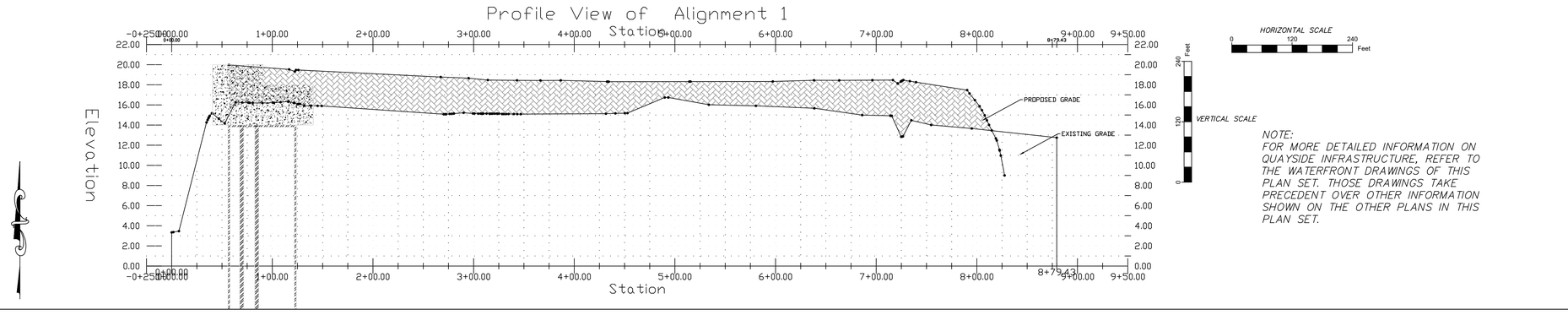
W-2

23 33

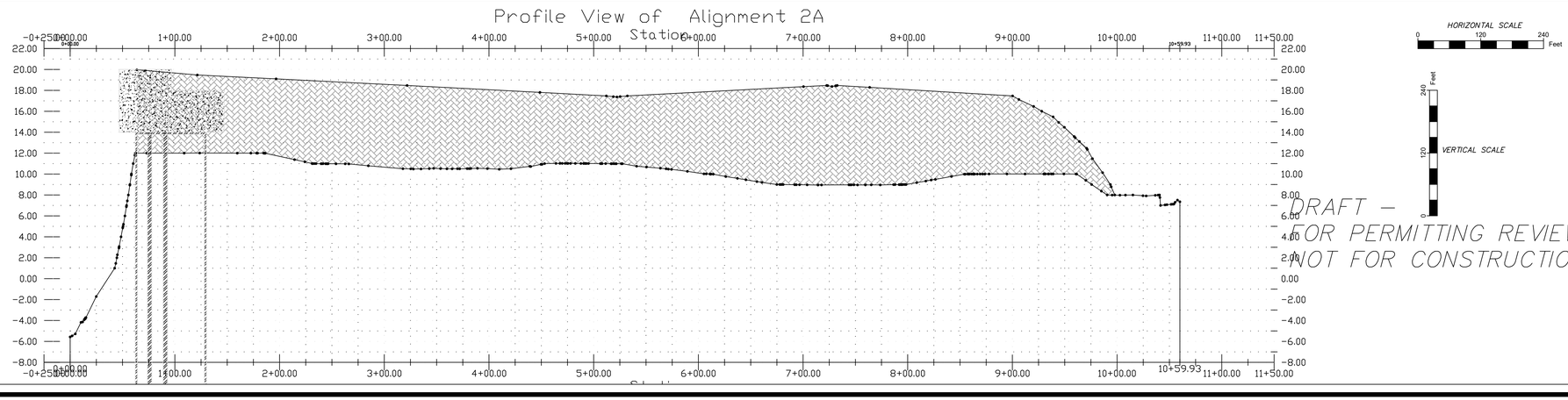
PLOT SCALE

C:\Users\lohmm\OneDrive\Documents\LR\RIWE\Plans\PARE\W-1 Proposed Waterfront Plan updated 11.18.20.dwg





NOTE:
FOR MORE DETAILED INFORMATION ON QUAYSIDE INFRASTRUCTURE, REFER TO THE WATERFRONT DRAWINGS OF THIS PLAN SET. THOSE DRAWINGS TAKE PRECEDENT OVER OTHER INFORMATION SHOWN ON THE OTHER PLANS IN THIS PLAN SET.



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MCALLISTER MARINE ENGINEERING

JOHN MCALLISTER
No. 11685
REGISTERED PROFESSIONAL ENGINEER
CIVIL

3/2/22

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RI WATERFRONT ENTERPRISES, LLC
564 SOUTH WATER STREET
PROVIDENCE, RI 02903

NO.	DATE	DESCRIPTION	BY
4	3/2/2022	REVISIONS FOR ASSENT	JBM
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PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	AS NOTED

GRAPHIC SCALE

SHEET TITLE

PROFILE
VIEW
CROSS-SECTIONS

DRAWING NO.

XC-1

15 OF 21

PLOT SCALE 1/16"=1'-0"

C:\Users\ johnm\OneDrive\Documents\JBM\LR\RIVE South Quay Base Plan MLLW REV7A recover.dwg

ATTACHMENT E

DRAFT Soil Erosion and Sediment Control Plan

For:

South Quay Marine Terminal

649 Waterfront Drive

East Providence, RI

Parcel ID 007/01/003/00

Owner:	RI Waterfront Enterprises, LLC 1080 Main Street Pawtucket, RI 02860 T +1 508 965 3342 melissa@riwaterfrontevents.com,
Operator: *TO BE DETERMINED UPON CONTRACT AWARD*	Company Name Name Address City, State, Zip Code Telephone Number Email Address
Estimated Project Dates:	Start Date: December 2021 Completion Date: June 2023
SESC Plan Prepared By:	McAllister Marine Engineering, LLC John McAllister 16 Hoxie Avenue Charlestown, RI 02813 401-859-1839 jmcallister@mcallister-eng.com Professional Engineer – License 0011685

SESC Plan Preparation Date:	May 2021
SESC Plan Revision Date:	

OPERATOR CERTIFICATION

Upon contract award, the OPERATOR must sign this certification statement before construction may begin.

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the owner/operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.

_____

Operator Signature: Date

Contractor Representative: Name

Contractor Title: Title

Contractor Company Name: Company Name (if applicable)

Address: Mailing Address

Phone Number: Phone Number

Email Address: Email

TABLE OF CONTENTS

INTRODUCTION

This Construction Site Soil Erosion and Sediment Control Plan (SESC Plan) has been prepared for RI Waterfront Enterprises, LLC for the South Quay Marine Terminal. In accordance with the RIDEM Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity (RIPDES Construction General Permit ("CGP")), projects that disturb one (1) or more acres require the preparation of a SESC Plan. This SESC Plan provides guidance for complying with the terms and conditions of the RIPDES Construction General Permit and Minimum Standard 10 of the RI Stormwater Design and Installation Standards Manual. In addition, this SESC Plan is also consistent with Part D of the *RI SESC Handbook* entitled "Soil Erosion and Sediment Control Plans". This document does not negate or eliminate the need to understand and adhere to all applicable RIPDES regulations.

The purpose of erosion, runoff, and sedimentation control measures is to prevent pollutants from leaving the construction site and entering waterways or environmentally sensitive areas during and after construction. This SESC Plan has been prepared prior to the initiation of construction activities to address anticipated worksite conditions. The control measures depicted on the site plan and described in this narrative should be considered the minimum measures required to control erosion, sedimentation, and stormwater runoff at the site. Since construction is a dynamic process with changing site conditions, it is the operator's responsibility to manage the site during each construction phase so as to prevent pollutants from leaving the site. This may require the operator to revise and amend the SESC Plan during construction to address varying site and/or weather conditions, such as by adding or realigning erosion or sediment controls to ensure the SESC Plan remains compliant with the RIPDES Construction General Permit. Records of these changes must be added to the amendment log attached to the SESC Plan, and to the site plans as "red-lined" drawings. Please Note: **Even if practices are correctly installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site.**

It is the responsibility of the site owner and the site operator to maintain the SESC Plan at the site, including all attachments, amendments and inspection records, and to make all records available for inspection by RIDEM during and after construction. (RIPDES CGP - Part III.G)

The site owner, the site operator, and the designated site inspector are required to review the SESC Plan and sign the Party Certification pages (Section 8). The primary contractor (if different) and all subcontractors (if applicable) involved in earthwork or exterior construction activities are also required to review the SESC Plan and sign the certification pages before construction begins.

Any questions regarding the SESC Plan, control measures, inspection requirements, or any other facet of this document may be addressed to the RIDEM Office of Water Resources, at 401-222-4700 or via email: water@dem.ri.gov.

ADDITIONAL RESOURCES

Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908-5767
phone: 401-222-4700
email: water@dem.ri.gov

RIDEM *RI Stormwater Design and Installation Standards Manual* (RISDISM) (as amended)
http://www.dem.ri.gov/pubs/regs/regs/water/swmanual15.pdf

RI Soil Erosion and Sediment Control Handbook http://www.dem.ri.gov/soilerosion2014final.pdfRIDEM 2013 RIPDES Construction General Permit
http://www.dem.ri.gov/pubs/regs/regs/water/ripdesca.pdfRhode Island Department of Transportation *Standard Specifications for Road and Bridge Design and Other Specifications* and *Standard Details*
http://www.dot.ri.gov/business/bluebook.php

RIDEM Office of Water Resources Coordinated Stormwater Permitting website
http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/coordinated-stormwater-permitting.phpRIDEM RIPDES Stormwater website
http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/RIDEM Water Quality website (for 303(d) and TMDL listings)
http://www.dem.ri.gov/programs/water/quality/

RIDEM Rhode Island Natural Heritage Program mailto:plan@dem.ri.gov

RIDEM Geographic Data Viewer – Environmental Resource Map
http://www.dem.ri.gov/maps/

Natural Resources Conservation Service - Rhode Island Soil Survey Program
http://www.ri.nrcs.usda.gov/technical/soils.html

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: http://websoilsurvey.nrcs.usda.gov.

EPA NPDES – Stormwater Discharges from Construction Activities webpage:
http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Discharges-From-Construction-Activities.cfm

EPA Construction Site Stormwater Runoff Control BMP Menu
http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control.

SECTION 1: SITE DESCRIPTION

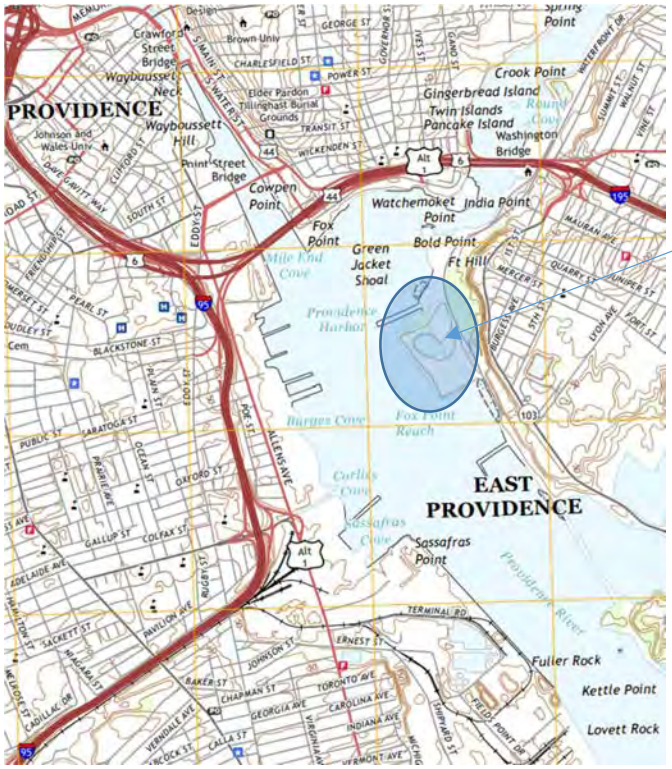
1.1 Project/Site Information

Project/Site Name: South Quay Marine Terminal

- The subject property is the 30+ acre South Quay site located along the east bank of the Providence River in East Providence, RI. The physical address is 649 Waterfront Drive.
- The South Quay project in Rhode Island will create a modern intermodal, state of the art, high capacity, high flexibility port that will be specially prepared to handle multiple types of cargo, including bulk, break bulk, container, heavy oversized, and the immense size and weights of equipment and components used for the growing offshore wind market. The SQMT is designed as a state-of-the-art port facility with access to deep water and high ground-bearing strength quay sides and uplands as required by the OSW industry. One of the primary goals of the project is to serve coaster vessels delivering heavy cargo consisting of large OSW components (e.g., foundation elements, towers, nacelles, blades, etc.).

Project Street/Location:

- 649 Waterfront Drive, East Providence, RI



Provide construction site estimates of the total area of the site and the total area of the site that is expected to undergo soil disturbance.

The following are estimates of the construction site area:

- Total Project Area 31.25 acres
- Total Project Area to be Disturbed 30.1 acres

1.3 Natural Heritage Area Information

RIPDES CGP - Part III.H
Each project authorized under the RIPDES Construction General Permit must determine if the site is within or directly discharges to a Natural Heritage Area (NHA). DEM Natural Heritage Areas include known occurrences of state and federal rare, threatened and endangered species. Review RIDEM NHA maps to determine if there are natural heritage areas on or near the construction site that may be impacted during construction. (See also the RIDEM Notice of Intent instructions which can be found at the following link:

http://www.dem.ri.gov/programs/benviron/water/permits/swcoord/pdf/maptutor.pdf)

Are there any Natural Heritage Areas being disturbed by the construction activity or will discharges be directed to the Natural Heritage Area as a result of the construction activity?

☐ Yes ☒ No

If yes, describe or refer to documentation which determines the likelihood of an impact on this area and the steps that will be taken to address any impacts.

- Not Applicable

1.4 Historic Preservation/Cultural Resources

The National Historic Preservation Act, and any state, local, and tribal historic preservation laws apply to construction activities. As with endangered species, some permits may specifically require you to assess the potential impact of your stormwater discharges on historic properties. However, whether or not this is stated as a condition for permit coverage, the National Historic Preservation Act and any applicable state or tribal laws apply to you. Contact the Rhode Island Historic Preservation Officer (http://www.preservation.ri.gov/) or your Tribal Historic Preservation Officer (http://grants.cr.nps.gov/THPO_Review/index.cfm) for more information.

Are there any historic properties, historic cemeteries or cultural resources on or near the construction site?

☐ Yes ☒ No

Describe how this determination was made and summarize state or tribal review comments:

- Search of RI Historical Commission Database

If yes, describe or refer to documentation which determines the likelihood of an impact on this historic property, historic cemetery or cultural resource and the steps taken to address that impact including any conditions or mitigation measures that were approved by other parties.

- N/A

SECTION 2: EROSION, RUNOFF, AND SEDIMENT CONTROL

RIPDES Construction General Permit – Part III.J.1

The purpose of erosion controls is to prevent sediment from being detached and moved by wind or the action of raindrop, sheet, rill, gully, and channel erosion. Properly installed and maintained erosion controls are the primary defense against sediment pollution.

Runoff controls are used to slow the velocity of concentrated water flows. By intercepting and diverting stormwater runoff to a stabilized outlet or treatment practice or by converting concentrated flows to sheet flow erosion and sedimentation are reduced.

Sediment controls are the last line of defense against moving sediment. The purpose is to prevent sediment from leaving the construction site and entering environmentally sensitive areas.

This section describes the set of control measures that will be installed before and during the construction project to avoid, mitigate, and reduce impacts associated with construction activity. Specific control measures and their applicability are contained in Section Four: Erosion Control Measures, Section Five: Runoff Control Measures, and Section Six: Sediment Control Measures of the *RI SESC Handbook*. The *RI SESC Handbook* can be found at the following address:

http://www.dem.ri.gov/soilerosion2014final.pdf

2.1 Avoid and Protect Sensitive Areas and Natural Features

Per RI Stormwater Design and Installation Standards Manual 3.3.7.1:

Areas of existing and remaining vegetation and areas that are to be protected as identified in the Section 1.6 of the SESC Plan must be clearly identified on the SESC Site Plans for each Phase of Construction. Prior to any land disturbance activities commencing on the site, the Contractor shall physically mark limits of disturbance (LOD) on the site and any areas to be protected within the site, so that workers can clearly identify the areas to be protected.

Constraints are identified to ensure a comprehensive understanding of the project and surrounding areas. The first goal in the low impact development (LID) site planning and design process is to avoid disturbance of natural features. This includes identification and preservation of natural areas that can be used in the protection of water resources. It is important to understand that minimizing the hydrologic alteration of a site is just as important as stormwater treatment for resource protection. Therefore, describe all site features and sensitive resources that exist at the site such as, view barriers,, steep slopes (>15%)that if disturbed will require additional erosion controls, areas with the potential to receive run-on from off-site areas, wetlands, surface waters, and their riparian buffers, specimen trees, natural vegetation, forest areas, stream crossings, historic properties, historic cemeteries or cultural resources that are to be preserved. ***This includes those site features that should be avoided within the designated limits of disturbance.*** *These areas are often identified on a constraints map or in a separate constraints report. For additional discussion on this topic refer to Appendix F. Site Constraint Map of the RI SESC Handbook.*

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: http://websoilsurvey.nrcs.usda.gov.

Describe and illustrate on SESC Site Plans Sensitive Areas and Natural Features and how each will be protected during construction activity. Examples of areas to be protected include vegetated buffers, forests, stands of trees on the perimeter and within the site, large diameter trees, areas designated for infiltration (QPAs), bioretention, rain gardens, and OWTS leachfields. Protection for stands of trees and individual trees to be preserved must be specified and such protection must comply with the RI SESC Handbook and extend to the drip line.

Describe and illustrate on SESC Site Plans based on Constraints Map, the areas that will be disturbed with each phase of construction and the control measures (signs, fences, etc.) that will be used to protect those areas that should not be disturbed. ***This includes marking for limits of disturbance at the perimeter and areas within the limits of disturbance.*** *Acceptable measures include but are not limited to construction fencing (plastic mesh, snow fence, chain link fence etc.) appropriate for the site, boundary markers using construction tape, flagged stakes, etc. for low density use, sediment barriers such as silt fence, compost socks with flagging where also required for sediment control, and signage. The narrative portion of the plan and SESC Site Plans must highlight measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPAs) and infiltration practices to protect infiltration capacity.*

Feature Requiring Protection	Construction Phase #	Method of Protection	Sheet #
Northern Salt Marsh	1	Flagging, Posts, Fencing	ESC-1
Southern Salt Marsh	2	Flagging Posts, Fencing	ESC-1
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text

2.2 Minimize Area of Disturbance

Per RI Stormwater Design and Installation Standards Manual 3.3.7.2:

Will >5 acres be disturbed in order to complete this project?

☒ Yes ☐ No

If yes, phasing must be utilized at this site.

Will <5 acres be disturbed or will disturbance activities be completed within a six (6) month window?

☐ Yes ☒ No

If yes, phasing is not required as long as all other performance criteria will be met and phasing is not necessary to protect sensitive or highly vulnerable areas.

Based on the answers to the above questions will phasing be required for this project?

☒ Yes ☐ No

If yes, and phasing is required, describe phasing plan as prompted below.
Phasing will be performed to the maximum extent possible with the first area being centered around the entrance to the site along the northern edge to the bulkhead area. The second phase of work will be performed along the bulkhead area. Then another phase will be the remaining interior of the site. It is likely and required that more than 5 acres will be disturbed at once, as the nature of filling the 30 site to achieve uniform bearing capacity strength will require uniform filling and compaction.

If No, provide substantive reasons why this was determined to be infeasible.
Insert Text Here

PHASING PLAN

For each phase of the construction project, provide site estimates of the total area of the project phase, and the total area of the project phase that is expected to undergo soil disturbance.

The following are estimates of each phase of the construction project:

(Copy and paste this section for projects with multiple phases)

Phase No. or Identifier	1
Total Area of Phase	12 acres
Area to be Disturbed	11 acres

Description of Construction Sequencing for Phase 1

Phase 1 will include an area of disturbance from the site entrance on Waterfront Drive, up along the northern edge of the site to and along the proposed bulkhead area along the entire western face of the embankment.

Erosion controls shall be set in place prior to the earthwork beginning and they shall be inspected by the Owner's engineer. All control measures shown on the ESC drawings of the plan set shall be implemented to protect the site and the resources.

As the site will have shallow sloped grades, we don't anticipate a risk of high runoff rates, however the site will be graded into itself and away from the bordering resources and graded towards the temporary sedimentation basins.

The areas that are disturbed will likely remain disturbed continually, however if there are areas disturbed that are not used for more than 14 days, then those areas will be stabilized using erosion control blankets or other non-vegetation stabilization measures. Non vegetative stabilization measures are preferred as they will prevent organic matter from gathering into the soil substrate, which will have a negative impact on the proposed fully developed use on the site, which requires heavy bearing capacity.

The contractor shall review stabilization measures and practices on a daily basis and the Owner's engineer will conduct a weekly documented inspection of the site and highlight any measures or areas that need to be addressed. These inspections will also occur after any rainfall event of 0.5" or greater.

Phase No. or Identifier	2
Total Area of Phase	10 acres
Area to be Disturbed	10 acres

Description of Construction Sequencing for Phase 2

Phase 2 will include an area of disturbance along the southern perimeter of the site, from the western face to the eastern end near the continuation of Waterfront Drive.

Erosion controls shall be set in place prior to the earthwork beginning and they shall be inspected by the Owner's engineer. All control measures shown on the ESC drawings of the plan set shall be implemented to protect the site and the resources.

As the site will have shallow sloped grades, we don't anticipate a risk of high runoff rates, however the site will be graded into itself and away from the bordering resources and graded towards the temporary sedimentation basins.

The areas that are disturbed will likely remain disturbed continually, however if there are areas disturbed that are not used for more than 14 days, then those areas will be stabilized using erosion control blankets or other non-vegetation stabilization measures. Non vegetative stabilization measures are preferred as they

will prevent organic matter from gathering into the soil substrate, which will have a negative impact on the proposed fully developed use on the site, which requires heavy bearing capacity.

The contractor shall review stabilization measures and practices on a daily basis and the Owner's engineer will conduct a weekly documented inspection of the site and highlight any measures or areas that need to be addressed. These inspections will also occur after any rainfall event of 0.5" or greater.

Phase No. or Identifier	3
Total Area of Phase	10 acres
Area to be Disturbed	10 acres

Description of Construction Sequencing for Phase 3

Phase 3 will include an area of disturbance for the remaining interior of the site.

Erosion controls shall be set in place prior to the earthwork beginning and they shall be inspected by the Owner's engineer. All control measures shown on the ESC drawings of the plan set shall be implemented to protect the site and the resources.

As the site will have shallow sloped grades, we don't anticipate a risk of high runoff rates, however the site will be graded into itself and away from the bordering resources and graded towards the temporary sedimentation basins.

The areas that are disturbed will likely remain disturbed continually, however if there are areas disturbed that are not used for more than 14 days, then those areas will be stabilized using erosion control blankets or other non-vegetation stabilization measures. Non vegetative stabilization measures are preferred as they will prevent organic matter from gathering into the soil substrate, which will have a negative impact on the proposed fully developed use on the site, which requires heavy bearing capacity.

The contractor shall review stabilization measures and practices on a daily basis and the Owner's engineer will conduct a weekly documented inspection of the site and highlight any measures or areas that need to be addressed. These inspections will also occur after any rainfall event of 0.5" or greater.

Final stabilization will occur at the end of Phase 3. This will include the placement of the upper layer of dense graded aggregate, compacted in place, with an average land slope of 0.005 ft/ft. Once the site has achieved final grade, the infiltration trenches can be excavated in and the piping and crushed stone placed, allowing for the discharge of the stormwater.

Proper sequencing of construction activities is essential to maximize the effectiveness of erosion, runoff, and sediment control measures. Construction sequencing of construction activities for each phase must address the following elements:

1. *Installation of control measures identifying limits of disturbance and areas internal to the site that require protection before start of land disturbance.*
2. *Installation of all erosion, runoff, and sediment controls and temporary pollution prevention measures that are required to be in place and functional before any earthwork begins. This shall be done in accordance with the RI SESC Handbook and/or the RI Department of Transportation Standard Specifications for Road and Bridge Construction (as amended). Upon acceptable completion of site preparation and installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, site construction activities may commence.*

3. *The phasing plan shall address the use of phasing to manage and limit increases in runoff rates and volumes during construction. Designated phases and timing of construction should also address the impacts to important or sensitive habitats.*
4. *Upon commencement of site construction activities, the operator shall initiate appropriate stabilization practices on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased. Such temporary or permanent soil stabilization measures must be installed prior to initiating land disturbance in subsequent phases.*
5. *Routine inspection and maintenance and/or modification of erosion, runoff, and sediment controls and temporary pollution prevention measures while earthwork is ongoing is required.*
6. *Final site stabilization of any disturbed areas after earthwork has been completed and removal of temporary erosion, runoff, and sediment controls and temporary pollution prevention measures.*
7. *Activation of post-construction stormwater treatment conveyances and practices.*

2.3 Minimize the Disturbance of Steep Slopes

Per RI Stormwater Design and Installation Standards Manual 3.3.7.3:

Are steep slopes (>15%) present within the proposed project area?

☒ Yes ☐ No

If yes, steep slopes must be identified on SESC Site Plans.

If yes, also list the specific control measures that will be used to control surface runoff and reduce erosion potential on steep slopes during construction including references to SESC Site Plans where the locations of such control measures are shown. Examples include limiting the number of steep slopes that are disturbed at one time, implementing land grading techniques such as reverse slope benches, diversions, stair steps, and terraced landforms, installation of retaining walls for stabilization of challenging slopes, prevention of soil movement, and slope protection, applying materials for temporary and permanent protection of slopes to prevent erosion such as stone aggregates, rip-rap, erosion control blankets, appropriate spacing of sediment barriers as a function of barrier size, slope, and slope length, geotextile, cellular confinement systems, mattresses (gabions and others), and articulating blocks.

Steep slopes exist along the edges of the embankment. The existing slopes are secured in place with rip rap stone and concrete block. The slopes that exist along the southern and northern edges of the site will remain in place and not be touched. The slope that exists along the western edge of the site will be altered to construct the site, however they will be protected and measures will be implemented to keep the slope from eroding into the Providence River.

In order to construct the bulkhead, the rip rap stone and concrete block armoring of the embankment will need to be removed in order to install the sheet pile bulkhead. These work will be phased and the armoring will be removed only in advance of driving the sheets and not more than 14 days prior to the start of the sheet pile work.

2.4 Preserve Topsoil

Per RI Stormwater Design and Installation Standards Manual 3.3.7.4:

Site owners and operators must preserve existing topsoil on the construction site to the maximum extent feasible and as necessary to support healthy vegetation, promote soil stabilization, and increase stormwater infiltration rates in the post-construction phase of the project.

Will existing topsoil be preserved at the site?

☐ Yes ☒ No

If Yes, describe how topsoil will be preserved at the site by describing the techniques that will be implemented to achieve appropriate depths of topsoil (4 inch minimum) and identify the locations where topsoil will be restored on SESC Site Plans.

Insert Text Here and references to SESC Site Plan Sheet Numbers

If No, provide substantive reasons why this was determined to be infeasible.

The site was created with backfill of dredge spoils, so no topsoil exists on site. Furthermore, the site requires several acres of filling with dense graded aggregate and it will need to be heavily compacted.

Soil compaction must be minimized by maintaining limits of disturbance throughout construction. In instances where site soils are compacted the site owner and operator must restore infiltration capacity of the compacted soils by tilling or scarifying compacted soils and amending soils as necessary to ensure a minimum depth of topsoil is available in these areas. In areas where infiltrating stormwater treatment practices are located compacted soils must be amended such that they will comply the design infiltration rates established in the *RI Stormwater Design and Installation Standards Manual*.

Identify the methods that will be used to restore and amend topsoil at the site. Include references to plan notes and SESC Site Plan sheet numbers where this information is made available for the site operator.

Topsoil will not be amended and restored on site, the terminal is being designed for industrial uses and requires a heavily compacted granular wearing surface to allow for free range of use for cranes and storage.

2.5 Stabilize Soils

Per RI Stormwater Design and Installation Standards Manual 3.3.7.5:

Upon completion and acceptance of site preparation and initial installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, the operator shall initiate appropriate temporary or permanent stabilization practices during all phases of construction on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased.

Any disturbed areas that will not have active construction activity occurring within 14 days must be stabilized using the control measures depicted in the SESC Site Plans, in accordance with the *RI SESC Handbook*, and per manufacturer product specifications.

Only areas that can be reasonably expected to have active construction work being performed within 14 days of disturbance will be cleared/grubbed at any one time. It is NOT acceptable to clear and grub the entire construction site if portions will not be active within the 14-day time frame. Proper phasing of clearing and grubbing activities shall include temporary stabilization techniques for areas cleared and grubbed that will not be active within the 14-day time frame.

All disturbed soils exposed prior to October 15 of any calendar year shall be seeded by that date if vegetative measures are the intended soil stabilization method. Any such areas that do not have adequate

vegetative stabilization, as determined by the site operator or designated inspector, by November 15, must be stabilized through the use of non-vegetative erosion control measures. If work continues within any of these areas during the period from October 15 through April 15, care must be taken to ensure that only the area required for that day's work is exposed, and all erodible soil must be restabilized within 5 working days. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed (i.e. construction of a motocross track).

Describe controls (i.e., temporary seeding with native vegetation, hydroseeding, mulching, application of rolled erosion control products, etc.) including design specifications and details that will be implemented to stabilize exposed soils where construction activities have temporarily or permanently ceased.

Temporary Vegetative Control Measures

- Vegetative Control Measures will not be used due to the lack of organic matter that will be used on site and the final cover of granular material.

Temporary Non-Vegetative Control Measures

- Non-vegetative control measures will include minimize the use of soil stockpiles, (not necessitated by site operations), surrounding stockpiles with silt fence and erosion controls, and when needed covering stockpiles with poly sheeting anchored down and secured.

- No steep slope disturbance should occur outside of the western face and therefore no specific steep slope erosion controls should occur.

Permanent Vegetative Control Measures

- No permanent vegetative controls will be required as a result of the industrial nature of the property.

Permanent Non-Vegetative Control Measures

- The permanent control measures that will be applied to this site include:
    1. The use of shallow slopes , 0.005 ft/ft
    2. Heavy roller compaction of granular material
    3. Maintaining slope armoring on northern and southern ends of the site.

2.6 Protect Storm Drain Outlets

Per RI Stormwater Design and Installation Standards Manual 3.3.7.7:

Temporary or permanent outlet protection must be used to prevent scour and erosion at discharge points through the protection of the soil surface, reduction in discharge velocities, and through the promotion of infiltration. Outlets often have high velocity, high volume flows, and require strong materials that will withstand the forces of stormwater. Storm drain outlet control measures also offer a last line of protection against sediment entering environmentally sensitive areas.

All stormwater outlets that may discharge sediment-laden stormwater flow from the construction site must be protected using the control practices depicted on the approved plan set and in accordance with the *RI SESC Handbook*.

Describe controls, including design specifications and details, which will be implemented to protect outlets discharging stormwater from the project.

Will temporary or permanent point source discharges be generated at the site as the result of construction of sediment traps or basins, diversions, and conveyance channels?

☒ Yes ☐ No

If Yes, describe the method(s) of outlet protection specified for each instance where a point source discharge will be generated. In addition, specifically reference SESC Site Plan Sheet Numbers which identify where the outlets will be constructed at the site and the corresponding control measures that will be utilized for their protection including any associated specifications required for their installation and maintenance.

There will likely be temporary de-watering or stormwater basins constructed during the buildout phase. The basins will be appropriately sized to provide sufficient retention time for the anticipated stormflow volumes to allow sediment to settle out prior to discharge. Any point source discharge shall by monitored by the Owner's engineer for Turbidity .

Groundwater dewatering, if necessary, may be conducted by pumping through a frac tank or geo-bag that is appropriately sized to reduce the level of suspended solids in the water.

If No, discuss rationale for not including these elements in the SESC Plan.

Insert text

2.7 Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices

Per RI Stormwater Design and Installation Standards Manual 3.3.7.8:

Temporary measures shall be installed to protect permanent or long-term stormwater control and treatment measures as they are installed and throughout the construction phase of the project so that they will function properly when they are brought online.

Examples of temporary control measures that can be used to protect permanent stormwater control measures include: establishing temporary sediment barriers around infiltrating practices, ensuring proper material staging areas and equipment routing (i.e. do not allow construction equipment to compact areas where infiltrating practices will be installed), and by conducting final cleaning of structural long term practices after construction is completed.

List and describe all post-construction stormwater treatment practices that will be installed during the construction process. Next, outline how these measures will be protected during the construction phase of the project to ensure that they will function appropriately once they are brought online.

Will long-term stormwater treatment practices be installed at the site?

☒ Yes ☐ No

If Yes, describe the specific long-term stormwater treatment practices that will require protection from sedimentation and compaction. In addition, specifically reference SESC Site Plan Sheet Numbers which identify the location of these practices and the corresponding control measures that will be utilized for their protection including any associated specifications required for their installation and maintenance.

The Site will be kept permeable and the stormwater will be managed through crushed stone infiltration trenches that contain a perforated underdrain pipe. The trenches will be lined with a geotextile fabric to prevent movement of smaller grained material into the trenches. The upper elevations of the crushed stone infiltration trenches can be removed and replaced if they become laden with sediment.

If No, discuss rationale for not including these elements in the SESC Plan.

Insert text

2.8 Divert or Manage Run-on from Up-gradient Areas

Per RI Stormwater Design and Installation Standards Manual 3.3.7.10:

Is stormwater from off-site areas anticipated to flow onto the project area or onto areas where soils will be disturbed?

☐ Yes ☒ No

If Yes, describe the specific runoff control measures (i.e., check dams, water bars, diversions, perimeter dikes, lined waterways, vegetated waterways, temporary line channels, sediment barriers, pipe slope drains, etc.) that will be utilized at the site including references to the SESC Site Plan Sheet Numbers, design specifications and details. See the RI SESC Handbook,Section Five: Runoff Control Measures for additional guidance.

Pre-Construction and Construction sub-watershed maps are included for each phase in this SESC Plan submittal.

Structural control measures will be used to limit stormwater flow from coming onto the project area, and to divert and slow on-site stormwater flow that is expected to impact exposed soils for the purpose of minimizing erosion, runoff, and the discharge of pollutants from the site.

Control measures shall be installed as depicted on the approved plan set and in accordance with the *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction*. **Run-on and Run-off Management**				
Construction Phase #	On-site or Off-site Run-on?	Control measure	Identified on Sheet #	Detail(s) is/are on Sheet #
1	Off - Site	Lined Waterway	3	11 of 12
Insert Text	Insert Text	Insert Text		Insert Text
Insert Text	Insert Text	Insert Text		Insert Text
Insert Text	Insert Text	Insert Text		Insert Text

If No, discuss rationale for not including these elements in the SESC Plan.

The site already sits several feet above the surrounding properties and it is being raised an additional five feet in elevation. Therefore, run-on coming from off-site onto the property is very unlikely.

2.9 Retain Sediment Onsite through Structural and Non-Structural Practices

Per RI Stormwater Design and Installation Standards Manual 3.3.7.12:

Once the erosion control measures and the run-on diversions are identified and located on the plans, the next step to site planning is sediment control and sediment management. Sediment barriers, inlet protection, construction entrances, stockpile containment, temporary sediment traps, and temporary sediment basins must be integrated into the SESC Plan if applicable. Refer to the RI SESC Handbook Section Six: Sediment Control Measures for additional guidance.

Per RI Stormwater Design and Installation Standards Manual 3.3.7.9:

SEDIMENT BARRIERS must be installed along the perimeter areas of the site that will receive stormwater from disturbed areas. This also may include the use of sediment barriers along the contour of disturbed slopes to maintain sheet flow and minimize rill and gully erosion during construction. Installation and maintenance of sediment barriers must be completed in accordance with the maintenance requirements specified by the product manufacturer or the *RI SESC Handbook*.

Will sediment barriers be utilized at the toe of slopes and other downgradient areas subject to stormwater impacts and erosion during construction?

☒ Yes ☐ No

If Yes, Describe the rationale for selecting control measures to serve as sediment barriers at the toe of slopes and other down gradient areas subject to stormwater impacts during construction. Describe the specific sediment barriers that will be used at the site in the table provided.

If No, discuss rationale for not including these elements in the SESC Plan.

Sediment barriers, in the form of straw wattles will be placed around the downgradient perimeter of the site. The straw wattles will be staked into place and backed up by a silt fence. These barriers shall be inspected every two weeks and after any rainfall event of .5 inches or more. Accumulated sediment and debris noted during those inspections shall be removed within 48 hours.

Describe rationale for whether or sediment barriers are required at regular intervals along slopes in order to minimize the creation of concentrated flow paths (i.e. rilling, gully erosion) and to encourage sheet flow. Keep in mind that sediment barriers can be placed at the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow. The description of the selected control measures must focus on sediment barrier spacing as a function of slope length and steepness. Refer to the RI SESC Handbook, Section Six: Sediment Control Measure, Straw Wattles, Compost Tubes, and Fiber Rolls Control Measure for additional information on acceptable spacing distances.

Will sediment barriers be utilized along the contour of slopes to maintain sheet flow and minimize rill and gully erosion during construction?

☐ Yes ☒ No

If Yes, list the specific sediment barriers that will be used at the site in the table provided. Describe the rationale for the locations and spacing frequency selected by the designer based on slope length and

steepness. For additional guidance refer to the RI SESC Handbook or sediment barrier manufacturer's specifications.

SEDIMENT BARRIERS			
Construction Phase #	Sediment Barrier Type	Sediment Barrier is Labeled on Sheet #	Detail is on Sheet #
1	20 inch dia. Fiber roll	5 of 12	11 of 12
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text

If No, discuss rationale for not including these elements in the SESC Plan.
The site is going to be graded at a very shallow slope, 0.005 ft/ft. This flattened slope will minimize runoff velocities, thereby minimizing erosive tendencies of the soil. Furthermore, the site will be actively fill and compacted, so the sediment barrier would need to be continually removed and replaced.

Per RI Stormwater Design and Installation Standards Manual 3.3.7.6:

INLET PROTECTION will be utilized to prevent soil and debris from entering storm drain inlets. These measures are usually temporary and are implemented before a site is disturbed. ALL stormwater inlets &/or catch basins that are operational during construction and have the potential to receive sediment-laden stormwater flow from the construction site must be protected using control measures outlined in the *RI SESC Handbook*.

For more information on inlet protection refer to the *RI SESC Handbook*, Inlet Protection control measure.

Maintenance

The operator must clean, or remove and replace the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or as performance is compromised. Accumulated sediment adjacent to the inlet protection measures should be removed by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible.

Describe controls, including design specifications and details, which will be implemented to protect all inlets receiving stormwater from the project during the entire duration of the project. For more information on inlet protection refer to the RI SESC Handbook Inlet Protection control measure.

Do inlets exist adjacent to or within the project area that require temporary protection?

☐ Yes ☒ No

If Yes, describe the method(s) of inlet protection, including maintenance requirements and complete the table provided.

The following lists the proposed storm drain inlet types selected from Section Six of the *RI SESC Handbook*. Each row is unique for each phase and inlet protection type.

INLET PROTECTION			
Construction Phase #	Inlet Protection Type	Inlet Protection is labeled on Sheet #	Detail(s) is/are on Sheet #
1	Fabric Drop , Curb Drop	3 of 12	11 of 12
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text

Insert Text	Insert Text	Insert Text	Insert Text

If No, discuss rationale for not including these elements in the SESC Plan.

The existing site is a permeable site, created with dredge spoils and there were no stormwater controls or inlet structures implemented during its creation. The site more or less drains into itself or discharges via overland flow into the Providence River.

CONSTRUCTION ENTRANCES will be used in conjunction with the stabilization of construction roads to reduce the amount of sediment tracking off the project. This project has avoided placing construction entrances on poorly drained soils where possible. Where poorly drained soils could not be eliminated, the detail includes subsurface drainage.

Any construction site access point must employ the control measures on the approved SESC site plans and in accordance with the *RI SESC Handbook*. Construction entrances shall be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by construction vehicles. All construction access roads shall be constructed prior to any roadway accepting construction traffic.

The site owner and operator must:

1. Restrict vehicle use to properly designated exit points.

2. Use properly designed and constructed construction entrances at all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit.

3. When and where necessary, use additional controls to remove sediment from vehicle tires prior to exit (i.e. wheel washing racks, rumble strips, and rattle plates).

4. Where sediment has been tracked out from the construction site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment must be removed by the end of the same work day in which the track out occurs. Track-out must be removed by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.

Will construction entrances be utilized at the proposed construction site?

☒ Yes ☐ No

If Yes, indicate location(s) of vehicle entrance(s) and exit(s), and stabilization practices used to prevent sediment from being tracked off-site in the table provided. See also RI SESC Handbook, Section Six, Construction Entrances Measure.

CONSTRUCTION ENTRANCE			
Construction Phase #	Soil Type at the Entrance	Entrance is located on Sheet #	Detail is on Sheet #
1	Crushed angular stone	ESC-1	D-3
2	Crushed angular stone	ESC-1	D-3
3	Crushed angular stone	ESC-1	D-3
Insert Text	Insert Text	Insert Text	Insert Text

If No, discuss rationale.

Insert text

STOCKPILE CONTAINMENT will be used onsite to minimize or eliminate the discharge of soil, topsoil, base material or rubble, from entering drainage systems or surface waters. All stockpiles must be located within the limit of disturbance, protected from run-on with the use of temporary sediment barriers and provided with cover or stabilization to avoid contact with precipitation and wind where and when practical.

Stock pile management consists of procedures and practices designed to minimize or eliminate the discharge of stockpiled material (soil, topsoil, base material, rubble) from entering drainage systems or surface waters.

For any stockpiles or land clearing debris composed, in whole or in part, of sediment or soil, you must comply with the following requirements:

1. Locate piles within the designated limits of disturbance.

2. Protect from contact with stormwater (including run-on) using a temporary perimeter sediment barrier.

3. Where practicable, provide cover or appropriate temporary vegetative or structural stabilization to avoid direct contact with precipitation or to minimize sediment discharge.

4. NEVER hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or surface water.

5. To the maximum extent practicable, contain and securely protect from wind.

Describe materials expected to be stockpiled or stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater and to eliminate the discharge of stockpiled material from entering drainage systems and surface waters. Refer to the RI SESC Handbook, Stockpile and Staging Area Management Control Measure for additional guidance. Complete the table provided.

STOCKPILE CONTAINMENT				
Construction Phase #	Run-on measures necessary? (yes/no)	Stabilization or Cover Type	Stockpile Containment Measure	Sheet #
1	No	Poly	Silt fence/wattle	ESC-1
2	No	Poly	Silt fence/wattle	ESC-1
3	No	Poly	Silt fence/wattle	ESC-1
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

CONSTRUCTED SEDIMENT STRUCTURES

If each common drainage location receives water from an area with less than one (1) acre disturbed at a time, this section can be deleted and no sediment traps or basins are required. However, it is important to remember that there is still a requirement to retain sediment on-site. Therefore, if it is in the best professional judgment of the designer, that there is a condition or circumstance which may require structural controls (per Section 3.3.7.13 of the RI Stormwater Design and Installation Standards Manual), this section can be used.

TEMPORARY SEDIMENT TRAPS will be utilized onsite. There will be no disturbed drainage areas greater than one acre that will be exposed for longer than six months. Design and sizing calculations in accordance

with the *RI SESC Handbook*, Section Six are found in the appendix of this SESC Plan. A summary of the calculations are provided below:

For Disturbed Areas 1 to 5 Acres – Those areas with a common drainage location that serves an area between one (1) and five (5) acres disturbed at one time, a temporary sediment trap must be provided where attainable and where the sediment trap is only intended to be used for a period of six (6) months or less. For longer term projects with a common drainage location that serves between one (1) and five (5) acres disturbed at one time, a temporary sediment basin must be provided where attainable. Temporary sediment trapping practices must be designed in accordance with the RI SESC Handbook and must be sized to have a total storage volume capable of storing one (1) inch of runoff from the contributing area or one hundred and thirty four (134) cubic yards per acre of drainage area. A minimum of fifty percent (50%) of the total volume shall be storage below the outlet (wet storage). See RISDISM 3.3.7.12 for requirements and RI SESC Handbook, Section Six: Temporary Sediment Traps Measure for design details.

Are temporary sediment traps required at the site?

☒ Yes ☐ No

If Yes, complete the table provided. If an area greater than one acre will be exposed for longer than 6 months and a sediment trap is proposed, explain why the sediment basin was not attainable.

SEDIMENT TRAPS				
Construction Phase #	Exposed Area (acres)	Trap #	Sheet #	Detail found on Sheet#
1	11	1	ESC	D
2	10	2	ESC	D
3	10	3	ESC	D
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

Trap #	Wet Storage Volume (cu.ft)	Dry Storage Volume (cu.ft.)	Cleanout Depth (ft)	Provide Reference to Location of Supporting Design and Sizing Calculations
1	850	1650	2	See spreadsheet
2	765	1500	2	See spreadsheet
3	765	1500	2	See spreadsheet
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

All traps will be functional and installed prior to disturbance in the contributing drainage area. Access for sediment removal is provided on the plans with cleanout depth requirements. The removed sediment will be utilized onsite or disposed of properly off-site.

If No, discuss rationale.

Insert text

TEMPORARY SEDIMENT BASIN(S) will be utilized onsite. Every effort must be made to prevent erosion and control it near the source.

If the following criterion does not apply to your proposed construction project, then this section may be eliminated from the plan.

For Disturbed Areas of 1 to 5 Acres – Those areas with a common drainage location that serves an area between one (1) and five (5) acres disturbed at one time for longer than six (6) months.

For Disturbed Areas > 5 Acres – Those areas with a common drainage location that serves an area with greater than five (5) acres disturbed at one time, a temporary (or permanent) sediment basin must be provided where attainable until final stabilization of the site is complete. Temporary sediment basins must be designed in accordance with the RI SESC Handbook. The volume of wet storage shall be at least twice the sediment storage volume and shall have a minimum depth of two (2) feet. Sediment storage volume must accommodate a minimum of one year of predicted sediment load as calculated using the sediment volume formula in the RI SESC Handbook. In addition to sediment storage volume and wet storage volume, the sediment basin shall provide adequate residence storage volume to provide a minimum 10 hours residence time for a ten (10) -year frequency, twenty four (24) hour duration, Type III distribution storm. To the maximum extent practicable, outlet structures must be utilized that withdraw water from the surface of temporary sedimentation basins for the purpose of minimizing the discharge of pollutants. Exceptions may include periods of extended cold weather, where alternative outlets are required during frozen periods. If such a device is infeasible for portions of or the entire construction period justification must be made in the SESC Plan. Describe the reasons sediment basins are required for this project. They may include physical conditions, land ownership, construction operations etc. For design details see RI SESC Handbook Section Six: Temporary Sediment Basins Measure.

Are temporary sediment basins required at the site?

☒ Yes ☐ No

If No, discuss rationale.

Insert text

If Yes, complete the table provided.

There will be disturbed areas greater than 5 acres and/or disturbed areas greater than one acre but exposed for longer than six months. The basins have been located to intercept runoff only from disturbed areas and minimize interference with other construction activities and construction of utilities. They have been located outside of any natural buffers. The dam height is less than six feet and holds less than fifteen (15) acre-ft.

Modeling, Design and Sizing calculations in accordance with the *RI SESC Handbook*, Section Six are found in __the Appendix of this A___ of this SESC Plan. The designs were also prepared to satisfy Section 3.3.7.13 of the Stormwater Manual and will control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows.

The temporary sediment basins were designed to provide sedimentation controls to the site. Full compliance with the sediment basin sizing requirements is not feasible, as it would require over 1/3 of the site. This is not feasible as the site will be graded at a very shallow slope, 0.005 ft/ft, reducing the velocity of runoff and therefore the potential to carry sediment in the runoff. Furthermore, the sedimentation basins are designed to not discharge offsite, so runoff of a large volume even if not contained in the sedimentation basin, will pool and remain on-site, effectively meeting the spirit of the regulation.

A summary of the assumptions and calculations are provided below:

TEMPORARY SEDIMENT BASINS				
Construction Phase #	Exposed Area (acres)	Basin #	Sheet #	Detail found on Sheet#
1	11	1	ESC-1	D-4
2	10	2	ESC-1	D-4

3	10	3	ESC-1	D-4
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

Provide the following tables for each temporary sediment basin. Each basin shall be designed to contain sediment and runoff from the 10-year Type III distribution storm.

SEDIMENT BASIN #1 Pre-Development					
Pre-Construction Cover Type	Contributing Area (acres)	Soil Type	Curve Number	Tc (minutes)	10- Year Type III (cfs, at time t, acre feet)
Gravel	11	B	85	16	30.95
				Total Pre-Construction Volume (cuft):	**30.95**
During Construction					
Construction Cover Type	Contributing Area	Erosion Rates	Curve Number	Tc (minutes)	10-Year Type III (cfs, at time t, acre feet)
Granular Gravel	11	50	76	42.4	15.06
				Total Runoff Volume During Construction (cuft):	**15.06**
Basin #1					
Pre-Construction Peak Discharge (cfs)	Wet Storage Volume (cuft)	Sediment Storage Volume (cuft)	Residence Storage Volume (cuft)	Outlet Max Discharge Rate (cfs)	Emergency Spillway Discharge Capacity (cfs)
30.95	14807	43420	51440	6.55	15.06 cfs

SEDIMENT BASIN #2 Pre-Development					
Pre-Construction Cover Type	Contributing Area (acres)	Soil Type	Curve Number	Tc (minutes)	10- Year Type III (cfs, at time t, acre feet)
Gravel	10	B	85	11	32.11
				Total Pre-Construction Volume (cuft):	**32.11**
During Construction					
Construction Cover Type	Contributing Area	Erosion Rates	Curve Number	Tc (minutes)	10-Year Type III (cfs, at time t, acre feet)

Granular Gravel	10	50	76	42.4	13.69
				Total Runoff Volume During Construction (cuft):	**13.69**
Basin #2					
Pre-Construction Peak Discharge (cfs)	Wet Storage Volume (cuft)	Sediment Storage Volume (cuft)	Residence Storage Volume (cuft)	Outlet Max Discharge Rate (cfs)	Emergency Spillway Discharge Capacity (cfs)
32.11	58089	170340	207496	6.55	13.69

SEDIMENT BASIN #3 Pre-Development					
Pre-Construction Cover Type	Contributing Area (acres)	Soil Type	Curve Number	Tc (minutes)	10- Year Type III (cfs, at time t, acre feet)
Gravel	10	B	85	11	32.11
				Total Pre-Construction Volume (cuft):	**32.11**
During Construction					
Construction Cover Type	Contributing Area	Erosion Rates	Curve Number	Tc (minutes)	10-Year Type III (cfs, at time t, acre feet)
Granular Gravel	10	50	76	42.4	13.69
				Total Runoff Volume During Construction (cuft):	**13.69**
Basin #3					
Pre-Construction Peak Discharge (cfs)	Wet Storage Volume (cuft)	Sediment Storage Volume (cuft)	Residence Storage Volume (cuft)	Outlet Max Discharge Rate (cfs)	Emergency Spillway Discharge Capacity (cfs)
32.11	25058	73480	86648	6.55	13.69

As noted above, the function and the need for these temporary sediment basins is not truly applicable to this project. While large areas of the site may be disturbed, the areas will be actively used and filled. Most importantly with respect to erosion and fill, the geotechnical design of the site requires that as materials are placed on the site, they are heavy compacted in place in shallow lifts as they are put down. Furthermore the function and need for the basins is reduced as the site is graded at such a shallow grade of 0.005 ft/ft.

The site will be raised evenly and continually as fill material is brought in and placed on site. Therefore the continual activity will leave very little “disturbed” area that would be vulnerable to erosion and sedimentation issues. These sedimentation basins may appear undersized based on the prescriptive manner from the guide book, however the reality of their implementation, based on previous experience, will show that there is more than sufficient capacity to control erosion and sedimentation that may occur on site.

All sediment basins will be functional and installed prior to disturbance in the contributing drainage area. Access for sediment removal is provided on the plans with cleanout depth specifications. The removed sediment will be utilized onsite or properly disposed of off-site.

The outlets for each basin described above will actually function as hydraulic connection between the basins, so that one may support the other. Given that the basins will prevent downstream and therefore offsite runoff, the overflow will occur by backing up and flooding the site, creating residual temporary storage to prevent overflow.

2.10 Properly Design Constructed Stormwater Conveyance Channels

Conveyances are required to be designed for inlets to temporary sediment basins. The construction site planner must use best professional judgment to determine if additional conveyance design is required for run-on control or in any other location where velocity control is required.

Are temporary stormwater conveyance practices required in order to properly manage runoff within the proposed construction project?

☒ Yes ☐ No

If Yes, describe the specific control measures that will be used at the site. Provide or attach design calculations associated with each proposed conveyance measure, demonstrating that each one is designed and sized to handle the peak flow from a 10-year, 24-hour, Type III design storm. Note where within the site plans each specified conveyance is depicted, including specifications and construction details.

The site will use crushed stone lined conveyance channels to transport runoff from disturbed areas to the temporary sedimentation basins. The channels will be underlain by a geotextile fabric.

The conveyance will be maintained as depicted on SESC Site Plans and in accordance with the *RI SESC Handbook* and if applicable.

If No, discuss rationale for not including conveyance measures in the SESC Plan.

Insert text

2.11 Erosion, Runoff, and Sediment Control Measure List

Complete the following table for each Phase of construction where Erosion, Runoff, and Sediment Control Measures are located. This table is to be used as part of the SESC Plan Inspection Report – please fill out accordingly.

It is expected that this table and corresponding Inspection Reports will be amended as needed throughout the construction project as control measures are added or modified.

Phase No. #1		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Northern Perimeter of Work Area	Straw wattles and silt fence combination	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed.

		Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Waterfront Drive Construction Entrance	Stone Stabilized Pad.	The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto pave surfaces. Provide periodic top dressing with additional stone or additional length as conditions demand. Roads adjacent to entrance shall be clean at the end of each day. If maintenance alone is not enough to prevent excessive track out, increase length of entrance, modify construction access road surface, or install washrack or mudrack.
Southern end of Phase 1	Conveyance channel	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Eastern end of Phase 1	Temporary Sedimentation Basin	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

Phase No. #2		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Southern Perimeter of Work Area	Straw wattles and silt fence combination	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

Southern end of Phase 2	Conveyance channel	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Eastern end of Phase 2	Temporary Sedimentation Basin	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

Phase No. #3		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Eastern Perimeter of Work Area	Straw wattles and silt fence combination	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Northern end of Phase 1	Conveyance channel	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Eastern end of Phase 3	Temporary Sedimentation Basin	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

SECTION 3: CONSTRUCTION ACTIVITY POLLUTION PREVENTION

Per RI Stormwater Design and Installation Standards Manual 3.3.7.14:

The purpose of construction activity pollution prevention is to prevent day to day construction activities from causing pollution.

This section describes the key pollution prevention measures that must be implemented to avoid and reduce the discharge of pollutants in stormwater. Example control measures include the proper management of waste, material handling and storage, and equipment/vehicle fueling/washing/maintenance operations.

Where applicable, include *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction* (as amended) specifications.

3.1 Existing Data of Known Discharges from Site

Per RIPDES Construction General Permit – Part III.I:

List and provide existing data (if available) on the quality of any known discharges from the site. Examples include discharges from existing stormwater collection systems, discharges from industrial areas of the site, etc.

Are there known discharges from the project area?

☐ Yes ☒ No

Describe how this determination was made:

- It is an un-used unimproved site.

If yes, list discharges and locations:

- INSERT TEXT HERE

Is there existing data on the quality of the known discharges?

☐ Yes ☒ No

If yes, provide data:

- INSERT TEXT HERE

3.2 Prohibited Discharges

Per RI SESC Handbook – Part D

The following discharges are prohibited at the construction site:

- Contaminated groundwater, unless specifically authorized by the DEM. These types of discharges may only be authorized under a separate DEM RIPDES permit.
- Wastewater from washout of concrete, unless the discharge is contained and managed by appropriate control measures.
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance. Proper storage and spill prevention practices must be utilized at all construction sites.
- Soaps or solvents used in vehicle and equipment washing.

- Toxic or hazardous substances from a spill or other release.

All types of waste generated at the site shall be disposed of in a manner consistent with State Law and/or regulations.

Will any of the above listed prohibited discharges be generated at the site?

☒ Yes ☐ No

If Yes, provide a list of those that will be generated at the site and provide a discussion of how they will be managed, including references to the specific SESC Site Plans where such control measures are specified.

Pollutant-Generating Activity	**Pollutants or Pollutant Constituents** (that could be discharged if exposed to stormwater)	**Location on Site** (or reference SWPPP site map where this is shown)
Fuel	Diesel/Gasoline	Approved Storage container no closer than 100' from wetlands
Equipment Maintenance	Hydraulic Oil, Grease, Oil	Approved Storage container no closer than 100' from wetlands
Site grading and excavation	Fugitive Dust	In areas of disturbance
Solid Waste	Solid waste	Use appropriate containers placed on level impervious surface
Concrete/Mortar cleaning	Cement, mortar	For foundations and building construction

Insert text and references to SESC Site Plan Sheet Numbers here.

If No, discuss rationale.

Insert text

3.3 Proper Waste Disposal

Per RI SESC Handbook – Part D

Building materials and other construction site wastes must be properly managed and disposed of in a manner consistent with State Law and/or regulations.

- A waste collection area shall be designated on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterbody or storm drain.
- All waste containers shall be covered to avoid contact with wind and precipitation.
- Waste collection shall be scheduled frequently enough to prevent containers from overfilling.
- All construction site wastes shall be collected, removed, and disposed of in accordance with applicable regulatory requirements and only at authorized disposal sites.
- Equipment and containers shall be checked for leaks, corrosion, support or foundation failure, or other signs of deterioration. Those that are found to be defective shall be immediately repaired or replaced.

Is waste disposal a significant element of the proposed project?

☐ Yes ☒ No

If Yes, identify potential building materials and other construction wastes and document how these wastes will be properly managed and disposed of at the construction site (i.e., trash disposal, sanitary wastes, recycling, and proper material handling). Include references to the specific SESC Site Plans where such control measures are specified.

- Insert text and references to SESC Site Plan Sheet Numbers here.

If No, discuss rationale.

The project is mostly site work and there are limited building materials. Building materials to be used includes steel for the bulkhead, steel reinforcing bars, concrete for the relieving platform and electrical trenches, and then piping and conduit. The rest of the building materials will be fill with natural earthen materials. There are no significant hazardous building products that will be used as part of this project.

3.4 Spill Prevention and Control

Per RI SESC Handbook – Part D

All chemicals and/or hazardous waste material must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. All areas where potential spills can occur and their accompanying drainage points must be described. The owner and operator must establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. The operator must establish and make highly visible location(s) for the storage of spill prevention and control equipment and provide training for personnel responsible for spill prevention and control on the construction site.

Are spill prevention and control measures required for this particular project?

☒ Yes ☐ No

If Yes, describe all areas where potential spills can occur, and their accompanying drainage points, and describe the spill prevention and control plan to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control. Provide the method of establishing and making highly visible the location(s) for the storage of spill prevention equipment. Refer to the RI SESC Handbook, Spill Prevention and Control Plan for guidance.

Oil containing materials are likely to be present in small quantities on site. When materials are transported on site using a forklift or heavy equipment, either a drum attachment is used or containers are strapped to pallets on the forklift to prevent the containers from falling during movement. If a barrel dolly is used, the operator will ensure that the barrel is compatible with the dolly and that the barrel is properly secured to the dolly. The following outlines delivery and transport procedures for small containers:

1. Containers are checked for damaged areas or signs of corrosion. If any is detected, the container contents are transferred to an appropriate container and labeled prior to moving.
2. Contractor's personnel ensure that containers are closed prior to moving.
3. Containers are secured on forks or pallets when using a forklift or heavy machinery or properly secured when using a dolly to prevent containers from falling during movement.

Discovery of a Release

The person discovering a release of material from a container, tank, or operating equipment should initiate certain actions immediately. These actions include the following:

First ensuring that no danger to human health exists, attempt to stop the release at its source. Simple procedures (turning valves, plugging leaks, etc.) may be attempted by the discoverer if there is no health or safety hazard and there is a reasonable certainty of the origin of the leak. All efforts to control leaks must be under the supervision of an appointed supervisor.

Extinguish any sources of ignition. Until the material is identified as nonflammable and noncombustible, all potential sources of ignition in the area should be removed. Vehicles should be turned off. If the ignition source is stationary, and cannot be extinguished, attempt to direct the spilled material away from the ignition source. Avoid sparks and movement creating static electricity.

Initiate spill notification and reporting procedures. Report the incident immediately to the Site Supervisor. If there is an immediate threat to human life (e.g., a fire in progress or fumes overcoming workers), an immediate alarm should be sounded to evacuate the building and the local Fire Department should be called. Request the assistance of a hazardous materials response contractor if an uncontrollable spill has occurred and/or if the spill has migrated beyond the site boundaries.

Containment of a Release

If a release should occur, all regulated oil at the facility can be safely contained within secondary containment structures or otherwise diverted to be retained onsite without impact to surface water if a release occurs. However, if material is released outside the containment areas, it is critical that the material is accurately identified and appropriate control measures are taken in the safest possible manner. Immediate containment measures can include the following:

Attempt to stop the release at the source. If the source of the release has not been found; if special protective equipment is necessary to approach the release area; or if assistance is required to stop the release, the local Fire Department and an emergency spill contractor should be called to halt the discharge at its source. Contractor personnel should be available to guide the Fire Department's efforts.

Contain the material released into the environment. Following proper safety procedures, the spill should be contained by absorbent materials and dikes using shovels and brooms.

Continue the notification procedures. Obtain assistance from a hazardous material contractor if necessary. The hazardous material contractor will be called for assistance if the spill exceeds 10 gallons, or if the Site Supervisor determines that outside help is necessary or desirable.

Spill Cleanup

Cleanup of spills of more than 10 gallons of oil will be conducted by a hazardous material contractor. The MCP requires responsible parties to retain a Licensed Site Professional (LSP) to direct cleanup activities for all spills which are reportable under the MCP. The LSP should be contacted as soon as possible after the spill occurs so that they can direct and observe cleanup activities and ensure compliance with the applicable regulations.

Cleanup of spills less than 10 gallons of oil may be conducted by the Contractor's personnel using the following procedures, or may be cleaned up by an outside contractor, as determined by the Site Supervisor. Appropriate personal protective equipment and cleanup procedures can be found on material safety data sheets. Care must be taken when cleaning up spills to minimize the quantity waste generated, which is regulated as a hazardous waste by MassDEP.

Keep material separated from water if possible. An important facet of an effective response procedure during an oil or petroleum product release incident is to keep the material separated from water to minimize migration and the resulting potential increase in human and environmental exposure. Every effort should be made to prevent spills and emphasize substance containment at the source rather than resort to separation of the material from expanded portions of the environment or downstream waters.

Recover or cleanup the material spilled. As much material as possible should be recovered and reused where appropriate. Material that cannot be reused must be declared waste. Liquids absorbed by solid materials shall be shoveled into an open top, 55-gallon drum. When a drum is filled after a cleanup, the drum lid shall be secured and the drum shall be appropriately labeled identifying the substance(s) (i.e., Waste Oil), the hazard of the material (i.e. ignitable), the date of the spill/cleanup, and the location of the spill.

Do not mix non-compatible materials. Note that combining non-compatible materials can cause potentially dangerous chemical and/or physical reactions or may severely limit disposal options. Compatibility information can be found on material safety data sheets.

Cleanup of the spill area. Surfaces that are contaminated by the release shall be cleaned up by using an appropriate cleaner or water. Cleanup water must be minimized, contained, and properly disposed. Occasionally, porous materials (such as wood, soil, or oil-dry) may be contaminated; such materials will require special handling for disposal.

Decontaminate tools and equipment used in cleanup. Even if dedicated to cleanup efforts, tools and equipment that have been used must be decontaminated before replacing them in the spill control kit. Tools which can't be decontaminated should be disposed of properly and replaced.

Post Cleanup Procedures

Notification and reports to outside agencies. The Site Supervisor shall determine if a reportable spill has occurred. A spill over 10 gallons of oil or other appropriate RQ in Massachusetts is a reportable spill under the MCP (See Section 6.2 for further information). Notifications to Fire Departments, MassDEP, the National Response Center, the EPA Regional Office, and internal contacts shall be executed if necessary.

Arrange for proper disposal of any waste material. The waste materials from the cleanup must be characterized. Representative sampling and analysis may be necessary to make this determination. In any case, the Site Supervisor shall assure that the waste is transported and disposed of in compliance with applicable laws and regulations. When manifests are needed, the Site Supervisor shall see that they are prepared and, when appropriate, returned in the allotted time by the disposal site.

Review the Contingency and Spill Plans. Management and operating personnel shall review spill response efforts, notification procedures and cleanup equipment usage to evaluate their adequacy during the episode. Where deficiencies are found, the Plan shall be revised and amended.

-

If No, discuss rationale.

Insert text

3.5 Control of Allowable Non-Stormwater Discharges

Per RIPDES Construction General Permit – Part III.J.2.e:

Discharges not comprised of stormwater are allowed under the RIPDES Construction General Permit but are limited to the following: discharges which result from the washdown of vehicles where no detergents are used; external building wash-down where no detergents are used; the use of water to control dust; firefighting activities; fire hydrant flushing; natural springs; uncontaminated groundwater; lawn watering; potable water sources including waterline flushing; irrigation drainage; pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled materials have been removed) and where detergents are not used; and foundation or footing drains where flows are not contaminated with process materials such as solvents, or contaminated by contact with soils where spills or leaks of toxic or hazardous materials has occurred. If any of these discharges may reasonably be expected to be present and to be mixed with stormwater discharges, they must be specifically listed here.

Are there allowable non-Stormwater discharges present on or near the project area?

☒ Yes ☐ No

If yes, list the sources of allowable non-Stormwater discharge(s) associated with construction activity. For each of the allowable non-stormwater discharge(s) identified, describe the controls and measures that will be implemented at those locations to minimize pollutant contamination of these discharges and to separate them from temporary discharges of stormwater during construction.

List of allowable non-stormwater discharge(s) and the associated control measure(s):

- Vehicle and Equipment Washing to be done on paved areas only, draining to sump area lined with poly sheeting
- The contractor will wet the soil surface as needed to suppress the creation of dust. The application may be done with a water truck or done with fire hoses at the site.
-

If any existing or proposed discharges consist of contaminated groundwater, such discharges are not authorized under the RIPDES Construction General Permit. These discharges must be permitted separately by seeking coverage to treat and discharge under a separate RIPDES individual permit or under the RIPDES Remediation General Permit. Contact the RIDEM Office of Water Resources RIPDES Permitting Program at 401-222-4700 for application requirements and additional information.

Are there any known or proposed contaminated discharges, including anticipated contaminated dewatering operations, planned on or near the project area?

☐ Yes ☒ No

If yes, list the discharge types and the RIPDES individual permit number(s) or RIPDES Remediation General Permit Authorization number(s) associated with these discharges.

- Discharge Type and RIPDES Individual Permit number : INSERT TEXT HERE
- Discharge Type and RIPDES Remediation General Permit Authorization number: INSERT TEXT HERE

3.6 Control Dewatering Practices

Per RI SESC Handbook – Part D

Site owners and operators are prohibited from discharging groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate control measures.

Examples of appropriate control measures include, but are not limited to, temporary sediment basins or sediment traps, sediment socks, dewatering tanks and bags, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. Uncontaminated, non-turbid dewatering water can be discharged without being routed to a control.

At a minimum the following discharge requirements must be met for dewatering activities:

1. Do not discharge visible floating solids or foam.
2. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area.
3. At all points where dewatering water is discharged, utilize velocity dissipation devices.
4. With filter backwash water, either haul it away for disposal or return it to the beginning of the treatment process.
5. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications.
6. Dewatering practices must involve the implementation of appropriate control measures as applicable (i.e. containment areas for dewatering earth materials, portable sediment tanks and bags, pumping settling basins, and pump intake protection.)

Is it at all likely that the site operator will need to implement construction dewatering in order to complete the proposed project?

☐ Yes ☒ No

If Yes, describe all areas where construction dewatering may be required and the proposed control measures that will be used to treat and manage dewatering fluids including all proposed discharge points. Proposed control measures must comply with the RI SESC Handbook. Include references to all relevant SESC Site Plans.

- Insert text and references to SESC Site Plan Sheet Numbers here.

If No, discuss rationale.

If needed, though not anticipated, water from excavations shall be pumped through a sedimentation filters such as a frac tank or geobag to reduce suspended solids, prior to discharge.

The majority of the site work will involve raising the grade on the site and the proposed utilities will mostly be installed in the raised grade features, therefore groundwater dewatering is not anticipated.

3.7 Establish Proper Building Material Staging Areas

Per RI SESC Handbook – Part D

All construction materials that have the potential to contaminate stormwater must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. Designated areas shall be approved by the site owner/engineer. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in the discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

Describe construction materials expected to be stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater. Include references to all relevant SESC Site Plans.

All construction material storage shall be done in the designated location shown on Sheet ESC-1 . All building materials shall covered or inside and protected from the elements

3.8 Minimize Dust

Per RI SESC Handbook – Part D

Dust control procedures and practices shall be used to suppress dust on a construction site during the construction process, as applicable. Precipitation, temperature, humidity, wind velocity and direction will determine amount and frequency of applications. However, the best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time. Dust Control measures outlined in the *RI SESC Handbook* shall be followed. Other dust control methods include watering, chemical application, surface roughening, wind barriers, walls, and covers.

Describe dust control practices that will be used to suppress dust and limit its generation (i.e. applying water, limiting the amount of bare soil exposed at one time etc.).

- The contractor will wet the soil surface as needed to suppress the creation of dust. The application may be done with a water truck or done with fire hoses at the site.

3.9 Designate Washout Areas

Per RI SESC Handbook – Part D

At no time shall any material (concrete, paint, chemicals) be washed into storm drains, open ditches, streets, streams, wetlands, or any environmentally sensitive area. The site operator must ensure that construction waste is properly disposed of, to avoid exposure to precipitation, at the end of each working day.

Will washout areas be required for the proposed project?

☒ Yes ☐ No

If Yes, describe location(s) and control measures that will be used to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, washout areas for concrete mixers, paint, stucco, etc. The recommended location(s) of washout areas should be identified, or at a minimum the locations where these washout areas should not be sited should be called out.

The concrete washout shall be performed in the designated area, as shown on sheet ESC-1 and shall not be allowed to discharge off-site or into any stormwater receptors.

If No, discuss rationale.

Insert text

3.10 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Per RI SESC Handbook – Part D

Vehicle fueling shall not take place within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Designated areas shall be depicted on the SESC Site Plans, or shall be approved by the site owner.

Vehicle maintenance and washing shall occur off-site, or in designated areas depicted on the SESC Site Plans or approved of by the site owner. Maintenance or washing areas shall not be within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Maintenance areas shall be clearly designated, and barriers shall be used around the perimeter of the maintenance area to prevent stormwater contamination.

Construction vehicles shall be inspected frequently for leaks. Repairs shall take place immediately. Disposal of all used oil, antifreeze, solvents and other automotive-related chemicals shall be according to applicable regulations; at no time shall any material be washed down the storm drain or in to any environmentally sensitive area.

Describe equipment/vehicle fueling and maintenance practices that will be implemented to prevent pollutants from mixing with stormwater (e.g., secondary containment, drip pans, spill kits, etc.) Provide recommended location(s) of fueling/maintenance areas, or, at minimum, locations where fueling/maintenance should be avoided.

Vehicle and Equipment Washing to be done in the designated areas only, draining to sump area lined with poly sheeting, as shown on the ESC plans

3.11 Chemical Treatment for Erosion and Sediment Control

Per RI SESC Handbook – Appendix J

Chemical stabilizers, polymers, and flocculants are readily available on the market and can be easily applied to construction sites for the purposes of enhancing the control of erosion, runoff, and sedimentation. The following guidelines should be adhered to for construction sites that plan to use treatment chemicals as part of their overall erosion, runoff, and sedimentation control strategy.

The U.S. Environmental Protection Agency has conducted research into the relative toxicity of chemicals commonly used for the treatment of construction stormwater discharges. The research conducted by the EPA focused on different formulations of chitosan, a cationic compound, and both cationic and anionic polyacrylamide (PAM). In summary, the studies found significant toxicity resulting from the use of chitosan and cationic PAM in laboratory conditions, and significantly less toxicity associated with using anionic PAM. EPA's research has led to the conclusion that the use of treatment chemicals for erosion, runoff, and sedimentation control requires proper operator training and appropriate usage to avoid risk to aquatic species. In the case of cationic treatment chemicals additional safeguards may be necessary.

Application/Installation Minimum Requirements

If a site operator plans to use polymers, flocculants, or other treatment chemicals during construction the SESC plan must address the following:

1. Treatment chemicals shall not be applied directly to or within 100 feet of any surface water body, wetland, or storm drain inlet.

2. Use conventional erosion, runoff, and sedimentation controls prior to and after the application of treatment chemicals. Use conventional erosion, runoff, and sedimentation controls prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated stormwater is directed to a sediment control (e.g. temporary sediment basin, temporary sediment trap or sediment barrier) prior to discharge.

3. Sites shall be stabilized as soon as possible using conventional measures to minimize the need to use chemical treatment.

4. Select appropriate treatment chemicals. Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction and to the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or treatment area. **Soil testing is essential. Using the wrong form of chemical treatment will result in some form of performance failure and unnecessary environmental risk.**

5. Minimize discharge risk from stored chemicals. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets), or provide equivalent measures, designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means (e.g., storing chemicals in covered areas or having a spill kit available on site).

6. Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier. You must also use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the supplier of the applicable chemicals, or document specific departures from these practices or specifications and how they reflect good engineering practice.

Will chemical stabilizers, polymers, flocculants or other treatment chemicals be utilized on the proposed construction project?

☐ Yes ☒ No

If Yes, create a Treatment Chemical Application Plan and describe how the owner or SESC Plan preparer/designer intends to educate the designated operator prior to the application of such treatment chemicals.

Treatment Chemical Application Plan Required Elements

Insert information listed below:

1. *List Manufacturer's name and product name for each treatment chemical proposed for use at the site.*
2. *Attach a copy of applicable Material Safety Data Sheets (MSDSs) or Safety Data Sheets (SDS) for each proposed treatment chemical.*
3. *Provide the results of third party toxicity testing of the materials proposed for use at the site.*
4. *Provide a certification from the site owner and operator that all proposed treatment chemicals are the same as those used in the toxicity tests and will not be altered in any way.*
5. *Provide an explanation as to why conventional erosion, runoff, and sediment control measures, alone or in combination, will not be sufficient to prevent turbidity impacts and sedimentation in downstream receptors.*
6. *Provide a plan prepared in consultation with the chemical treatment manufacturer(s) or authorized manufacturer's representative which includes the following:*
    a. *Identification of the areas of the site where treatment chemicals will be applied and the name, location, and distance to all downstream receptors that have the potential to be impacted from the discharges from the treatment areas.*
    b. *List the expected start and end dates or specific phases of the project during which each treatment chemical will be applied.*
    c. *Provide test results for representative soils from the site, and any recommendations from the manufacturer based on the soil tests, indicating the type of treatment chemical and the recommended application rate.*
    d. *List the frequency, method, and rates of application which are designed to ensure that treatment chemical concentrations will not exceed 50% of the IC25 or NOEC toxicity values, whichever is less, for each treatment chemical proposed.*
    e. *Provide the frequency of inspection and maintenance of the treatment chemical application system.*
    f. *List the method proposed for the collection, removal, and disposal or stabilization of settled particles to prevent re-suspension.*
    g. *Describe the training that will be provided to all persons who will handle and use treatment chemicals at the construction site. Training must include appropriate, product-specific training and proper dosing requirements for each product.*

Treatment Chemical SESC Plan Weekly Inspection Report Documentation Requirements

1. Document the type and quantity of treatment chemicals applied.

2. List the date, duration of discharge, and estimated discharge rate.

3. Provide an estimate of the volume of water treated.

4. Provide an estimate of the concentration of treatment chemicals in the discharge, with supporting calculations.

3.12 Construction Activity Pollution Prevention Control Measure List

Complete the following table for each Phase of construction where Pollution Prevention Control Measures will be implemented. This table is to be used as part of the SESC Plan Inspection Report – please fill out accordingly.

It is expected that this table will be amended as needed throughout the construction project.

All Phases		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Staging Area	Controlled Fueling and Maintenance Activities	Using noted control measures and ensuring complete spill kits and absorbent pads are available.
Concrete Relieving Platform	Prefabricated Concrete Washout Container with Ramp. Used to contain concrete washout during concrete pouring operations.	Verify that concrete washout container(s) are in place prior to pouring concrete. Inspect daily to verify continued proper performance. Check remaining capacity during pouring operations. Check for leaks periodically.
Entire Site	Dust control watering	Have a water truck/trailer on site and water available.
INSERT TEXT	INSERT TEXT	INSERT TEXT

Insert a new table for each additional construction phase.

SECTION 4: CONTROL MEASURE INSTALLATION, INSPECTION, and MAINTENANCE

4.1 Installation

Per RI SESC Handbook – Part D:

Complete the installation of temporary erosion, runoff, sediment, and pollution prevention control measures by the time each phase of earth-disturbance has begun. All stormwater control measures must be installed in accordance with good judgment, including applicable design and manufacturer specifications. Installation techniques and maintenance requirements may be found in manufacturer specifications and/or the *RI SESC Handbook*.

Include references to SESC Site Plans where installation requirements are located.

All erosion control measures shall be installed as noted on the ESC plans and the details sheets D-2 and D-3.

4.2 Monitoring Weather Conditions

Per RI SESC Handbook – Part D:

Anticipating Weather Events - Care will be taken to the best of the operator's ability to avoid disturbing large areas prior to anticipated precipitation events. Weather forecasts must be routinely checked, and in the case of an expected precipitation event of over 0.25-inches over a 24-hour period, it is highly recommended that all control measures should be evaluated and maintained as necessary, prior to the weather event. In the case of an extreme weather forecast (greater than one-inch of rain over a 24-hour period), additional erosion/sediment controls may need to be installed.

Storm Event Monitoring For Inspections - At a minimum, storm events must be monitored and tracked in order to determine when post-storm event inspections must be conducted. Inspections must be conducted

and documented at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt.

In order for an operator to successfully satisfy this requirement list the weather gauge station that will be utilized to monitor weather conditions on the construction site. See www.wunderground.com or www.weather.gov for available stations.

The weather gauge station and website that will be utilized to monitor weather conditions on the construction site is as follows:

Weather monitoring shall be done at the National Weather Services station at TF Green Airport:
Providence, Theodore Francis Green State Airport (KPVD)
Lat: 41.72° N **Lon:** 71.43° W **Elev:** 49 ft.
https://www.wunderground.com/precipitation/us/ri/t-f-green-airport/02886

4.3 Inspections

Per RI SESC Handbook – Part D:

Minimum Frequency - Each of the following areas must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt:

a. All areas that have been cleared, graded, or excavated and where permanent stabilization has not been achieved;

b. All stormwater erosion, runoff, and sediment control measures (including pollution prevention control measures) installed at the site;

c. Construction material, unstabilized soil stockpiles, waste, borrow, or equipment storage, and maintenance areas that are covered by this permit and are exposed to precipitation;

d. All areas where stormwater typically flows within the site, including temporary drainage ways designed to divert, convey, and/or treat stormwater;

e. All points of discharge from the site;

f. All locations where temporary soil stabilization measures have been implemented;

g. All locations where vehicles enter or exit the site.

Reductions in Inspection Frequency - If earth disturbing activities are suspended due to frozen conditions, inspections may be reduced to a frequency of once per month. The owner and operator must document the beginning and ending dates of these periods in an inspection report.

Qualified Personnel – The site owner and operator are responsible for designating personnel to conduct inspections and for ensuring that the personnel who are responsible for conducting the inspections are "qualified" to do so. A "qualified person" is a person knowledgeable in the principles and practices of erosion, runoff, sediment, and pollution prevention controls, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of the permit.

Recordkeeping Requirements - All records of inspections, including records of maintenance and corrective actions must be maintained with the SESC Plan. Inspection records must include the date and time of the inspection, and the inspector's name, signature, and contact information.

General Notes

- A separate inspection report will be prepared for each inspection.
- The Inspection Reference Number shall be a combination of the RIPDES Construction General Permit No - consecutively numbered inspections. ex/ Inspection reference number for the **4**th inspection of a project would be: RIR10####-**4**
- Each report will be signed and dated by the Inspector and must be kept onsite.
- Each report will be signed and dated by the Site Operator.
- The corrective action log contained in each inspection report must be completed, signed, and dated by the site operator once all necessary repairs have been completed.
- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.

Failure to make and provide documentation of inspections and corrective actions under this part constitutes a violation of your permit and enforcement actions under 46-12 of R.I. General Laws may result.

4.4 Maintenance

Per RI SESC Handbook – Part D:

Maintenance procedures for erosion and sedimentation controls and stormwater management structures/facilities are described on the SESC Site Plans and in the *RI SESC Handbook*.

Site owners and operators must ensure that all erosion, runoff, sediment, and pollution prevention controls remain in effective operating condition and are protected from activities that would reduce their effectiveness. Erosion, runoff, sedimentation, and pollution prevention control measures must be maintained throughout the course of the project.

Note: It is recommended that the site operator designates a full-time, on-site contact person responsible for working with the site owner to resolve SESC Plan-related issues.

4.5 Corrective Actions

Per RI SESC Handbook – Part D:

If, in the opinion of the designated site inspector, corrective action is required, the inspector shall note it on the inspection report and shall inform the site operator that corrective action is necessary. The site operator must make all necessary repairs whenever maintenance of any of the control measures instituted at the site is required.

In accordance with the *RI SESC Handbook*, the site operator shall initiate work to fix the problem immediately after its discovery, and complete such work by the close of the next work day, if the problem

does not require significant repair or replacement, or if the problem can be corrected through routine maintenance.

When installation of a new control or a significant repair is needed, site owners and operators must ensure that the new or modified control measure is installed and made operational by no later than seven (7) calendar days from the time of discovery where feasible. If it is infeasible to complete the installation or repair within seven (7) calendar days, the reasons why it is infeasible must be documented in the SESC Plan along with the schedule for installing the control measures and making it operational as soon as practicable after the 7-day timeframe. Such documentation of these maintenance procedures and timeframes should be described in the inspection report in which the issue was first documented. If these actions result in changes to any of the control measures outlined in the SESC Plan, site owners and operators must also modify the SESC Plan accordingly within seven (7) calendar days of completing this work.

SECTION 5: AMENDMENTS

Per RIPDES Construction General Permit – Part III.F:

This SESC Plan is intended to be a working document. It is expected that amendments will be required throughout the active construction phase of the project. **Even if practices are installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site for the entire duration of the project.**

The SESC Plan shall be amended within seven (7) days whenever there is a change in design, construction, operation, maintenance or other procedure which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives (i.e. the selected control measures are not effective in controlling erosion or sedimentation).

In addition, the SESC Plan shall be amended to identify any new operator that will implement a component of the SESC Plan.

All revisions must be recorded in the Record of Amendments Log Sheet, which is contained in Attachment G of this SESC Plan, and dated red-lined drawings and/or a detailed written description must be appended to the SESC Plan. Inspection Forms must be revised to reflect all amendments. Update the Revision Date and the Version # in the footer of the Report to reflect amendments made.

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and operator. Any amendments to control measures that involve the practice of engineering must be reviewed, signed, and stamped by a Professional Engineer registered in the State of RI.

The amended SESC plan must be kept on file at the site while construction is ongoing and any modifications must be documented.

Attach a copy of the Amendment Log.

Reference RI Model SESC Plan ATTACHMENT G

SECTION 6: RECORDKEEPING

RIPDES Construction General Permit – Parts III.D, III.G, III.J.3.b.iii, & V.O

It is the site owner and site operator's responsibility to have the following documents available at the construction site and immediately available for RIDEM review upon request:

- A copy of the fully signed and dated SESC Plan, which includes:
  - A copy of the General Location Map
    INCLUDED AS ATTACHMENT A
  - A copy of all SESC Site Plans
    INCLUDED AS ATTACHMENT B
  - A copy of the RIPDES Construction General Permit *(To save paper and file space, do not include in DEM/CRMC submittal, for operator copy only)*
    INCLUDED AS ATTACHMENT C
  - A copy of any regulatory permits (RIDEM Freshwater Wetlands Permit, CRMC Assent, RIDEM Water Quality Certification, RIDEM Groundwater Discharge Permit, RIDEM RIPDES Construction General Permit authorization letter, etc.)
    INCLUDED AS ATTACHMENT D
  - The signed and certified NOI form or permit application form *(if required as part of the application, see RIPDES Construction General Permit for applicability)*
    INCLUDED AS ATTACHMENT E
  - Completed Inspection Reports w/Completed Corrective Action Logs
    INCLUDED AS ATTACHMENT F
  - SESC Plan Amendment Log
    INCLUDED AS ATTACHMENT G

SECTION 7: PARTY CERTIFICATIONS

RIPDES Construction General Permit – Part V.G

All parties working at the project site are required to comply with the Soil Erosion and Sediment Control Plan (SESC Plan including SESC Site Plans) for any work that is performed on-site. The site owner, site operator, contractors and sub-contractors are encouraged to advise all employees working on this project of the requirements of the SESC Plan. A copy of the SESC Plan is available for your review at the following location: Insert Onsite Location Here, or may be obtained by contacting the site owner or site operator.

The site owner and site operator and each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement.

I acknowledge that I have read and understand the terms and conditions of the Soil Erosion and Sediment Control (SESC) Plan for the above designated project and agree to follow the control measures described in the SESC Plan and SESC Site Plans.

Site Owner:

RI Waterfront Enterprises, LLC
Melissa Martin
1080 Main Street
Pawtucket, RI 02860
508-965-3342, melissa@riwaterfrontevents.com

_____
signature/date

Site Operator:

Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

Designated Site Inspector:
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

SubContractor SESC Plan Contact:
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

Insert more contact/signature lines as necessary

LIST OF ATTACHMENTS

Attachment A - General Location Map

Attachment B - SESC Site Plans

Attachment C - Copy of RIPDES Construction General Permit and Authorization to Discharge *(To save paper and file space, do not include in DEM/CRMC submittal, for operator copy only)*

Attachment D - Copy of Other Regulatory Permits

Attachment E - Copy of RIPDES NOI *(if required as part of application, see RIPDES Construction General Permit for applicability)*

Attachment F - Inspection Reports w/ Corrective Action Log

Attachment G - SESC Plan Amendment Log

Temporary Sediment Trap

Wet Volume
Wv = 0.85*Aw*Dw

Wv= wet storage volume
Aw= surface area of the flooded area
Dw = maximum depth in feet

Dry Storage
Vd = (Aw+Ad)/2 x Dd

Vd = dry storage volume
Aw= surface area of the flooded area at the base
Ad = surface area of the flooded area at the top
Dd = depth in feet

Size requirement = 134 cy /acre

	Trib Area	Volume tot	Volume Wet
1	11	1474	737
2	10	1340	670
3	10	1340	670

Sed Trap Sizing

	Aw	Dw	Ad	Dd	Wv	Vd	
1	500		2	600	3	850	1650
2	450		2	550	3	765	1500
3	450		2	550	3	765	1500

Temporary Sediment Basin

V=((DA)(A)(DR)(TE)(2000 lbs/ton))/((y)(43560 sf/ac))

V= volume of sediment trapped in ac ft/yr
DA= Drainage Area in acres
A = Average annual erosion in tons per arcre per year
DR = Delivery Ratio
TE= Sediment Trap Efficiency
y= Estimated Sediment Density in lbs/cf

For RIWE Site

DA =	10	acres	
A=	50	ton/ac/yr	
DR =	35	%	Sandy
TE =	0.8		
y=	95	lbs/cf	sand -silt mixture

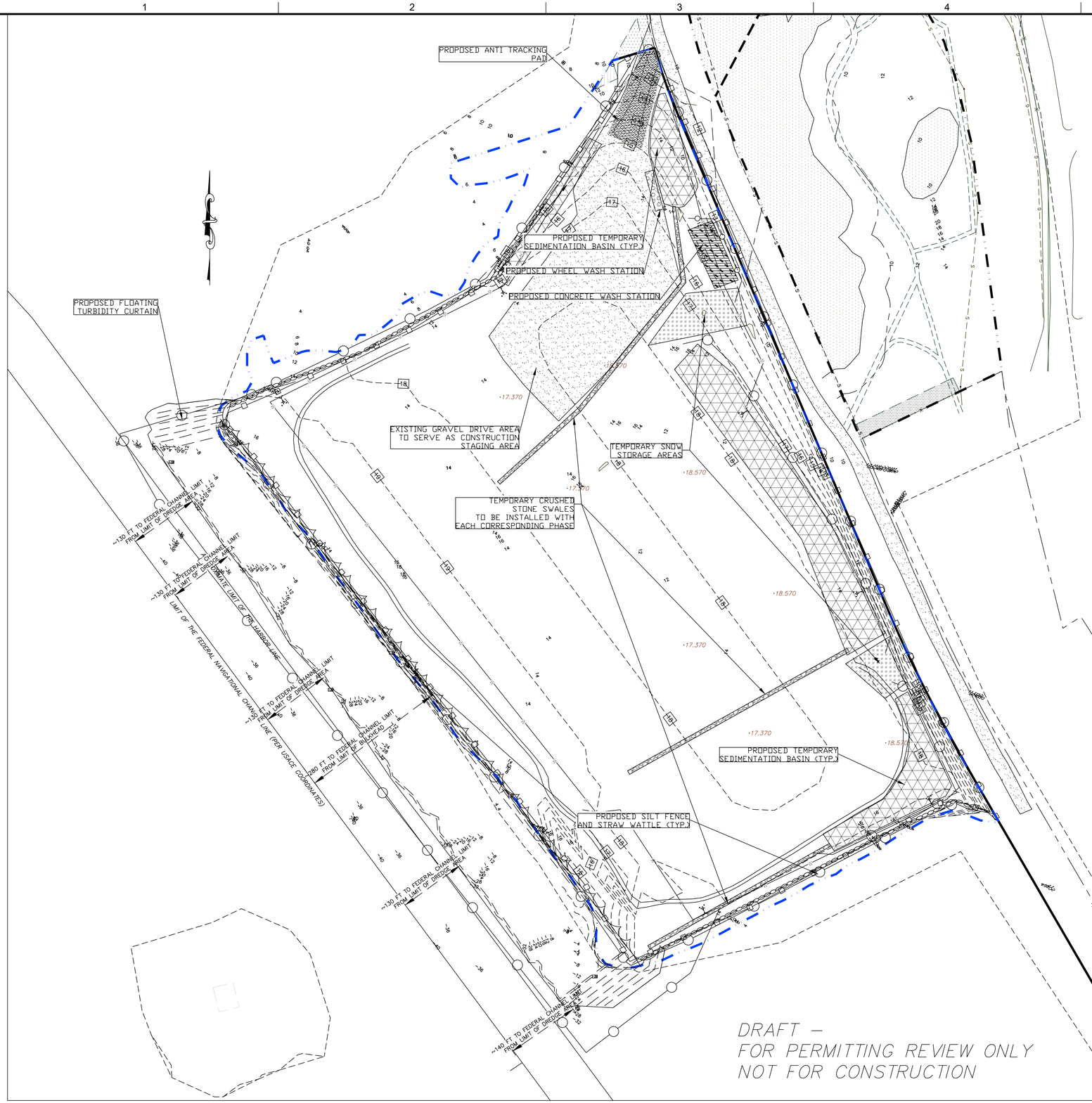
V 6.766227 ac ft/yr

Basin Sizing

		Area	Height	Volume	Volume -ac-ft
3	Basin SE	21662	4	86648	1.989164
1	Basin NE	22520	4	90080	2.067952
2	Basin E	51874	4	207496	4.763453

Sed Basin Sizing

	Aw	Dw	Ad	Dd	Wv	Vd
1	8710	2	13000	4	14807	43420
2	34170	2	51000	4	58089	170340
3	14740	2	22000	4	25058	73480



EROSION AND SEDIMENT CONTROL NOTES:

1. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY .
2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE AS DIRECTED BY THE ON SITE INSPECTOR OR THE CIVIL ENGINEER.
3. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.
4. THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES INCLUDING REPLACING OR REPAIRING ANY DAMAGED DEVICES DUE TO ANY CONSTRUCTION ACTIVITY BY OTHERS.
5. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
6. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
7. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE
8. CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
9. PRIOR TO ANY OTHER CONSTRUCTION, A CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE OR ONTO ANY PUBLIC ROADWAY.
10. THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY.
    A. THE CONSTRUCTION ENTRANCE, CONSISTING OF A MINIMUM PAD SIZE OF 12 FT BY 50 FT WITH A MINIMUM OF 6"" THICK STONE. THE STONE SIZE SHOULD CONSIST OF COURSE AGGREGATE BETWEEN 1–1/2" & 3–1/2"" IN DIAMETER AND OVERLAID ON A GEOTEXTILE UNDERLINER. THE GEOTEXTILE UNDERLINER SHALL MEET THE REQUIREMENTS OF AASHTO M288–96, SECTION 7.3 SEPARATION REQUIREMENTS.
    B.IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE, ALL PERIMETER EROSION CONTROL AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE INITIAL EROSION CONTROL PLAN.
    C. GEOTEXTILE SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA IF CONDITIONS WARRANT INSTALLATION OR SHOWN ON THE PLANS. THE GEOTEXTILE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES. THE GEOTEXTILE SILT FENCE SHOULD BE KEPT ERECT AT ALL TIMES AND REPAIRED WHEN REQUESTED BY THE SITE INSPECTOR OR THE PROJECT DESIGN PROFESSIONAL OF RECORD. SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHES ½ HEIGHT OF THE BARRIER. THE PERIMETER SILT FENCE SHOULD BE INSPECTED DAILY FOR ANY FAILURES. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.
    D. INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL EXISTING STORM STRUCTURES AS SHOWN ON THE PLAN, SEE SEPARATE DETAILS FOR SPECIFICS ON TYPE OF INLET PROTECTION SPECIFIED.
11. AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT RESIDENT ENGINEER. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT RESIDENT ENGINEER APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORESEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE SITE INSPECTION.

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PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY
3	6/24/2021	ASSENT EDITS	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 100'

GRAPHIC SCALE
0 50 100 150 200

SHEET TITLE

EROSION
AND SEDIMENT
CONTROL PLAN

DRAWING NO.

ESC-1

27 OF 33

PLOT SCALE 1/16"=1'-0"

C:\Users\ljohnn\OneDrive\Documents\JBM\LR\RIWF\Plans\RIWF_SOUTH QUAY BASE PLAN_MLLW_REV6.dwg

PHASE 1 AREA
DISTURBANCE ±11 ACRES

PHASE 2 AREA
DISTURBANCE ±10 ACRES

PHASE 3 AREA
DISTURBANCE ±10 ACRES

PHASE 1 TEMPORARY
SEDIMENTATION BASINS
4 FT BERM X 22,500 SF TOTAL
BETWEEN TWO BASINS

PHASE 2 TEMPORARY
SEDIMENTATION BASIN
4 FT BERM X 51,800 SF

PHASE 3 TEMPORARY
SEDIMENTATION BASIN
4 FT BERM X 21,600 SF

PROPOSED ANTI TRACKING PAD

PROPOSED TEMPORARY SEDIMENTATION BASIN (TYP.)

PROPOSED WHEEL WASH STATION

PROPOSED CONCRETE WASH STATION

PROPOSED FLOATING TURBIDITY CURTAIN

EXISTING GRAVEL DRIVE AREA TO SERVE AS CONSTRUCTION STAGING AREA

TEMPORARY SNOW STORAGE AREAS

TEMPORARY CRUSHED STONE SWALES TO BE INSTALLED WITH EACH CORRESPONDING PHASE

PROPOSED SILT FENCE AND STRAW WATTLE (TYP.)

~130 FT TO FEDERAL CHANNEL LIMIT FROM LIMIT OF DREDGE AREA

~140 FT TO FEDERAL CHANNEL LIMIT FROM LIMIT OF DREDGE AREA

LIMIT OF THE FEDERAL NAVIGATIONAL CHANNEL (PER USACE COORDINATES)

DRAFT –
FOR PERMITTING REVIEW ONLY
NOT FOR CONSTRUCTION

C:\Users\.\johns\OneDrive\Documents\JBM\LR\RIVE\Plans\RIVE_SOUTH QUAY BASE PLAN MLLW REV6.dwg

Lloyd's Register

Known for excellence. Built on trust.

PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY
3	6/24/2021	ASSENT EDITS	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 100'

GRAPHIC SCALE
0 50 100 150 200

SHEET TITLE

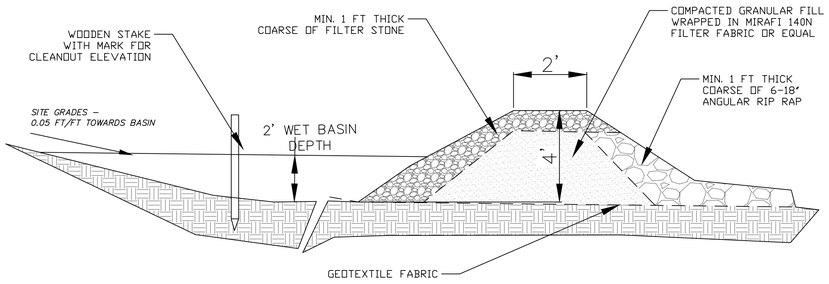
EROSION
AND SEDIMENT
CONTROL PLAN
PHASING

DRAWING NO.

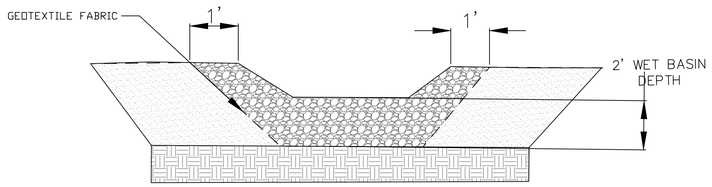
ESC-2

28 OF 33

PLOT SCALE 1/16"=1'-0"

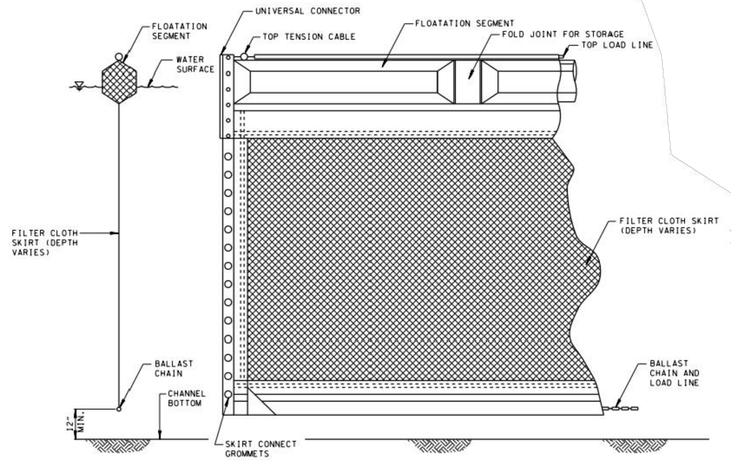


TEMPORARY SEDIMENTATION BASIN
TYPICAL PROFILE DETAIL
NOT TO SCALE



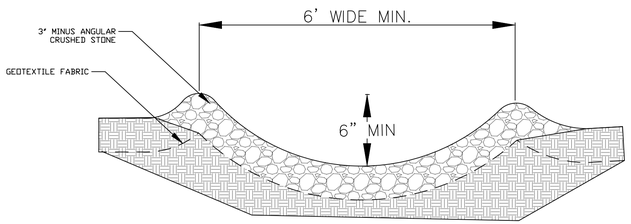
TEMPORARY SEDIMENTATION TRAP
TYPICAL PROFILE DETAIL
NOT TO SCALE

FLOATING TURBIDITY CURTAIN



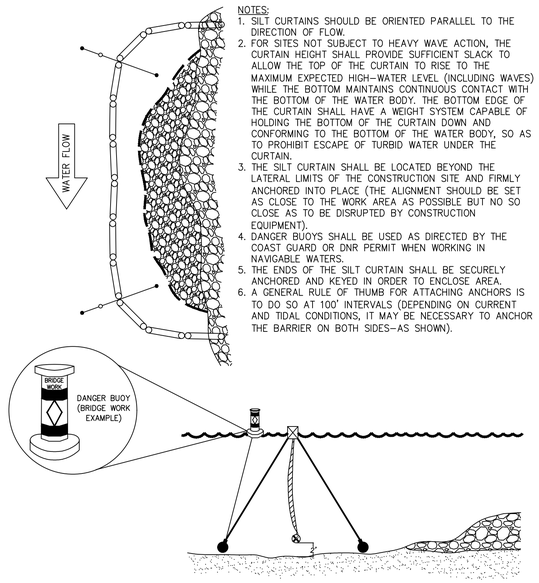
FLOATING TURBIDITY CURTAIN
TYPICAL PROFILE DETAIL
NOT TO SCALE

NOTE:
1. TURBIDITY CURTAINS SHALL BE DOT TYPE 3
2. ANCHORING SHALL BE DESIGNED AND ADAPTED TO ENVIRONMENT.
3. CURTAIN SHOULD REMAIN A MINIMUM 2' OFF HARBOR BOTTOM AT LOW TIDE.



TEMPORARY CRUSHED STONE SWALE
TYPICAL PROFILE DETAIL
NOT TO SCALE

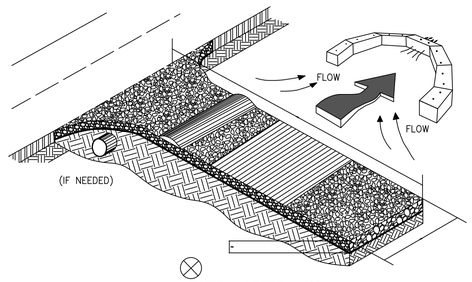
ANCHOR SYSTEM AND LAYOUT DETAILS



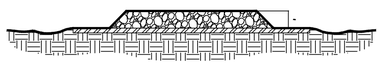
NOTES:
1. SILT CURTAINS SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF FLOW.
2. FOR SITES NOT SUBJECT TO HEAVY WAVE ACTION, THE CURTAIN HEIGHT SHALL PROVIDE SUFFICIENT SLACK TO ALLOW THE TOP OF THE CURTAIN TO RISE TO THE MAXIMUM EXPECTED HIGH-WATER LEVEL (INCLUDING WAVES) WHILE THE BOTTOM MAINTAINS CONTINUOUS CONTACT WITH THE BOTTOM OF THE WATER BODY. THE BOTTOM EDGE OF THE CURTAIN SHALL HAVE A WEIGHT SYSTEM CAPABLE OF HOLDING THE BOTTOM OF THE CURTAIN DOWN AND CONFORMING TO THE BOTTOM OF THE WATER BODY, SO AS TO PROHIBIT ESCAPE OF TURBID WATER UNDER THE CURTAIN.
3. THE SILT CURTAIN SHALL BE LOCATED BEYOND THE LATERAL LIMITS OF THE CONSTRUCTION SITE AND FIRMLY ANCHORED INTO PLACE (THE ALIGNMENT SHOULD BE SET AS CLOSE TO THE WORK AREA AS POSSIBLE BUT NO SO CLOSE AS TO BE DISRUPTED BY CONSTRUCTION EQUIPMENT).
4. DANGER BUOYS SHALL BE USED AS DIRECTED BY THE COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERS.
5. THE ENDS OF THE SILT CURTAIN SHALL BE SECURELY ANCHORED AND KEYED IN ORDER TO ENCLOSE AREA.
6. A GENERAL RULE OF THUMB FOR ATTACHING ANCHORS IS TO DO SO AT 100' INTERVALS (DEPENDING ON CURRENT AND TIDAL CONDITIONS, IT MAY BE NECESSARY TO ANCHOR THE BARRIER ON BOTH SIDES-AS SHOWN).

CRUSHED STONE CONSTRUCTION EXIT

EXIT DIAGRAM



ENTRANCE ELEVATION



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

DRAFT -
FOR PERMITTING REVIEW ONLY
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PARE CORPORATION
JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY
3	6/24/2021	ASSENT EDITS	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	AS NOTED

GRAPHIC SCALE

SHEET TITLE

EROSION AND SEDIMENT CONTROL PLAN DETAILS

DRAWING NO.

ESC-3

29 OF 33

PLOT SCALE 1/16"=1'-0"

C:\Users\JohnM\OneDrive\Documents\JBM\LRIVER\Plans\RIVE SOUTH QUAY BASE PLAN MLLW REV6.dwg

ATTACHMENT F

SAGE
ENVIRONMENTAL

October 14, 2022

The Honorable Roberto L. DaSilva
Mayor of East Providence
145 Taunton Avenue, 3rd Floor
East Providence, Rhode Island 02914
Sent via United States Postal Service

RE: ***Beneficial Use Determination***
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

Dear Mayor DaSilva:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, is providing the attached notice in accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). The purpose of this notice is to provide a copy of the Beneficial Use Determination – Variance Application (BUD) which was submitted to the RIDEM on October 14, 2022. A copy of the submitted BUD is attached hereto.

If you have any questions, please do not hesitate to contact the undersigned at 401-723-9900.

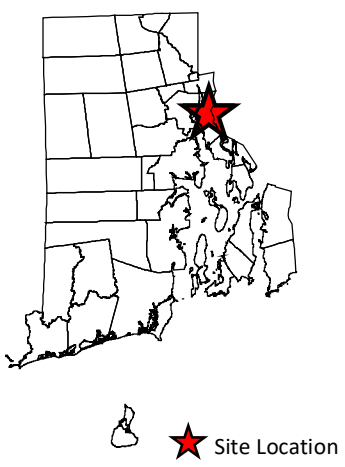
Sincerely,
SAGE Environmental, Inc.

Anthony Rossato	Jacob H. Butterworth, MS
Project Manager	Vice President

Richard J. Mandile
Principal

AR/JHB:alm

cc: Mr. Ronald Gagnon, RIDEM, Waste Facilities Management Program; Ms. Kasie McKenzie, RIDEM, Waste Facilities Management Program; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.



Site Plan

THE KEY (AKA SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

Figure

Date: 10/05/2022

Job #: S3291

Created By: ALM

Approximate Site Boundary

Abutting Properties Owned by RIWE

Abutting Properties

N

0 90 180 360 540 720 Feet

Data Provided by RIGIS
Orthoimagery provided by nearmap.com

SAGE ENVIRONMENTAL

Plat/Lot	Address	Owner	Owner Address
007-01-004-00	0 ZZ RAILROAD SITE	STATE OF RHODE ISLAND & DEPT OF TRANSPORTATION	TWO CAPITAL HILL, PROVIDENCE RI 02903
007-01-001-10	0 PIER RD	SPRAGUE OPERATING RESOURCES LLC	185 INTERNATIONAL DR., PORTSMOUTH NH 03801
007-01-003-00	649 WATERFRONT DR	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116
007-010-02.00	PIER RD	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116
018-020-01.00	VETERANS MEMORIAL PKWY	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116
007-01-001-00	0 PIER RD	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116

October 14, 2022

State of Rhode Island &
Rhode Island Department of Transportation
Two Capitol Hill
Providence, Rhode Island 02903
Sent via United States Postal Service

RE: ***Beneficial Use Determination***
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

To Whom It May Concern:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, is providing the attached notice in accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). The purpose of this notice is to inform you that a Beneficial Use Determination – Variance Application (BUD) was submitted to the RIDEM on October 14, 2022 for the above-reference property and abuts your property located at 0 ZZ Railroad Site in East Providence, Rhode Island.

To obtain more information on this BUD, please contact SAGE Environmental, Inc. by mail at 301 Friendship Street, Providence, Rhode Island 02903, by E-mail: sage@sage-enviro.com, or by phone at (401) 723-9900.

Sincerely,
SAGE Environmental, Inc.

_____
Anthony Rossato
Project Manager

_____
Jacob H. Butterworth, MS
Vice President

_____
Richard J. Mandile
Principal

AR/JHB:car

cc: Mr. Ronald Gagnon, RIDEM, Waste Facilities Management Program; Ms. Kasie McKenzie, RIDEM, Waste Facilities Management Program; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.

14 de outubro de 2022

Estado de Rhode Island &
Departamento de Transportes de Rhode Island
Dois Capitólio
Providence, Rhode Island 02903
Enviado via Serviço Postal dos Estados Unidos

RE:Determinação de uso benéfico
A Chave (também conhecida como South Key/Quay)
649 Waterfront Drive
Mapa plat plat 7 do assessor, bloco 1 lote 3
East Providence
Projeto SAGE No. S3291

A quem possa interessar:

A SAGE Environmental, Inc. (SAGE), em nome da RI Waterfront Enterprises LLC, está fornecendo o aviso anexado de acordo com as Diretrizes do Departamento de Gestão Ambiental de Rhode Island (RIDEM) *sobre determinações de uso benéfico ("BUDs") para resíduos sólidos segregados de origem* (Diretrizes bud). O objetivo deste aviso é informá-lo que um Pedido de Desativação de Uso Benéfico – Variância (BUD) foi submetido ao RIDEM em 14 de outubro de 2022 para a propriedade acima-referência e abuts sua propriedade localizada no 0 ZZ Railway Site em East Providence, Rhode Island.

Para obter mais informações sobre este BUD, entre em contato com a SAGE Environmental, Inc. pelo correio na Rua da Amizade, 301, Providence, Rhode Island 02903, por e-mail: sage@sage-enviro.com ou pelo telefone (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____
Anthony Rossato
Gerente de Projetos

_____
Jacob H. Butterworth, MS
Vice Presidente

_____
Richard J. Mandile
Principal

AR/JHB:alm

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestão de Instalações de Resíduos; Sra. Kasie McKenzie, RIDEM, Programa de Gestão de Instalações de Resíduos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson e Brusini Ltd.

octubre 14, 2022

Estado de Rhode Island &
Departamento de Transporte de Rhode Island
Dos Colina del Capitolio
Providence, Rhode Island 02903
Enviado a través del Servicio Postal de los Estados Unidos

RE: ***Determinación de uso beneficioso***
The Key (también conocido como South Key/Quay)
649 Waterfront Drive
Mapa de la Plataforma del Asesor 7, Bloque 1 Lote 3
02914, East Providence, Rhode Island
Proyecto SAGE No. S3291

A quien corresponda:

SAGE Environmental, Inc. (SAGE), en nombre de RI Waterfront Enterprises LLC, proporciona el aviso adjunto de acuerdo con las Directrices del Departamento de Gestión Ambiental de Rhode Island (RIDEM) *sobre Determinaciones de Uso Beneficioso ("PROD") para Residuos Sólidos Segregados en Origen* (Directrices BUD). El propósito de este aviso es informarle que se presentó una Solicitud de Determinación de Uso Beneficioso – Variación (BUD) a RIDEM en octubre 14, 2022 para la propiedad de referencia anterior y colinda con su propiedad ubicada en 0 ZZ Railroad Site en East Providence, Rhode Island.

Para obtener más información sobre este BUD, comuníquese con SAGE Environmental, Inc. por correo a 301 Friendship Street, Providence, Rhode Island 02903, por correo electrónico: sage@sage-enviro.com, o por teléfono al (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS
Gerente de Proyectos	Vicepresidente

_____
Richard J. Mandile
Principal

AR / JHB: coche

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestión de Instalaciones de Residuos; Sra. Kasie McKenzie, RIDEM, Programa de Gestión de Instalaciones de Residuos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson y Brusini Ltd.

October 14, 2022

Sprague Operating Resources LLC
185 International Drive
Portsmouth, New Hampshire 03801

Sent via United States Postal Service

RE: ***Beneficial Use Determination***
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

To Whom It May Concern:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, is providing the attached notice in accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). The purpose of this notice is to inform you that a Beneficial Use Determination – Variance Application (BUD) was submitted to the RIDEM on October 14, 2022 for the above-reference property and abuts your property located at 0 Pier Road in East Providence, Rhode Island.

To obtain more information on this BUD, please contact SAGE Environmental, Inc. by mail at 301 Friendship Street, Providence, Rhode Island 02903, by E-mail: sage@sage-enviro.com, or by phone at (401) 723-9900.

Sincerely,
SAGE Environmental, Inc.

_____ _____

Anthony Rossato
Project Manager

Jacob H. Butterworth, MS
Vice President

_____

Richard J. Mandile
Principal

AR/JHB:car

cc: Mr. Ronald Gagnon, RIDEM, Waste Facilities Management Program; Ms. Kasie McKenzie, RIDEM, Waste Facilities Management Program; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.

14 de outubro de 2022

Sprague Recursos Operacionais LLC
185 International Drive
Portsmouth

Enviado via Serviço Postal dos Estados Unidos

RE: ***Determinação de uso benéfico***
A Chave (também conhecida como South Key/Quay)
649 Waterfront Drive
Mapa plat plat 7 do assessor, bloco 1 lote 3
East Providence
Projeto SAGE No. S3291

A quem possa interessar:

A SAGE Environmental, Inc. (SAGE), em nome da RI Waterfront Enterprises LLC, está fornecendo o aviso anexado de acordo com as Diretrizes do Departamento de Gestão Ambiental de Rhode Island (RIDEM) *sobre determinações de uso benéfico ("BUDs") para resíduos sólidos segregados de origem* (Diretrizes bud). O objetivo deste aviso é informá-lo que um Pedido de Determinação de Uso Benéfico – Variância (BUD) foi submetido ao RIDEM em 14 de outubro de 2022 para a propriedade acima-referência e abuts sua propriedade localizada em 0 Pier Road em East Providence, Rhode Island.

Para obter mais informações sobre este BUD, entre em contato com a SAGE Environmental, Inc. pelo correio na Rua da Amizade, 301, Providence, Rhode Island 02903, por e-mail: sage@sage-enviro.com ou pelo telefone (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS
Gerente de Projetos	Vice Presidente

_____
Richard J. Mandile
Principal

AR/JHB:alm

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestão de Instalações de Resíduos; Sra. Kasie McKenzie, RIDEM, Programa de Gestão de Instalações de Resíduos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson e Brusini Ltd.

octubre 14, 2022

Sprague Recursos Operativos LLC
185 Unidad Internacional
03801, Portsmouth, Nuevo Hampshire

Enviado a través del Servicio Postal de los Estados Unidos

RE: ***Determinación de uso beneficioso***
The Key (también conocido como South Key/Quay)
649 Waterfront Drive
Mapa de la Plataforma del Asesor 7, Bloque 1 Lote 3
02914, East Providence, Rhode Island
Proyecto SAGE No. S3291

A quien corresponda:

SAGE Environmental, Inc. (SAGE), en nombre de RI Waterfront Enterprises LLC, proporciona el aviso adjunto de acuerdo con las Directrices del Departamento de Gestión Ambiental de Rhode Island (RIDEM) *sobre Determinaciones de Uso Beneficioso ("PROD") para Residuos Sólidos Segregados en Origen* (Directrices BUD). El propósito de este aviso es informarle que se presentó una Solicitud de Determinación de Uso Beneficioso – Variación (BUD) a la RIDEM en octubre 14, 2022 para la propiedad de referencia anterior y colinda con su propiedad ubicada en 0 Pier Road en East Providence, Rhode Island.

Para obtener más información sobre este BUD, comuníquese con SAGE Environmental, Inc. por correo a 301 Friendship Street, Providence, Rhode Island 02903, por correo electrónico: sage@sage-enviro.com, o por teléfono al (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS
Gerente de Proyectos	Vicepresidente

_____
Richard J. Mandile
Principal

AR / JHB: coche

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestión de Instalaciones de Residuos; Sra. Kasie McKenzie, RIDEM, Programa de Gestión de Instalaciones de Residuos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson y Brusini Ltd.

NOTICE OF BUD APPLICATION AND PUBLIC HEARING

THE KEY (AKA SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

A Beneficial Use Determination – Variance Application (BUD) to request a variance from the Rules and Regulations for Solid Waste Management Facilities and Organic Waste Management Facilities (Solid Waste Regulations) has been prepared for the subject site. On [DATE] between [TIME] PM and [TIME] PM, a public hearing will be held at [LOCATION/ADDRESS] in East Providence, Rhode Island. Additionally, the meeting will be simulcast virtually. Instructions on how to participate in this meeting via Zoom, via Smart Phone, or by calling are provided below:

[ZOOM INFORMATION]

To obtain more information on this BUD, please contact SAGE Environmental, Inc. by mail at 301 Friendship Street, Providence, Rhode Island 02903, by E-mail: sage@sage-enviro.com, or by phone at (401) 723-9900.

EDITAL DE APLICAÇÃO DO BUD E AUDIÊNCIA PÚBLICA

A CHAVE (TAMBÉM CONHECIDA COMO SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

Uma Determinação de Uso Benéfico – Aplicativo de Variância (BUD) para solicitar uma variância das Normas e Regulamentos para Instalações de Gestão de Resíduos Sólidos e Instalações de Gerenciamento de Resíduos Orgânicos (Regulamentos de Resíduos Sólidos) foi preparada para o local do assunto. Na [DATA] entre [TIME] PM e [TIME] PM, uma audiência pública será realizada no [LOCAL/ENDEREÇO] em East Providence, Rhode Island. Além disso, a reunião será simulada virtualmente. Instruções sobre como participar desta reunião via Zoom, via Smart Phone ou ligando são fornecidas abaixo:

[INFORMAÇÕES DO ZOOM]

Para obter mais informações sobre este BUD, entre em contato com a SAGE Environmental, Inc. pelo correio na Rua da Amizade, 301, Providence, Rhode Island 02903, por e-mail: sage@sage-enviro.com ou pelo telefone (401) 723-9900.

AVISO DE SOLICITUD DE BUD Y AUDIENCIA PÚBLICA

THE KEY (TAMBIÉN CONOCIDO COMO SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

Se ha preparado una Solicitud de Determinación de Uso Beneficioso – Varianza (BUD) para solicitar una variación de las Reglas y Regulaciones para Instalaciones de Gestión de Residuos Sólidos e Instalaciones de Gestión de Residuos Orgánicos (Regulaciones de Residuos Sólidos) para el sitio en cuestión. En [FECHA] entre [HORA] PM y [HORA] PM, se llevará a cabo una audiencia pública en [UBICACIÓN / DIRECCIÓN] en East Providence, Rhode Island. Además, la reunión se transmitirá simultáneamente de manera virtual. Las instrucciones sobre cómo participar en esta reunión a través de Zoom, a través de un teléfono inteligente o llamando se proporcionan a continuación:

[INFORMACIÓN DE ZOOM]

Para obtener más información sobre este BUD, comuníquese con SAGE Environmental, Inc. por correo a 301 Friendship Street, Providence, Rhode Island 02903, por correo electrónico: sage@sage-enviro.com, o por teléfono al (401) 723-9900.

ATTACHMENT G

ARCADIS Design & Consultancy for natural and built assets

Chevron Environmental Management Company and
Chevron Land and Development Company

DEVELOPMENT PHASE A LIMITED REMEDIAL ACTION CLOSURE REPORT

Former Gulf Fuel Terminal
Chevron Facility #6517863
Veterans Memorial Parkway
East Providence, Rhode Island
DEM Case # SR-10-0248

December 2017

DEVELOPMENT PHASE A LIMITED REMEDIAL ACTION CLOSURE REPORT

Former Gulf Fuel Terminal
Chevron Facility #6517863
Veterans Memorial Parkway
East Providence, Rhode Island
RIDEM CASE # SR-10-0248

Leanne Miner
Project Manager

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Principal Engineer

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Chevron Environmental Management Company and Chevron Land and Development Company

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Our Ref.:
B0047715.CQAE.00006

Date:
December 2017

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ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis U.S., Inc.
CEMC	Chevron Environmental Management Company
CGP	Construction General Permit
CL&D	Chevron Land and Development
Closure Report	Lower Tier Center Limited Remedial Action Closure Report
COC	constituent of concern
cy	cubic yards
DGA	Dense Grade Aggregate
DPA	Development Phase A
DWTS	Dewatering Treatment System
DWCS	Dewatering Containment System
ESS/S	ex-situ soil stabilization/solidification
GBLC	GB Groundwater Leachability Criteria
GPR	Ground-Penetrating Radar
GPS	Global Positioning System
GZA	GZA GeoEnvironmental, Inc.
HDPE	high-density polyethylene
HPSL	High Permeability Soil Layer
ICDEC	Industrial/Commercial Direct Exposure Criteria
ILOC	Interim Letter of Compliance
LIF	Laser Induced Fluorescence
LNAPL	Light Non-Aqueous Phase Liquid
LRAWP	Limited Remedial Action Work Plan
LTC	Lower Tier Center
LTS	Lower Tier South
mg/kg	milligram per kilogram
mg/L	milligram per liter
MHHW	Mean High-High Water
MS/MSD	Matrix Spike/Matrix Spike Duplicate

NAPL	Non-Aqueous Phase Liquid
NT	Not-Treated
PAH	Polycyclic aromatic hydrocarbon
PAP	Physical Alteration Permit
PDI	Pre-Design Investigation
RAWP	Site Remedial Action Work Plan
RCM	Reactive Core Mat
RDEC	Residential Direct Exposure Criteria
RGP	Remediation General Permit
RIDEM	Rhode Island Department of Environmental Management
RIDOT	Rhode Island Department of Transportation
RIPDES	Rhode Island Pollutant Discharge Elimination System
RO	remedial objective
SESCP	Soil Erosion and Sedimentation Control Plan
SCOs	soil cleanup objectives
site	Former Gulf Fuel Terminal (Chevron Facility #6517863) located at 431 Veterans Memorial Parkway in East Providence, Rhode Island
SMP	Soil Management Plan
SS	Stabilized Soils
TCLP	Toxicity Criteria Leaching Procedure
TPH	total petroleum hydrocarbon
TR	Treatment Required soil
UCL	Upper Concentration Limit
USEPA	United States Environmental Protection Agency
UTC	Upper Tier Center
UTN	Upper Tier North
UTS	Upper Tier South
VOC	Volatile organic compounds (generally includes compounds which can be detected by analysis via USEPA Method 8260

1 INTRODUCTION

On behalf of Chevron Environmental Management Company and Chevron Land and Development Company (collectively referred to as Chevron), Arcadis U.S., Inc. (Arcadis) prepared this Development Phase A (DPA) Limited Remedial Action Closure Report (Closure Report) to present and summarize the activities conducted from June 2015 through February 2017 in accordance with the DPA Limited Remedial Action Work Plan (LRAWP) and LRAWP Addenda (Arcadis 2015b; Arcadis 2016b; Arcadis 2016d). The DPA LRAWP was approved by the Rhode Island Department of Environmental Management (RIDEM) in a letter dated May 20, 2013 (RIDEM 2013a). The work was completed at the Former Gulf Fuel Terminal (Chevron Facility #6517863) located on Veterans Memorial Parkway in East Providence, Rhode Island (site; Figure 1). DPA activities were completed as part of the site-wide remediation program, with additional remedial activities and work plans anticipated to be presented in future submittals to RIDEM.

This Closure Report was prepared to meet applicable requirements set forth under Rule 11.08 of the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (RIDEM 2011) and the Remedial Approval Letter (RIDEM 2013a) dated May 20, 2013. The work was performed in accordance with the DPA LRAWP (Arcadis 2015b), the Ex-Situ Soil Stabilization/Solidification (ESS/S) Remedial Technology LRAWP (Arcadis 2013d), and associated approval letters, with exceptions as noted in this report.

1.1 Project Description

The site, located at 431 Veterans Memorial Parkway in East Providence, Rhode Island (Figure 1), is approximately 26 acres with a significant change in elevation from Veterans Memorial Parkway to the Providence River. The site is bounded to the north by property now or formerly owned by the Providence & Worcester Railroad, to the east by Veterans Memorial Parkway, to the west by the Providence River, and to the south and southeast by a public bicycle path and Watchemoket Cove. Figure 2 provides a site plan showing the parcel boundaries and the extent of the Development Phase A LRAWP. The portion of the site designated as DPA includes the southern and center sections of the Chevron property and includes the area of the Lower Tier Center (LTC), the remediation of which was documented separately (Arcadis 2016e) This Closure Report does not include the waterfront area immediately adjacent to the river, which will be addressed in a future LRAWP.

2 PROJECT TEAM

Arcadis served as the general contractor and remediation engineer and provided remedial design, construction management, oversight, and documentation for Chevron for this project. Chevron's remedial construction contractor was Global Remediation, who conducted remedial activities, except for specialty work completed by other subcontractors, such as electrical, waste transportation and disposal, asbestos abatement, and drilling. DiPrete Engineering was the development engineer and licensed surveyor for this project.

3 PRE-EXCAVATION CHARACTERIZATION AND DELINEATION

Prior to the start of the DPA excavation activities, Arcadis performed pre-design investigations (PDIs) to delineate the horizontal and vertical extent of impacts in soil as summarized in the DPA LRAWP (Arcadis 2015b). These pre-excavation characterization activities were conducted to estimate the volume of petroleum-impacted soil that would be handled and managed during DPA excavation activities. Background information was provided in previous submittals to the RIDEM, including the Supplemental Site Investigation Report (Arcadis 2008), Remedial Measures Partial Completion Report (RMPCR; Arcadis 2010), RMPCR Volume 2 (Arcadis 2011c), RAWP (Arcadis 2011d), and DPA LRAWP (Arcadis 2015b). The extent of planned excavation areas was outlined in the DPA LRAWP, and deviations from the plan are detailed in this report.

4 REMEDIAL EXCAVATION DESIGN

The goal of the DPA remedial action was to excavate (remove), manage, and treat soils that exceeded the Upper Concentration Limit (UCL) and/or GB Groundwater Leachability Criteria (GBLC) for Total Petroleum Hydrocarbon (TPH), and to construct a cap in compliance with the RIDEM LRAWP approval over soils which contained TPH or other contaminants of concern at concentrations which exceeded Residential Direct Exposure Criteria (RDEC), but were below the UCL and GBLC. Excavated soil which exceeded the TPH GBLC or UCL was segregated and stockpiled for off-site disposal or treatment via ex-situ stabilization/solidification (ESS/S) in accordance with the Soil Management Plan (SMP; Arcadis 2013a), the RAWP (Arcadis 2011d), and the ESS/S LRAWP (Arcadis 2013). The remedial excavation areas were pre-planned based on the results of the PDI and other previous investigations of site conditions (Arcadis 2017). The final limits of excavation were determined based on field observations and the results of confirmation sampling.

Excavation targeted the removal of TPH exceeding 2,500 milligrams per kilogram (mg/kg) above the predicted future groundwater elevation and Light Non-Aqueous Phase Liquids (LNAPL), as described in the DPA LRAWP (Arcadis 2015b). Arcadis anticipated that re-grading and other activities on-site, such as removal of concrete retaining walls, may result in changes in the site water table conditions compared to conditions prior to implementation of the DPA LRAWP; these predicted changes were considered when establishing the predicted future groundwater elevation (Arcadis 2015b). Where Non-Aqueous Phase Liquid (NAPL) was encountered during excavation at or below the water table, soil that was visually impacted with NAPL was excavated and free NAPL was removed via vacuum suction, pumping, or application followed by removal of absorbent media. Figure 3 depicts the maximum excavation extent associated with TPH and NAPL removal across the site.

5 REMEDIAL CONSTRUCTION IMPLEMENTATION

5.1 Site Preparation and Support Activities

To support the excavation activities, the following site preparation and support activities were conducted, and described in more detail in subsequent sections:

- Installation of soil erosion and sediment control measures
- Preparation of equipment staging, impacted material, and debris stockpile areas through clearing and grubbing
- Abandonment of select monitoring wells
- Installation of a construction access road along the waterfront
- Demolition of select utilities
- Demolition of dewatering treatment system (DWTS)

5.1.1 Soil Erosion and Sediment Control Measures

Soil erosion and sediment control measures were implemented in accordance with the LRAWP, Stormwater Pollution Prevention Plan (SWPPP; Arcadis 2011a), Soil Erosion and Sedimentation Control Plan (SESCP; Arcadis 2014a), and SMP (Arcadis 2013a), as well as applicable permit requirements (i.e., RIDEM-issued Remediation General Permit [RGP] and Rhode Island Coastal Resource Management-issued state assents and modifications). Additional erosion control measures included silt fence, straw bales, and straw wattles placed downgradient of work areas, as well as within work areas to control and prevent soil erosion and sediment transport. Inspections of the soil erosion and sediment control measures were conducted as required by the Construction General Permit (CGP), with any damage noted, repaired, and documented.

5.1.2 Clearing and Grubbing

Land clearing and grubbing was completed, as necessary, prior to excavation. Large scale tree removal was completed along Veterans Memorial Parkway, and along the southern boundary of the site in January 2016 by Northern Tree Services.

5.1.3 Monitoring Well Abandonment

Seventeen monitoring wells were decommissioned either prior to or during DPA excavation activities. Prior to excavation activities, Geosearch Inc. abandoned 11 monitoring wells: CB-17 (OW), DB-25 (OW), DB-26 (OW), DB-38 (OW), SB22/MW52, TW04R/GP-15, SB-228, SB-231, SB-241, GES-7, and Sump 2A. All abandoned wells were decommissioned via the tremie-grout method in accordance with Appendix 1, Section 8 of the RIDEM Groundwater Quality Rules (RIDEM 2010). During DPA excavation activities, the remaining 6 monitoring wells (MW-22, MW-27, MW-46, SB-48/MW-63, TW-05R, and MW-93/SB-522) were removed. Due to the relatively shallow screened intervals for these wells, the tremie-grout abandonment method was not required.

New monitoring wells have been installed for post excavation groundwater monitoring, and these wells will be described in a separate submittal. One sump was installed in the LTC for monitoring near the coastal seep area, and two other sumps were installed for monitoring groundwater elevation for future development.

5.1.4 Installation of Construction Access Road

A temporary construction access road was constructed in accordance with approvals from RIDEM (2015), the Rhode Island Coastal Resource Management Council (CRMC Assent W2011-01-0310) and the Army Corps of Engineers (File No. NAE-2010-1507). The road was constructed on Rhode Island Department of Transportation (RIDOT)-owned land from 1 Pier Road to the LTC portion of the site to support DPA construction activities. This work was performed in accordance with a Physical Alteration Permit (PAP), App # 17496, and a License Agreement issued by RIDOT. The construction access road will remain pending further site remedial and development work.

5.1.5 Utility Removal

Prior to DPA site-wide excavation activities, subsurface utilities and piping (collectively referred to as utilities) associated with the former use of the site as an oil terminal that could contain NAPL or impacts were targeted for investigation and removal across the site. An assessment into where these utilities were located was conducted that included site reconnaissance, review of historic site plans and a geophysical survey of the site (DPA and the remaining accessible areas of the site). Upon completion of the assessment, a thorough systematic approach to investigate the results of the assessment included mapping and marking all real or suspected utilities, excavation at these locations and if utilities were identified, implement measures to properly remove them. Utility removal included uncovering the length of the utilities and if the utility was intact, penetrate the pipe using a tapping device specifically engineered for this purpose to determine if the utility contained any NAPL or impacts. If free-flowing liquids were identified, a vacuum truck was used to evacuate the contents. Utilities without liquids were removed and temporarily contained onsite. Decontaminated steel was recycled while other materials were disposed offsite. Evacuated liquids were transported offsite for disposal. All offsite disposal documents are provided in Appendix A.

During these activities a subsurface abandoned fire suppression line located along the eastern property boundary and adjacent to the public bike/pedestrian path was confirmed to be present. Hydrants associated with this line along the southern portion of that line we removed to allow for surface grading and new fencing with the line plugged at the hydrant removal areas and left in place. Plugging involved placing non-shrink grout into the ends of the pipes. Historical records identify this as a “salt water line” and during hydrant removal no impacts were noted within the piping.

5.1.6 Dewatering Treatment System Removal

A temporary DWTS was constructed in the Upper Tier South (UTS) portion of the site in August 2015 to provide onsite treatment of water generated by excavation dewatering activities. Dewatering was required for excavations of impacted material below the water table. The DWTS consisted of a covered 200-foot by 60-foot tent structure over the water treatment system. The water treatment system was located over a containment area that was 160 feet by 50 feet, lined with a 12-mill impermeable membrane, and covered with crushed stone. The DWTS equipment and containment area were deconstructed in July 2016 and the area was excavated in September 2016 as part of remediation activities. Additional details regarding construction dewatering activities and the DWTS are provided in Section 9.

6 EXCAVATION ACTIVITIES

Details regarding soil excavation activities are discussed below.

6.1 Global Positioning System Controls

DPA excavation work was performed using excavators equipped with Trimble Grade Control Systems (Model SPS 985) that contained the Global Positioning System (GPS) coordinates of the proposed excavation surfaces. The GPS systems enabled the excavator operator to excavate to the target planned horizontal and vertical limits of excavation. Bulldozers equipped with GPS systems were used during backfill activities for guidance and data recording as well. Additionally, a hand-held rover GPS unit was also used to collect survey data for documentation. The final excavation limits for impacted soil removal were determined based on the GPS coordinates of the remedial design excavation areas, and observations and confirmation samples collected by the Arcadis scientist/engineer observing the excavation.

During excavation, the GPS units recorded the positions and locations of all pertinent work that included structures left in place, limits of excavation, sample locations, grades and other relevant data. Spatial coordinate data recorded at the excavation limits were reviewed daily for quality assurance and control purposes to ensure that the limits of excavation met design specifications.

Prior to the start of excavation activities, an initial calibration of each Trimble unit was completed by the manufacturer's authorized representative, SITECH. Additional calibrations were completed as follows:

- At a minimum, prior to the start of each work day, the GPS reference points (i.e. excavator buckets, bulldozer blades, rover) were placed on a pre-established bench mark to confirm that measurements fell within manufacturer's tolerance limits (+/- 0.1 foot). These bench marks were surveyed by a RI-licensed surveyor, DiPrete, and their coordinates recorded. Any GPS coordinates out of tolerance were investigated and corrected with assistance from SITECH before that GPS unit was allowed to use its GPS unit.
- Within 2 months after initial calibration and every 2 months after each follow-up calibration
- Upon equipment change or modification which affects the sensor placements, including changes to the excavator bucket or bulldozer blades
- Whenever vertical and horizontal twice daily checks were not within the specified manufacturer's tolerance limits of +/- 0.1 foot

These checks were recorded in the daily field reports.

To assist with documentation of site work, a 50-foot by 50-foot grid with alpha and numeric axis labels was overlaid on site figures and plans. The grid overlay is shown on Figure 2. GPS coordinates were logged a minimum of five times per 50 by 50-foot grid - once in the center and once at each corner - at each layer requiring GPS logging. Survey data was verified each day to confirm the horizontal and vertical accuracy of excavation activities.

6.2 Remediation Area Excavation

Based on the results of investigations conducted at the site, remediation areas, or “R areas”, were designated for remedial excavation. R area numbering is not sequential because some areas were designated but later determined not to contain soil at concentrations above the remedial objectives. Limits of excavation for each area were preplanned based on available information. Final limits of excavation were based on results of confirmation sampling and field observations.

Soil excavation activities were conducted from September 2015 through November 2016 with removal of an estimated 42,708 CY of petroleum-impacted soil. A summary of the final excavation volumes for each remediation area is provided in Table 1 below. Figure 3 shows the extent and depth of each remedial excavation.

Table 1 Summary of Completed DPA Remediation Areas

R Area	Date Excavation Initiated	Date Excavation Completed	Volume Excavated (cy)
R1	June 2016	June 2016	57
R2	June 2016	June 2016	32
R3	April 2016	April 2016	855
R4	Sept. 2015	Sept. 2015	310
R5	Sept. 2015	Sept. 2015	462
R6	Oct. 2015	March 2016	13,969
R7	Jan. 2016	March 2016	1,113
R8	Aug. 2016	Aug. 2016	2,600
R9	June 2016	June 2016	1,235
R10	May 2016 Sept. 2016	June 2016 Nov. 2016	8,450
R11	July 2016	Aug. 2016	1,225
R12	April 2016	April 2016	640
R13	May 2016	May 2016	3,290
R14	June 2015	June 2015	3,167
R15	May 2016	May 2016	135
R17	May 2016	May 2016	1,785
R18	June 2016	June 2016	185
R19	June 2016	June 2016	212

R Area	Date Excavation Initiated	Date Excavation Completed	Volume Excavated (cy)
R22	June 2016	June 2016	924
R23	May 2016	May 2016	220
R24	May 2016	May 2016	49
R3-R8	March 2016	April 2016	20
R9-R10	June 2016	August 2016	15 (included in R9 Vol)
Seep (North of R14)	June 2015	June 2015	1415
Cell J-47	Sept. 2016	Sept. 2016	315
Cell I-47	May 2016	Sept. 2016	270 (included in R10 Vol)
Cell G-52	August 2016	August 2016	22
Cell A-44/45	January 2017	January 2017	21
Total R Areas	**Sept. 2015**	**Nov. 2016**	**42,708**

*R areas not named in sequence, some areas under consideration were later determined not to require excavation.

6.3 Confirmation Sampling

Confirmation sampling was conducted in accordance with the DPA LRAWP within remedial excavation areas to confirm that excavation activities successfully removed soils with TPH concentrations exceeding the GBLC of 2,500 mg/kg. Figures 4A and 4B show removal areas and confirmation sample locations. Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples, field duplicates, and rinse blanks were collected at a frequency of one per twenty samples, as described in the Supplemental Site Investigation Work Plan QAPP (Arcadis 2006). Soil samples were collected and submitted for laboratory analysis at approximately the following frequency:

- One sidewall sample for every 25 feet in length
- One sidewall sample for every 10 feet in depth
- One bottom sample for every 625 square feet in area.

Confirmation soil samples were not collected if the base of the excavation was below the predicted future water table (predicted future water table was expected to be below groundwater table at the time of excavation; natural water table observation was not possible during excavation in areas where

dewatering was being conducted). If bedrock was encountered in the sidewall or bottom of excavation, the presence of bedrock was recorded in the field notes and no sample was collected from that interval.

Following collection, each confirmation sample was submitted for analysis of TPH by USEPA Method 8100M. All samples designated as final "confirmation samples" analyzed for TPH were required to be below the remedial objective of 2,500 mg/kg. In the event a proposed confirmation sample concentration was greater than 2,500 ppm for TPH, additional soil was removed, and the excavation area was resampled to collect new confirmation samples. This process was repeated, as necessary, until final confirmation samples meeting the required frequency and remedial objective were obtained. TPH soil analytical results are summarized in Table 2.

In addition, 10 percent of the excavation confirmation samples were analyzed for volatile organic compounds (VOCs) by USEPA method 8260, the 13 priority pollutant metals (PP13) by USEPA method 6010/7471, and polycyclic aromatic hydrocarbons (PAHs) by USEPA method 8270. Two samples contained analytes at concentrations above applicable RIDEM standards. Arsenic was detected in soil above the RDEC and IC DEC at locations R4-CS-SW-006 and R5-CS-SW-008, shown on Figure 4B; this area is beneath the RDEC-compliant soil cap as shown on Figure 7. Laboratory data reports documenting soil TPH, VOC, PAH and metals analytical results are provided in Appendix B.

6.4 Soil Handling

Excavated soil was handled in accordance with the requirements presented in Section 8.02 of the Remediation Regulations (RIDEM 2011), the RAWP (Arcadis 2011d) and the DPA LRAWP (Arcadis 2015b). The total extent of excavation conducted to meet the project objectives is shown in Figure 7. Excavated soil was handled as described below:

- Soils identified as containing TPH with concentrations below 2,500 mg/kg (Industrial/Commercial direct exposure criteria [ICDEC] and GBLC) during pre-design investigation activities were excavated as required for site regrading or to meet geotechnical objectives and reused as backfill within the DPA without treatment. Soil with this designation, i.e. no treatment required in order to reuse, were observed during excavation to verify that it was accurately characterized during the pre-design investigation. If NAPL was observed, the NAPL and associated impacted soil was removed and handled as described in the next bullet.
- Soil identified as containing TPH with concentrations at or above 2,500 mg/kg (GBLC) or NAPL during pre-design investigation activities or during excavation was stockpiled within the impacted soil, treatment required stockpile. This soil was treated on site in accordance with the ESS/S LRAWP (Arcadis 2013) or disposed off-site at ESMI of Loudon, New Hampshire, a licensed disposal facility. Disposal manifests are included in Appendix A. After the soil was treated and shown to meet the treatment goals and remedial objectives, the soil was reused on-site and covered by a RIDEM-compliant soil cap.
- Approximately 20,000 cy of treated soil was not used during backfilling of the DPA. This treated soil is stockpiled north of the DPA area for future use as backfill under a soil cap during remedial actions for the north end of the site.

6.5 Addendums to the LRAWP

There were several areas with deviations from the LRAWP discussed below:

6.5.1 Remedial Areas R18/19/22

Remedial areas R18, R19, and R22 were included in the DPA LRAWP via an addendum submitted in June 2016 (Arcadis 2016b). R18 was bordered by the site property boundary to the north, Mean High-High Water (MHHW) line to the west, and previously excavated/backfilled material on the eastern and southern perimeter; the bottom of R18 was below the water table. As such, no confirmation soil samples were required on the sidewall or bottom of the excavation. Visible NAPL impacts were removed along the property boundary and MHHW line to approximately 10-feet bgs to a visibly clean gray silty bottom. These limits were then backfilled with flowable fill; 60-feet long, 6-feet wide and 10-feet deep to the north, and 40-feet long, 6-feet wide and 10-feet deep on the west. A small gap was left open between the northern and western flowable fill walls in which a temporary sump was setup to monitor groundwater.

The R19 limits were adjacent to the sheet pile-lined oil-water separator (to be managed as part of the future planned waterfront phase of work). The southern portion of R19 was excavated to the limits of the sheet pile wall, and extended below the groundwater table to remove visible NAPL impacts. The western limits are located at the Mean Higher High-Water line and excavation was not permitted beyond these extents.

R22 was extended after encountering visible NAPL in the southern half of the area, located within the northern section of grid B-47. The excavation limits were extended deeper and further to the south to remove all visible NAPL. In the northeastern portion the excavation extended to where backfill from previous remedial actions in the LTC was encountered.

Additional work is planned in this area under the Waterfront LRAWP which has been approved by RIDEM.

6.5.1 Remediation Areas R23 and R24

Excavation Area R23 and R24, shown on Figures 4A and 4B, were identified during work as NAPL was observed during earthwork activities.

6.5.2 Remediation Areas R25 and R26

Per the DPA Addendum submitted September 2016 (Arcadis 2016d), Arcadis investigated and excavated impacted soil located outside the original DPA boundary in the northern half of the site in two areas, called R25 and R26. Arcadis completed the excavation of R25 and R26 concurrent with DPA work because equipment was available onsite. However, the northern half of the site will be remediated under a future LRAWP for that portion of the site. Therefore, information regarding R25 and R26 will be reported under separate cover in the closure report for the northern half of the site.

6.5.3 Use of Native Fill from Outside of DPA

Arcadis requested approval from RIDEM to use native soil containing TPH at concentrations less than 2500 mg/kg from a portion of the site north of the DPA LRAWP boundary and use as fill under the soil cap during backfilling activities within the DPA area. This request was approved by RIDEM in an email dated November 16, 2015 and its use was incorporated during backfilling activities.

6.5.4 Infiltration of Water Generated by Dewatering

RIDEM approved a request from Arcadis (2016) to infiltrate water generated by dewatering activities to an area near the center of the site. As described in this report, Arcadis treated dewatering water and discharged the treated water to the Providence River under a RIPDES discharge permit until the DWTS was dismantled to allow excavation of impacted soil beneath the system. The dewatering containment system (DWCS) was replaced by the infiltration system in July 2016 to contain dewatering liquids generated during the remaining excavation and backfill activities. Construction and operation of the system is described in Section 9.

6.5.5 Soil Drying at Unocal

Arcadis submitted a request to modify the LRAWP to allow soil to be moved to the nearby Unocal facility which is also a RIDEM site owned by Chevron (Arcadis 2016). Arcadis proposed to spread soil in lined cells to allow it to dry, prior to either reuse at DPA or off-site disposal. However, this activity was not conducted because other means of handling the silty, impacted soils were determined to be adequate. Soil from DPA was not stored at Unocal during this project.

7 DEVIATIONS FROM THE LRAWP

7.1 Cap Construction

The DPA LRAWP anticipated construction of a two-foot soil cap across the entire DPA LRAWP area. However, the cap is not complete and explanations for incomplete sections are described below.

As shown on Figure 7, the cap was not completed in several portions of DPA:

- In the southwest portion of the site, the cap was not completed based on discussions with National Grid, who operate a high pressure natural gas line in an easement on that portion of the site. National Grid expressed concerns regarding the depth of fill planned in the area of the high-pressure gas line, and is evaluating moving the gas line from the current easement in Chevron-owned property to a new easement in RIDOT property where Waterfront Drive is planned. Therefore, construction of the cap in this area has been delayed pending resolution of National Grid's plan for the gas line.
- The cap was not completed in the center portion of the site adjacent to the area which is the subject of the Waterfront LRAWP. The cap in this area will be completed as part of the Waterfront LRAWP project.
- The third area within the DPA boundary which was not capped is a small area on the northeast portion of DPA near the East Bay bike path. The investigation did not reveal any impacts requiring

removal in this area, so placement of a final cap here was delayed to minimize impacts to the East Bay bike path. This area will be addressed during remediation of the northern area of the site.

- Finally, a small area on the southeast corner of the site and a strip a few feet wide along a portion of the south and east site boundaries was not capped, as shown on Figure 7. A city manhole was located in this southeast corner, and that area and the strips along the boundary are outside the original facility fence line. This area is not believed to have been impacted by terminal activities because historic plans and photographs indicate that it was part of a vegetated strip of land outside the facility fence when the facility was in operation.

7.2 Surveying

The DPA LRAWP indicated that site features would be located and documented by a Licensed Land Surveyor. However, during construction it was more efficient and safer to use handheld and vehicle mounted GPS systems to document site activities. The GPS locating allowed collection of vastly more data because it was in use during all site activities. In addition, it has an accuracy of +/- 0.1 foot, and this was verified by daily calibration checks against a benchmark established by a RI-licensed professional surveyor.

7.3 Remediation Area R1

Excavation Area R1 was not included in the LRAWP due to its location just west of the DPA limit. However, due to remedial work already being completed around it for the DPA activities and to address this remedial area to prepare for planned capping, R1 was excavated, sampled and analyzed to confirm remedial objectives were met and then backfilled. All work was conducted in accordance with the LRAWP.

8 SOIL MANAGEMENT

Management of soil generated during the DPA LRAWP implementation is discussed in the section.

8.1 Soil Treatment

Soils characterized as containing TPH above 2,500 mg/kg (ICDEC and GBLC), and/or with visible NAPL, were stockpiled on site within a lined containment area. The majority of this soil was then treated on site via ESS/S. The remainder of this soil was not treated and was transported offsite for disposal at the ESMI facility located in NH (disposal documentation included in Appendix A). Between September 29, 2015 and March 13, 2017 approximately 145,294 tons of soil was treated by ESS/S, which included the measured addition of Portland cement and asphalt emulsion followed by thorough mixing to immobilize the impacts targeted for treatment followed by sampling and analysis to confirm treatment objectives were achieved. This process is outlined in detail in the ESS/S LRAWP submitted to RIDEM and approved by RIDEM through a letter dated May 20, 2013 (RIDEM 2013a).

Following treatment, soils were stockpiled in separate designated areas or “bins” located along the upper tier center (UTC) portion of the site and allowed to cure for a minimum of 48 hours prior to compliance sampling. The treated soil was designated as “batches” for tracking and documentation purposes, with a

batch typically being the soil treated in a single day and placed into a single common bin. Compliance sampling was conducted in accordance with the ESS/S LRAWP (Arcadis 2013d) and consisted of a four-point composite sample obtained from each batch of stabilized soil (approximately 1,000 cy or 1,500 tons of treated material) as approved by RIDEM in email correspondence dated May 1, 2014.

Samples were submitted to ESS laboratories of Cranston, Rhode Island and analyzed for TPH via the SPLP method and compared to the treatment objective of 4 milligrams per liter (mg/L). No treated soil samples generated analytical results over 4 mg/L during DPA work. Treated soil analytical results are summarized in Table 4, and the laboratory analytical reports were included in monthly Treatment Data Reports sent to the RIDEM Office of Waste Management.

Upon confirmation of achieving the treatment objective the treated soils were used as backfill or stockpiled on site for future use. Excess treated material not placed during the DPA remedial activities is currently staged in the North Borrow SS Stockpile onsite, and is to be used as backfill during future site activities.

8.2 Concrete Demolition and Debris Management

Concrete structures, including the upper basin of the decommissioned oil-water separator, a 700-foot-long concrete retaining wall, a 170-foot-long granite block retaining wall, underground concrete pipe subways, and former building concrete footings/slabs and subsurface structures were removed during DPA excavation activities. Prior to stockpiling, the concrete was visually inspected for residual petroleum impacts/staining as defined in the SMP (Arcadis 2013a). Concrete without visible petroleum impacts was staged in stockpiles in the Upper Tier North (UTN) for sizing and onsite reuse. A relatively small quantity of concrete debris appeared to have some staining upon initial observations and it was stockpiled in the lined containment area segregated from the soil designated for treatment. Further inspections of this concrete after precipitation had washed off adhered soil did not reveal any staining and it was then consolidated with the other unstained concrete debris.

Metal debris generated from the DPA excavation was separated from concrete as practical, and either stockpiled separately or directly loaded for offsite recycling or disposal along with other construction debris (Table 3, Appendix A).

8.3 Bedrock Removal and Disposition

Bedrock was encountered during excavation activities and in certain areas removed to some degree to achieve the site-wide grading requirements. Figure 5 shows the as-built maximum cut surface and horizontal limits of remaining bedrock within the final excavation limits. Bedrock removal was accomplished using hydraulic hammers and excavators. Approximately 3,946 cy of bedrock was removed and temporarily staged in the northern half of the site for future processing/crushing and reuse on site.

8.4 Air Monitoring

In accordance with the SMP, particulate monitoring was conducted during soil excavation and handling activities at the site. Monitoring consisted of both visual observations, and the use of particulate measurement instruments placed upwind and downwind of the work areas.

Dust control measures were implemented as necessary and included:

- Applying water (or calcium chloride during freezing conditions) onto stone/soil surfaces that could generate dust
- Covering stockpiles with polyethylene sheeting
- Applying dust suppression polymers to surfaces where it was allowed
- Seeding and placing erosion control matting on soil surfaces once disturbance to those areas was complete
- Limiting dust-generating activities during windy days and using a water truck as a precautionary dust control measure
- Placing clean/washed stone on surfaces

9 CONSTRUCTION DEWATERING

Construction dewatering was implemented to allow for the efficient and safe completion of the designed DPA excavation. Dewatering included construction and operation of dewatering trenches with sumps, and/or use of temporary shallow sumps. Dewatering liquids were handled and discharged using three separate processes to address changing site conditions. Initially, dewatering liquids were pumped to the temporary onsite DWTS for treatment and discharge. The DWTS was removed in July 2016 to facilitate soil excavation from under that structure. A temporary dewatering containment system (DWCS) was installed in July 2016 to replace the DWTS and consisted of a series of frac tanks and associated piping and controls placed within a containment berm. The DWCS was used until November 2016 when it was dismantled to allow access to that area for site restoration work. Use of this DWCS was limited due to relatively little dewatering that was needed during that time. From November 2016 until the end of DPA construction, two frack tanks were used to temporarily store dewatering liquids until it could be discharged through an infiltration basin, once it was confirmed no visible NAPL or sheen was present. Further details regarding dewatering and effluent discharge are provided below.

Until the DWTS was deconstructed in July 2016, water was pumped from the sumps to the onsite DWTS for treatment and discharged to the Providence River in accordance with the Rhode Island Pollutant Discharge Elimination System (RIPDES) RGP (number RIG85G016) issued for this site. Treated water was sampled and analyzed in accordance with the RGP, and results were reported to RIDEM in monthly Discharge Monitoring Reports. Treated water was discharged to the river via outfall OF-3.

The DWCS was installed in July 2016 to replace the DWTS system. The system consisted of six storage tanks used for settling of particulates. The system was operated in accordance with the Request to Discharge Water to Upper Tier Center (Arcadis 2016c). Prior to release from containment, water was visually inspected for the presence of sheen. From the storage tanks, water was discharged into a small infiltration basin constructed in grid I-32. This basin consisted of an approximately 750 square foot area containing 2 to 4-inch diameter crushed stone placed to approximately 5 feet below ground surface. This basin enabled water to infiltrate the ground surface and not flow overland to the Providence River. Regular visible monitoring of the area was performed to confirm water infiltrated as anticipated. The

DWCS was removed in November 2016 to allow access for the excavation of R10. An estimated 34,935 gallons of water were discharged through the infiltration basin in grid I-32.

Beginning in November 2016, water was pumped directly into one of two frack tanks and allowed to settle. The water was then discharged in accordance with the Request to Discharge Water to Upper Tier Center (Arcadis 2016c) into the infiltration basin, that was installed for the DWCS, in grid I-32.

Throughout DPA operations, approximately 41,674 gallons of dewatering liquids were sent offsite to Clean Harbors Environmental Service, Inc in South Portland, ME as nonhazardous regulated liquid.

10 SITE RESTORATION

Site restoration activities, including backfilling, surface water controls, infrastructure installation, and structures left in place, are described below.

10.1 Backfill

Following excavation activities, the DPA area was restored to the grades shown on Figure 7 using soil from the site and clean imported fill. Approximately 200,000 cy of backfill material was placed and compacted with vibratory rollers to meet the required specifications for site redevelopment. Approximately 140,000 cy of the backfill used for site restoration activities was from previously-excavated areas of the site not requiring ESS/S treatment, or identified as meeting the RO following treatment by ESS/S. An additional 60,000 cy of clean fill was imported from offsite sources to complete site restoration activities. Additional details are provided below.

10.1.1 Backfilling and Compaction

Backfilling and compaction activities were conducted in accordance with the LRAWP (Arcadis 2013b), SMP (Arcadis 2013a), project specifications, and Contract Drawings. Backfill was placed using traditional earth-moving equipment. Prior to backfilling, and during excavation activities, standing water was removed to the extent practicable. If standing water could not feasibly be removed from an excavation, backfilling was completed by first placing geotextile fabric at the bottom of the excavation, then placing washed gravel as needed to bridge out of water table. Lastly, the bridging material was covered with a second layer of non-woven geotextile, prior to continuation of normal soil backfill activities.

All imported fill, with the exception of fill not containing any significant fines, was tested to confirm that the imported material met the RDEC in the Remediation Regulations (RIDEM 2004). These analyses were performed by Contest Analytical of East Longmeadow, MA. Imported backfill materials were sampled at a minimum frequency of one four-point composite sample per 2,000 cubic yards (cy) in accordance with the Soil Management Plan (Arcadis 2013). Each composite sample was submitted for analysis of semi-volatile organic compounds via USEPA Method 8270C, Priority Pollutant 13 metals via Method 6010/7471, and TPH via USEPA Method 8100M. One uncomposited aliquot of each sample was also submitted for analysis of volatile organic compounds by USEPA Method 8260B. Analytical laboratory data reports for imported fill are presented in Appendix C.

10.1.2 Cap

A 2-foot thick cap consisting of imported material shown to meet the RIDEM RDEC was placed at the site as shown on Figure 7. The cap was installed in accordance with the LRAWP (Arcadis 2013b) and was constructed of:

- Dense graded aggregate (2 feet minimum)
- Dense grade aggregate (1.5 feet minimum) and ¾-inch washed stone (0.5 feet minimum at surface)
- Dense grade aggregate (1.5 feet minimum) and topsoil (0.5 feet minimum at surface) seeded and mulched, or
- RDEC-compliant imported soil fill (2-foot minimum)

The cap thickness was confirmed through field oversight during placement and use of GPS survey equipment, as well as being spot checked at eleven locations randomly selected across the site by a RI-Registered PE on May 5, 2016, October 13, 2016, and February 17, 2017. The spot check confirmation was accomplished by excavating into the constructed soil cap, i.e., test holes and measuring the cap thickness, per the DPA LRAWP. All locations passed inspection with a minimum of 2 feet of clean fill.

10.2 Surface Water Controls and Infrastructure Installation

From August 2016 through February 2017, site storm drain and sanitary sewer utilities were installed at the site in accordance with the LRAWP (Arcadis 2013b), project specifications, and Contract Drawings. Structures associated with their installation included manholes, catch basins, and outfalls. All utilities (piping and structures) were backfilled with imported fill meeting RIDEM RDEC. The storm drain utilities currently function to support management of stormwater at the site with erosion and sediment controls installed and maintained at receiving catch basins. The sanitary sewer installation involved connecting the existing, active City sanitary sewer line along the east side of the site to the main line along the west side of the site. The installed utilities are shown on Figure 6.

10.3 Structures Left in Place

Upon completion of DPA, structures left in place were surveyed using GPS and are shown on Figure 6. Below-ground structures left in place are below the cap and did not affect completion of the project design or impact placement of the cap. In the southern portion of the site, three bedrock outcrop areas were left in place. In the center of the site, sheet piling, and a granite wall were also left in place. Drainage lines were installed to support site development, as shown on Figure 7.

Bedrock was removed across the site as needed to allow for the 2-foot thick cap. Bedrock at depths that did not interfere with planned excavation depths was left in place. Historically installed sheet piling located near the former site entrance across from Lyons Avenue in the center of the site had sections that could be driven deeper to just below the maximum excavation limits while sections that could not be driven were cut down to the maximum excavation limits.

During backfill, select, higher permeability fill was placed in areas of planned future buildings, then extended to the lower elevation portion of the site. These layers are intended to act as a French drain type of structure for future buildings by allowing groundwater to flow from beneath the building foundations to the lower area of the site where groundwater will infiltrate. This system was designed by

GZA with the purpose of lowering the groundwater table under the future buildings. Previous investigations did not indicate the presence of LNAPL or groundwater impacts at the location where infiltration occurs.

LNAPL was discovered at the fractured bedrock interface in cell H-53, between remediation shapes R3 and R8, in March 2016. All visible LNAPL was removed through excavation and dewatering/pumping (less than approximately 10 gallons). Confirmation samples were collected as feasible, but samples were limited because the bottom and sides of this area was excavated to bedrock. A liner was installed between the excavation limits and an area where higher permeability select fill was placed to act as a temporary barrier as work progressed. To determine whether further NAPL would accumulate, a stone-filled trench was installed to allow groundwater to flow from the east and west ends within the lined area, parallel to the subsurface drainage system. A sump was installed in the trench and water was pumped and conditions were observed for approximately one month. No NAPL was ever observed. This trench was left in place, but the sump was removed, with its location documented and shown on Figures 4B, 5 and 7. Confirmation samples are shown on Figure 4B.

A sump remains in place for monitoring groundwater conditions at R18.

11 POST-CLOSURE GROUNDWATER MONITORING

Post-remediation monitoring will be completed in accordance with a Groundwater Monitoring Plan. Well installation and subsequent closure monitoring will be reported to RIDEM under separate cover.

12 CONCLUSION

Remediation activities completed in DPA include:

- The excavation and treatment of approximately 42,708 cy of soil impacted with NAPL and/or TPH at concentrations above the GBLC of 2,500 mg/kg
- The removal of approximately 1,819 cubic yards of concrete
- The removal of approximately 3,946 cubic yards of bedrock
- Construction of a cap with a minimum thickness of two feet of RDEC-compliant imported fill materials over a large portion of the site

All soil within the DPA area identified as containing TPH above the GBLC or NAPL was either treated via ESS/S and re-used as backfill or stockpiled on site for future use, or sent off-site for disposal. The excavated areas were backfilled with treated soil (confirmed via analyses to meet reuse requirements), soil containing TPH at concentrations less than 2500 mg/kg, or imported clean fill, and then capped with a minimum of 2-feet of RDEC-compliant imported fill materials.

The remedial work presented in the DPA LRAWP is complete with the exception of construction of some areas of the final cap, and groundwater monitoring.

An Environmental Land Usage Restriction will be necessary due to the presence of soil containing contaminants at concentrations exceeding the RDEC; however, the requirements of the DPA LRAWP and RIDEM approval of the LRAWP have been met through the installation of a cap meeting the requirements

set forth in the LRAWP (Arcadis 2011b) on portions of the site. Arcadis, on behalf of Chevron, will prepare a draft Environmental Land Usage Restriction to submit to RIDEM for review under separate cover.

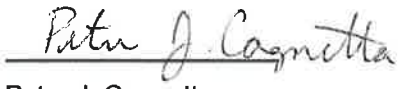
13 CERTIFICATION REQUIREMENTS

Arcadis certifies, to the best of its knowledge, that this Development Phase A Limited Remedial Action Closure Report is complete and accurate.

Donna H. Pallister, P.E.

Arcadis U.S., Inc.

Chevron Environmental Management Company certifies, to the best of its knowledge, that this Development Phase A Limited Remedial Action Closure Report is a complete and accurate representation of the site and the release, and contains the known facts surrounding the release.



Peter J. Cagnetta

Chevron Environmental Management Company

14 REFERENCES

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RIDEM. 2014. Approval Letter. Case No. #97-017. August 2014.

TABLES

Table 2
TPH Summary Data - R1
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-01-CS-SW-01-09	12/14/2015	262704.90	359440.46	1.68	540	---
R-01-CS-SW-02-11	12/14/2015	262704.90	359440.46	-0.32	130	---
R-01-CS-SW-03-12	12/11/2015	262710.04	359445.67	-0.60	1,700	---
R-01-CS-SW-04-5	6/3/2015	262711.99	359451.83	5.80	14	---
R-01-CS-SW-05-5	6/3/2015	262713.08	359444.66	5.38	250	---
R-01-CS-SW-06-5	6/3/2015	262705.77	359443.38	4.71	14	---
R-01-CS-SW-07-5	6/3/2016	262704.35	359450.50	5.02	350	---

Notes

SW: sidewall sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - R2
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-02-CS-SW-01-2.5	4/29/2016	262355.12	359692.58	5.51	12	---
R-02-CS-SW-01-7	4/29/2016	262355.12	359692.58	0.51	<11	---
R-02-CS-SW-04-2.5	5/2/2016	262349.73	359694.47	5.86	<9.8	---
R-02-CS-SW-04-7.5	5/2/2016	262349.73	359694.47	0.86	<11	---
R-02-CS-SW-05-2.5	5/2/2016	262350.80	359687.17	5.84	11	---
R-02-CS-SW-05-7.5	5/2/2016	262350.80	359687.17	0.84	<10	---
R-02-CS-SW-06-2.5	5/2/2016	262357.21	359687.44	5.97	<9.7	---
R-02-CS-SW-06-7.5	5/2/2016	262357.21	359687.44	0.97	<10	---

Notes

SW: sidewall sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable
Samples were labeled out of numerical sequence, omitting numbers 02 and 03.

Table 2
TPH Summary Data - R3
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-03-CS-SW-001-11	8/4/2015	262598.44	359715.57	37.57	110	---
R-03-CS-SW-002-8	8/4/2015	262598.44	359715.57	37.57	42	---
R-03-CS-SW-003-10	8/4/2015	262611.93	359700.80	34.66	1,200	---
R-03-CS-SW-004-7	8/4/2015	262611.93	359700.80	37.66	51	---
R-03-CS-SW-005-10	7/27/2015	262633.15	359701.24	34.82	**3,800**	R-03-CS-SW-017-11.5
R-03-CS-SW-006-7	7/27/2015	262633.15	359701.24	37.82	**5,400**	R-03-CS-SW-018-8.5
R-03-CS-SW-007-10.5	7/27/2015	262651.75	359702.43	34.78	1,700	---
R-03-CS-SW-008-8	7/27/2015	262651.75	359702.43	37.28	600	---
R-03-CS-SW-009-10.5	7/28/2015	262665.88	359715.10	34.8	200	---
R-03-CS-SW-010-8	7/28/2015	262665.88	359715.10	37.3	420	---
R-03-CS-SW-011-10.5	7/27/2015	262651.84	359731.14	34.77	1,000	---
R-03-CS-SW-012-8	7/27/2015	262651.84	359731.14	37.27	750	---
R-03-CS-SW-013-9.5	7/27/2015	262633.05	359731.36	35.13	270	---
R-03-CS-SW-014-7	7/27/2015	262633.05	359731.36	37.63	1,400	---
R-03-CS-SW-015-9.5	7/27/2015	262612.02	359731.33	35.23	680	---
R-03-CS-SW-016-7	7/27/2015	262612.02	359731.33	37.73	410	---
R-03-CS-SW-017-11.5	9/17/2015	262633.37	359690.82	34.43	1,500	---
R-03-CS-SW-018-8.5	9/17/2015	262633.37	359690.82	37.43	45	---
R-03-CS-B-01	2/15/2016	262604.36	359719.61	30.06	260	---
R-03-CS-B-02	2/15/2016	262625.30	359723.40	30.17	<11	---
R-03-CS-B-03	2/15/2016	262645.10	359724.41	30.22	970	---
R-03-CS-B-04	2/15/2016	262661.28	359716.09	30.03	430	---

Notes
SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable

Table 2
TPH Summary Data - R4
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-04-CS-SW-001-4	7/28/2015	262495.11	359675.10	7.27	100	---
R-04-CS-SW-002-4	7/28/2015	262499.45	359658.57	7.24	<11	---
R-04-CS-SW-003-4.5	7/28/2015	262519.50	359645.50	7.05	<12	---
R-04-CS-SW-004-4	7/28/2015	262535.09	359649.18	7.65	1,100	---
R-04-CS-SW-005-3	7/28/2015	262531.48	359665.90	8.62	<11	---
R-04-CS-SW-006-3	7/28/2015	262511.10	359678.27	8.65	38	---
R-04-CS-B-001	8/31/2015	262526.96	359654.75	4.74	<13	---
R-04-CS-B-002	8/31/2015	262507.22	359669.17	4.55	<14	---

Notes

SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable

Table 2
TPH Summary Data - R5
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-05-CS-SW-001-4	7/28/2015	262399.27	359727.33	6.92	<7.2	---
R-05-CS-SW-002-4	7/28/2015	262419.51	359724.28	7.25	6	---
R-05-CS-SW-003-4	7/28/2015	262436.52	359736.64	8.96	850	---
R-05-CS-SW-004-5	8/31/2015	262454.54	359749.61	14.48	2,200	---
R-05-CS-SW-005-5	8/31/2015	262457.25	359764.29	20.22	<16	---
R-05-CS-SW-006-3	8/31/2015	262439.77	359766.10	15.2	<15	---
R-05-CS-SW-007-2.5	7/28/2015	262421.27	359755.86	12.39	6	---
R-05-CS-SW-008-4	8/3/2015	262401.87	359746.01	7.63	140	---
R-05-CS-B-001	9/1/2015	262407.93	359732.65	4.212	510	---
R-05-CS-B-002	9/1/2015	262424.46	359748.03	7.99	1,300	---

Notes
SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable
As indicated on Figure 5B, eastern third of excavation bottom had bedrock floor and no bottom sample was collected.

Table 2
TPH Summary Data - R6
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-06-CS-SW-001-5.5	7/22/2015	262567.50	359806.33	39.12	860	---
R-06-CS-SW-002-5.5	7/22/2015	262566.44	359824.92	38.88	230	---
R-06-CS-SW-003-5.5	7/22/2015	262549.80	359843.99	39.03	**4,100**	R-06-CS-SW-74-3
R-06-CS-SW-004-5.5	7/23/2015	262533.05	359863.17	39.10	**3,700**	R-06-CS-SW-038-5.5
R-06-CS-SW-005-5.5	7/21/2015	262516.21	359882.48	39.47	2,200	---
R-06-CS-SW-006-6	7/21/2015	262518.14	359901.79	39.01	**3,200**	R-06-CS-SW-74-3
R-06-CS-SW-007-6	10/13/2015	262529.18	359924.90	39.38	233	---
R-06-CS-SW-008-5	7/23/2015	262540.16	359947.88	39.68	**3,700**	R-06-CS-SW-71-5
R-06-CS-SW-009-5	7/23/2015	262550.14	359987.91	39.77	2,000	---
R-06-CS-SW-010-5	7/23/2015	262533.65	360003.19	39.62	**3,600**	R-06-CS-SW-050-5
R-06-CS-SW-011-4	7/23/2015	262512.52	360016.41	40.18	**2,500**	R-06-CS-SW-042-6
R-06-CS-SW-012-5	7/23/2015	262489.45	360022.05	39.32	**6,100**	R-06-CS-SW-043-6.5
R-06-CS-SW-013-5	7/23/2015	262464.81	360023.87	39.28	**2,800**	R-06-CS-SW-044-6.5
R-06-CS-SW-014-5	7/23/2015	262449.72	360032.74	39.70	320	---
R-06-CS-SW-015-6.5	7/23/2015	262414.93	360045.80	38.25	840	---
R-06-CS-SW-016-7.5	7/23/2015	262400.92	360027.51	38.28	840	---
R-06-CS-SW-017-6	7/23/2015	262397.40	360002.20	39.29	13	---
R-06-CS-SW-018-7.5	7/23/2015	262393.94	359977.24	37.40	12	---
R-06-CS-SW-019-3.5	10/22/2015	262390.27	359952.20	36.43	<39	---
R-06-CS-SW-020-9	10/22/2015	262391.47	359951.98	25.04	<49.6	---
R-06-CS-SW-021-3	10/22/2015	262394.55	359931.11	36.94	<45.6	---
R-06-CS-SW-022-8.5	10/22/2015	262394.79	359932.55	26.56	<47.5	---
R-06-CS-SW-023-3.5	10/23/2015	262403.36	359916.69	39.27	905	---
R-06-CS-SW-024-9.5	10/23/2015	262404.08	359917.29	27.06	< 46.1	---
R-06-CS-SW-025-7	7/22/2015	262424.73	359897.53	38.06	**9,800**	R-06-CS-SW-045-7
R-06-CS-SW-026-6.5	7/22/2015	262443.80	359881.20	38.63	430	---
R-06-CS-SW-027-6.5	7/22/2015	262463.33	359864.48	38.62	1,700	---
R-06-CS-SW-028-6	7/22/2015	262482.70	359847.91	38.70	1,600	---
R-06-CS-SW-029-6	7/22/2015	262473.76	359827.91	38.50	92	---
R-06-CS-SW-030-7	7/24/2015	262465.24	359806.93	37.95	14	---
R-06-CS-SW-031-2.5	10/23/2015	262478.08	359790.47	35.66	220	---
R-06-CS-SW-032-5.5	7/22/2015	262528.19	359778.09	38.43	**10,000**	R-06-CS-SW-046-6
R-06-CS-SW-033-5.5	7/22/2015	262552.86	359788.77	38.95	630	---
R-06-CS-SW-034-5	7/23/2015	262551.28	359971.13	39.89	**7,800**	R-06-CS-SW-047-6
R-06-CS-SW-035-6	7/23/2015	262432.25	360051.26	39.28	**2,900**	R-06-CS-SW-048-6
R-06-CS-SW-036-6	7/23/2015	262503.70	359784.03	38.01	41	---
R-06-CS-SW-037-5.5	9/17/2015	262573.52	359832.19	39.53	**5,400**	R-06-CS-SW-63-5
R-06-CS-SW-038-5.5	9/16/2015	262540.13	359870.44	38.56	1,700	---
R-06-CS-SW-039-6	9/16/2015	262527.27	359896.54	38.81	**3,100**	R-06-CS-SW-74-3
R-06-CS-SW-040-5	9/17/2015	262549.29	359942.63	39.71	**2,800**	R-06-CS-SW-047-5
R-06-CS-SW-041-4.5	9/17/2015	262538.88	360011.95	39.93	**3,300**	R-06-CS-SW-050-5
R-06-CS-SW-042-4.5	9/17/2015	262517.75	360025.17	39.98	1,400	---
R-06-CS-SW-043-5	9/17/2015	262489.81	360031.97	39.38	410	---
R-06-CS-SW-044-5	9/17/2015	262465.17	360033.79	39.53	**5,800**	R-06-CS-SW-049-5
R-06-CS-SW-045-7.5	9/18/2015	262416.36	359890.86	38.25	220	---
R-06-CS-SW-046-6	9/17/2015	262527.29	359767.08	36.34	81	---
R-06-CS-SW-047-5	9/18/2015	262560.75	359966.60	39.77	88	---
R-06-CS-SW-048-5.5	9/17/2015	262439.53	360058.12	39.83	190	---

Table 2
TPH Summary Data - R6
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-06-CS-SW-049-5	10/13/2015	262465.43	360037.57	38.29	1,120	---
R-06-CS-SW-050-5	10/13/2015	262535.79	360016.29	39.61	2,140	---
R-06-CS-SW-051-5	10/13/2015	262543.97	360008.15	39.55	2,480	---
R-06-CS-SW-052-5	10/13/2015	262553.51	359946.59	39.44	**4,280**	R-06-CS-SW-71-5
R-06-CS-SW-053-5	10/13/2015	262549.44	359937.58	38.72	**3,290**	R-06-CS-SW-74-3
R-06-CS-SW-054-6	10/14/2015	262533.33	359900.44	38.37	**7,780**	R-06-CS-SW-74-3
R-06-CS-SW-055-5	10/14/2015	262554.02	359848.63	39.43	**4,870**	R-06-CS-SW-74-3
R-06-CS-SW-056-5	10/14/2015	262574.99	359840.27	39.64	**4,000**	R-06-CS-SW-74-3
R-06-CS-SW-057-5	10/14/2015	262575.23	359822.46	39.66	936	---
R-06-CS-SW-58-5	10/21/2015	262578.94	359844.72	39.80	**8,020**	R-06-CS-SW-74-3
R-06-CS-SW-59-5	10/21/2015	262557.76	359852.80	39.72	**4,220**	R-06-CS-SW-74-3
R-06-CS-SW-60-6	10/21/2015	262543.37	359894.13	38.46	**6,910**	R-06-CS-SW-74-3
R-06-CS-SW-61-5	10/21/2015	262547.81	359919.63	40.14	< 77	---
R-06-CS-SW-66-5	10/29/2015	262599.86	359870.30	39.77	**7,100**	R-06-CS-SW-74-3
R-06-CS-SW-63-5	10/29/2015	262593.92	359808.41	40.28	240	---
R-06-CS-SW-64-5	10/29/2015	262598.27	359847.85	39.67	1,800	---
R-06-CS-SW-65-5	10/29/2015	262599.75	359828.04	39.91	1,300	---
R-06-CS-SW-67-5	10/29/2015	262587.65	359888.80	39.71	1,700	---
R-06-CS-SW-68-5	10/29/2015	262574.19	359906.03	40.05	**4,200**	R-06-CS-SW-74-3
R-06-CS-SW-69-5	10/29/2015	262566.72	359926.98	39.70	**22,000**	R-06-CS-SW-74-3
R-06-CS-SW-71-5	12/9/2015	262572.04	359949.75	40.61	2,100	---
R-06-CS-SW-72-5	12/9/2015	262581.66	359931.25	39.49	120	---
R-06-CS-SW-73-5	12/9/2015	262593.07	359929.21	39.73	2,000	---
R-06-CS-SW-74-3	12/10/2015	262605.99	359870.18	41.74	1,100	---
R-06-CS-SW-75-4	12/10/2015	262596.20	359891.65	40.73	610	---
R-06-CS-SW-76-4	12/10/2015	262601.03	359911.92	40.77	270	---
R-06-CS-B-001	10/23/2015	262395.25	359960.76	32.51	< 47.9	---
R-06-CS-B-002	10/23/2015	262404.25	359980.65	35.40	< 48.4	---
R-06-CS-B-003	10/23/2015	262416.53	360008.02	34.44	901	---
R-06-CS-B-004	10/23/2015	262431.73	360020.06	36.07	< 49.6	---
R-06-CS-B-005	10/23/2015	262411.92	360033.21	34.78	< 48.8	---
R-06-CS-B-006	10/23/2015	262449.19	360047.40	37.85	< 49.8	---
R-06-CS-B-007	10/23/2015	262463.89	360037.65	38.19	< 47.8	---
R-06-CS-B-008	10/23/2015	262443.35	360008.14	35.29	< 50.5	---
R-06-CS-B-009	10/23/2015	262488.52	360014.95	36.21	< 48.7	---
R-06-CS-B-010	10/23/2015	262501.44	360027.03	38.13	< 46.5	---
R-06-CS-B- 11	10/27/2015	262442.95	360010.42	36.63	< 47.4	---
R-06-CS-B- 12	10/27/2015	262447.26	359991.72	36.37	**8,530**	R6-CS-B-22
R-06-CS-B- 13	10/27/2015	262418.12	359980.02	36.33	< 49.5	---
R-06-CS-B- 14	10/27/2015	262449.09	359959.05	36.05	< 48.3	---
R-06 -CS-B-15	10/27/2015	262422.68	359954.04	35.92	< 47.6	---
R-06 -CS-B-16	10/27/2015	262396.78	359947.96	33.81	< 48.6	---
R-06 -CS-B-17	10/27/2015	262412.35	359930.23	35.33	< 48.3	---
R-06 -CS-B-18	10/27/2015	262430.98	359923.61	36.08	< 48.2	---
R-06-CS-B-019	10/28/2015	262525.62	360017.43	38.68	10	---
R-06-CS-B-020	10/28/2015	262504.11	360011.52	37.06	< 11	---
R-06-CS-B-021	10/28/2015	262482.86	359979.70	37.03	< 11	---
R-06-CS-B-022	10/29/2015	262450.48	359984.87	35.05	< 11	---

Table 2
TPH Summary Data - R6
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-06-CS-B-023	11/3/2015	262470.83	359982.81	36.17	< 11	---
R-06-CS-B-024	11/16/2015	262556.02	359970.88	38.47	13	---
R-06-CS-B-025	11/16/2015	262531.58	359988.76	37.40	< 11	---
R-06-CS-B-026	11/16/2015	262515.65	359965.53	37.12	< 11	---
R-06-CS-B-027	11/16/2015	262551.01	359943.37	39.01	**3,200**	R-06-CS-B-038
R-06-CS-B-028	11/16/2015	262478.06	359968.38	36.76	< 11	---
R-06-CS-B-029	11/16/2015	262499.56	359951.02	36.68	37	---
R-06-CS-B-030	11/16/2015	262461.80	359946.12	36.38	< 11	---
R-06-CS-B-031	11/16/2015	262486.17	359923.72	36.67	210	---
R-06-CS-B-032	11/16/2015	262518.46	359935.73	37.15	< 11	---
R-06-CS-B-033	11/16/2015	262500.26	359916.97	36.39	< 11	---
R-06-CS-B-034	11/16/2015	262454.90	359918.06	36.47	< 11	---
R-06-CS-B-035	11/16/2015	262472.84	359905.59	36.52	12	---
R-06-CS-B-036	11/16/2015	262454.96	359881.42	36.13	11	---
R-06-CS-B-037	11/16/2015	262429.44	359893.21	36.80	39	---
R-06-CS-B-038	12/10/2015	262549.56	359942.54	36.13	< 11	---
R-06-CS-B-039	12/10/2015	262523.44	359953.59	35.90	< 11	---
R-06-CS-B-040	12/10/2015	262564.09	359955.09	37.35	360	---
R-06-CS-B-041	12/10/2015	262585.69	359924.04	38.83	170	---
R-06-CS-B-042	12/10/2015	262563.07	359921.71	37.66	330	---
R-06-CS-B-043	12/10/2015	262587.09	359908.01	38.99	910	---
R-06-CS-B-044	12/10/2015	262542.02	359916.42	36.87	< 11	---
R-06-CS-B-045	12/10/2015	262518.83	359891.64	36.94	12	---
R-06-CS-B-046	12/10/2015	262555.15	359885.58	35.41	17	---
R-06-CS-B-047	12/10/2015	262541.13	359896.35	36.38	93	---
R-06-CS-B-048	12/10/2015	262548.52	359867.81	36.22	14	---
R-06-CS-B-049	12/10/2015	262555.60	359847.20	36.05	120	---
R-06-CS-B-050	12/10/2015	262531.33	359821.15	34.51	170	---
R-06-CS-B-051	12/10/2015	262505.81	359841.99	34.50	< 11	---
R-06-CS-B-052	12/10/2015	262529.57	359869.09	34.76	< 11	---
R-06-CS-B-053	12/10/2015	262505.49	359864.45	34.91	< 11	---
R-06-CS-B-054	12/10/2015	262485.72	359857.67	35.33	< 10	---
R-06-CS-B-055	12/10/2015	262507.24	359887.94	33.93	< 11	---
R-06-CS-B-056	12/10/2015	262480.21	359891.41	30.84	37	---
R-06-CS-B-057	12/10/2015	262478.54	359820.63	34.58	<11	---
R-06-CS-B-058	12/10/2015	262581.36	359878.13	38.68	34	---
R-06-CS-B-059	12/10/2015	262518.11	359817.90	33.71	<11	---
R-06-CS-B-060	12/10/2015	262522.51	359796.76	32.87	<11	---
R-06-CS-B-061	12/10/2015	262599.00	359860.33	38.48	67	---
R-06-CS-B-062	12/10/2015	262559.20	359825.53	36.84	32	---
R-06-CS-B-063	12/10/2015	262582.00	359842.04	38.05	1,400	---
R-06-CS-B-064	12/10/2015	262553.01	359799.80	31.21	400	---
R-06-CS-B-065	12/10/2015	262535.56	359787.13	27.13	44	---
R-06-CS-B-066	12/11/2015	262489.91	359810.31	35.76	15	---
R-06-CS-B-067	12/11/2015	262482.44	359834.33	34.49	13	---
R-06-CS-B-068	12/14/2015	262583.40	359819.70	39.21	720	---
R-06-CS-B-069	12/14/2015	262594.70	359832.40	39.37	**37,000**	R-06-CS-B-073
R-06-CS-B-070	12/14/2015	262482.10	359897.80	35.04	31	---

Table 2
TPH Summary Data - R6
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-06-CS-B-071	12/14/2015	262463.30	359910.60	35.14	<10	---
R-06-CS-B-072	12/16/2015	262525.60	359798.40	34.68	<11	---
R-06-CS-B-073	1/5/2016	262594.73	359832.45	37.37	1,100	---

Notes

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

NAPL was observed in the west-northwest corner of R6 below groundwater and completely removed by pumping, absorbent pads and soil removal. No samples were collected; it was surveyed as shown on Figure 5B.

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Excavated: Additional excavation occurred due to regulatory criteria exceedances. The area was excavated until it reached a previously sampled area confirmed to contain TPH below regulatory criteria.

Table 2
TPH Summary Data - R7
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-07-CS-SW-001-5	7/21/2015	262626.61	359915.80	40.53	1,600	---
R-07-CS-SW-002-5	1/21/2016	262650.98	359919.06	35.54	60	---
R-07-CS-SW-003-3.5	8/6/2015	262677.06	359921.29	41.93	260	---
R-07-CS-SW-004-5	1/21/2016	262702.36	359923.55	39.33	<8.8	---
R-07-CS-SW-005-4	8/6/2015	262697.59	359942.31	45.81	140	---
R-07-CS-SW-006-5	8/6/2015	262681.70	359963.55	45.31	36	---
R-07-CS-SW-007-4	8/6/2015	262665.23	359976.59	46.07	<10	---
R-07-CS-SW-008-3.5	8/6/2015	262651.78	359967.27	42.76	<14	---
R-07-CS-SW-009-4	8/6/2015	262633.53	359952.08	40.66	16	---
R-07-CS-SW-010-5	7/21/2015	262611.81	359933.33	40.53	360	---
R-07-CS-B-001	1/21/2016	262707.70	359926.06	42.55	**4,500**	R-07-CS-B-007
R-07-CS-B-002	1/21/2016	262653.07	359920.78	37.99	<11	---
R-07-CS-B-003	1/21/2016	262613.60	359934.30	37.74	1,200	---
R-07-CS-B-004	1/21/2016	262643.23	359954.77	37.92	54	---
R-07-CS-B-005	1/21/2016	262662.92	359931.79	38.42	<11	---
R-07-CS-B-006	1/21/2016	262662.19	359959.89	39.33	280	---
R-07-CS-B-007	1/26/2016	262707.44	359926.49	39.58	110	---
R-07-CS-B-008*	---	262702.71	359930.88	38.77	---	---
R-07-SEEP-SW-1	2/10/2016	262730.08	359916.41	41.00	17	---
R-07-SEEP-SW-2	2/10/2016	262717.47	359898.19	40.27	<9.8	---
R-07-SEEP-SW-3	2/10/2016	262754.30	359900.84	40.54	10	---
R-07-SEEP-SW-4	2/10/2016	262739.48	359879.67	40.12	<9.0	---
R-07-SEEP-SW-5	2/10/2016	262770.76	359884.63	40.95	<8.7	---
R-07-SEEP-SW-6	2/10/2016	262752.83	359866.76	40.48	42	---
R-07-SEEP-SW-7	2/10/2016	262762.72	359854.16	40.82	48	---
R-07-SEEP-SW-8	2/10/2016	262790.70	359866.96	42.26	10	---
R-07-SEEP-B-1	2/10/2016	262725.10	359907.17	38.81	<11	---
R-07-SEEP-B-2	2/10/2016	262746.96	359890.56	40.17	<10	---
R-07-SEEP-B-3	2/10/2016	262763.02	359877.24	40.28	180	---
R-07-SEEP-B-4	2/10/2016	262775.26	359863.16	39.33	<11	---

Notes
SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable
*: Sample not analyzed because R-07-CS-B-007 was below regulatory criteria

Table 2
TPH Summary Data - R8
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-08-CS-SW-001-4	7/21/2015	262688.80	359794.48	41.18	310	
R-08-CS-SW-002-9	7/21/2015	262688.80	359794.48	37.18	560	
R-08-CS-SW-003-4	7/21/2015	262704.46	359783.93	41.05	630	
R-08-CS-SW-004-9	7/21/2015	262704.46	359783.93	37.05	430	
R-08-CS-SW-005-3	7/30/2015	262729.02	359792.70	42.62	**2,500**	R-08-CS-SW-025-4
R-08-CS-SW-007-3	7/30/2015	262755.19	359800.09	42.74	260	
R-08-CS-SW-009-2	8/3/2015	262777.85	359805.49	43.5	160	
R-08-CS-SW-011-2.5	8/3/2015	262785.07	359824.43	43.28	26	
R-08-CS-SW-013-4	7/30/2015	262770.88	359845.20	41.9	250	---
R-08-CS-SW-015-4	7/30/2015	262755.55	359863.79	41.72	340	---
R-08-CS-SW-016-10	7/30/2015	262755.55	359863.79	41.72	**3,600**	---[2]
R-08-CS-SW-017-4	7/30/2015	262738.51	359861.04	41.74	710	---
R-08-CS-SW-018-10	7/30/2015	262738.51	359861.04	35.74	< 13	---
R-08-CS-SW-019-4	7/24/2015	262718.69	359845.51	41.41	1,000	---
R-08-CS-SW-020-9.5	7/24/2015	262718.69	359845.51	35.91	1,200	---
R-08-CS-SW-021-4	8/3/2015	262699.67	359829.63	41.47	230	---
R-08-CS-SW-022-8.5	8/3/2015	262699.67	359829.63	36.97	240	---
R-08-CS-SW-023-4	8/3/2015	262683.68	359811.18	41.50	**2,500**	R-08-CS-SW-026-4
R-08-CS-SW-024-9	8/3/2015	262683.68	359811.18	36.50	130	---
R-08-CS-SW-025-3	9/16/2015	262730.81	359789.67	42.84	930	---
R-08-CS-SW-026-4	9/16/2015	262681.32	359812.80	41.43	1,400	---
R-08-CS-SW-501	8/11/2016	262724.26	359752.80	43.82	300	---
R-08-CS-SW-502	8/11/2016	262743.37	359749.45	43.97	36	---
R-08-CS-SW-503	8/11/2016	262753.59	359768.74	43.94	290	---
R-08-CS-SW-504	8/11/2016	262760.64	359780.30	44.05	310	---
R-08-CS-SW-505	8/11/2016	262768.86	359792.08	43.14	360	---
NAPL-TRN-SMPL-01[3]	9/9/2016	262675.141	359784.534	28.136	250	---

Notes

SW: sidewall sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable
[1]: bedrock encountered at shallow depth, sample not analyzed because all soil was excavated
[2]: excavated to bedrock at 37.4 amyl
Samples were labeled out of numerical sequence; no sample data has been omitted from the table.
Samples 6, 8, 10, 12, and 14 do not exist; no sample data have been omitted from the table.

Table 2
TPH Summary Data - R9
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-09-CS-SW-001-1.5	5/9/2016	262940.76	359728.13	44.23	300	---
R-09-CS-SW-002-2	5/9/2016	262957.61	359713.59	43.70	980	---
R-09-CS-SW-003-2.5	5/9/2016	262974.36	359728.29	43.79	**4,400**	R-09-CS-SW-05-2
R-09-CS-SW-004-2	5/9/2016	262958.28	359743.51	44.27	350	---
R-09-CS-SW-05-2	5/9/2016	262982.07	359730.84	44.69	440	---
R-09-CS-SW-06-1.5	5/9/2016	262974.49	359720.21	44.51	520	---
R-09-CS-SW-07-2	5/9/2016	262949.30	359713.55	43.57	440	---
R-09-CS-SW-08-2	5/9/2016	262941.28	359739.03	43.77	580	---
R-09-CS-SW-09-2	5/9/2016	262966.92	359744.02	45.22	270	---
R-09-CS-SW-010	6/7/2016	262983.74	359712.31	42.44	900	---
R-09-CS-SW-011	6/8/2016	262948.14	359757.13	40.99	<8.5	---
R-09-CS-SW-012	6/8/2016	262925.66	359774.52	41.39	<8.6	---
R-09-CS-SW-013	6/8/2016	262912.69	359787.48	41.85	<8.6	---
R-09-CS-SW-014	6/8/2016	262897.25	359798.60	43.12	<8.5	---
R-09-CS-SW-015	6/8/2016	262880.35	359810.20	43.86	49	---
R-09-CS-SW-016	6/8/2016	262879.72	359778.70	41.26	<8.6	---
R-09-CS-SW-017	6/8/2016	262898.26	359777.10	40.06	<8.5	---
R-09-CS-SW-016	6/8/2016	262879.72	359778.70	41.26	<8.6	---
R-09-CS-SW-018	6/8/2016	262925.88	359754.80	41.87	10	---
R-09-CS-SW-019	6/8/2016	262937.57	359744.40	41.52	<8.5	---
R-09-CS-SW-020	6/9/2016	262804.95	359835.57	41.74	330	---
R-09-CS-SW-021	6/10/2016	262824.41	359824.03	41.26	<8.4	---
R-09-CS-SW-022	6/11/2016	262843.92	359811.43	42.33	<8.4	---
R-09-CS-SW-023	6/12/2016	262855.79	359794.80	42.52	22	---
R-09-CS-SW-024	6/13/2016	262860.65	359825.68	43.15	<8.5	---
R-09-CS-SW-025	6/14/2016	262842.31	359837.78	43.24	<8.6	---
R-09-CS-SW-026	6/15/2016	262822.84	359850.54	43.22	<8.6	---
R-09-CS-SW-027	6/16/2016	262803.00	359863.00	43.36	<8.6	---
R-09-CS-B-001-3	5/9/2016	262944.18	359731.73	42.89	<8.4	---
R-09-CS-B-002-3	5/9/2016	262961.65	359742.61	43.33	<8.9	---
R-09-CS-B-003-5	5/9/2016	262961.05	359730.94	41.23	<8.5	---
R-09-CS-B-004-3	5/9/2016	262971.21	359718.18	43.00	9	---
R-09-CS-B-005	6/7/2016	262956.72	359720.06	37.58	75	---
R-09-CS-B-006	6/7/2016	262955.75	359732.92	38.89	18	---
R-09-CS-B-007	6/7/2016	262980.40	359710.68	39.85	<8.8	---
R-09-CS-B-008	6/8/2016	262968.49	359736.99	39.95	<9.8	---
R-09-CS-B-009	6/8/2016	262938.44	359754.53	39.93	140	---
R-09-CS-B-010	6/8/2016	262915.46	359773.40	39.31	<9.6	---
R-09-CS-B-011	6/8/2016	262896.77	359786.28	38.71	<10	---
R-09-CS-B-012	6/8/2016	262881.17	359791.69	39.69	<11	---
R-09-CS-B-013	6/8/2016	262871.76	359799.81	40.13	<11	---
R-09-CS-B-014	6/8/2016	262865.80	359791.86	40.21	<11	---
R-09-CS-B-015	6/9/2016	262808.74	359851.45	40.37	<11	---
R-09-CS-B-016	6/9/2016	262840.77	359827.62	40.99	780	---
R-09-CS-B-017	6/9/2016	262863.69	359808.18	40.53	<11	---

Table 2
TPH Summary Data - R9
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample

Notes

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Excavated: Additional excavation occurred due to regulatory criteria exceedances. The area was excavated until it reached a previously sampled area confirmed to contain TPH below regulatory criteria. The southern extent of R9 is defined by R7-SEEP-CS-SW-8.

Table 2
TPH Summary Data - R10
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R10-CS-SW-01-6	8/9/2016	262828.15	359757.41	39.70	130	---
R-10-CS-SW-002-6	7/31/2015	262792.21	359754.28	39.40	310	---
R-10-CS-SW-003-6	7/31/2015	262774.97	359746.22	39.40	250	---
R-W-CS-SW-004-6	7/31/2015	262770.50	359727.60	39.38	39	---
R-10-CS-SW-005-7	7/31/2015	262762.24	359708.11	38.40	< 13	---
R-10-CS-SW-006-3.5	7/31/2015	262762.24	359708.11	41.90	1,100	---
R-10-CS-SW-007-7	7/31/2015	262738.46	359692.36	38.00	< 13	---
R-10-CS-SW-008-3.5	7/31/2015	262738.46	359692.36	41.50	< 13	---
R-10-CS-SW-009-7	7/31/2015	262744.13	359673.19	38.00	< 12	---
R-10-CS-SW-010-3.5	7/31/2015	262744.13	359673.19	41.50	< 10	---
R-10-CS-SW-011-7	7/31/2015	262765.40	359658.85	37.70	23	---
R-10-CS-SW-012-3.5	7/31/2015	262765.40	359658.85	41.20	< 10	---
R-10-CS-SW-013-5.5	7/31/2015	262779.78	359645.08	39.20	< 13	---
R-10-CS-SW-014-5.5	7/31/2015	262784.48	359621.26	38.90	< 13	---
R-10-CS-SW-015-5.5	5/12/2016	262801.83	359604.44	36.27	13	---
R-10-CS-SW-016-1.5	5/12/2016	262823.14	359590.46	37.46	13	---
R-10-CS-SW-017-3.5	5/12/2016	262830.89	359571.37	30.85	**9,600**	R-10-CS-SW-53-2.5
R-10-CS-SW-018-2	5/12/2016	262826.63	359548.90	22.79	670	---
R-10-CS-SW-019-2.5	5/12/2016	262841.49	359545.89	23.72	2,000	---
R-10-CS-SW-020-3	5/12/2016	262856.37	359569.34	31.38	**15,000**	R10-CS-SW-62-3
R-10-CS-SW-021-3.5	5/12/2016	262874.50	359577.36	36.99	95	---
R-10-CS-SW-022-3.5	8/5/2015	262900.37	359578.62	37.18	610	---
R-10-CS-SW-023-6	8/5/2015	262925.64	359576.62	37.70	< 11	---
R10-CS-SW-024-6.5	8/9/2016	262951.97	359570.80	37.82	<9.1	---
R-10-CS-SW-025-4	8/10/2016	262978.00	359565.05	37.21	**2,500**	R10-CS-SW-025-4A
R10-CS-SW-025-4A	8/12/2016	262973.97	359558.94	37.13	220	---
R-10-CS-SW-026-4	8/10/2016	263003.21	359561.02	37.20	150	---
R-10-CS-SW-027-5.5	8/10/2016	263026.37	359560.40	38.74	300	---
R-10-CS-SW-028-3	8/10/2016	263051.19	359561.37	39.50	27	---
R-10-CS-SW-029-2.5	8/10/2016	263077.16	359568.89	39.50	9	---
R-10-CS-SW-030-2.5	8/10/2016	263094.78	359592.14	39.80	240	---
R-10-CS-SW-031-2.5	8/10/2016	263076.02	359599.64	40.00	480	---
R-10-CS-SW-032-2.5	8/10/2016	263057.29	359598.41	39.80	530	---
R-10-CS-SW-033-4	8/10/2016	263037.21	359595.64	38.80	120	---
R-10-CS-SW-034-6	8/10/2016	263013.65	359605.19	37.50	29	---
R10-CS-SW-35-6.5	8/9/2016	262991.90	359616.37	37.65	<9.4	---
R10-CS-SW-36-7	8/9/2016	262981.24	359644.61	38.33	<11	---
R10-CS-SW-37-7.5	8/9/2016	262960.80	359654.86	39.54	190	---
R10-CS-SW-38-7	8/9/2016	262938.30	359670.78	39.95	26	---
R10-CS-SW-39-6	8/9/2016	262919.37	359684.74	39.33	15	---
R10-CS-SW-40-6	8/9/2016	262901.98	359699.86	39.45	23	---
R10-CS-SW-41-6	8/9/2016	262883.36	359713.34	39.41	12	---
R10-CS-SW-42-6	8/9/2016	262865.05	359728.19	39.35	21	---
R10-CS-SW-43-6	8/9/2016	262846.39	359743.36	39.45	<11	---
R-10-CS-SW-044-3[1]	---	262832.38	359530.09	17.30	---	---
R-10-CS-SW-045-2	---	262851.06	359532.56	21.26	---[2]	---

Table 2
TPH Summary Data - R10
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-10-CS-SW-045A-2.5	---	262858.39	359526.77	20.96	---[2]	---
R-10-CS-SW-46-3.5	5/19/2016	262819.92	359569.36	28.87	**4,100**	R10-CS-SW-48 and -49
R-10-CS-SW-47-3.5	5/19/2016	262861.72	359557.06	24.92	**6,400**	R10-CS-SW-60 and -61
R-10-CS-SW-48-3.5	5/25/2016	262790.40	359581.48	25.90	<9.2	---
R-10-CS-SW-49-4	5/25/2016	262783.83	359561.59	20.30	340	---
R-10-CS-SW-50-4	5/25/2016	262775.78	359543.33	14.80	<10	---
R-10-CS-SW-51-3.5	5/25/2016	262783.47	359519.01	9.90	<10	---
R-10-CS-SW-52-2.5	5/26/2016	262785.00	359502.10	11.68	11	---
R-10-CS-SW-53-2.5	5/26/2016	262800.57	359493.93	11.98	230	---
R-10-CS-SW-54-5.5	5/27/2016	262824.56	359565.68	18.64	<11	---
R-10-CS-SW-55-4.5	5/27/2016	262830.76	359573.25	21.52	42	---
R-10-CS-SW-56-5	5/27/2016	262832.79	359554.88	17.90	<11	---
R-10-CS-SW-57-5	5/27/2016	262842.43	359540.13	16.05	30	---
R-10-CS-SW-58-5	5/27/2016	262853.38	359533.84	17.31	950	---
R-10-CS-SW-59-5	5/27/2016	262836.40	359521.55	13.33	44	---
R-10-CS-SW-60-3	5/31/2016	262893.92	359553.95	28.87	<8.5	---
R-10-CS-SW-61-3	5/31/2016	262886.22	359530.95	23.17	<9.1	---
R-10-CS-SW-62-3	5/31/2016	262881.75	359507.10	22.01	92	---
R-10-CS-SW-63-2.5	5/31/2016	262857.27	359506.24	17.37	580	---
R-10-CS-SW-64-2.5	5/31/2016	262834.89	359497.44	13.81	280	---
R-10-CS-SW-65	8/26/2016	262814.75	359770.47	39.00	590	---
R-10-CS-B-001	5/25/2016	262815.12	359576.12	24.70	29	---
R-10-CS-B-002	5/25/2016	262798.22	359583.96	24.40	13	---
R-10-CS-B-003	5/25/2016	262808.56	359564.08	19.40	<11	---
R-10-CS-B-004	5/25/2016	262792.98	359543.04	14.50	<11	---
R-10-CS-B-005	5/25/2016	262793.65	359536.57	13.40	140	---
R-10-CS-B-006	5/26/2016	262830.74	359570.44	24.80	**7,300**	R-10-CS-B-013
R-10-CS-B-007	5/26/2016	262822.84	359543.88	17.78	**9,500**	R-10-CS-B-011
R-10-CS-B-008	5/26/2016	262819.53	359523.16	14.78	12	---
R-10-CS-B-009	5/26/2016	262797.00	359511.64	11.91	450	---
R-10-CS-B-010	5/27/2016	262833.25	359562.94	17.38	27	---
R-10-CS-B-011	5/27/2016	262824.24	359546.60	12.97	150	---
R-10-CS-B-012	5/31/2016	262866.42	359539.20	22.00	<9.9	---
R-10-CS-B-013	5/31/2016	262882.36	359562.82	29.50	<10	---
R-10-CS-B-014	5/31/2016	262876.23	359518.84	19.90	33	---
R-10-CS-B-15	8/22/2016	262796.30	359764.10	35.89	<9.1	---
R-10-CS-B-16	8/23/2016	262742.59	359686.50	32.66	<9.3	---
R-10-CS-B-17	8/23/2016	262762.93	359703.26	33.31	<11	---
R-10-CS-B-18	8/23/2016	262759.34	359676.15	33.33	<11	---
R-10-CS-B-19	8/26/2016	262784.59	359658.09	35.00	260	---
R-10-CS-B-20	8/26/2016	262798.84	359679.75	35.80	<11	---
R-10-CS-B-21	8/26/2016	262774.52	359692.62	35.30	20	---
R-10-CS-B-22	8/26/2016	262792.90	359703.55	35.60	<10	---
R-10-CS-B-23	8/26/2016	262793.24	359725.78	35.50	<10	---
R-10-CS-B-24	8/26/2016	262777.75	359738.37	36.30	21	---
R-10-CS-B-25	8/26/2016	262797.94	359745.88	36.60	<10	---

Table 2
TPH Summary Data - R10
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-10-CS-B-26	8/26/2016	262816.22	359730.17	36.40	<10	---
R-10-CS-B-27	8/302016	262812.13	359609.07	35.90	13	---
R-10-CS-B-28	8/302016	262792.06	359623.72	36.20	<11	---
R-10-CS-B-29	8/302016	262807.79	359637.56	35.40	<10	---
R-10-CS-B-30	8/302016	262829.31	359659.51	35.20	<10	---
R-10-CS-B-31	8/302016	262809.00	359661.01	35.70	<10	---
R-10-CS-B-32	8/302016	262823.00	359685.09	36.60	<11	---
R-10-CS-B-33	8/302016	262840.95	359701.73	36.60	<11	---
R-10-CS-B-34	8/302016	262813.61	359708.07	36.40	<10	---
R-10-CS -B-35	8/31/2016	262842.86	359733.70	37.70	<10	---
R-10-CS -B-36	8/31/2016	262819.25	359747.65	36.10	<9.5	---
R-10-CS -B-37	9/13/2016	262828.46	359635.94	34.25	25	---
R-10-CS -B-38	9/13/2016	262832.71	359602.14	34.74	26	---
R-10-CS -B-39	9/13/2016	262842.99	359616.68	34.47	<10	---
R-10-CS -B-40	9/13/2016	262854.14	359640.57	33.99	<10	---
R-10-CS -B-41	9/15/2016	262857.25	359721.95	37.77	<10	---
R-10-CS -B-42	9/15/2016	262879.79	359707.64	38.75	43	---
R-10-CS -B-43	9/15/2016	262869.18	359686.18	36.93	18	---
R-10-CS -B-44	9/15/2016	262851.82	359669.88	34.99	14	---
R-10-CS -B-45	9/15/2016	262897.98	359693.57	38.67	13	---
R-10-CS -B-46	9/15/2016	262874.99	359663.67	34.83	<10	---
R-10-CS-B-47	9/20/2016	262914.48	359682.30	38.98	180	---
R-10-CS-B-48	9/20/2016	262881.73	359601.80	27.78	<11	---
R-10-CS-B-49	9/21/2016	262897.87	359666.02	36.62	20	---
R-10-CS-B-50	9/21/2016	262899.42	359644.16	33.89	<10	---
R-10-CS-B-51	9/21/2016	262877.19	359644.96	34.41	<10	---
R-10-CS-B-52	9/21/2016	262880.03	359615.82	29.55	78	---
R-10-CS-B-53	9/21/2016	262865.55	359600.23	28.55	<9.6	---
R-10-CS-B-54	9/23/2016	262890.38	359600.35	27.71	<11	---
R-10-CS-B-55	9/23/2016	262911.84	359599.63	31.96	25	---
R-10-CS-B-56	9/23/2016	262899.24	359581.82	34.28	120	---
R-10-CS-B-57	9/23/2016	262910.75	359626.52	33.66	<9.9	---
R-10-CS-B-58	9/23/2016	262930.10	359612.81	33.65	<11	---
R-10-CS-B-59	9/23/2016	262943.52	359634.07	35.97	110	---
R-10-CS-B-60	9/23/2016	262926.91	359649.81	36.96	<11	---
R-10-CS-B-61	10/6/2016	262941.60	359657.81	38.59	110	---
R-10-CS-B-62	10/6/2016	262960.82	359646.22	38.06	<11	---
R-10-CS-B-63	10/6/2016	262980.24	359634.37	37.10	350	---
R-10-CS-B-64	10/6/2016	262998.90	359617.00	36.91	11	---
R-10-CS-B-65	10/6/2016	262940.60	359577.83	34.22	79	---
R-10-CS-B-66	10/10/2016	263011.80	359596.83	35.67	170	---
R-10-CS-B-67	10/10/2016	263022.57	359599.58	36.37	32	---
R-10-CS-B-68	10/10/2016	263013.89	359572.76	34.45	**2,800**	R-10-CS-B-74
R-10-CS-B-69	10/10/2016	263037.55	359582.97	36.27	1,900	---
R-10-CS-B-70	10/10/2016	263047.55	359590.60	36.50	**3,000**	R-10-CS-B-71
R-10-CS-B-71	10/10/2016	263048.33	359571.14	36.42	730	---

Table 2
TPH Summary Data - R10
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-10-CS-B-72	10/10/2016	263062.18	359592.20	36.74	1,700	---
R-10-CS-B-73	10/10/2016	263075.20	359580.73	36.55	2,200	---
R-10-CS-B-74	10/10/2016	263065.06	359577.08	36.88	1,500	---

Notes
SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: miligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmtory sample is identifed.
---: not applicable
Excavated: Additional excavation occurred due to regulatory criteria exceedances. The area was excavated until it reached a previously sampled area confirmed to contain TPH below regulatory criteria.
[1]: Free product observed and removed, but no sample collected. Excavated to groundwater.
[2]: sample collected as step out for sample R-10-CS-SW-019-2.5. Not analyzed because original sample was below regulatory criteria.
[3]: Free product observed and removed. Excavated to groundwater.

Table 2
TPH Summary Data - R9-R10 Seep
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-09/R-10-CS-SW-01	8/17/2016	262844.99	359780.56	41.50	76	---
R-09/R-10-CS-SW-02	8/26/2016	262858.28	359767.33	43.45	410	---
R-09/R-10-CS-B-01	8/17/2016	262854.91	359782.93	40.00	<11	---
R-09/R-10-CS-B-2	8/29/2016	262854.01	359777.73	34.68	<11	---
R-09-CS-SW-016	6/8/2016	262879.72	359778.70	41.26	<8.6	---

Notes

Non-aqueous phase liquid was observed between remedial areas 9 and 10. It was excavated and confirmation samples were labeled R-09/R-10 to denote the location.

On the north side of the R9/R10 seep removal area, the northern removal boundary is defined by a confirmation sample from R9: R9-CS-SW-16

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - R11
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-11-CS-SW-001-4.5	4/7/2016	263113.58	359529.61	38.28	**3,600**	R11-CS-SW-016-4.5
R-11-CS-SW-002-5.5	4/7/2016	263135.48	359526.74	36.71	**5,700**	R11-CS-SW-014-7
R-11-CS-SW-003-8	4/8/2016	263160.44	359528.51	39.08	<8.9	---
R-11-CS-SW-004-11	5/2/2016	263185.68	359543.37	37.78	<8.6	---
R-11-CS-SW-005-4.5	4/8/2016	263185.68	359543.37	44.28	<8.7	---
R-11-CS-SW-006-5	5/2/2016	263205.10	359561.54	45.36	<8.5	---
R-11-CS-SW-007-4	4/29/2016	263199.34	359582.83	46.77	51	---
R-11-CS-SW-008-3	4/29/2016	263175.07	359595.50	47.18	93	---
R-11-CS-SW-009-3	4/29/2016	263153.93	359605.86	46.88	200	---
R-11-CS-SW-010-7	4/7/2016	263142.93	359595.47	42.53	860	---
R-11-CS-SW-011-9	4/8/2016	263132.30	359573.89	37.14	**6,200**	R-11-CS-SW-020-7
R-11-CS-SW-012-3.5	4/22/2016	263110.00	359560.81	37.51	**3,400**	R-11-CS-SW-018-3.5
R-11-CS-SW-013-4	4/7/2016	263099.94	359536.99	38.20	<8.9	---
R-11-CS-SW-014-7	4/22/2016	263142.06	359513.27	38.35	<8.7	---
R-11-CS-SW-015-5	4/22/2016	263121.23	359501.14	38.34	<9.1	---
R-11-CS-SW-016-4.5	4/22/2016	263103.44	359515.28	37.86	<10	---
R-11-CS-SW-017-9	4/22/2016	263124.93	359579.24	36.72	**8,000**	R-11-CS-SW-020-7
R-11-CS-SW-018-3.5	4/22/2016	263101.16	359578.58	38.96	12	---
R-11-CS-SW-019-4	4/22/2016	263094.73	359560.32	38.52	<8.7	---
R-11-CS-SW-020-7	5/2/2016	263119.61	359593.13	40.99	110	---
R-11-CS-SW-21-7	10/27/2016	263183.37	359545.97	38.14	30	---
R-11-CS-B-01	7/19/2016	263110.83	359574.52	37.06	1,500	---
R-11-CS-B-02	7/19/2016	263129.17	359559.29	35.77	**3,500**	Excavated[1]
R-11-CS-B-03	7/19/2016	263154.36	359566.65	35.39	240	---
R-11-CS-B-04	7/19/2016	263135.97	359584.17	36.47	350	---
R-11-CS-B-05	7/19/2016	263126.76	359533.32	35.98	**10,000**	Excavated[1]
R-11-CS-B-06	7/19/2016	263148.86	359538.11	35.78	**4,500**	Excavated[1]
R-11-CS-B-07	7/19/2016	263101.90	359558.41	36.49	600	---
R-11-CS-B-09	8/11/2016	263165.57	359535.67	36.11	<9.7	---
R-11-CS-B-10	8/11/2016	263140.90	359511.39	38.27	<9.3	---
R-11-CS-B-11	8/17/2016	263174.01	359591.98	44.33	120	---
R-11-CS-B-12	9/23/2016	263182.34	359576.70	41.42	500	---
R-11-CS-B-13	9/23/2016	263190.98	359560.84	37.74	49	---
R-11-CS-B-14	9/23/2016	263177.48	359565.59	38.29	200	---

Notes

SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: miligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmtory sample is identifed.
---: not applicable
Excavated[1]: Excavated deeper, at which point groundwater surface was encountered and no sample was required to be collected.
[1]: Excavated to groundwater.

Table 2
TPH Summary Data - R12
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-12-CS-SW-001-4.5	8/4/2015	263072.36	359499.79	37.08	**14,000**	R-12-CS-SW-006-4.5
R-12-CS-SW-002-5	8/4/2015	263056.02	359485.96	36.61	**23,000**	R-12-CS-SW-007-4.5
R-12-CS-SW-003-3.5	8/4/2015	263029.65	359485.61	34.37	120	---
R-12-CS-SW-004-4.5	8/4/2015	263028.84	359497.78	35.41	**7,900**	R-12-CS-SW-08-5
R-12-CS-SW-005-5	8/4/2015	263052.10	359502.79	36.71	1,400	---
R-12-CS-SW-006-4.5	3/14/2016	263077.58	359502.07	32.89	68	---
R-12-CS-SW-007-5.25	9/17/2015	263026.57*	359498.29*	34.47	**5,800**	R-12-CS-SW-012-5
R-12-CS-SW-08-5	3/14/2016	263027.11	359504.79	29.79	160	---
R-12-CS-SW-009-5	3/14/2016	263047.32	359473.84	27.51	**4,100**	R-12-CS-SW-013-5
R-12-CS-SW-010-5	3/14/2016	263062.13	359469.16	27.72	**3,200**	R-12-CS-SW-014-5
R-12-CS-SW-011-5	3/14/2016	263070.95	359479.43	31.58	**3,700**	R-12-CS-SW-012-5
R-12-CS-SW-012-5	3/14/2016	263062.00	359461.35	25.25	2,200	---
R-12-CS-SW-013-5	3/18/2016	263038.89	359464.33	28.35	120	---
R-12-CS-SW-014-5	3/18/2016	263077.66	359477.65	36.38	710	---
R-12-CS-B-001	3/14/2016	263027.11	359504.79	32.79	**14,000**	R-12-CS-B-005
R-12-CS-B-002	3/14/2016	263062.13	359469.16	30.72	<11	---
R-12-CS-B-003	3/14/2016	263056.65	359486.01	34.39	**4,200**	R-12-CS-B-004
R-12-CS-B-004	3/18/2016	263056.78	359486.10	33.09	43	---
R-12-CS-B-005	3/18/2016	263027.16	359504.71	31.90	15	---

Notes

SW: sidewall sample
B: bottom sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable
Excavated: Additional excavation occurred due to regulatory criteria exceedances. The area was excavated until it reached a previously sampled area confirmed to contain TPH below regulatory criteria.
*: Coordinates estimated

Table 2
TPH Summary Data - R13
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-13-CS-SW-001-6	7/30/2015	263197.01	359424.53	30.86	<12	---
R-13-CS-SW-002-5	7/30/2015	263209.69	359395.63	32.21	<16	---
R-13-CS-SW-003-5	7/29/2015	263230.17	359381.00	32.18	67	---
R-13-CS-SW-004-10	7/29/2015	263230.17	359381.00	27.18	1,200	---
R-13-CS-SW-005-5	7/29/2015	263255.58	359375.31	32.10	**2,700**	R-13-CS-SW-021-7
R-13-CS-SW-006-10	7/29/2015	263255.58	359375.31	27.10	110	---
R-13-CS-SW-007-6	7/29/2015	263276.96	359362.31	31.08	960	---
R-13-CS-SW-008-5.5	7/29/2015	263297.36	359347.53	31.36	250	---
R-13-CS-SW-009-6	7/29/2015	263321.59	359339.69	31.00	**3,300**	R-13-CS-SW-020-7 and -19-6.5
R-13-CS-SW-010-6.5	7/29/2015	263329.46	359353.96	31.12	**3,200**	R-13-CS-SW-018-9.5 and -20-7
R-13-CS-SW-011-4.5	7/29/2015	263311.27	359372.74	32.56	**4,700**	R-13-CS-SW-022-8
R-13-CS-SW-012-4.5	7/30/2015	263297.60	359399.72	33.42	1,100	---
R-13-CS-SW-013-5.5	7/29/2015	263272.59	359406.15	31.80	610	---
R-13-CS-SW-014-5	7/30/2015	263247.67	359412.73	32.47	<11	---
R-13-CS-SW-015-12	7/30/2015	263247.67	359412.73	25.47	280	---
R-13-CS-SW-016-5	7/30/2015	263225.20	359423.76	32.19	140	---
R-13-CS-SW-017-10	7/30/2015	263225.20	359423.76	26.86	<11	---
R-13-CS-SW-018-9.5	9/16/2015	263337.84	359361.66	29.10	180	---
R-13-CS-SW-019-6.5	9/16/2015	263314.62	359326.07	29.60	940	---
R-13-CS-SW-020-7	9/16/2015	263335.69	359336.08	30.87	900	---
R-13-CS-SW-021-7	3/14/2016	263262.41	359357.85	29.77	38	---
R-13-CS-SW-022-8	9/16/2015	263317.62	359380.64	31.98	51	---

Notes

SW: sidewall sample
TPH: total petroleum hydrocarbon
mg/kg: milligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable

Table 2
TPH Summary Data - R14
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-14-CS-SW-001(2.5)	6/4/2015	263197.20	359308.71	19.30	**11,000**	R14-CS-SW-027(2)
R-14-CS-SW-001(7.5)	6/4/2015	263197.20	359308.71	14.30	920	---
R-14-CS-SW-002(2.5)	6/4/2015	263206.59	359287.30	16.13	2,200	---
R-14-CS-SW-002(7.5)	6/4/2015	263206.59	359287.30	11.13	150	---
R-14-CS-SW-003(2.5)	6/4/2015	263228.77	359283.21	16.86	**22,000**	LTC-CS-21
R-14-CS-SW-003(7.5)	6/4/2015	263228.77	359283.21	11.86	2,000	---
R-14-CS-SW-004(2)	6/4/2015	263255.78	359280.39	21.43	**21,000**	LTC-CS-20
R-14-CS-SW-005(2)	6/4/2015	263276.27	359267.66	21.63	**5,600**	LTC-CS-19
R-14-CS-SW-006(2)	6/4/2015	263299.47	359250.63	21.20	39	---
R-14-CS-SW-007(1.5)	6/4/2015	263312.79	359231.63	18.40	1,500	---
R-14-CS-SW-008(1.5)	6/4/2015	263313.66	359214.51	16.89	**9,900**	LTC-CS-18
R-14-CS-SW-009(1.5)	6/4/2015	263331.07	359201.70	16.17	1,200	---
R-14-CS-SW-010(4)	6/4/2015	263348.29	359219.20	18.36	1,200	---
R-14-CS-SW-011(4)	6/4/2015	263358.45	359240.67	21.75	50	---
R-14-CS-SW-012(4)	6/4/2015	263376.94	359256.72	26.75	820	---
R-14-CS-SW-013(4)	6/4/2015	263388.64	359270.43	29.40	< 12	---
R-14-CS-SW-014-3	7/24/2015	263396.69	359278.00	33.38	110	---
R-14-CS-SW-015-6	7/24/2015	263396.69	359278.00	30.38	1,300	---
R-14-CS-SW-016-3	7/24/2015	263385.04	359299.01	33.70	**5,000**	R14-CS-SW-036-3
R-14-CS-SW-017-6	7/24/2015	263385.04	359299.01	30.70	24	---
R-14-CS-SW-018-3	7/24/2015	263361.86	359311.82	33.81	960	---
R-14-CS-SW-019-6	7/24/2015	263361.86	359311.82	30.81	250	---
R-14-CS-SW-020-3	7/24/2015	263347.41	359288.09	27.78	**2,700**	R14-CS-SW-034-6
R-14-CS-SW-021-3	7/24/2015	263323.43	359272.92	25.16	**2,700**	R14-CS-SW-033-6
R-14-CS-SW-022-8	8/14/2015	263306.74	359306.97	23.14	450	---
R-14-CS-SW-023(8)	6/30/2015	263291.42	359323.49	23.71	1,500	---
R-14-CS-SW-024(7)	6/30/2015	263266.39	359328.53	23.87	19	---
R-14-CS-SW-025(3)	6/26/2015	263242.11	359322.94	24.99	1,200	---
R-14-CS-SW-026(3)	6/26/2015	263216.16	359318.55	22.15	350	---
R-14-CS-SW-027(2)	6/26/2015	263191.43	359304.99	18.14	**3,800**	R14-CS-SW-037-4
R-14-CS-SW-028(2)	6/26/2015	263194.54	359289.62	15.83	**2,900**	LTC-CS-22
R-14-CS-SW-029(2)	6/26/2015	263207.32	359281.14	15.57	< 13	---
R-14-CS-SW-030-4	7/24/2015	263303.83	359286.66	24.80	**2,600**	R14-CS-SW-031-6
R-14-CS-SW-031-6	7/24/2015	263312.57	359302.42	23.60	440	---
R-14-CS-SW-032-8	8/14/2015	263286.31	359321.37	18.51	65	---
R-14-CS-SW-033-6	8/14/2015	263322.72	359300.37	21.54	1,400	---
R-14-CS-SW-034-6	8/14/2015	263337.41	359290.24	21.52	180	---
R-14-CS-SW-035-1	8/18/2015	263281.58	359232.47	17.19	160	---
R-14-CS-SW-036-3	8/19/2015	263387.53	359310.04	30.19	2,200	---
R-14-CS-SW-037-4	8/19/2015	263175.09	359316.49	18.78	1,000	---
R-14-CS-SW-038-5	8/19/2015	263351.27	359305.80	25.90	230	---
R-14-CS-BS-001-4	7/24/2015	263306.47	359265.10	18.13	**3,800**	---[1]
LTC-CS-18	8/29/2014	263323.27	359229.48	14.50	1,500	---[2]
LTC-CS-19	8/28/2014	263294.86	359243.11	14.43	1,000	---[2]
LTC-CS-20	8/28/2014	263272.23	359252.39	13.66	330	---[2]
LTC-CS-21	8/28/2014	263249.23	359267.44	12.57	800	---[2]
LTC-CS-22	8/27/2014	263228.69	359284.16	14.93	180	---[2]

Table 2
TPH Summary Data - R14
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample

Notes

SW: sidewall sample

BS: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

Final excavation limits were below the groundwater table or were bordered by bedrock; bottom and sidewall samples were collected as feasible where vadose zone soil existed at the limit of excavation

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

[1]: Excavated to groundwater

[2]: Confirmation samples collected around the Lower Tier Center excavation, reported previously, were used to define the western edge of R14

Table 2
TPH Summary Data - SEEP
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
SEEP CS-SW 001	6/3/2015	263353.69	359216.53	19.03	1,500	---
SEEP CS-SW 002	6/3/2015	263364.55	359221.50	21.78	**7,100**	Seep-CS-SW-008
SEEP CS-SW-003	6/3/2015	263380.96	359210.92	21.40	**2,700**	Seep-CS-SW-009
SEEP CS-SW-004	6/3/2015	263384.44	359197.54	19.76	**4,900**	Seep-CS-SW-012
SEEP CS-SW-005	6/3/2015	263376.03	359189.42	16.30	**2,700**	Seep-CS-SW-013
SEEP CS-SW-006	6/3/2015	263353.05	359204.52	17.29	420	---
SEEP-CS-SW-007	6/8/2015	263359.89	359229.63	17.40	< 11	---
SEEP-CS-SW-008	6/8/2015	263370.60	359233.78	21.38	< 11	---
SEEP-CS-SW-009	6/9/2015	263393.69	359220.97	20.12	16	---
SEEP-CS-SW-010	6/9/2015	263403.58	359215.92	20.01	< 12	---
SEEP-CS-SW-011	6/9/2015	263371.67	359167.21	14.23	290	---
SEEP-CS-SW-012	6/9/2015	263392.27	359156.46	14.16	190	---
SEEP-CS-SW-013	6/10/2015	263350.58	359178.93	14.64	160	---
SEEP-CS-SW-014	6/10/2015	263355.25	359188.05	14.55	120	---
SEEP-CS-SW-015	6/10/2015	263412.70	359148.25	14.08	990	---
SEEP-CS-SW-016	6/10/2015	263424.50	359142.17	13.16	430	---
SEEP-CS-SW-017	6/12/2015	263443.14	359142.93	15.52	< 13	---
SEEP-CS-SW-018	6/12/2015	263458.59	359159.95	21.53	< 14	---
SEEP-CS-SW-019	6/12/2015	263469.12	359177.19	22.34	< 13	---
SEEP-CS-SW-020	6/12/2015	263471.42	359195.76	26.14	< 12	---
SEEP-CS-SW-021	6/12/2015	263462.46	359209.83	27.58	< 13	---
SEEP-CS-SW-022	6/12/2015	263450.59	359208.70	27.08	96	---
SEEP-CS-B-001 (8)[1]	6/12/2015	263367.28	359247.92	NM	< 13	---
SEEP-CS-B-002 (4)[2]	6/12/2015	NM	NM	NM	< 13	---
SEEP-CS-B-003	6/12/2015	263452.21	359162.65	9.37	< 14	---

Notes

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

Final excavation limits were below the groundwater table or were bordered by bedrock; bottom and sidewall samples were collected as feasible where vadose zone soil existed at the limit of excavation

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the

2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

NM: not surveyed due to safety hazards for survey crew. GPS enabled excavator was not yet onsite when sample was collected.

[1]: Depth collected at 8 feet below ground surface prior to work, which is approximately 22 amsl

[2]: Depth collected at 4 feet below ground surface prior to work, approximately 25 amsl. Location shown on Figure 5A is approximate based on field documentation.

Table 2
TPH Summary Data - R15
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-15-CS-SW-001-3	7/30/2015	263323.06	359444.27	34.66	1,200	---
R-15-CS-SW-002-5.5	3/24/2016	263322.11	359457.54	35.02	10	---
R-15-CS-SW-003-5.5	3/24/2016	263307.62	359471.60	35.90	21	---
R-15-CS-SW-004-4	3/24/2016	263294.34	359467.10	32.50	<9.3	---
R-15-CS-SW-005-4.5	3/24/2016	263292.58	359452.64	31.70	<10	---
R-15-CS-SW-006-6	7/29/2015	263310.06	359439.40	31.31	<6.0	---

Notes

SW: sidewall sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - R17
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-17-B-001	5/11/2016	263581.22	359110.66	27.31	<11	---
R-17-B-002	5/11/2016	263580.92	359085.27	25.63	<11	---
R-17-B-003	5/11/2016	263574.80	359053.67	22.51	130	---
R-17-B-004	5/11/2016	263543.27	359062.66	16.99	<11	---
R-17-B-005	5/11/2016	263551.34	359102.09	21.47	<10	---
R-17-B-006	5/11/2016	263527.72	359107.82	20.64	11	---
R-17-B-007	5/11/2016	263524.90	359070.55	15.58	<11	---
R-17-B-008	5/17/2016	263563.14	359081.30	23.62	<11	---
R-17-B-009	5/19/2016	263591.52	359068.61	27.24	<11	---
R-17-B-010	5/19/2016	263599.24	359086.46	27.81	<11	---
R-17-B-011	5/19/2016	263609.67	359104.77	28.63	<11	---
R-17-CS-SW-001-3.5	4/28/2016	263581.88	359091.90	29.16	**4,800**	R-17-CS-SW-11-3.5
R-17-CS-SW-002-3.5	4/28/2016	263556.67	359107.85	26.35	740	---
R-17-CS-SW-003-4	4/28/2016	263533.88	359105.79	22.92	**5,000**	R-17-CS-SW-12-3.5
R-17-CS-SW-004-3.5	4/28/2016	263521.56	359083.73	21.16	210	---
R-17-CS-SW-005-3.5	4/28/2016	263516.55	359058.96	10.50	360	---
R-17-CS-SW-006-3.5	4/28/2016	263533.36	359050.59	10.50	670	---
R-17-CS-SW-007-3.5	4/29/2016	263550.56	359041.01	10.32	92	---
R17-CS-SW-008-4	4/30/2016	263571.91	359043.62	19.05	48	---
R17-CS-SW-009-6	4/28/2016	263589.62	359061.18	32.61	<10	---
R-17-CS-SW-010-3.5	4/28/2016	263593.43	359078.69	34.42	<10	---
R-17-CS-SW-11-3.5	4/28/2016	263589.43	359114.17	31.15	28	---
R-17-CS-SW-12-3.5	4/28/2016	263522.83	359113.77	23.05	220	---
R-17-CS-SW-013-3.5	5/17/2016	263575.14	359110.94	25.05	84	---
R-17-CS-SW-014-3.5	5/17/2016	263539.00	359116.30	20.24	<5.4	---
R-17-CS-SW-016-3.5	5/17/2016	263596.12	359095.14	28.57	**6,900**	R-17-CS-SW-21
R-17-CS-SW-17	5/19/2016	263599.91	359059.82	29.73	1,700	---
R-17-CS-SW-18	5/19/2016	263586.95	359054.54	27.88	36	---
R-17-CS-SW-19	5/19/2016	263612.17	359080.34	31.02	74	---
R-17-CS-SW-20	5/19/2016	263623.58	359100.68	NM	**3,400**	R-17-CS-SW-22
R-17-CS-SW-21	5/19/2016	263611.14	359111.86	31.36	110	---
R-17-CS-SW-22	7/27/2016	263639.63	359093.60	31.85	12	---

Notes

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

NM: not measured

Excavated: Additional excavation occurred due to regulatory criteria exceedances. The area was excavated until it reached a previously sampled area confirmed to contain TPH below regulatory criteria.

Table 2
TPH Summary Data - R19
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-19-CS-SW-01-3	10/30/2015	263079.01	359111.15	4.65	51	---
R-19-CS-SW-02-3	10/30/2015	262985.58	359162.71	4.80	140	---
R-19-CS-SW-02-8	10/30/2015	262985.58	359162.71	4.80	< 9.7	---

Notes

SW: sidewall sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
R19 was fully delineated by the property boundary to the north, Providence River to the west, and the Lower Tier Center excavation to the east and south. R-19-SW-CS-02 was collected south of the former oil water separator, as close as was feasible to impacts.

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the

2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - R22
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-22-CS-SW-01-5	1/27/2016	262798.50	359316.58	1.64	510	
R-22-CS-SW-01-10	1/27/2016	262798.50	359316.58	-3.36	58	
R-22-CS-SW-01-15	1/27/2016	262798.50	359316.58	-8.36	<11	
R-22-CS-SW-02-5	12/11/2015	262808.26	359339.89	3.05	**20,000**	R-22-CS-SW-10-5
R-22-CS-SW-03-5	12/11/2015	262820.11	359351.88	5.35	2,300	
R-22-CS-SW-03-10	12/11/2015	262820.11	359351.88	0.35	870	
R-22-CS-SW-04-5	10/30/2015	262835.26	359364.46	7.57	1,000	
R-22-CS-SW-04-10	10/30/2015	262835.26	359364.46	2.57	**5,700**	R-22-CS-SW-011-10
R-22-CS-SW-04-15	10/30/2015	262835.26	359364.46	-2.43	65	
R-22-CS-SW-05-5	10/30/2015	262839.99	359384.60	8.62	43	
R-22-CS-SW-005-5	1/26/2016	262833.81	359358.98	7.24	1,000	
R-22-CS-SW-05-15	10/30/2015	262839.99	359384.60	-1.38	**2,700**	R-22-CS-SW-011-10
R-22-CS-SW-05-10	10/30/2015	262839.99	359384.60	3.62	1,400	
R-22-CS-SW-005-10	1/26/2016	262833.81	359358.98	2.24	180	
R-22-CS-SW-005-15	1/26/2016	262833.81	359358.98	-2.76	69	
R-22-CS-SW-06-5	12/11/2015	262803.36	359414.36	7.50	<9.2	
R-22-CS-SW-06-10	12/11/2015	262803.36	359414.36	2.50	1,700	
R-22-CS-SW-07-5	1/26/2016	262793.29	359396.48	6.71	740	
R-22-CS-SW-07-10	1/28/2016	262793.29	359396.48	1.71	170	
R-22-CS-SW-07-15	1/28/2016	262793.29	359396.48	-3.29	<9.6	
R-22-CS-SW-08-5	1/26/2016	262770.86	359374.71	3.32	**6,700**	Excavated[1]
R-22-CS-SW-08-10	1/27/2016	262770.86	359374.71	-1.68	56	
R-22-CS-SW-08-15	1/27/2016	262770.86	359374.71	-6.68	<9.9	
R-22-CS-SW-09-5	1/26/2016	262754.06	359346.61	0.88	14	
R-22-CS-SW-09-10	1/27/2016	262754.06	359346.61	-4.12	**2,800**	Excavated[1]
R-22-CS-SW-09-15	1/27/2016	262754.06	359346.61	-9.12	<11	
R-22-CS-SW-10-5	1/27/2016	262823.22	359321.57	3.41	1,000	
R-22-CS-SW-10-10	1/27/2016	262823.22	359321.57	-1.60	210	
R-22-CS-SW-10-15	1/27/2016	262823.22	359321.57	-6.60	<10	
R-22-CS-SW-011-5	1/25/2016	262856.09	359385.44	8.68	1,300	
R-22-CS-SW-011-10	1/26/2016	262856.09	359385.44	3.68	1,200	
R-22-CS-SW-011-15	1/26/2016	262856.09	359385.44	-1.32	<9.9	
R-22-CS-SW-012-5	1/25/2016	262844.14	359413.28	9.45	38	
R-22-CS-SW-012-10	1/26/2016	262844.14	359413.28	4.45	26	
R-22-CS-SW-012-15	1/26/2016	262844.14	359413.28	-0.56	110	

Notes

SW: sidewall sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Excavated [1]: Additional excavation extended south towards gas line and was terminated at a safe distance from gas line, at which point sidewall and bottom were below groundwater surface. Thus, no confirmation sample was collected.

Table 2
TPH Summary Data - R23
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-09-CS-SW-012	6/8/2016	262925.66	359774.52	41.39	<8.6	---
R-09-CS-SW-013	6/8/2016	262912.69	359787.48	41.85	<8.6	---
R-09-CS-SW-014	6/8/2016	262897.25	359798.60	43.12	<8.5	---
R-09-CS-SW-017	6/8/2016	262898.26	359777.10	40.06	<8.5	---
R-09-CS-SW-016	6/8/2016	262879.72	359778.70	41.26	<8.6	---
R-09-CS-B-010	6/8/2016	262915.46	359773.40	39.31	<9.6	---
R-09-CS-B-011	6/8/2016	262896.77	359786.28	38.71	<10	---

Notes

R23 was planned as a distinct remedial area, but during excavation the R9 are extended through this planned excavation, and the soil removed from the area was delineated by confirmation samples labled for the extended R9 excavation.

SW: sidewall sample
TPH: total petroleum hydrocarbon
mg/kg: miligrams per kilogram
Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required
Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmtory sample is identifed.
---: not applicable

Table 2
TPH Summary Data - R24
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
R-24-CS-SW-001-2.5	5/27/2016	263423.61	359362.85	30.15	39	---
R-24-CS-SW-002-2.5	5/27/2016	263413.67	359358.10	31.65	910	---
R-24-CS-B 01	5/27/2016	263419.06	359355.93	29.65	10	---

Notes

Shape targets NAPL observed in one point location during temporary dewatering sump installation. Area was excavated and several were samples to confirm all NAPL was removed.

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet
TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure
Bold and shaded results exceed the regulatory criteria
Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.
---: not applicable

Table 2
TPH Summary Data - I47
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
I47-CS-SW-01	9/21/2016	262953.06	359673.22	40.50	86	---
I47-CS-SW-02	9/21/2016	262963.39	359684.91	40.73	150	---
I47-CS-SW-03	9/21/2016	262971.84	359704.88	41.23	970	---
R-09-CS-SW-002-2	5/9/2016	262957.61	359713.59	43.70	980	---
R-09-CS-SW-07-2	5/9/2016	262949.30	359713.55	43.57	440	---
R10-CS-SW-38-7	8/9/2016	262938.30	359670.78	39.95	26	---
R10-CS-SW-39-6	8/9/2016	262919.37	359684.74	39.33	15	---
I47-CS-B-01	9/21/2016	262943.45	359682.59	37.06	<11	---
I47-CS-B-02	9/21/2016	262950.49	359702.91	40.01	<8.8	---
I47-CS-B-03	9/21/2016	262934.62	359697.49	40.33	<8.7	---

Notes

Samples from adjacent R9 area are included to provide confirmation of impact removal along the eastern sidewall.

Samples from adjacent R10 area are included to provide confirmation of impact removal to the west.

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet
Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - J47
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
J47-CS-SW 01	9/26/2016	263006.27	359679.10	40.68	37	---
J47-CS-SW 02	9/26/2016	263026.11	359671.26	41.29	620	---
J47-CS-SW 03	9/27/2016	263047.45	359682.69	40.12	40	---
J47-CS-SW 04	9/27/2016	263044.76	359692.79	39.85	<8.9	---
J47-CS-SW 05	9/27/2016	263032.99	359703.55	39.82	<8.6	---
J47-CS-SW 06	9/27/2016	263014.47	359710.15	40.16	<8.7	---
J47-CS-SW 07	9/27/2016	263039.17	359676.60	40.01	200	---
R-09-CS-SW-09-2	5/9/2016	262966.92	359744.02	45.22	270	---
R-09-CS-SW-010	6/7/2016	262983.74	359712.31	42.44	900	---
J47-CS-B-01	9/26/2016	262982.39	359722.55	39.47	<8.6	---
J47-CS-B-02	9/26/2016	262986.59	359703.21	39.98	<8.7	---
J47-CS-B-03	9/26/2016	263006.82	359713.74	40.10	<8.4	---
J47-CS-B-04	9/27/2016	263034.58	359685.62	37.97	<8.9	---
J47-CS-B-05	9/27/2016	263016.46	359693.58	37.55	<9.7	---

Notes

Samples from adjacent R9 area are included to provide confirmation of impact removal along the southern sidewall.

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - G52
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
G52-NAPL-CS-SW-01	8/4/2016	262679.93	359742.21	40.77	1,900	---
G52-NAPL-CS-SW-02	8/4/2016	262694.53	359746.50	42.77	250	---
G52-NAPL-CS-SW-03	8/4/2016	262696.87	359732.45	43.42	100	---
G52-NAPL-CS-SW-04	8/4/2016	262682.73	359727.52	42.03	310	---
G52-NAPL-CS-B-01	8/4/2016	262687.10	359732.88	41.21	170	---

Notes

SW: sidewall sample

B: bottom sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 2
TPH Summary Data - A44
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Sample ID	Date	Northing	Easting	Sample Elevation	TPH (mg/kg)	Step Out Sample
A-44/45-CS-SW-N1	1/25/2017	262856.90	359273.80	3.76	590	---
A-44/45-CS-SW-S1	1/25/2017	262831.60	359290.20	3.93	15	---

Notes

SW: sidewall sample

TPH: total petroleum hydrocarbon

mg/kg: milligrams per kilogram

Final excavation bottom limits were below the groundwater table; therefore no bottom samples collected/required

Northing and Easting in RI State Plane NAD83 Feet

Sample Elevation in NAVD 88 feet

TPH samples compared to the Rhode Island Department of Environmental Management Regulatory Criteria of 2,500 mg/kg as promulgated in the 2011 Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases for Industrial/Commercial Direct Exposure

Bold and shaded results exceed the regulatory criteria

Step out sample indicates the excavation area was extended further due to the regulatory exceedance. The confirmatory sample is identified.

---: not applicable

Table 3
Waste Disposal Summary
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Item #	Offsite Shipment Date	Profile	Disposal Facility	Qty.	Unit	Waste Description
1	9/8-11/21/16	10836	ESMI of New Hampshire, Inc.	12,195.50	Tons	TR Soil
2	8/31-10/3/16	494844NH	Waste Management - Turnkey	581.54	Tons	Soil with debris (asphalt)
3	6/28-7/1/16	494692NH	Waste Management - Turnkey	1,006.87	Tons	Lead Treated Soil
4	5/1/15-3/15/17	489348NH	Waste Management - Turnkey	280.46	Tons	C&D (Tarps, plastic, pipes, general debris, pallets, RR ties)
5	7/11/16-12/4/16	CH675278B	Clean Harbors - South Portland	41,674.00	Gallons	DWCS Water

Table 4
DPA Soil Treatment Data - Bin 0
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	1,807.40	1,861.62	5/18/2016	SS-123-BIN0-5-23-16	5/23/2016	16E0962-1	0.29	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/25/16)	6/3/2016	DPA
Stockpile #2/100	1,803.72	1,857.83	6/13/2016	SS-128-BIN0-6-16-16	6/16/2016	16F0859-01	1.2	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/20/16)	7/8/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedence of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
5. RIDEM approved request to cease in-field testing via letter dated September 30, 2015 File No. SR-10-0248

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 1
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	585.16	610.41	2/4/2014	SS-SPLP-1-2-6	2/6/2014	1402067	1.67	SS-ST-1-2-6	2/6/2014	Negative	Acceptable for use (Confirmed 2/13/14)	2/28/2014	Stockpile 2000
Stockpile #2/100	845.18	930.88	4/17/2014	SS-017-BIN1-04-21-14	4/21/2014	1404473	ND	SS-ST-017-BIN1-04-21-14	4/21/2014	Negative	Acceptable for use (Confirmed 4/24/14	4/28/2014	Lower Tier Center
Stockpile #2/100	510.15	555.68	4/29/2014	SS-025-BIN1-5-1-14	5/1/2014	1405023	1.5	SS-ST-025-BIN1-5-1-14	5/1/2014	Negative	Acceptable for use (Confirmed 5/6/14)	5/13/2014	Lower Tier Center
Stockpile #2/100	1,257.56	1,326.13	5/21/2014	SS-033-BIN1-5-23-14	5/23/2014	1405567	1.01	SS-ST-033-BIN1-5-23-14	5/23/2014	Negative	Acceptable for use (Confirmed 5/30/14)	5/31/2014 - 6/2/2014	Lower Tier Center & Stockpile 2000
Stockpile #2/100	741.49	766.68	6/3/2014	SS-040-BIN1-6-6-14	6/6/2014	1406150	ND (ND DUP)	SS-ST-040-BIN1-6-6-14	6/6/2014	Negative	Acceptable for use (Confirmed 6/11/14)	7/31/2014	Lower Tier Center
Stockpile #2/100	1,652.90	1,752.07	8/9/2014	SS-047-BIN1-8-11-14	8/11/2014	1408184	ND	SS-ST-047-BIN1-8-11-14	8/11/2014	Negative	Acceptable for use (Confirmed 8/14/14)	8/18/2014 - 8/19/2014	Lower Tier Center
Stockpile #2/100	1,481.05	1,569.91	8/22/2014	SS-055-BIN1-8-22-14	8/25/2014	1408528	ND	SS-ST-055-BIN1-8-22-14	8/22/2014	Negative	Acceptable for use (Confirmed 8/27/14)	8/29/2014 - 8/3/2014	Lower Tier Center
Stockpile #2/100	1,319.25	1,398.41	9/9/2014	SS-063-BIN1-9-9-15	9/11/2014	1409217	ND	SS-ST-063-BIN1-9-11-14	9/11/2014	Negative	Acceptable for use (Confirmed 9/15/14)	9/15/2014 - 9/16/2014	Lower Tier Center
Stockpile #2/100	1,253.71	1,328.36	9/23/2014	SS-071-BIN1-9-25-14	9/25/2014	1409541	ND	SS-ST-055-BIN1-9-25-14	9/25/2014	Negative	Acceptable for use (Confirmed 9/30/14)	8/17/2015-9/23/2015	R14: Block F37,38
Stockpile #2/100	1,732.72	1,836.68	9/23/2015	SS-080-BIN1-9-30-15	9/30/2015	111837-1	<0.13	No longer required[5]	NA	NA	Acceptable for use (Confirmed 10/19/15)	12/14/2015-12/16/2015	DPA
Stockpile #2/100	884.81	937.90	1/6/2016	SS-088-BIN1-1-8-16	1/8/2016	16A0219-01	0.78	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/12/16)	1/13/2016-1/20/2016	DPA
Stockpile #2/100	2,060.94	2,184.60	1/26/2016	SS-096-BIN1-1-29-16	1/29/2016	16A1171-01	0.23	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/2/16)	3/5/2016	DPA
Stockpile #2/100	1,106.94	1,140.15	5/13/2016	SS-121-BIN1-5-15-16	5/15/2016	16E0698-02	0.46	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/18/16)	6/2/2016	DPA
Stockpile #2/100	1,676.81	1,727.11	6/14/2016	SS-129-BIN1-6-21-16	6/21/2016	16F1099-01	1.1	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/24/16)	8/1/2016	Consolidated into bins 1, 2 & 3
Stockpile #2/100	1,307.63	1,346.86	6/14/2016-6/16/2016	SS-129-BIN1-6-21-16 SS-130-BIN2-6-21-16 SS-131-BIN3-6-21-16	6/21/2016	16F1099-02	0.61	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/24/16)	11/16/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedance of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
5. RIDEM approved request to cease in-field testing via letter dated September 30, 2015 File No. SR-10-0248

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 2
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	468.52	493.67	2/11/2014	SS-002-BIN2-2-13-14	2/13/2014	1402188	1.68	SS-ST-002-BIN2-2-13-14	2/13/2014	Negative	Acceptable for use (Confirmed 2/21/14)	2/28/2014	Stockpile 2000
Stockpile #2/100	299.72	324.79	2/28/2014	SS-010-BIN2-3-4-14	3/4/2014	1403025	1.40 (1.65 DUP)	SS-ST-010-BIN2-3-4-14	3/4/2014	Negative	Acceptable for use (Confirmed 3/6/14)	4/15/2014	Lower Tier Center
Stockpile #2/100	1,111.68	1,227.83	4/21/2014	SS-018-BIN2-4-23-14	4/23/2014	1404546	ND	SS-ST-018-BIN2-4-23-14	4/23/2014	Negative	Acceptable for use (Confirmed 4/25/14)	4/29/2014	Lower Tier Center
Stockpile #2/100	305.83	331.35	4/30/2014	SS-026-BIN2-5-5-14	5/5/2014	1405074	ND	SS-ST-026-BIN2-5-5-14	5/5/2014	Negative	Acceptable for use (Confirmed 5/13/14)	5/20/2014	Lower Tier Center
Stockpile #2/100	1,372.61	1,447.59	5/22/2014	SS-034-BIN2-5-28-14	5/28/2014	1405616	ND	SS-ST-034-BIN2-5-28-14	5/28/2014	Negative	Acceptable for use (Confirmed 6/2/14)	6/3/2014 - 6/5/2014	Lower Tier Center
Stockpile #2/100	1,257.15	1,332.58	8/11/2014	SS-048-BIN2-5-28-14	8/13/2014	1408250	ND	SS-ST-048-BIN2-8-13-14	8/13/2014	Negative	Acceptable for use (Confirmed 8/18/14)	8/19/2014	Lower Tier Center
Stockpile #2/100	1,026.75	1,088.36	8/25/2014	SS-056-BIN2-8-27-14	8/27/2014	1408571	ND	SS-ST-056-BIN2-8-27-14	5/28/2014	Negative	Acceptable for use (Confirmed 9/2/14)	9/3/2014-9/4/2014	Lower Tier Center
Stockpile #2/100	1,331.50	1,411.39	9/10/2014	SS-064-BIN2-9-12-14	9/12/2014	1409246	ND	SS-ST-056-BIN2-9-12-14	5/28/2014	Negative	Acceptable for use (Confirmed 9/16/14)	9/17/2014	Lower Tier Center
Stockpile #2/100	795.00	845.00	8/14/2015	SS-078-BIN2-8-19-15	8/19/2015	109887-1	0.94	SS-ST-078-BIN2-8-19-15	8/19/2015	Negative	Acceptable for use (Confirmed 8/27/15)	9/23/2015	DPA
Stockpile #2/100	2,171.29	2,299.40	9/28/2015	SS-081-BIN2-10-20-15	10/20/2015	1510572	0.344	No longer required[5]	NA	NA	Acceptable for use (Confirmed 10/28/15)	12/17/2015-12/29/2015	DPA
Stockpile #2/100	1,794.75	1,884.49	1/6/2016	SS-089-BIN2-1-11-2016	1/11/2016	16A0297-01	0.44	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/15/16)	1/21/2016	DPA
Stockpile #2/100	2,044.48	2,146.70	1/28/2016	SS-097-BIN2-2-1-16	2/1/2016	16B0029-01	0.44	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/5/16)	3/7/2016	DPA
Stockpile #2/100	1,856.71	1,912.41	4/11/2016	SS-112-BIN2-4-13-16	4/13/2016	16D0556-01	0.24	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/15/16)	4/22/2016	DPA
Stockpile #2/100	1,030.00	1,060.90	5/5/2016	SS-117-BIN2-5-9-16	5/9/2016	16E0343-01	0.29	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/11/16)	5/18/2016	DPA
Stockpile #2/100	1,592.35	1,640.12	5/23/2016	SS-125-BIN2-6-1-16	6/1/2016	16F0028-01	0.26	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/6/2016)	6/13/2016	DPA
Stockpile #2/100	1,565.68	1,612.65	6/15/2016	SS-130-BIN2-6-21-16	6/21/2016	16F1099-02	0.61	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/24/16)	8/1/2016	Consolidated into bins 1, 2 & 3
Stockpile #2/100	1,307.63	1,346.86	6/14/2016-6/16/2016	SS-129-BIN1-6-21-16 SS-130-BIN2-6-21-16 SS-131-BIN3-6-21-16	6/21/2016	16F1099-01 16F1099-02 16F1099-03	1.1 0.61 0.87	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/24/16)	10/12/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedance of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
5. RIDEM approved request to cease in-field testing via letter dated September 30, 2015 File No. SR-10-0248

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 3
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	475.03	500.03	2/14/2014	SS-003-BIN3-2-18-14	2/18/2014	1402226	ND	SS-ST-003-BIN3-2-18-14	2/18/2014	Negative	Acceptable for use (Confirmed 2/21/14)	2/28/2014	Stockpile 2000
Stockpile #2/100	700.29	750.78	2/26/2014	SS-009-BIN3-2-28-14	2/28/2014	1402419	1.74	SS-ST-009-BIN3-2-28-14	2/28/2014	Negative	Acceptable for use (Confirmed 3/5/14)	4/17/2014 - 4/18/2014	Lower Tier Center
Stockpile #2/100	719.95	788.20	4/21/2014	SS-019-BIN3-4-23-14	4/23/2014	1404546	1.13	SS-ST-019-BIN3-4-23-14	4/23/2014	Negative	Acceptable for use (Confirmed 4/25/14)	5/1/2014 - 5/2/2014	Stockpile 2000
Stockpile #2/100	937.02	1,005.40	5/8/2014	SS-027-BIN3-5-13-14	5/13/2014	1405269	ND	SS-ST-027-BIN3-5-13-14	5/13/2014	Negative	Acceptable for use (Confirmed 5/16/14)	5/20/2014	Lower Tier Center
Stockpile #2/100	932.16	982.27	5/23/2014	SS-035-BIN3-5-28-14	5/28/2014	1405616	ND	SS-ST-035-BIN3-5-28-14	5/28/2014	Negative	Acceptable for use (Confirmed 6/2/14)	6/5/2014 - 6/6/2014	Lower Tier Center
Stockpile #2/100	1,070.64	1,134.88	7/28/2014	SS-041-BIN3-7-30-14	7/30/2014	1407655	ND	SS-ST-041-BIN3-7-30-14	7/30/2014	Negative	Acceptable for use (Confirmed 8/4/14)	8/4/2014 - 8/5/2014	Lower Tier Center
Stockpile #2/100	1,090.60	1,156.03	8/12/2014	SS-049-BIN3-8-14-14	8/14/2014	1408308	ND	SS-ST-049-BIN3-8-14-14	8/14/2014	Negative	Acceptable for use (Confirmed 8/19/14)	8/20/2014	Lower Tier Center
Stockpile #2/100	1,228.70	1,302.42	8/26/2014	SS-057-BIN3-8-28-14	8/28/2014	1408606	ND	SS-ST-057-BIN3-8-28-14	8/28/2014	Negative	Acceptable for use (Confirmed 9/2/14)	9/5/2014	Lower Tier Center
Stockpile #2/100	1,061.91	1112.74	8/28/2014	SS-65-BIN3-8-28-14	9/15/2014	1409289	ND	SS-ST-065-BIN3-8-28-14	8/15/2014	Negative	Acceptable for use (Confirmed 9/17/14)	9/18/2014	Lower Tier Center
Stockpile #2/100	1,045.99	1,910.00	8/14/2015	SS-077-BIN3-8-19-15	8/19/2015	109887-1	1.2	SS-ST-077-BIN3-8-19-15	8/19/2015	Negative	Acceptable for use (Confirmed 8/27/15)	10/23/2015	DPA
Stockpile #2/100	1,847.68	1,958.55	11/5/2015	SS-086-BIN3-11-9-15	11/9/2015	15K0345-01	0.59	No longer required[5]	NA	NA	Acceptable for use (Confirmed 11/12/15)	12/21/2015-12/29/2015	DPA
Stockpile #2/100	1,754.17	1,841.88	1/8/2016	SS-090-BIN3-1-13-16	1/13/2016	16A0413-01	0.4	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/15/16)	1/21/2016	DPA
Stockpile #2/100	1,840.85	1,932.89	1/29/2016	SS-098-BIN3-2-3-16	2/3/2016	16B0144-01	0.42	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/10/16)	3/8/2016	DPA
Stockpile #2/100	1,606.81	1,655.01	4/7/2016	SS-111-BIN3-4-11-16	4/11/2016	16D0427-01	0.44	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/14/16)	4/27/2016	DPA
Stockpile #2/100	533.39	549.39	5/6/2016	SS-118-BIN3-5-9-16	5/9/2016	16E03043-02	0.28	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/11/16)	5/12/2016	DPA
Stockpile #2/100	1,428.88	1,471.75	5/12/2016	SS-120-BIN3-5-16-16	5/16/2016	16E0698-01	0.46	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/18/16)	5/24/2016	DPA
Stockpile #2/100	1,968.51	2,027.57	5/25/2016	SS-127-BIN3-6-1-16	6/1/2016	16F0028-02	ND	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/6/16)	6/14/2016	DPA
Stockpile #2/100	680.41	700.82	6/16/2016	SS-131-BIN3-6-21-16	6/21/2016	16F1099-03	0.87	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/24/16)	8/1/2016	Consolidated into bins 1, 2 & 3
Stockpile #2/100	1,307.63	1,346.86	6/14/2016-6/16/2016	SS-129-BIN1-6-21-16 SS-130-BIN2-6-21-16 SS-131-BIN3-6-21-16	6/21/2016	16F1099-01 16F1099-02 16F1099-03	1.1 0.61 0.87	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/24/16)	10/2/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedance of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
5. RIDEM approved request to cease in-field testing via letter dated September 30, 2015 File No. SR-10-0248

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 4
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	713.25	763.44	2/19/2014	SS-004-BIN4-2-21-14	2/21/2014	1402308	2.25	SS-ST-004-BIN4-2-21-14	2/21/2014	Negative	Acceptable for use (Confirmed 2/26/14)	2/28/2014	Stockpile 2000
Stockpile #2/100	821.39	897.06	3/10/2014	SS-011-BIN4-3-12-14	3/12/2014	1403156	ND	SS-ST-011-BIN4-3-12-14	3/12/2014	Negative	Acceptable for use (Confirmed 3/17/14)	4/9/2014 - 4/11/2014	Lower Tier Center
Stockpile #2/100	592.94	643.14	4/14/2014	SS-016-BIN4-4-16-14	4/16/2014	1404374	1.11	SS-ST-016-BIN4-4-16-14	4/16/2014	Negative	Acceptable for use (Confirmed 4/21/14)	4/23/2014 - 4/24/2014	Lower Tier Center
Stockpile #2/100	353.22	385.27	4/25/2014	SS-023-BIN4-4-29-14	4/29/2014	1404680	ND	SS-ST-023-BIN4-4-29-14	4/29/2014	Negative	Acceptable for use (Confirmed 5/5/14)	5/6/2014	Lower Tier Center
Stockpile #2/100	976.69	1,044.69	5/14/2014	SS-028-BIN4-5-16-14	5/16/2014	1405378	ND	SS-ST-028-BIN4-5-16-14	5/16/2014	Negative	Acceptable for use (Confirmed 5/21/14)	5/21/2014 - 5/23/2014	Lower Tier Center
Stockpile #2/100	1,139.65	1,200.65	5/29/2014	SS-036-BIN4-6-2-14	6/2/2014	1406021	ND	SS-ST-036-BIN4-6-2-14	6/2/2014	Negative	Acceptable for use (Confirmed 6/5/14)	6/6/2014	Lower Tier Center
Stockpile #2/100	1,004.64	1,064.92	7/29/2014	SS-042-BIN4-8-1-14	8/1/2014	1408022	ND	SS-ST-042-BIN4-8-1-14	8/1/2014	Negative	Acceptable for use (Confirmed 8/5/14)	8/5/2014	Lower Tier Center
Stockpile #2/100	1,127.85	1,182.40	8/15/2014	SS-050-BIN4-8-1-14	8/18/2014	1408362	ND	SS-ST-050-BIN4-8-18-14	8/18/2014	Negative	Acceptable for use (Confirmed 8/20/14)	8/21/2014	Lower Tier Center
Stockpile #2/100	1,140.83	1,209.24	8/27/2014	SS-058-BIN4-8-29-14	8/29/2014	1408641	ND	SS-ST-058-BIN4-8-29-14	8/29/2014	Negative	Acceptable for use (Confirmed 9/3/14)	9/8/2014	Lower Tier Center
Stockpile #2/100	950.17	973.92	9/12/2014	SS-066-BIN4-9-15-14	9/15/2014	1409289	ND	SS-ST-066-BIN4-9-15-14	9/15/2014	Negative	Acceptable for use (Confirmed 9/17/14)	9/19/2014	Lower Tier Center
Stockpile #2/100	1,484.53	1,579.29	8/11/2015	SS-075-BIN4-8-19-15	8/19/2015	109887-1	1.3	SS-ST-075-BIN4-8-19-15	8/19/2015	Negative	Acceptable for use (Confirmed 8/26/15)	10/1/2015	DPA
Stockpile #2/100	1,898.15	2,012.04	11/2/2015	SS-085-BIN4-11-9-15	11/9/2015	15K0345-02	0.69	No longer required[5]	NA	NA	Acceptable for use (Confirmed 11/12/15)	12/18/2015	DPA
Stockpile #2/100	1,745.99	1,833.29	1/12/2016	SS-091-BIN4-1-14-16	1/14/2016	16A0547-01	0.42	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/19/15)	1/25/2016	DPA
Stockpile #2/100	1,654.33	1,737.05	2/3/2016	SS-099-BIN4-2-16-16	2/16/2016	16B0664-01	ND	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/19/16)	3/16/2016	DPA
Stockpile #2/100	1,470.88	1,515.01	3/22/2016	SS-105-BIN4-3-25-16	3/25/2016	16C1181-01	0.5	No longer required[5]	NA	NA	Acceptable for use (Confirmed 3/29/16)	3/30/2016	DPA
Stockpile #2/100	1,788.05	1,841.69	4/1/2016	SS-110-BIN4-4-8-16	4/8/2016	16D0353-01	0.35	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/13/16)	4/29/2016	DPA
Stockpile #2/100	1,627.43	1,676.25	5/11/2016	SS-119-BIN4-5-13-16	5/13/2016	16E0589-01	0.22	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/18/16)	5/20/2016	DPA
Stockpile #2/100	1,558.06	1,604.80	5/24/2016	SS-126-BIN4-6-1-16	6/1/2016	16F0028-03	0.26	No longer required[5]	NA	NA	Acceptable for use (Confirmed 6/6/16)	6/9/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedance of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
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RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 5
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment[1]	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	884.22	951.72	2/20/2014	SS-005-BIN5-2-24-14	2/24/2014	1402319	1.77	SS-ST-005-BIN5-2-24-14	2/24/2014	Negative	Acceptable for use (Confirmed 2/28/14)	3/7/2014	Stockpile 2100
Stockpile #2/100	550.88	601.53	3/11/2014	SS-012-BIN5-3-14-14	3/14/2014	1403219	1.38	SS-ST-012-BIN5-3-14-14	3/14/2014	Negative	Acceptable for use (Confirmed 3/19/14)	3/29/2014 - 4/10/2014	Lower Tier Center
Stockpile #2/100	744.41	825.18	4/22/2014	SS-020-BIN5-4-24-14	4/24/2014	1404592	1.15	SS-ST-020-BIN5-4-24-14	4/24/2014	Negative	Acceptable for use (Confirmed 4/30/14)	5/1/2014 - 5/2/2014	Stockpile 2000
Stockpile #2/100	1,007.55	1,066.02	5/15/2014	SS-029-BIN5-5-19-14	5/19/2014	1405422	ND	SS-ST-029-BIN5-5-19-14	5/19/2014	Negative	Acceptable for use (Confirmed 5/22/14)	5/28/2014 - 5/29/2014	Lower Tier Center & Stockpile 2000
Stockpile #2/100	1,150.92	1,214.24	5/30/214	SS-037-BIN5-6-2-14	6/2/2014	1406021	ND	SS-ST-037-BIN5-6-2-14	6/2/2014	Negative	Acceptable for use (Confirmed 6/5/14)	6/9/2014 - 7/25/2014	Lower Tier Center
Stockpile #2/100	1,303.17	1,381.61	7/30/2014	SS-043-BIN5-8-1-14	8/1/2014	1408022	ND	SS-ST-043-BIN5-8-1-14	8/1/2014	Negative	Acceptable for use (Confirmed 8/5/14)	8/6/2014	Lower Tier Center
Stockpile #2/100	1,105.84	1,172.19	8/18/2014	SS-051-BIN5-8-20-14	8/20/2014	1408425	ND	SS-ST-051-BIN5-8-20-14	8/20/2014	Negative	Acceptable for use (Confirmed 8/22/14)	8/25/2014	Lower Tier Center
Stockpile #2/101	1,261.73	1,337.43	8/29/2014	SS-059-BIN5-9-3-14	9/3/2014	1409051	ND	SS-ST-059-BIN5-9-3-15	9/3/2014	Negative	Acceptable for use (Confirmed 9/8//14)	9/8/2014-9/9/2014	Lower Tier Center
Stockpile #2/100	1,390.71	1,474.15	9/16/2014	SS-067-BIN5-9-18-14	9/18/2014	1409393	ND	SS-ST-051-BIN5-9-16-14	9/18/2014	Negative	Acceptable for use (Confirmed 9/22/14)	9/23/2014	Lower Tier Center
Stockpile #2/100	2,111.86	2,246.66	7/31/2015	SS-074-BIN5-8-19-15	8/19/2015	109887-1	1.1	SS-ST-074-BIN5-8-19-15	8/19/2015	Negative	Acceptable for use (Confirmed 8/21/15)	10/1/2015	DPA
Stockpile #2/100	2,347.15	2,487.98	11/2/2015	SS-084-BIN5-11-4-15	11/4/2015	15K0137-01	0.84	No longer required[5]	NA	NA	Acceptable for use (Confirmed 11/9/15)	12/17/2015	DPA
Stockpile #2/100	1,870.73	1,964.27	1/14/2016	SS-092-BIN5-1-18-16	1/18/2016	16A0618-01	0.52	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/20/16)	1/26/2016	DPA
Stockpile #2/100	1,524.03	1,600.23	2/4/2016	SS-100-BIN5-2-16-16	2/16/2016	16B0664-02	0.3	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/19/16)	3/14/2016	DPA
Stockpile #2/100	2,014.04	2,074.46	3/16/2016	SS-104-BIN5-3-22-16	3/22/2016	16C0988-01	0.69	No longer required[5]	NA	NA	Acceptable for use (Confirmed 3/24/16)	3/28/2016	DPA
Stockpile #2/100	1,901.77	1,958.82	3/31/2016	SS-109-BIN5-4-5-16	4/5/2016	16D0165-01	0.64	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/8/16)	4/11/2016	DPA
Stockpile #2/100	1,972.65	2,031.83	4/15/2016	SS-115-BIN5-4-18-16	4/18/2016	16D0791-01	0.43	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/22/16)	4/20/2016	DPA
Stockpile #2/100	1,857.84	1,913.58	5/17/2016	SS-122-BIN5-5-23-16	5/23/2016	16E0962-1	0.33	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/25/16)	6/8/2016	DPA

Notes:
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3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
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mg/L = milligrams per liter
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RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 6
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	583.81	630.51	2/21/2014	SS-006-BIN6-2-24-14	2/24/2014	1402319	1.39	SS-ST-006-BIN6-2-24-14	2/24/2014	Negative	Acceptable for use (Confirmed 2/28/14)	3/7/2014	Stockpile 2100
Stockpile #2/100	799.18	874.89	3/12/2014	SS-013-BIN6-3-14-14	3/14/2014	1403219	1.24	SS-ST-013-BIN6-3-14-14	3/14/2014	Negative	Acceptable for use (Confirmed 3/19/14)	3/28/2014	Lower Tier Center
Stockpile #2/100	488.83	539.01	4/23/2014	SS-021-BIN6-4-25-14	4/25/2014	1404624	ND	SS-ST-021-BIN6-4-25-14	4/25/2014	Negative	Acceptable for use (Confirmed 4/30/14)	4/30/2014 - 5/2/2014	Lower Tier Center & Stockpile 2000
Stockpile #2/100	1,010.33	1,065.92	5/16/2014	SS-030-BIN6-5-19-14	5/19/2014	1405422	ND	SS-ST-030-BIN6-5-19-14	5/19/2014	Negative	Acceptable for use (Confirmed 5/22/14)	5/30/2014	Lower Tier Center & Stockpile 2000
Stockpile #2/100	1,022.98	1,079.23	5/31/2014	SS-038-BIN6-6-2-14	6/2/2014	1406021	ND	SS-ST-038-BIN6-6-2-14	6/2/2014	Negative	Acceptable for use (Confirmed 6/5/14)	6/9/2014 - 7/25/2014	Lower Tier Center
Stockpile #2/100	1,100.53	1,166.56	7/31/2014	SS-044-BIN6-8-4-14	8/4/2014	1408035	ND	SS-ST-044-BIN6-8-4-14	8/4/2014	Negative	Acceptable for use (Confirmed 8/6/14)	8/7/2014 - 8/8/2014	Lower Tier Center
Stockpile #2/101	1,045.81	1,108.56	8/19/2014	SS-052-BIN6-8-21-15	8/21/2014	1408469	ND	SS-ST-052-BIN6-8-21-15	8/21/2014	Negative	Acceptable for use (Confirmed 8/25/14)	8/26/2014	Lower Tier Center
Stockpile #2/102	1,036.74	1,098.94	9/3/2014	SS-060-BIN6-9-5-16	9/5/2014	1409097	ND	SS-ST-044-BIN6-9-5-16	9/5/2014	Negative	Acceptable for use (Confirmed 9/9/14)	9/92014-9/10/2014	Lower Tier Center
Stockpile #2/100	1,047.50	1,110.35	9/22/2014	SS-070-BIN6-9-24-14	8/21/2014	1409515	ND	SS-ST-052-BIN6-9-24-14	9/24/2014	Negative	Acceptable for use (Confirmed 9/24/14)	6/22/2015	DPA
Stockpile #2/100	1,732.51	1,843.09	7/31/2015	SS-073-BIN6-8-19-15	8/19/2015	109887-1	0.62	SS-ST-073-BIN6-9-16-15	8/19/2015	Negative	Acceptable for use (Confirmed 8/27/15)	9/28/2015	DPA
Stockpile #2/100	1,804.50	1,912.77	10/29/2015	SS-083-BIN6-11-3-15	11/3/2015	15K0108-02	0.39	No longer required[5]	NA	NA	Acceptable for use (Confirmed 11/5/15)	12/11/2015-12/12/2015	DPA
Stockpile #2/100	1,540.22	1,617.23	1/18/2016	SS-093-BIN6-1-20-16	1/20/2016	16A0719-01	0.47	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/25/16)	2/2/2016	DPA
Stockpile #2/100	2,067.32	2,170.69	2/10/2016	SS-101-BIN6-2-16-16	2/16/2016	16B0664-03	0.79	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/19/16)	3/9/2016	DPA
Stockpile #2/100	1,570.71	1,649.25	3/15/2016	SS-103-BIN6-3-17-16	3/17/2016	16C0853-01	0.52	No longer required[5]	NA	NA	Acceptable for use (Confirmed 3/22/16)	3/23/2016	DPA
Stockpile #2/100	2,065.65	2,127.62	3/25/2016	SS-107-BIN6-3-28-16	3/28/2016	16C1229-01	0.57	No longer required[5]	NA	NA	Acceptable for use (Confirmed 3/30/16)	4/1/2016	DPA
Stockpile #2/100	1,766.60	1,819.60	4/13/2016	SS-114-BIN6-4-15-16	4/15/2016	16D0718-01	0.26	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/20/16)	4/26/2016	DPA
Stockpile #2/100	1,736.24	1,788.33	5/20/2016	SS-124-BIN6-5-23-16	5/23/2016	16E0962-1	0.46	No longer required[5]	NA	NA	Acceptable for use (Confirmed 5/25/16)	6/7/2016	DPA

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4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
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Table 4
DPA Soil Treatment Data - Bin 7
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	726.24	772.67	2/24/2014	SS-007-BIN7-2-26-14	2/26/2014	1402360	1.20	SS-ST-007-BIN7-2-26-14	2/26/2014	Negative	Acceptable for use (Confirmed 3/5/14)	3/7/2014	Stockpile 2100
Stockpile #2/100	775.58	846.97	3/13/2014	SS-014-BIN7-3-24-14	3/24/2014	1403385	ND	SS-ST-014-BIN7-2-24-14	3/24/2014	Negative	Acceptable for use (Confirmed 3/31/14)	4/14/2014 - 4/15/2014	Lower Tier Center
Stockpile #2/100	611.09	675.61	4/24/2014	SS-022-BIN7-4-29-14	4/29/2014	1404680	ND	SS-ST-022-BIN7-4-29-14	4/29/2014	Negative	Acceptable for use (Confirmed 5/5/14)	5/6/2014 - 5/7/2014	Lower Tier Center
Stockpile #2/100	1,343.93	1,418.16	5/19/2014	SS-031-BIN7-5-21-14	5/21/2014	1405488	1.09	SS-ST-031-BIN7-5-21-14	5/21/2014	Negative	Acceptable for use (Confirmed 5/28/14)	5/30/2014 - 5/31/2014	Stockpile 2000
Stockpile #2/100	1,253.88	1,322.84	6/2/2014	SS-039-BIN7-6-6-14	6/6/2014	1406150	ND	SS-ST-039-BIN7-6-6-14	6/6/2014	Negative	Acceptable for use (Confirmed 6/11/14)	6/9/2014 - 7/25/2014	Lower Tier Center
Stockpile #2/100	1,267.51	1,343.56	8/6/2014	SS-045-BIN7-8-8-14	8/8/2014	1408171	ND	SS-ST-045-BIN7-8-8-14	8/8/2014	Negative	Acceptable for use (Confirmed 8/14/14)	8/14/2014	Lower Tier Center
Stockpile #2/100	1,148.61	1,217.53	8/20/2014	SS-053-BIN7-8-22-14	8/22/2014	1408500	ND	SS-ST-053-BIN7-8-22-14	8/22/2014	Negative	Acceptable for use (Confirmed 8/27/14)	8/27/2014	Lower Tier Center
Stockpile #2/101	1,173.53	1,243.94	9/8/2014	SS-061-BIN7-9-8-14	9/8/2014	1409121	ND	SS-ST-061-BIN7-9-8-14	9/8/2014	Negative	Acceptable for use (Confirmed 9/10/14)	9/11/2014	Lower Tier Center
Stockpile #2/100	1,038.47	1,100.78	9/19/2014	SS-068-BIN7-9-19-14	9/19/2014	1409434	ND	SS-ST-068-BIN7-9-19-14	9/19/2014	Negative	Acceptable for use (Confirmed 9/23/14)	6/17/2015	DPA
Stockpile #2/100	2,404.52	2,558.59	8/12/2015	SS-076-BIN7-8-19-15	8/19/2015	109887-1	0.92	SS-ST-076-BIN7-8-19-15	8/19/2014	Negative	Acceptable for use (Confirmed 8/27/15)	9/22/2015- 9/24/2015	DPA
Stockpile #2/100	2,054.03	2,177.27	10/27/2015	SS-082-BIN7-11-3-15	11/3/2015	15K0108-01	0.28	No longer required[5]	NA	NA	Acceptable for use (Confirmed 11/5/15)	12/8/2015- 12/11/2015	DPA
Stockpile #2/100	2,266.15	2,379.46	1/20/2016	SS-094-BIN7-1-22-16	1/22/2016	16A0838-01	0.43	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/26/16)	2/10/2016	DPA
Stockpile #2/100	1,274.32	1,338.04	2/11/2016	SS-102-BIN7-2-16-16	2/16/2016	16B0664-04	0.59	No longer required[5]	NA	NA	Acceptable for use (Confirmed 2/19/16)	3/10/2016	DPA
Stockpile #2/100	1,751.92	1,804.48	3/23/2016	SS-106-BIN7-3-25-16	3/25/2016	16C1181-02	0.5	No longer required[5]	NA	NA	Acceptable for use (Confirmed 3/29/16)	3/31/2016	DPA
Stockpile #2/100	1,172.08	1,207.24	4/15/2016	SS-114-BIN7-4-18-16	4/18/2016	16D0791-02	0.42	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/22/16)	4/25/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedance of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
5. RIDEM approved request to cease in-field testing via letter dated September 30, 2015 File No. SR-10-0248

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Bin 8
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin	Treatment Date	SPLP Sampling[1]				In-Field Sheen Testing			Response Action/ Notes	Date Removed from Bin	Destination of Treated Materials
				Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]	Sheen Test ID	Sheen Test Date	Sheen Test Result[4, 5]			
Stockpile #2/100	855.46	931.80	2/25/2014	SS-008-BIN8-2-28-14	2/28/2014	1402419	1.56	SS-ST-008-BIN8-2-28-14	2/28/2014	Negative	Acceptable for use (Confirmed 3/5/14)	3/7/2014	Stockpile 2100
Stockpile #2/100	278.82	308.59	3/14/2014	SS-015-BIN8-3-24-14	3/24/2014	1403385	ND	SS-ST-015-BIN8-3-24-14	3/24/2014	Negative	Acceptable for use (Confirmed 3/31/14)	4/11/2014	Lower Tier Center
Stockpile #2/100	370.43	404.65	4/28/2014	SS-024-BIN8-4-30-14	4/30/2014	1404724	1.4	SS-ST-024-BIN8-4-30-14	4/30/2014	Negative	Acceptable for use (Confirmed 5/5/14)	5/7/2014 - 5/13/2014	Lower Tier Center & Stockpile 2000
Stockpile #2/100	941.75	995.85	5/20/2014	SS-032-BIN8-5-23-14	5/23/2014	1405567	ND	SS-ST-032-BIN8-5-23-14	5/23/2014	Negative	Acceptable for use (Confirmed 5/30/14)	7/28/2014 - 7/30/14	Lower Tier Center
Stockpile #2/100	1,517.14	1,608.17	8/8/2014	SS-046-BIN8-8-11-14	8/11/2014	1408184	ND	SS-ST-046-BIN8-8-11-14	8/11/2014	Negative	Acceptable for use (Confirmed 8/14/14)	8/15/2014	Lower Tier Center
Stockpile #2/100	877.30	929.94	8/20/2014	SS-054-BIN8-8-22-14	8/22/2014	1408500	ND	SS-ST-054-BIN8-8-22-14	8/22/2014	Negative	Acceptable for use (Confirmed 8/27/14)	8/28/2014 - 9/12/14	Lower Tier Center
Stockpile #2/100	1,237.78	1312.05	9/6/2014	SS-062-BIN8-9-6-14	9/8/2014	1409121	ND	SS-ST-062-BIN8-9-6-14	9/8/2014	Negative	Acceptable for use (Confirmed 9/10/14)	9/12/2014	Lower Tier Center
Stockpile #2/100	1,198.47	1270.38	9/18/2014	SS-069-BIN8-9-22-14	9/22/2014	1409459	ND	SS-ST-069-BIN8-9-22-14	9/22/2014	Negative	Acceptable for use (Confirmed 9/25/14)	6/18/2015	DPA F/G 34-35
Stockpile #2/100	2,428.83	2583.86	7/31/2015	SS-072-BIN8-8-19-15	8/19/2015	109887-1	1.2	SS-ST-072BIN8-8-19-15	8/19/2015	Negative	Acceptable for us (Confirmed 8/21/2015)	8/24/2015-9/18/2015	Block H36, G36
Stockpile #2/100	2,680.18	2,840.99	9/23/2015	SS-079-BIN8-9-30-15	9/30/2015	111837-1	<0.13	No longer required[5]	NA	NA	Acceptable for use (Confirmed 10/19/15)	10/26/2015-11/4/2015	DPA Center G34/36
Stockpile #2/100	2,189.41	2,320.77	11/9/2015	SS-087-BIN8-11-12-15	11/12/2015	15K0538-01	0.48	No longer required[5]	NA	NA	Acceptable for use (Confirmed 11/19/15)	11/19/2015-12/11/2015	Middle Tier Center F40, F42, F43
Stockpile #2/100	2,118.52	2,224.45	1/21/2016	SS-095-BIN8-1-25-16	1/25/2016	16A0951-01	0.53	No longer required[5]	NA	NA	Acceptable for use (Confirmed 1/27/16)	2/12/2016	DPA
Stockpile #2/100	1,825.21	1,879.97	3/29/2016	SS-108-BIN8-3-31-16	3/31/2016	16C1422-01	0.7	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/4/16)	4/5/2016	DPA
Stockpile #2/100	1,470.69	1,514.81	4/12/2016	SS-113-BIN8-4-14-16	4/14/2016	16D0656-01	0.45	No longer required[5]	NA	NA	Acceptable for use (Confirmed 4/18/16)	4/22/2016	DPA

Notes:
1. Samples consist of a 4-point composite taken from each full soil bin.
2. Bolded values indicate an exceedance of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Positive sheen test result indicates that sheen and/or petroleum globules were identified after submersing a sample of the soil in water for 60 minutes.
5. RIDEM approved request to cease in-field testing via letter dated September 30, 2015 File No. SR-10-0248

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - North Borrow SS Stockpile
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin[4]	Treatment Date	Batch No.	SPLP Sampling[1]				Response Action/ Notes	Destination of Treated Materials
					Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]		
Stockpile #2/100	718.61	750.95	12/13/2016	132	SS-Bat 132-12162016	12/16/2016	16L0860-01	0.26	Acceptable for use (Confirmed 12/27/16)	North Borrow SS Stockpile
Stockpile #2/100	1,415.91	1,479.63	12/14/2016	133	SS-Bat 133-12162016	12/16/2016	16L0860-02	0.25	Acceptable for use (Confirmed 12/27/16)	North Borrow SS Stockpile
Stockpile #2/100	931.29	973.20	12/15/2016	134	SS-Bat 134-12192016	12/19/2016	16L0913	0.39	Acceptable for use (Confirmed 1/3/17)	North Borrow SS Stockpile
Stockpile #2/100	769.83	804.47	12/19/2016	135	SS-Bat 135-12212016	12/21/2016	16L1051-01	0.33	Acceptable for use (Confirmed 1/3/17)	North Borrow SS Stockpile
Stockpile #2/100	1,342.07	1,402.46	12/20/2016	136	SS-Bat 136-12222016	12/22/2016	16L1125-01	0.36	Acceptable for use (Confirmed 1/3/17)	North Borrow SS Stockpile
Stockpile #2/100	1,358.27	1,419.39	12/21/2016	137	SS-Bat 137-01032017	1/3/2017	17A0092-01	0.36	Acceptable for use (Confirmed 1/9/17)	North Borrow SS Stockpile
Stockpile #2/100	651.23	680.54	12/22/2016	138	SS-Bat 138-01032017	1/3/2017	17A0092-02	0.54	Acceptable for use (Confirmed 1/9/17)	North Borrow SS Stockpile
Stockpile #2/100	1,005.33	1,050.57	1/3/2017	139	SS-Bat 139-01052017	1/5/2017	17A0154-01	0.45	Acceptable for use (Confirmed 1/10/17)	North Borrow SS Stockpile
Stockpile #2/100	1,236.54	1,292.18	1/4/2017	140	SS-Bat 140-01062017	1/6/2017	17A0230-01	0.33	Acceptable for use (Confirmed 1/10/17)	North Borrow SS Stockpile
Stockpile #2/100	1,094.12	1,143.36	1/5/2017-1/6/2017	141	SS-Bat 141-01092017	1/9/2017	17A0276-01	0.71	Acceptable for use (Confirmed 1/11/17)	North Borrow SS Stockpile
Stockpile #2/100	615.64	643.34	1/9/2017	142	SS-Bat 142-01192017	1/19/2017	17A0882-02	0.57	Acceptable for use (Confirmed 1/24/17)	North Borrow SS Stockpile
Stockpile #2/100	1,123.81	1,174.38	1/10/2017	143	SS-Bat 143-01192017	1/19/2017	17A0882-03	0.47	Acceptable for use (Confirmed 1/24/17)	North Borrow SS Stockpile
Stockpile #2/100	1,226.25	1,281.43	1/11/2017	144	SS-Bat 144-01132017	1/13/2017	17A0610-01	0.59	Acceptable for use (Confirmed 1/23/17)	North Borrow SS Stockpile
Stockpile #2/100	1,215.91	1,270.63	1/12/2017	145	SS-Bat 145-01162017	1/16/2017	17A0682-01	0.74	Acceptable for use (Confirmed 1/19/17)	North Borrow SS Stockpile
Stockpile #2/100	1,203.20	1,257.34	1/13/2017	146	SS-Bat 146-01162017	1/16/2017	17A0682-02	0.43	Acceptable for use (Confirmed 1/19/17)	North Borrow SS Stockpile
Stockpile #2/100	1,771.69	1,851.42	1/16/2017-1/17/2017	147	SS-Bat 147-01192017	1/19/2017	17A0882-01	0.36	Acceptable for use (Confirmed 1/24/17)	North Borrow SS Stockpile
Stockpile #2/100	1,218.42	1,273.25	1/18/2017	148	SS-Bat 148-01232017	1/23/2017	17A1014-01	0.64	Acceptable for use (Confirmed 1/31/17)	North Borrow SS Stockpile
Stockpile #2/100	1,226.16	1,281.34	1/19/2017	149	SS-Bat 149-01232017	1/23/2017	17A1014-02	0.67	Acceptable for use (Confirmed 1/31/17)	North Borrow SS Stockpile
Stockpile #2/100	1,720.35	1,797.77	1/30/2017	150	SS-Bat 150-02022017	2/2/2017	17B0093-01	0.46	Acceptable for use (Confirmed 2/7/17)	North Borrow SS Stockpile
Stockpile #2/100	1,189.98	1,243.53	2/1/2017	151	SS-Bat 151-02152017	2/3/2017	17B0620-01	0.56	Acceptable for use (Confirmed 2/21/17)	North Borrow SS Stockpile
Stockpile #2/100	1,214.01	1,268.64	2/2/2017	152	SS-Bat 152-02062017	2/6/2017	17B0244-01	0.93	Acceptable for use (Confirmed 2/13/17)	North Borrow SS Stockpile

Table 4
DPA Soil Treatment Data - North Borrow SS Stockpile
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Tonnage from stockpile sent for treatment	Tonnage of treated materials sent to Bin[4]	Treatment Date	Batch No.	SPLP Sampling[1]				Response Action/ Notes	Destination of Treated Materials
					Sample ID	Sample Date	SDG ID	SPLP TPH Result (mg/L)[2, 3]		
Stockpile #2/100	1,201.20	1,255.25	2/3/2017	153	SS-Bat 153-02062017	2/6/2017	17B0244-02	0.89	Acceptable for use (Confirmed 2/13/17)	North Borrow SS Stockpile
Stockpile #2/100	1,202.27	1,256.37	2/6/2017	154	SS-Bat 154-02082017	2/8/2017	17B0380-01	0.82	Acceptable for use (Confirmed 2/16/17)	North Borrow SS Stockpile
Stockpile #2/100	1,196.90	1,250.76	2/7/2017	155	SS-Bat 155-02102017	2/10/2017	17B0453-01	0.62	Acceptable for use (Confirmed 2/21/17)	North Borrow SS Stockpile
Stockpile #2/100	1,184.16	1,237.45	2/8/2017	156	SS-Bat 156-02102017	2/10/2017	17B0453-02	0.32	Acceptable for use (Confirmed 2/21/17)	North Borrow SS Stockpile
Stockpile #2/100	1,760.17	1,839.38	2/14/2017-2/15/2017	157	SS-Bat 157-02172017	2/17/2017	17B0741-01	0.27	Acceptable for use (Confirmed 3/1/17)	North Borrow SS Stockpile
Stockpile #2/100	1,188.87	1,242.37	2/16/2017	158	SS-Bat 158-02202017	2/20/2017	17B0777-01	0.27	Acceptable for use (Confirmed 2/28/17)	North Borrow SS Stockpile
Stockpile #2/100	1,196.76	1,250.61	2/17/2017	159	SS-Bat 159-02202017	2/20/2017	17B0777-02	0.39	Acceptable for use (Confirmed 2/28/17)	North Borrow SS Stockpile
Stockpile #2/100	1,111.40	1,161.41	2/22/2017	160	SS-Bat 160-02242017	2/24/2017	17B0993-01	0.73	Acceptable for use (Confirmed 3/14/17)	North Borrow SS Stockpile
Stockpile #2/100	1,718.17	1,795.49	2/23/2017	161	SS-Bat 161-02272017	2/27/2017	17B1050-01	0.99	Acceptable for use (Confirmed 3/7/17)	North Borrow SS Stockpile
Stockpile #2/100	1,372.63	1,434.40	2/24/2017	162	SS-Bat 162-02272017	2/27/2017	17B1050-02	1.4	Acceptable for use (Confirmed 3/7/17)	North Borrow SS Stockpile
Stockpile #2/100	1,206.52	1,260.81	3/8/2017	163	SS-Bat 163-03102017	3/10/2017	17C0462-01	0.36	Acceptable for use (Confirmed 3/20/17)	North Borrow SS Stockpile
Stockpile #2/100	2,202.40	2,301.51	3/9/2017	164	SS-Bat 164-03132017	3/13/2017	17C0508-01	0.36	Acceptable for use (Confirmed 3/20/17)	North Borrow SS Stockpile
Stockpile #2/100	1,128.25	1,179.02	3/13/2017	165	Bat-165-03162017	3/16/2017	17C0598-01	0.43	Acceptable for use (Confirmed 3/23/17)	North Borrow SS Stockpile

Notes:
1. Samples consist of a 4-point composite taken from each soil batch.
2. Bolded values indicate an exceedence of the Remedial Objective of 4 mg/L, if present.
3. Duplicate results are included in parentheses.
4. Tonnage from stockpile sent for treatment with 4.5% portland cement mixture.

-- = not applicable
cy = cubic yards
mg/L = milligrams per liter
NA = not available
RIDEM = Rhode Island Department of Environmental Management
SDG = Sample Delivery Group
SPLP = Synthetic Precipitation Leaching Procedure
TPH = total petroleum hydrocarbon

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	001	585.16	585.16	390.11	1	2/4/2014	Acceptable for use[1]	2/28/2014
Stockpile #2/100	002	468.52	1053.68	702.45	2	2/11/2014	Acceptable for use[1]	2/28/2014
Stockpile #2/100	003	475.03	1528.71	1019.14	3	2/14/2014	Acceptable for use[1]	2/28/2014
Stockpile #2/100	004	713.25	2241.96	1494.64	4	2/19/2014	Acceptable for use[1]	2/28/2014
Stockpile #2/100	005	884.22	3126.18	2084.12	5	2/20/2014	Acceptable for use[1]	3/7/2014
Stockpile #2/100	006	583.81	3709.99	2473.33	6	2/21/2014	Acceptable for use[1]	3/7/2014
Stockpile #2/100	007	726.24	4436.23	2957.49	7	2/24/2014	Acceptable for use[1]	3/7/2014
Stockpile #2/100	008	855.46	5291.69	3527.79	8	2/25/2014	Acceptable for use[1]	3/7/2014
Stockpile #2/100	009	700.29	5991.98	3994.65	3	2/26/2014	Acceptable for use[1]	4/17/2014 - 4/18/2014
Stockpile #2/100	010	299.72	6291.7	4194.47	2	2/28/2014	Acceptable for use[1]	4/15/2014
Stockpile #2/100	011	821.39	7113.09	4742.06	4	3/10/2014	Acceptable for use[1]	4/9/2014 - 4/11/2014
Stockpile #2/100	012	550.88	7663.97	5109.31	5	3/11/2014	Acceptable for use[1]	3/29/2014 - 4/10/2014
Stockpile #2/100	013	799.18	8463.15	5642.10	6	3/12/2014	Acceptable for use[1]	3/28/2014
Stockpile #2/100	014	775.58	9238.73	6159.15	7	3/13/2014	Acceptable for use[1]	4/14/2014 - 4/15/2014
Stockpile #2/100	015	278.82	9517.55	6345.03	8	3/14/2014	Acceptable for use[1]	4/11/2014
Stockpile #2/100	016	592.94	10110.49	6740.33	4	4/14/2014	Acceptable for use[1]	4/23/2014 - 4/24/2014
Stockpile #2/100	017	845.18	10955.67	7303.78	1	4/17/2014	Acceptable for use[1]	4/24/2014 - 4/28/2014
Stockpile #2/100	018	1111.68	12067.35	8044.90	2	4/21/2014	Acceptable for use[1]	4/28/2014 - 4/29/2014
Stockpile #2/100	019	719.95	12787.3	8524.87	3	4/21/2014	Acceptable for use[1]	5/1/2014 - 5/2/2014
Stockpile #2/100	020	744.41	13531.71	9021.14	5	4/22/2014	Acceptable for use[1]	5/1/2014 - 5/2/2014
Stockpile #2/100	021	488.83	14020.54	9347.03	6	4/23/2014	Acceptable for use[1]	4/30/2014 - 5/2/2014
Stockpile #2/100	022	611.09	14631.63	9754.42	7	4/24/2014	Acceptable for use[1]	5/6/2014 - 5/7/2014
Stockpile #2/100	023	353.22	14984.85	9989.90	4	4/25/2014	Acceptable for use[1]	5/6/2014
Stockpile #2/100	024	370.43	15355.28	10236.85	8	4/28/2014	Acceptable for use[1]	5/7/2014 - 5/13/2014
Stockpile #2/100	025	510.15	15865.43	10576.95	1	4/29/2014	Acceptable for use[1]	5/13/2014 - 5/15/2014

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	026	305.83	16171.26	10780.84	2	4/30/2014	Acceptable for use[1]	5/20/2014
Stockpile #2/100	027	937.02	17108.28	11405.52	3	5/8/2014	Acceptable for use[1]	5/20/2014
Stockpile #2/100	028	976.69	18084.97	12056.65	4	5/14/2014	Acceptable for use[1]	5/21/2014 - 5/23/2014
Stockpile #2/100	029	1007.55	19092.52	12728.35	5	5/15/2014	Acceptable for use[1]	5/28/2014 - 5/29/2014
Stockpile #2/100	030	1010.33	20102.85	13401.90	6	5/16/2014	Acceptable for use[1]	5/30/2014
Stockpile #2/100	031	1343.93	21446.78	14297.85	7	5/19/2014	Acceptable for use[1]	5/30/2014 - 5/31/2014
Stockpile #2/100	032	941.75	22388.53	14925.69	8	5/20/2014	Acceptable for use[1]	7/28/2014 - 7/30/14
Stockpile #2/100	033	1257.56	23646.09	15764.06	1	5/21/2014	Acceptable for use[1]	5/31/2014 - 6/2/2014
Stockpile #2/100	034	1372.61	25018.7	16679.13	2	5/22/2014	Acceptable for use[1]	6/3/2014 - 6/5/2014
Stockpile #2/100	035	932.16	25950.86	17300.57	3	5/23/2014	Acceptable for use[1]	6/5/2014 - 6/6/2014
Stockpile #2/100	036	1139.65	27090.51	18060.34	4	5/29/2014	Acceptable for use[1]	6/6/2014
Stockpile #2/100	037	1150.92	28241.43	18827.62	5	5/30/2014	Acceptable for use[1]	6/9/2014 - 7/25/2014
Stockpile #2/100	038	1022.98	29264.41	19509.61	6	5/31/2014	Acceptable for use[1]	6/9/2014 - 7/25/2014
Stockpile #2/100	039	1253.88	30518.29	20345.53	7	6/2/2014	Acceptable for use[1]	6/9/2014 - 7/25/2014
Stockpile #2/100	040	741.49	31259.78	20839.85	1	6/3/2014	Acceptable for use[1]	7/31/2014
Stockpile #2/100	041	1070.64	32330.42	21553.61	3	7/28/2014	Acceptable for use[1]	8/4/2014 - 8/5/2014
Stockpile #2/100	042	1004.64	33335.06	22223.37	4	7/29/2014	Acceptable for use[1]	8/6/2014
Stockpile #2/100	043	1303.17	34638.23	23092.15	5	7/30/2014	Acceptable for use[1]	8/6/2014 - 8/7/2014
Stockpile #2/100	044	1100.53	35738.76	23825.84	6	7/31/2014	Acceptable for use[1]	8/7/2014
Stockpile #2/100	045	1267.51	37006.27	24670.85	7	8/6/2014	Acceptable for use[1]	8/14/2014
Stockpile #2/100	046	1517.14	38523.41	25682.27	8	8/8/2014	Acceptable for use[1]	8/15/2014
Stockpile #2/100	047	1652.90	40176.31	26784.21	1	8/9/2014	Acceptable for use[1]	8/18/2014 - 8/19/2014
Stockpile #2/100	048	1257.15	41433.46	27622.31	2	8/11/2014	Acceptable for use[1]	8/19/2014
Stockpile #2/100	049	1090.60	42524.06	28349.37	3	8/12/2014	Acceptable for use[1]	8/20/2014
Stockpile #2/100	050	1127.85	43651.91	29101.27	4	8/15/2014	Acceptable for use[1]	8/21/2014

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	051	1105.84	44757.75	29838.50	5	8/18/2014	Acceptable for use[1]	8/25/2014
Stockpile #2/100	052	1045.81	45803.56	30535.71	6	8/19/2014	Acceptable for use[1]	8/26/2014
Stockpile #2/100	053	1148.61	46952.17	31301.45	7	8/20/2014	Acceptable for use[1]	8/27/2014
Stockpile #2/100	054	877.30	47829.47	31886.31	8	8/20/2014	Acceptable for use[1]	8/28/2014
Stockpile #2/100	055	1481.05	49310.52	32873.68	1	8/22/2014	Acceptable for use[1]	8/29/2014 - 9/3/2014
Stockpile #2/100	056	1026.75	50337.27	33558.18	2	8/25/2014	Acceptable for use[1]	9/3/2014 - 9/4/2014
Stockpile #2/100	057	1228.70	51565.97	34377.31	3	8/26/2014	Acceptable for use[1]	9/5/2014
Stockpile #2/100	058	1140.83	52706.8	35137.87	4	8/27/2014	Acceptable for use[1]	9/8/2014
Stockpile #2/100	059	1261.73	53968.53	35979.02	5	8/29/2014	Acceptable for use[1]	9/9/2014
Stockpile #2/100	060	1036.74	55005.27	36670.18	6	9/3/2014	Acceptable for use[1]	9/10/2014
Stockpile #2/100	061	1173.53	56178.8	37452.53	7	9/5/2014	Acceptable for use[1]	9/11/2014
Stockpile #2/100	062	1312.05	57490.85	38327.23	8	9/6/2014	Acceptable for use[1]	9/12/2014
Stockpile #2/100	063	1319.25	58810.1	39206.73	1	9/9/2014	Acceptable for use[1]	9/15/2014 - 9/16/2014
Stockpile #2/100	064	1331.50	60141.6	40094.40	2	9/10/2014	Acceptable for use[1]	9/17/2014
Stockpile #2/100	065	1063.91	61205.51	40803.67	3	9/11/2014	Acceptable for use[1]	9/18/2014
Stockpile #2/100	066	950.17	62155.68	41437.12	4	9/12/2014	Acceptable for use[1]	9/19/2014
Stockpile #2/100	067	1390.71	63546.39	42364.26	5	9/16/2014	Acceptable for use[1]	9/23/2014
Stockpile #2/100	068	1038.47	64584.86	43056.57	7	9/17/2014	Acceptable for use[1]	6/17/2015
Stockpile #2/100	069	1198.47	65783.33	43855.55	8	9/18/2014	Acceptable for use[1]	6/18/2015
Stockpile #2/100	070	1047.50	66830.83	44553.89	6	9/22/2014	Acceptable for use[1]	6/22/2015
Stockpile #2/100	071	1,253.17	68,084.00	45,389.33	1	9/23/2014	Acceptable for use[1]	9/23/2015
Stockpile #2/100	072	2,428.83	70,512.83	47,008.55	8	7/31/2015	Acceptable for use[1]	9/18/2015
Stockpile #2/100	073	1,732.51	72,245.34	48,163.56	6	7/31/2015	Acceptable for use[1]	9/28/2015
Stockpile #2/100	074	2,111.86	74,357.20	49,571.47	5	7/31/2015	Acceptable for use[1]	10/1/2015
Stockpile #2/100	075	1,484.53	75,841.73	50,561.15	4	8/11/2015	Acceptable for use[1]	10/1/2015

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	076	2,404.52	78,246.25	52,164.17	7	8/12/2015	Acceptable for use[1]	9/24/2015
Stockpile #2/100	077	1,045.99	79,292.24	52,861.49	3	8/14/2015	Acceptable for use[1]	10/23/2015
Stockpile #2/100	078	795.00	80,087.24	53,391.49	2	8/14/2015	Acceptable for use[1]	9/23/2015
Stockpile #2/100	079	2,680.18	82,767.42	55,178.28	8	9/23/2015	Acceptable for use[1]	11/4/2015
Stockpile #2/100	080	1,732.72	84,500.14	56,333.43	1	9/23/2015	Acceptable for use[1]	12/16/2015
Stockpile #2/100	081	2,171.29	86,671.43	57,780.95	2	9/28/2015	Acceptable for use[1]	12/29/2015
Stockpile #2/100	082	2,054.03	88,725.46	59,150.31	7	9/29/15-10/27/15	Acceptable for use[1]	12/11/2015
Stockpile #2/100	083	1,804.50	90,529.96	60,353.31	6	10/27/15-10/29/15	Acceptable for use[1]	12/12/2015
Stockpile #2/100	084	2,347.15	92,877.11	61,918.07	5	10/29/15-11/2/15	Acceptable for use[1]	12/17/2015
Stockpile #2/100	085	1,907.15	94,784.26	63,189.51	4	11/2/15-11/4/15	Acceptable for use[1]	12/18/2015
Stockpile #2/100	086	1,847.68	96,631.94	64,421.29	3	11/4/15-11/5/15	Acceptable for use[1]	12/29/2015
Stockpile #2/100	087	2,179.41	98,811.35	65,874.23	8	11/5/2015	Acceptable for use[1]	12/11/2015
Stockpile #2/100	088	884.81	99,696.16	66,464.11	1	1/4/2016-1/6/2016	Acceptable for use[1]	1/20/2016
Stockpile #2/100	089	1,794.75	101,490.91	67,660.61	2	1/6/2016-1/7/2016	Acceptable for use[1]	1/21/2016
Stockpile #2/100	090	1,754.17	103,245.08	68,830.05	3	1/7/2016-1/8/2016	Acceptable for use[1]	1/22/2016
Stockpile #2/100	091	1,745.91	104,990.99	69,993.99	4	1/11/2016-1/12/2016	Acceptable for use[1]	1/25/2016
Stockpile #2/100	092	1,870.73	106,861.72	71,241.15	5	1/13/2016-1/14/2016	Acceptable for use[1]	1/26/2016
Stockpile #2/100	093	1,540.22	108,401.94	72,267.96	6	1/14/2016-1/18/2016	Acceptable for use[1]	2/2/2016
Stockpile #2/100	094	2,266.15	110,668.09	73,778.73	7	1/18/2016-1/19/2016	Acceptable for use[1]	2/5/2016
Stockpile #2/100	095	2,118.52	112,786.61	75,191.07	8	1/20/2016-1/22/2016	Acceptable for use[1]	2/12/2016
Stockpile #2/100	096	2,060.94	114,847.55	76,565.03	1	1/25/2016-1/26/2016	Acceptable for use[1]	3/5/2016
Stockpile #2/100	097	2,044.28	116,891.83	77,927.89	2	1/27/2016-1/28/2016	Acceptable for use[1]	3/7/2016
Stockpile #2/100	098	1,840.85	118,732.68	79,155.12	3	1/28/2016-2/1/2016	Acceptable for use[1]	3/8/2016
Stockpile #2/100	099	1,654.33	120,387.01	80,258.01	4	2/1/2016-2/3/2016	Acceptable for use[1]	3/16/2016
Stockpile #2/100	100	1,524.03	121,911.04	81,274.03	5	2/3/2016-2/4/2015	Acceptable for use[1]	3/14/2016

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

ARCADIS Design & Consultancy for natural and built assets

Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	101	2,067.32	123,978.36	82,652.24	6	2/4/2016-2/10/2016	Acceptable for use[1]	3/9/2016
Stockpile #2/100	102	1,274.32	125,252.68	83,501.79	7	2/10/2016-2/11/2016	Acceptable for use[1]	3/10/2016
Stockpile #2/100	103	1,570.71	126,823.39	84,548.93	6	3/15/2016-3/16/2016	Acceptable for use[1]	3/23/2016
Stockpile #2/100	104	2,014.04	128,837.43	85,891.62	5	3/16/2016-3/17/2016	Acceptable for use[1]	3/28/2016
Stockpile #2/100	105	1,470.88	130,308.31	86,872.21	4	3/18/2016-3/23/2016	Acceptable for use[1]	3/30/2016
Stockpile #2/100	106	1,751.92	132,060.23	88,040.15	7	3/23/2016-3/24/2016	Acceptable for use[1]	3/31/2016
Stockpile #2/100	107	2,065.65	134,125.88	89,417.25	6	3/24/2016-3/25/2016	Acceptable for use[1]	4/1/2016
Stockpile #2/100	108	1,825.18	135,951.06	90,634.04	8	3/28/2016-3/29/2016	Acceptable for use[1]	4/5/2016
Stockpile #2/100	109	1,901.77	137,852.83	91,901.89	5	3/29/2016-3/31/2016	Acceptable for use[1]	4/11/2016
Stockpile #2/100	110	1,788.05	139,640.88	93,093.92	4	4/1/2016-4/6/2016	Acceptable for use[1]	4/29/2016
Stockpile #2/100	111	1,606.81	141,247.69	94,165.13	3	4/7/2016-4/8/2016	Acceptable for use[1]	4/27/2016
Stockpile #2/100	112	1,856.71	143,104.40	95,402.93	2	4/8/2016-4/11/2016	Acceptable for use[1]	4/22/2016
Stockpile #2/100	113	1,470.69	144,575.09	96,383.39	8	4/11/2016-4/12/2016	Acceptable for use[1]	4/22/2016
Stockpile #2/100	114	1,766.60	146,341.69	97,561.13	6	4/12/2016-4/13/2016	Acceptable for use[1]	4/26/2016
Stockpile #2/100	115	1,972.65	148,314.34	98,876.23	5	4/13/2016-4/15/2016	Acceptable for use[1]	4/20/2016
Stockpile #2/100	116	1,172.08	149,486.42	99,657.61	7	4/15/2016	Acceptable for use[1]	4/25/2016
Stockpile #2/100	117	1,030.00	150,516.42	100,344.28	2	5/6/2016	Acceptable for use[1]	5/18/2016
Stockpile #2/100	118	533.39	151,049.81	100,699.87	3	5/6/2016	Acceptable for use[1]	5/12/2016
Stockpile #2/100	119	1,627.43	152,677.24	101,784.83	4	5/11/2016	Acceptable for use[1]	5/20/2016
Stockpile #2/100	120	1,428.88	154,106.12	102,737.41	3	5/12/2016	Acceptable for use[1]	5/24/2016
Stockpile #2/100	121	1,106.94	155,213.06	103,475.37	1	5/13/2016	Acceptable for use[1]	6/2/2016
Stockpile #2/100	122	1,857.84	157,070.90	104,713.93	5	5/17/2016	Acceptable for use[1]	6/8/2016
Stockpile #2/100	123	1,807.40	158,878.30	105,918.87	0	5/18/2016	Acceptable for use[1]	6/3/2016
Stockpile #2/100	124	1,736.24	160,614.54	107,076.36	6	5/20/2016	Acceptable for use[1]	6/7/2016
Stockpile #2/100	125	1,592.35	162,206.89	108,137.93	2	5/23/2016	Acceptable for use[1]	6/13/2016

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	126	1,558.06	163,764.95	109,176.63	4	5/24/2016	Acceptable for use[1]	6/9/2016
Stockpile #2/100	127	1,968.51	165,733.46	110,488.97	3	5/25/2016	Acceptable for use[1]	6/14/2016
Stockpile #2/100	128	1,803.72	167,537.18	111,691.45	0	6/13/2016	Acceptable for use[1]	7/8/2016
Stockpile #2/100	129	1,676.81	169,213.99	112,809.33	1	6/14/2016	Acceptable for use[1]	11/16/2016
Stockpile #2/100	130	1,565.68	170,779.67	113,853.11	2	6/15/2016	Acceptable for use[1]	10/12/2016
Stockpile #2/100	131	680.41	171,460.08	114,306.72	3	6/16/2016	Acceptable for use[1]	10/2/2016
Stockpile #2/100	132	718.61	172,178.69	114,785.79	NA	12/13/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	133	1,415.91	173,594.60	115,729.73	NA	12/14/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	134	931.29	174,525.89	116,350.59	NA	12/15/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	135	769.83	175,295.72	116,863.81	NA	12/19/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	136	1,342.07	176,637.79	117,758.53	NA	12/20/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	137	1,358.27	177,996.06	118,664.04	NA	12/21/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	138	651.23	178,647.29	119,098.19	NA	12/22/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	139	1,005.33	179,652.62	119,768.41	NA	1/3/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	140	1,236.54	180,889.16	120,592.77	NA	1/4/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	141	1,094.12	181,983.28	121,322.19	NA	1/5/2017-1/6/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	142	615.64	182,598.92	121,732.61	NA	1/9/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	143	1,123.81	183,722.73	122,481.82	NA	1/10/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	144	1,226.25	184,948.98	123,299.32	NA	1/11/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	145	1,215.91	186,164.89	124,109.93	NA	1/12/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	146	1,203.20	187,368.09	124,912.06	NA	1/13/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	147	1,771.69	189,139.78	126,093.19	NA	1/16/2017-1/17/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	148	1,218.42	190,358.20	126,905.47	NA	1/18/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	149	1,226.16	191,584.36	127,722.91	NA	1/19/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	150	1,720.35	193,304.71	128,869.81	NA	1/30/2017	Acceptable for use[1]	North Borrow SS Stockpile

Table 4
DPA Soil Treatment Data - Soil Treatment Status
Chevron Environmental Management Company
East Providence, Providence County, Rhode Island

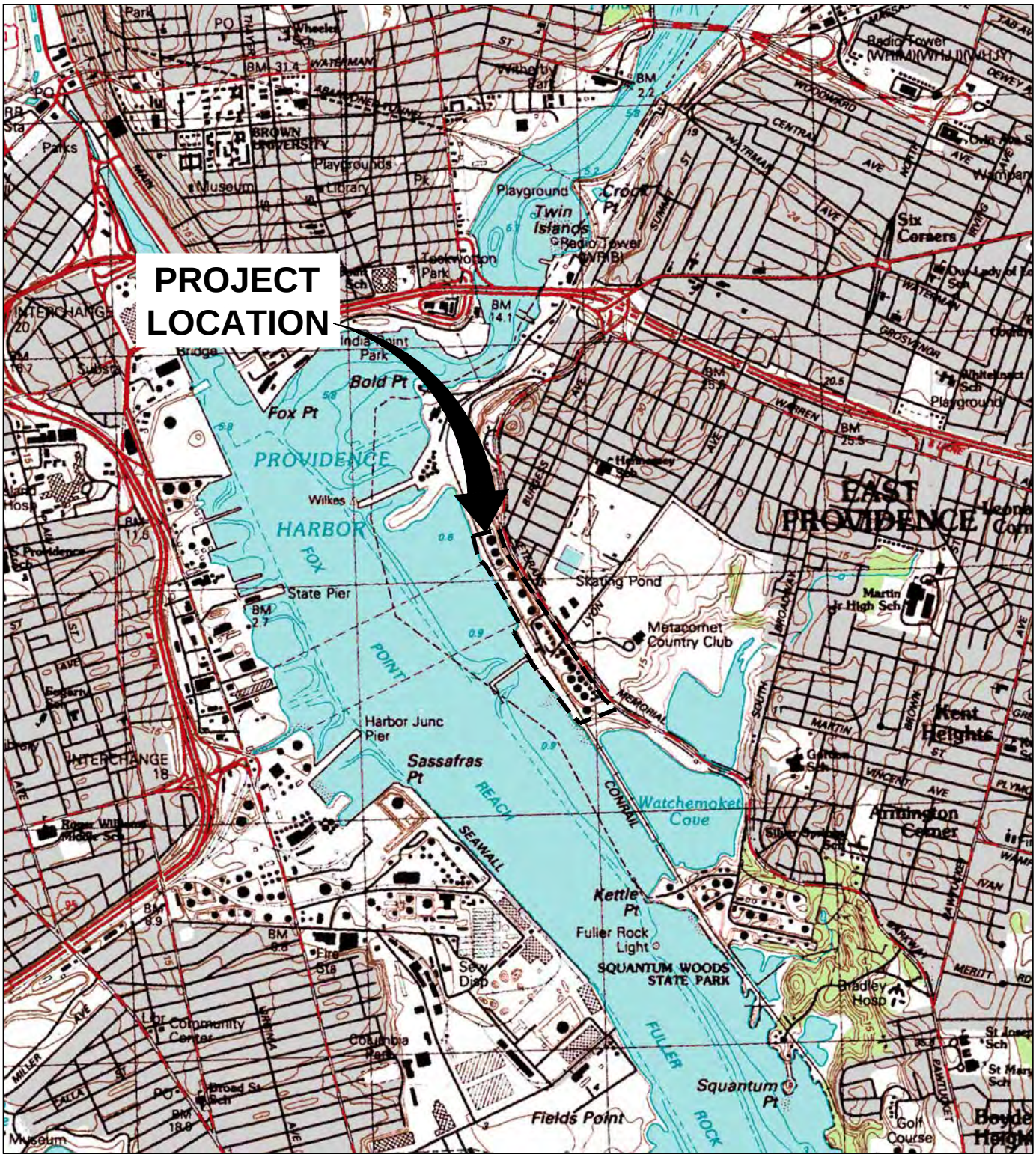
Source of Material Prior to Treatment	Batch Number	Tonnage from stockpile sent for treatment	Running Total Tonnage	Running Total Volume (cy)	Bin Number	Treatment Date	Status	Date Removed from Bin (Emptied)
Stockpile #2/100	151	1,189.98	194,494.69	129,663.13	NA	2/1/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	152	1,214.01	195,708.70	130,472.47	NA	2/2/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	153	1,201.20	196,909.90	131,273.27	NA	2/3/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	154	1,202.27	198,112.17	132,074.78	NA	2/6/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	155	1,196.90	199,309.07	132,872.71	NA	2/7/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	156	1,184.16	200,493.23	133,662.15	NA	2/8/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	157	1,760.17	202,253.40	134,835.60	NA	2/14/2017-2/15/2016	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	158	1,188.87	203,442.27	135,628.18	NA	2/16/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	159	1,196.76	204,639.03	136,426.02	NA	2/17/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	160	1,111.40	205,750.43	137,166.95	NA	2/22/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	161	1,718.17	207,468.60	138,312.40	NA	2/23/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	162	1,372.63	208,841.23	139,227.49	NA	2/24/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	163	1,206.52	210,047.75	140,031.83	NA	2/24/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	164	2,202.40	212,250.15	141,500.10	NA	2/24/2017	Acceptable for use[1]	North Borrow SS Stockpile
Stockpile #2/100	165	1,128.24	213,378.39	142,252.26	NA	2/24/2017	Acceptable for use[1]	North Borrow SS Stockpile

Total Treatment During LTC (Tons): **68,084.00**
Total Treatment During DPA (Tons): **145,294.39**
Total Soil Treated (Tons): **213,378.39**

Notes

1. Treatment met the Remedial Objective of 4 mg/L or less of TPH.

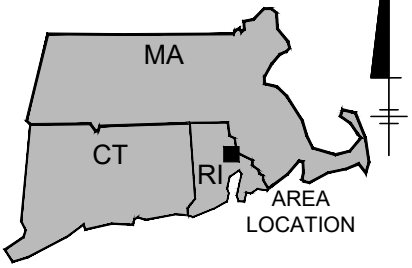
FIGURES



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., PROVIDENCE, RI-MASS, 1987.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

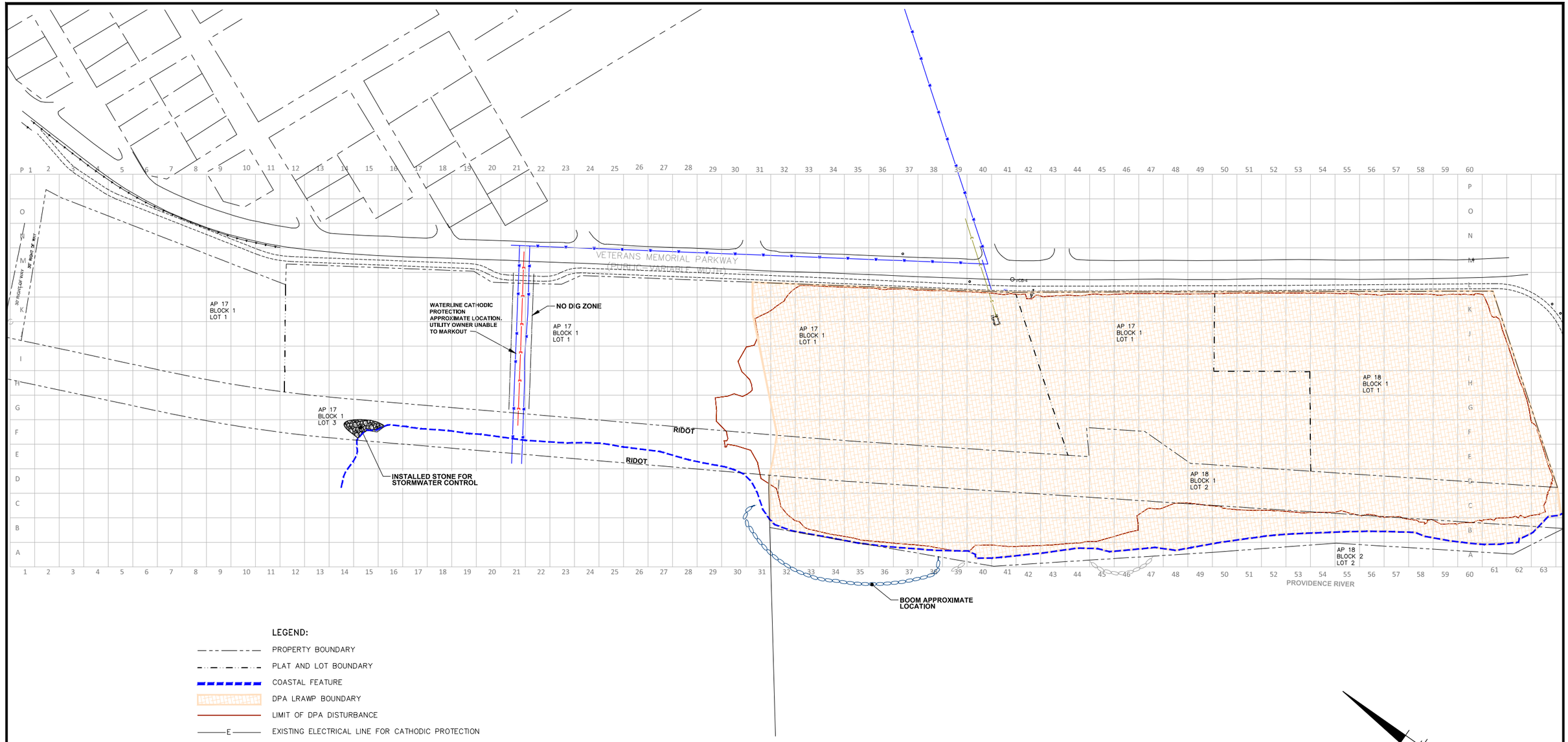


CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1



LEGEND:

- PROPERTY BOUNDARY
- PLAT AND LOT BOUNDARY
- COASTAL FEATURE
- DPA LRAWP BOUNDARY
- LIMIT OF DPA DISTURBANCE
- E — EXISTING ELECTRICAL LINE FOR CATHODIC PROTECTION

NOTES:

1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014, AND ARCADIS SURVEY DURING DPA CONSTRUCTION.
2. PROPERTY LINES ARE FROM PLAN OF SURVEY IN EAST PROVIDENCE, RI FOR GULF OIL CORPORATION, SCALE 1" = 50', DATED JULY 1983, BY STANLEY ENGINEERING; PLAT BOOK 24 PAGE 34, EAST PROVIDENCE LAND RECORDS.

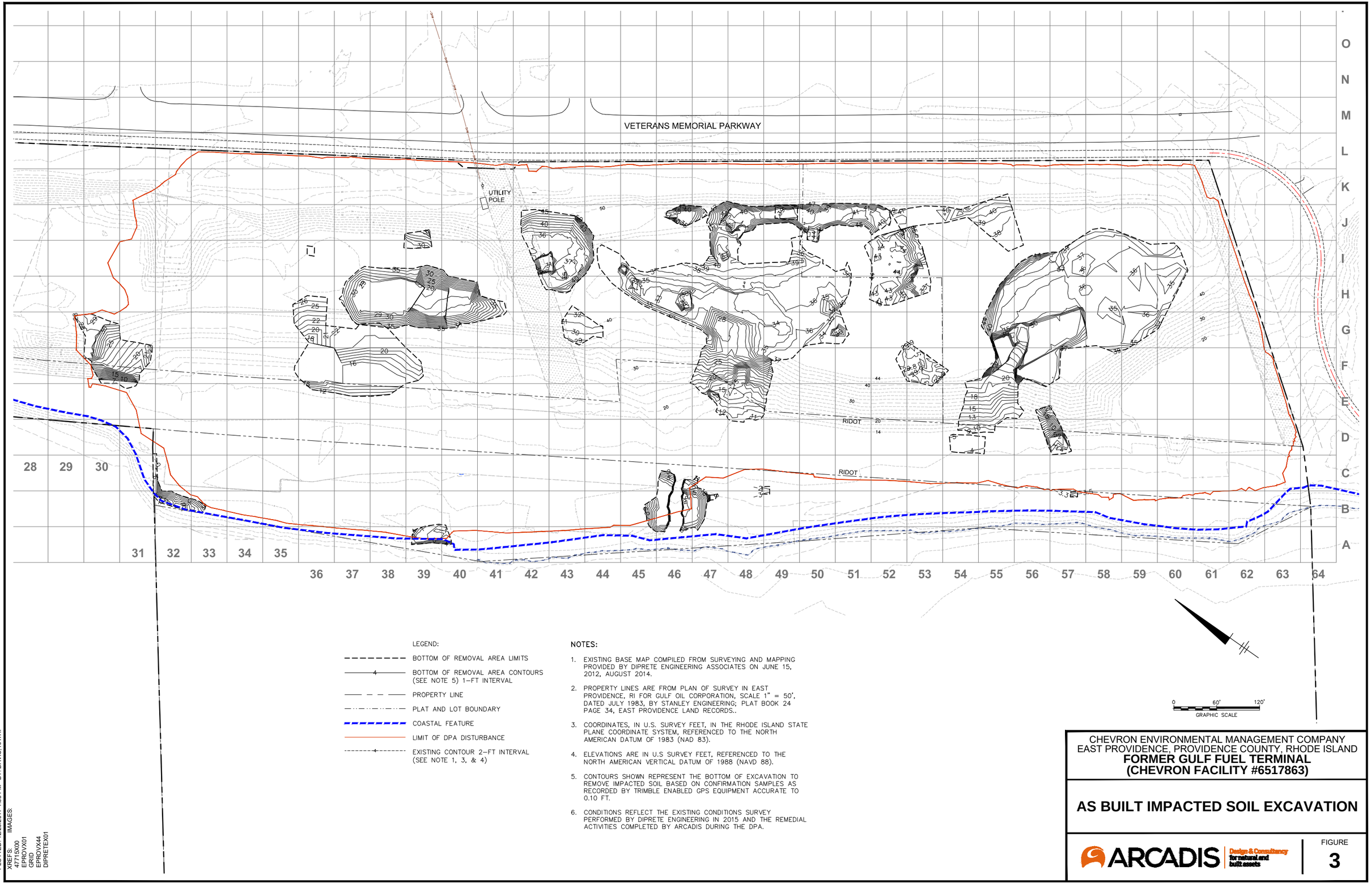
0 100' 200'
GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

DPA LRAWP BOUNDARY

ARCADIS Design & Consultancy for natural and built assets

FIGURE
2



LEGEND:

- BOTTOM OF REMOVAL AREA LIMITS
- BOTTOM OF REMOVAL AREA CONTOURS (SEE NOTE 5) 1–FT INTERVAL
- PROPERTY LINE
- PLAT AND LOT BOUNDARY
- COASTAL FEATURE
- LIMIT OF DPA DISTURBANCE
- EXISTING CONTOUR 2–FT INTERVAL (SEE NOTE 1, 3, & 4)

NOTES:

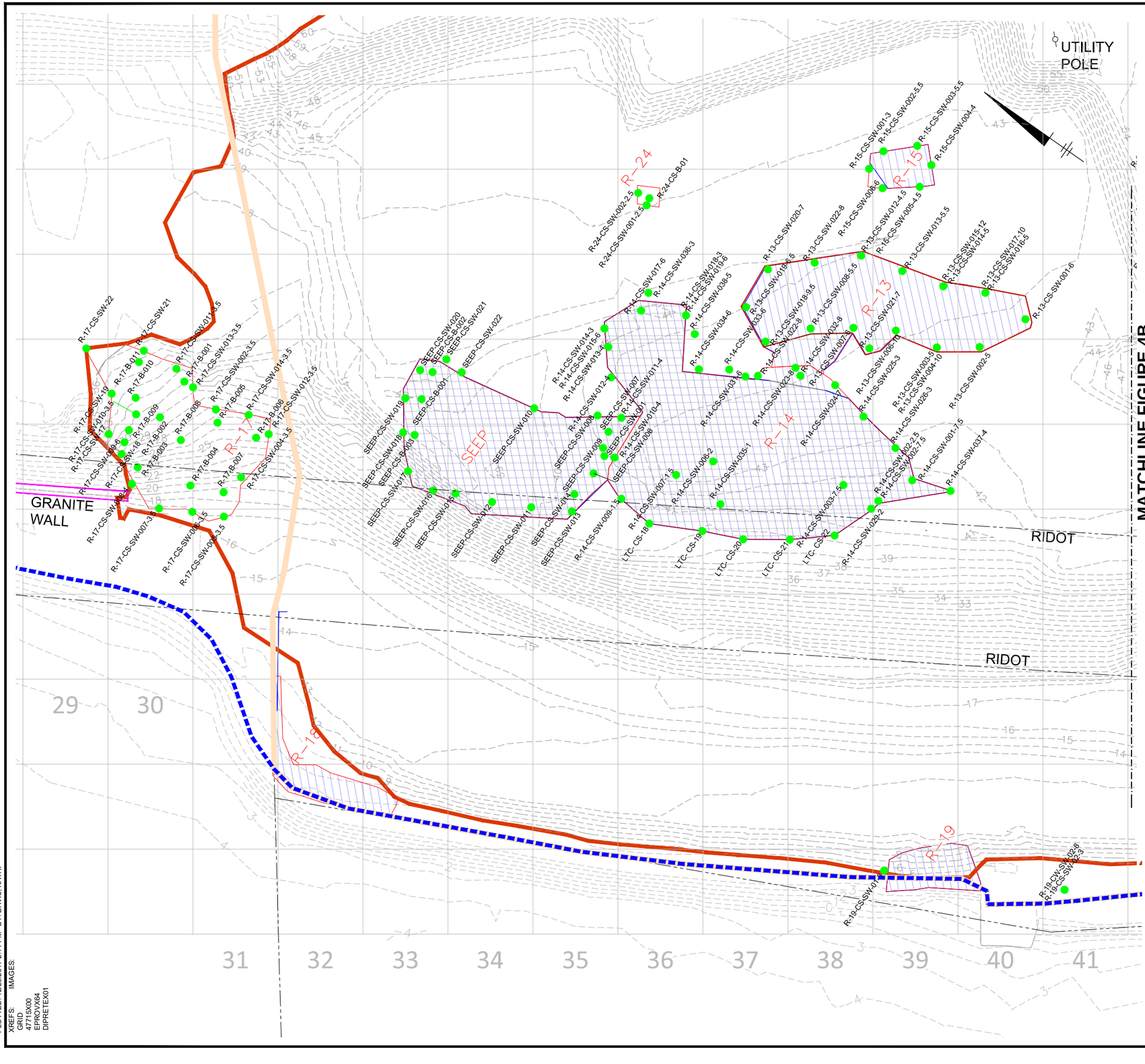
1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014.
2. PROPERTY LINES ARE FROM PLAN OF SURVEY IN EAST PROVIDENCE, RI FOR GULF OIL CORPORATION, SCALE 1" = 50', DATED JULY 1983, BY STANLEY ENGINEERING; PLAT BOOK 24 PAGE 34, EAST PROVIDENCE LAND RECORDS..
3. COORDINATES, IN U.S. SURVEY FEET, IN THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
4. ELEVATIONS ARE IN U.S SURVEY FEET, REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
5. CONTOURS SHOWN REPRESENT THE BOTTOM OF EXCAVATION TO REMOVE IMPACTED SOIL BASED ON CONFIRMATION SAMPLES AS RECORDED BY TRIMBLE ENABLED GPS EQUIPMENT ACCURATE TO 0.10 FT.
6. CONDITIONS REFLECT THE EXISTING CONDITIONS SURVEY PERFORMED BY DIPRETE ENGINEERING IN 2015 AND THE REMEDIAL ACTIVITIES COMPLETED BY ARCADIS DURING THE DPA.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

AS BUILT IMPACTED SOIL EXCAVATION

ARCADIS Design & Consultancy for natural and built assets

FIGURE
3



LEGEND:

- R-22-CS-SW-06 — SOIL SAMPLE LOCATION WITH TPH LESS THAN 2,500 mg/kg
- BOTTOM OF REMOVAL AREA LIMITS
- PROPERTY LINE
- PLAT AND LOT BOUNDARY
- COASTAL FEATURE
- FEATURES LEFT IN PLACE
- LIMIT OF DPA DISTURBANCE
- UTILITY POLE
- MAXIMUM CUT EXTENDED TO GROUNDWATER SURFACE
- MAXIMUM CUT EXTENDED TO BEDROCK SURFACE
- DPA LRAWP BOUNDARY

NOTES:

1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014, AND ARCADIS SURVEY DURING DPA CONSTRUCTION.
2. PROPERTY LINES ARE FROM PLAN OF SURVEY IN EAST PROVIDENCE, RI FOR GULF OIL CORPORATION, SCALE 1" = 50', DATED JULY 1983, BY STANLEY ENGINEERING; PLAT BOOK 24 PAGE 34, EAST PROVIDENCE LAND RECORDS.
3. COORDINATES, IN U.S. SURVEY FEET, IN THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
4. ELEVATIONS ARE IN U.S SURVEY FEET, REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
5. SOIL SAMPLE LOCATIONS LOCATED BY ARCADIS USING GPS ACCURATE TO 0.10 FT. SOIL SAMPLES WERE ANALYZED FOR TOTAL PETROLEUM HYDROCARBONS (TPH) AND OTHER CONSTITUENTS.
6. SOIL SAMPLES TAKEN INTENDED TO BE CONFIRMATION LOCATIONS THAT EXCEEDED SCOs AND WERE SUBSEQUENTLY EXCAVATED ARE NOT INCLUDED.

0 30' 60'
GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

REMOVAL AREAS AND CONFIRMATION SAMPLE LOCATIONS (NORTH)

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4A

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: K.DAVIS LD: K.DAVIS PIC: L.MINER PM: L.FENLEY TM: G.REAPENTROG LYR:ON=*;OFF=*REF*
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DIPRETEX01

SHEET PILE

GRAVEL TRENCH

MATCHLINE FIGURE 4A

RIDOT

RIDOT

RIDOT

R-01

R-02

R-03

R-04

R-05

R-06

R-07

R-08

R-09

R-09/R-10

R-10

R-11

R-12

R-22

R47

SEEP

RG52

LEGEND:

- SOIL SAMPLE LOCATION WITH TPH LESS THAN 2,500 mg/kg
- BOTTOM OF REMOVAL AREA LIMITS
- PROPERTY LINE
- PLAT AND LOT BOUNDARY
- COASTAL FEATURE
- FEATURES LEFT IN PLACE
- LIMIT OF DPA DISTURBANCE
- UTILITY POLE
- MAXIMUM CUT EXTENDED TO GROUNDWATER SURFACE
- MAXIMUM CUT EXTENDED TO BEDROCK SURFACE
- DPA LRAWP BOUNDARY

NOTES:

1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014, AND ARCADIS SURVEY DURING DPA CONSTRUCTION.
2. PROPERTY LINES ARE FROM PLAN OF SURVEY IN EAST PROVIDENCE, RI FOR GULF OIL CORPORATION, SCALE 1" = 50', DATED JULY 1983, BY STANLEY ENGINEERING; PLAT BOOK 24 PAGE 34, EAST PROVIDENCE LAND RECORDS.
3. COORDINATES, IN U.S. SURVEY FEET, IN THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
4. ELEVATIONS ARE IN U.S SURVEY FEET, REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
5. SOIL SAMPLE LOCATIONS LOCATED BY ARCADIS USING GPS ACCURATE TO 0.10 FT. SOIL SAMPLES WERE ANALYZED FOR TOTAL PETROLEUM HYDROCARBONS (TPH) AND OTHER CONSTITUENTS.
6. SOIL SAMPLES TAKEN INTENDED TO BE CONFIRMATION LOCATIONS THAT EXCEEDED SCOs AND WERE SUBSEQUENTLY EXCAVATED ARE NOT INCLUDED.

0 30' 60'
GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

REMOVAL AREAS AND CONFIRMATION SAMPLE LOCATIONS (SOUTH)

ARCADIS Design & Consultancy for natural and built assets

FIGURE
4B

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: K.DAVIS LD: K.DAVIS PIC: L.MINER PM: L.FENLEY TM: G.REAPENTROG LYR: ON=*;OFF=*REF*
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DIPRETEX01

VETERANS MEMORIAL PARKWAY

UTILITY POLE

SHEET PILE

BED ROCK

GRAVEL TRENCH

BED ROCK

BED ROCK

GRANITE WALL

RIDOT

RIDOT

LEGEND:

- LIMIT OF EXCAVATION
- 4 BOTTOM OF EXCAVATION CONTOURS (SEE NOTE 5) 1-FT INTERVAL
- 4 EXISTING ELEVATION CONTOURS (SEE NOTE 1, 3 AND 4) 2-FT INTERVAL
- PROPERTY LINE
- PLAT AND LOT BOUNDARY
- COASTAL FEATURE
- FEATURES LEFT IN PLACE
- LIMIT OF DPA DISTURBANCE
- EXISTING BIKE PATH
- UTILITY POLE

NOTES:

1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014, AND ARCADIS SURVEY DURING DPA CONSTRUCTION.
2. PROPERTY LINES ARE FROM PLAN OF SURVEY IN EAST PROVIDENCE, RI FOR GULF OIL CORPORATION, SCALE 1" = 50', DATED JULY 1983, BY STANLEY ENGINEERING; PLAT BOOK 24 PAGE 34, EAST PROVIDENCE LAND RECORDS
3. COORDINATES, IN U.S. SURVEY FEET, IN THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
4. ELEVATIONS ARE IN U.S SURVEY FEET, REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
5. CONTOURS SHOWN REPRESENT THE BOTTOM OF EXCAVATION SURFACES AS RECORDED BY TRIMBLE ENABLED GPS EQUIPMENT ACCURATE TO THE ±0.10 FT.
6. BEDROCK LIMITS SHOWN REPRESENT THE LATERAL EXTENTS OF BEDROCK LEFT IN PLACE AS RECORDED BY TRIMBLE ENABLED GPS EQUIPMENT. BEDROCK SHOWN IS ONLY THE BEDROCK ENCOUNTERED AT FINAL EXCAVATION LIMITS. ADDITIONAL BEDROCK AT VARYING ELEVATIONS ALSO EXISTS AND IS NOT SHOWN HERE.

0 60' 120'
GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

AS BUILT MAXIMUM CUT SURFACE

ARCADIS Design & Consultancy for natural and built assets

FIGURE
5

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: K.DAVIS LD: K.DAVIS PIC: L.MINER PM: L.FENLEY TM: G.REAPENTROG LYR: ON=*;OFF=*REF*
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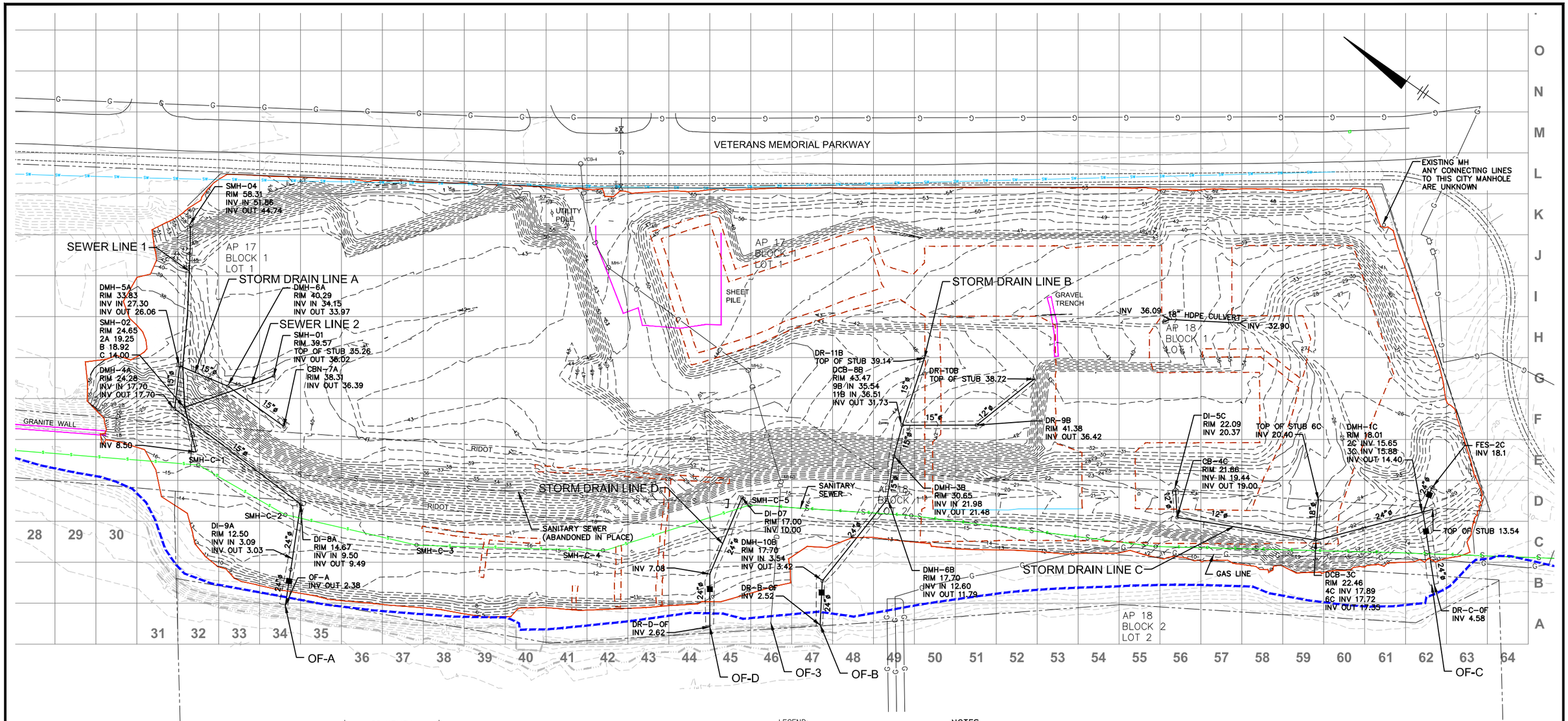

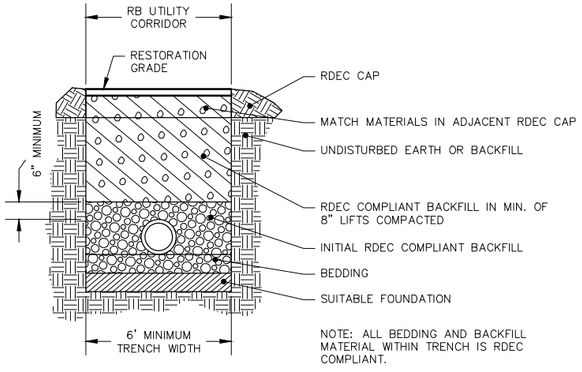

NOTE: ALL BEDDING AND BACKFILL MATERIAL WITHIN TRENCH IS RDEC COMPLIANT.

TYPICAL INSTALLED PIPE & TRENCH SECTION

NOT TO SCALE

LEGEND:

- COASTAL FEATURE
- PROPERTY LINE
- PLAT AND LOT BOUNDARY
- PIPE INSTALLED DURING DPA RESTORATION WORK
- LIMIT OF CLEAN UTILITY CORRIDOR
- FEATURES LEFT IN PLACE (SEE NOTE 7)
- ANTI-SEEP COLLAR
- LIMIT OF DPA DISTURBANCE
- EXISTING GRADE CONTOUR 2-FT INTERVAL (SEE NOTES 1, 3, & 4)
- EXISTING BIKE PATH
- SUBSURFACE SELECT FILL AREAS CONSTRUCTED DURING DPA RESTORATION ACTIVITIES
- SEA WATER LINE

NOTES:

1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014, AND ARCADIS SURVEY DURING DPA CONSTRUCTION.
2. PROPERTY LINES ARE FROM PLAN OF SURVEY IN EAST PROVIDENCE, RI FOR GULF OIL CORPORATION, SCALE 1" = 50', DATED JULY 1983, BY STANLEY ENGINEERING; PLAT BOOK 24 PAGE 34, EAST PROVIDENCE LAND RECORDS.
3. COORDINATES, IN U.S. SURVEY FEET, IN THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
4. ELEVATIONS ARE IN U.S SURVEY FEET, REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
5. CONTOURS SHOWN REPRESENT THE TOP OF RESTORATION SURFACE (RS) AS RECORDED BY TRIMBLE ENABLED GPS EQUIPMENT.
6. ADDITIONAL SUBSURFACE UTILITIES EXIST. NOT ALL UTILITIES SHOWN ON THIS FIGURE.

0 60' 120'
GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

SUBSURFACE UTILITIES AND FEATURES

ARCADIS Design & Consultancy for natural and built assets

FIGURE 6

EXISTING FENCE

EXISTING FENCE REMOVED DURING DPA ACTIVITIES

VETERANS MEMORIAL PARKWAY

AP 17 BLOCK 1 LOT 1

AP 17 BLOCK 1 LOT 1

AP 18 BLOCK 1 LOT 1

AP 18 BLOCK 1 LOT 2

AP 18 BLOCK 2 LOT 2

RIDOT

RIDOT

28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64

O N M L K J I H G F E D C B A

LEGEND:

- RESTORATION CONTOURS (SEE NOTE 5) 1–FT INTERVAL
- COASTAL FEATURE
- PROPERTY LINE
- PLAT AND LOT BOUNDARY
- LIMIT OF DPA DISTURBANCE
- DPA LRAWP BOUNDARY
- LIMIT OF 2 FOOT (MIN.) COVER SOIL
- EXISTING GRADE CONTOUR 2–FT INTERVAL (SEE NOTES 1, 3, & 4)
- RIDEM COMPLIANT CAP THICKNESS (SEE NOTE 7)
- CONTROL POINT WITH ID (SEE NOTE 8)
- NEW FENCING
- EXISTING FENCING REMOVED DURING DPA WORK

NOTES:

1. EXISTING BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2012, AUGUST 2014, AND ARCADIS SURVEY DURING DPA CONSTRUCTION.
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4. ELEVATIONS ARE IN U.S SURVEY FEET, REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).
5. CONTOURS SHOWN REPRESENT THE TOP OF RESTORATION SURFACE (RS) AS RECORDED BY TRIMBLE ENABLED GPS EQUIPMENT.
6. THE CAP IS COMPRISED OF A MINIMUM 2–FT THICK LAYER OF RIDEM COMPLIANT MATERIAL.
7. DEPTHS AT LOCATIONS SHOWN REPRESENT THE THICKNESS OF RIDEM COMPLIANT MATERIAL (TOP AND BOTTOM OF RESTORATION) DOCUMENTED DURING AND AFTER THE COMPLETION OF RESTORATION ACTIVITIES BY GPS ENABLED EQUIPMENT.
8. DEPTHS AT LOCATIONS SHOWN REPRESENT THE THICKNESS OF RIDEM COMPLIANT MATERIAL (TOP AND BOTTOM OF RESTORATION) OBSERVED WITH A HAND AUGER BY THE ENGINEER OF RECORD FOLLOWING THE COMPLETION OF RESTORATION ACTIVITIES IN THAT AREA.

0 60' 120'
GRAPHIC SCALE

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
EAST PROVIDENCE, PROVIDENCE COUNTY, RHODE ISLAND
FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)

AS BUILT RESTORATION CONTOURS AND CAP THICKNESS

ARCADIS Design & Consultancy for natural and built assets

FIGURE
7

APPENDIX A

Waste Disposal Documents (Separate file)

APPENDIX B

Confirmation Sample Analytical Reports (Separate file)

APPENDIX C

Imported Fill Analytical Reports (Separate file)

APPENDIX D

R3 and R8 Area

Arcadis U.S., Inc.

2240 South County Trail

Suite 5

East Greenwich, Rhode Island 02818

Tel 401 738 3887

Fax 401 732 1686

www.arcadis.com

ATTACHMENT A

City of East Providence
Office of the Mayor
Roberto L. DaSilva
Mayor

January 3, 2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Re: Rhode Island Department of Environmental Management (RIDEM) Beneficial Use Determination (BUD) program

Dear Mr. Dennen,

It is an exciting time for the city of East Providence. I am reaching out on behalf of the city of East Providence to express my strong support for RI Waterfront Enterprises' application for the Rhode Island Department of Environmental Management (RIDEM) Beneficial Use Determination (BUD) program.

As a long-time resident and mayor of East Providence, I have seen how this area has remained vacant for decades. Building a mixed-use port for offshore wind energy aligns with East Providence's focus on attracting a variety of industry to the area and boosting development to our waterfront. The city has had great success in collaborating with the East Providence Waterfront Commission and has seen the benefits of waterfront concerts at Bold Point Park. Adding an offshore wind supply chain port would only compliment East Providence's renewed interest in economic development in the area.

Once approved, the Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program will help East Providence to realize its goals in a number of ways. It enables the city of East Providence to demonstrate a pivotal role in the development of the offshore wind industry in Southern New England. It also enables East Providence to benefit from future job growth and investment in the waterfront area. In addition to the positive economic impact this project will have on the city, it also promotes collaboration and creates a path to align local, state and federal interests.

East Providence is fully committed to providing the necessary resources to RI Waterfront Enterprises to see this project through fruition.

In conclusion, my administration supports RI Waterfront Enterprises' commitment to this project and -- highly recommends this application for the RIDEM-BUD program.

Sincerely,

Roberto L. DaSilva
Mayor

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East Providence Area Chamber of Commerce
1011 Waterman Avenue ● East Providence, Rhode Island 02914
phone: 401.438.1212 ● eastprovidenceareachamber.com
e-mail: office@eastprovidenceareachamber.com

January 3, 2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

I write to express my support for the application submitted by RI Waterfront Enterprises (RIWE) to Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

If approved, reuse and recycling materials will be used to develop a mixed-use port in East Providence to support the offshore wind industry (OSW). As economic activity and investments in infrastructure have increased in this region in recent years, Rhode Island's ports and transportation hubs have struggled to keep pace with the demand. This port project is necessary in order to support this increased demand.

The South Quay Marine Terminal is one of the best sites available on the East Coast to serve the OSW industry; combining nearly 1,500-ft of quayside with over 30 acres of laydown area, located near most OSW leases with direct proximity to a deep-water channel, and it's situated within a Federal Opportunity Zone. It is the right project, in the right place, at the right time!

Thank you for your consideration of the application submitted by RI Waterfront Enterprises.

Sincerely,

Laura A. McNamara, executive director

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145 Taunton Ave. East Providence, RI 02914 (401) 435-7500 x11151
www.eastprovidencewaterfront.com

East Providence
Waterfront Commission

1/03/2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

I write to express my support for the application submitted by RI Waterfront Enterprises (RIWE) to Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

If approved, reuse and recycling materials will be used to develop a mixed-use port to support the offshore wind industry. As economic activity and investments in infrastructure have increased in this region in recent years, Rhode Island's ports and transportation hubs have struggled to keep pace with the demand. This port project is necessary in order to support this increased demand.

We strongly support this application and the focus on Offshore Wind infrastructure an integrated approach with other Rhode Island ports within the state and the City of East Providence. As an organization which recognizes the wide-ranging advantages of alternative clean renewable energy sources we are happy to support an industry that will also provide valuable employment opportunities for our city and region.

Through this letter, we acknowledge specific roles and responsibilities we will fulfill in this partnership. In the event this application is approved, we would expect our role in the South Quay to include:

- Forming a genuine partnership to support an integrated port infrastructure model specifically through cooperation to create a stable and secure marketplace

- Establish workforce development partnerships and training opportunities in order to provide a ready pool of skilled labor to service this growing industry. We look forward to working with you in supporting Rhode Island port and transportation industry

- Committing to the redevelopment of East Providence Waterfront

Sincerely,

Chair
East Providence Waterfront Commission

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Waterson Terminal Services

Providence – Davisville – New Bedford

January 3, 2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

I write to express my support for the application submitted by RI Waterfront Enterprises (RIWE) to Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

If approved, reuse and recycling materials will be used to develop a mixed-use port to support the offshore wind industry. As economic activity and investments in infrastructure have increased in this region in recent years, Rhode Island's ports and transportation hubs have struggled to keep pace with the demand. This port project is necessary in order to support this increased demand.

WTS specializes in all-inclusive marine terminal management services, including the handling of bulk, break bulk, and project cargoes. The South Quay port project represents not only a unique opportunity for WTS to leverage its expertise in these areas, but we also believe that the presence of this port, through an integrated approach, will make Rhode Island as a whole an even more attractive transportation hub. As an organization invested in the operation of reliable transportation infrastructure, we strongly support this application and look forward to the opportunity to operate this port to the benefit of our customers and the region. We are committed to supporting development of this facility, including our support of this BUD application.

We look forward to working with you in supporting this critical port project which we deem critical to Rhode Island's future in Blue and Green Economy.

Sincerely,

Chris Waterson General Manager
Waterson Terminal Services, LLC

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Michael F. Sabitoni
President

Scott Duhamel
Secretary/Treasurer

RHODE ISLAND
BUILDING TRADES

January 3, 2022

Mr. Mark Dennen, Supervisor
Department of Environmental Management
State of Rhode Island
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

The Rhode Island Building and Construction Trades Council is comprised of seventeen (17) Local Trade Unions and approximately 9,500 members in and around the Rhode Island area. On behalf of its officers and members, I am writing to SUPPORT RI Waterfront Enterprises' application for Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

The South Quay will benefit tremendously from RIDEM's BUD program by reusing specific materials for site improvements in order to create a coordinated mixed-use port to support the Offshore Wind Industry.

As you know, Rhode Island is home to the nation's first offshore windfarm and is a leader in the industry's development. This proposal will substantially advance the growth of the industry within our state, providing critical infrastructure for the construction, installation, and freight opportunities of wind turbine components thereby creating hundreds of work opportunities for Rhode Islanders. Accordingly, this will have an enormous economic impact on our local economy, the Offshore Wind Industry generally, the energy market, as well as greatly benefit the environment. Any assistance you can provide in advancing this application at RIDEM will pay significant dividends to our state now and in the future.

Thank you for your time and attention to this matter. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Michael F. Sabitoni
President

cc: RI Building and Construction Trades Council

Rhode Island Building and Construction Trades Council
410 South Main Street, Providence, RI 02903
P: (401)-331-9682; F: (401)-861-1480
www.buildingtradesri.com

ATTACHMENT B

MATERIALS MANAGEMENT PLAN

The Key
(aka South Key/South Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1, Lot 3
East Providence, Rhode Island

Submitted to:

Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Waste Facilities Management Program
235 Promenade Street
Providence, Rhode Island 02908

On Behalf of:

RI Waterfront Enterprises LLC
1080 Main Street
Pawtucket, Rhode Island 02860

Prepared by:

SAGE Environmental, Inc.
301 Friendship Street
Providence, Rhode Island 02903

SAGE Project No. S3291

June 16, 2023

TABLE OF CONTENTS

FIGURE

APPENDICES

1.0 INTRODUCTION

This Materials Management Plan (MMP) has been prepared for the South Quay redevelopment project (see Figure 1) located at 649 Waterfront Drive in East Providence, Rhode Island (hereinafter, the "Site"). This MMP has been developed to provide specific guidelines under which beneficial use determination (BUD) materials will be received and utilized at the Site. A United States Geological Survey (USGS) Quadrangle Site Location Map is included as **Figure 1**.

The Site is subject to the Rhode Island Department of Environmental Management (RIDEM) *Rules and Regulation for the Investigation and Remediation of Hazardous Material Releases* (*Remediation Regulations*) and has been assigned Case Numbers SR-10-1455 and SR-10-1954. Following BUD management activities, and as part of redevelopment activities, the currently proposed remedy to achieve compliance with the *Remediation Regulations* includes capping of the entire Site with a RIDEM-approved engineered barrier (i.e., landscape and hardscape) and the implementation of an Environmental Land Use Restriction (ELUR) to prevent future human exposure to impacted soils. A capping plan and ELUR will be presented to the RIDEM for approval in future submittals.

The Site comprises an approximately 60-acre area that is proposed for redevelopment during which raising of the existing grade is required and is currently being proposed to occur with the assistance of BUD materials. Currently, the total estimated quantity of material to be imported is 250,000 cubic yards. The redevelopment will include the construction of a state-of-the-art maritime port facility for shipping, commodity transport, heavy lift component transfer, and marshal industries. Construction of the maritime port facility and the subject BUD is supported by Mr. Roberto L. DaSilva, Mayor of the City of East Providence, the East Providence Area Chamber of Commerce, the East Providence Waterfront Commission, Waterson Terminal Services, LLC, and the Rhode Island Building and Construction Trades Council. Copies of the letters of support from these entities are included in **Appendix A**.

This MMP provides general and specific requirements for the receipt and handling of all BUD materials that will be maintained and utilized for the duration of the redevelopment project.

2.0 GRADING AND SHAPING MATERIALS

The BUD materials to be utilized for this project must meet certain geotechnical and chemical criteria. This section outlines the selection criteria and characteristics necessary for acceptable BUD materials. BUD materials anticipated to be utilized during the redevelopment project include the following:

- Native and non-native deposits of soil including sand, gravel, organic soils, estuarine deposits, and marine sands;
- Blasted or excavated ledge or bedrock;
- Non-painted asphalt, brick, and concrete (ABC);
- Urban fill (impacted soil);
- Street sweepings;
- Catch basin cleanings;
- Other acceptable materials in accordance with this MMP.

Acceptance of dredge material is not proposed under the subject BUD. Any dredge material proposed for reuse at the Site will be permitted by the Coastal Resources Management Council (CRMC) and/or others.

Prior to accepting any BUD material, the RIDEM-approved pre-characterization information will be reviewed by SAGE Environmental, Inc. (SAGE). The goal is to ensure that the specific geotechnical and chemical properties of the proposed material adhere to this MMP and the BUD application. This process is accomplished through review of material origin, facility processing operations, geotechnical and chemical characteristics of the material, and general compliance with this MMP. Pre-characterization of materials is discussed further in **Section 4.2**.

2.1 Reuse Material Chemical Characteristics

The BUD material analyte acceptance levels are listed at the end of **Section 4**. Allowable analyte levels have been defined based on risk assessment data, as approved in the Beneficial Use Determination – Variance Application. Materials that comply with the parameters listed at the end of **Section 4** may be reused at the Site provided the materials managed are consistent with all of the provisions of this MMP and meet geotechnical considerations.

2.2 Reuse Material Geotechnical Characteristics

Accepted BUD materials will meet the geotechnical requirements for the Site redevelopment. The target specification for fill that can be placed deeper than 3 feet from the final surface is as follows:

SIEVE SIZE	PERCENT FINER BY WEIGHT
2/3 of the loose lift thickness	100
No. 10	30-95
No. 40	10-70
No. 200	0-10

2.3 Truck Routes

All generators and transporters of BUD materials will be informed of the designated truck route to the Site prior to delivery of any materials as this route is subject to change, as necessary. The Site entrance road from Waterfront Drive will be accessed via an entrance gate at the end of Waterfront Drive. Egress from the Site will be through the same gate.

3.0 ON-SITE REUSE MATERIALS MANAGEMENT

This section describes the procedures and protocols for on-Site reuse materials management.

3.1 Sediment and Erosion Controls

Sediment and erosion controls will be installed and maintained throughout the duration of the project. Sediment and erosion control measures will adhere to a Stormwater Pollution Prevention Plan (SWPPP) and/or other applicable permits required for this project.

Perimeter controls will be installed after the vegetation clearing and grubbing necessary for the installation of the controls. Erosion and sediment controls will be actively maintained until deemed no longer necessary. All controls will be removed at project completion or sooner, as applicable. Installation details and locations of these controls will be outlined in the SWPPP and/or other applicable permits required as part of redevelopment planning.

Stabilization practices will be implemented concurrent with the initiation of on-Site construction activities. Stabilization practices may include silt fences, hay bales, temporary seeding, permanent seeding, mulching, geotextiles, vegetative buffer strips, preservation of mature vegetation, and other vegetative and non-structural measures.

Structural practices will be used to divert run-on to the active BUD material placement areas or will otherwise limit runoff and erosion of BUD materials from the Site. Drainage swales, culverts, and riprap will be implemented as needed.

Maintenance of erosion and sedimentation structures will be performed to protect the waters of the State of Rhode Island from pollution. All erosion and sediment control measures, including vegetation, and all other protective measures will be maintained in operating condition during the BUD management activities.

Following BUD management activities, and as part of redevelopment activities, the currently proposed remedy (included in the SIR submitted to the RIDEM concurrently with the initial BUD application and currently undergoing RIDEM review) to achieve compliance with the Remediation Regulations includes capping of the entire Site with a RIDEM-approved engineered barrier (combination of the DGA, stone, and rip rap) and the implementation of an ELUR to prevent future human exposure to impacted soils. The engineered barrier and ELUR will also serve to prevent any future BUD materials erosion.

3.2 Site Access and Weighing Procedures

Site access will be located off Waterfront Drive. Access onto the Site will be restricted using a locking entrance gate at the perimeter of the Site. Access by vehicles delivering BUD materials at this location will allow for truck queuing without impacting other vehicle movements on public streets. Egress from the Site will be via the same gate onto Waterfront Drive. Signage will be placed at the entrance stating the project name, the types of materials that are accepted, the types of materials that are banned, the name of the construction contractor and project representative, a 24-hour emergency telephone number, and the hours for receipt of BUD materials.

Upon entering the Site, trucks will be directed to the scale and then to the tipping area. Trucks will pass throughthe scale again prior to exiting the Site. Each truck will be provided a scale ticket indicating weight in pounds and/or tons. The Profile Number will be referenced on each scale ticket.

Truck drivers who fail to follow the approved routes will be given one warning. Drivers that repeat use of an unauthorized trucking route will be directed not to return to the Site with any additional loads.

All generators and transporters of BUD materials will be informed of the Site operating hours prior to delivery of any materials as these hours are subject to change, as necessary. Soils taken onto the Site shall only be delivered between 7:30 am and 5:00 pm, Monday through Friday.

Weight slip records of the BUD material loads will be submitted to the gate attendant. Information shall include the date and time, hauler and a classification of the material delivered. These weight slips will be maintained on file.

3.3 On-Site Reuse Materials Inspection

Materials will be placed within a designated stockpile area or placed and compacted in accordance with design grades as they are delivered to the Site. The Site equipment operator will view each load prior to spreading and grading the material, to check the material for compliance with the material requirements for this project. Loads will be inspected by SAGE for visual and olfactory evidence of contamination and respective samples from delivered materials will be collected and screened *via* the jar-headspace method for total volatile organic vapor (TVOV) using a photoionization detector (PID) calibrated to 100 parts per million by volume (ppmV) isobutylene standard. The location of delivered loads will be noted in the daily operating logs.

Non-conforming loads will be rejected from the Site. Rejected loads will be reloaded if needed and turned away from the Site at the Generator's expense. No additional loads will be accepted from that source until the Generator, Generator's qualified environmental professional (QEP), and the party contracting for placement of material at the Site provide appropriate explanation and assurance that no additional similar loads will be delivered. Rejected loads will be promptly removed by the Generator and/or party contracting for material placement at the Site. Should the Generator and/or contracting party fail to remove non-conforming material from the Site, the Site Operations Manager will promptly remove non-conforming material and manage the material at an appropriate location. The Site owner will seek recovery of all costs from the Generator, the Generator's QEP, and/or the party contracting for reuse of material for non-conforming material removed from the Site.

Documentation of non-conforming loads will include the type of material delivered, the hauler, and the date and time of the delivery. Records of non-conforming materials will be included in the quarterly reporting to the RIDEM; discussed in **Section 5.0**.

3.4 Reuse Material Stockpiling

Stockpiling of BUD materials may be necessary to ensure there is an adequate quantity of material on-site to blend with processed ABC material to meet geotechnical requirements. It is anticipated that a total of approximately 20,000 tons of BUD materials may be stockpiled within the BUD material placement area at any time. In addition, it may be necessary to stockpile processed ABC material in the same manner to ensure adequate quantities and proper blending over the duration of the project.

In addition, to ensure that the imported BUD materials meet geotechnical requirements, some imported materials may be stockpiled for processing to increase their quality prior to emplacement on-Site. SAGE

will evaluate options to process materials, as necessary, and will include the selected remedy in an addendum to this MMP.

Stockpiling of BUD materials will be performed only within the BUD material placement area, and these activities will be conducted utilizing appropriate sediment and erosion controls identified under **Section 3.1**. The stockpile area is anticipated to be within relatively close proximity to the active portion of the BUD material placement area to ensure an efficient construction operation, since this material will be used on a daily basis to blend with other BUD materials placed directly at the active construction grading area. In any event, the stockpiling of BUD materials will be conducted in a manner consistent with sound environmental practices and in accordance with this MMP.

3.5 Daily Cover

Daily cover material is intended to control potential nuisance conditions such as the potential for odors and windblown dust. By utilizing specific BUD materials in accordance with this MMP, reuse of these materials is not conducive to generation of nuisance conditions; therefore, the application of daily cover soil is not required. Controls for dust generation are discussed in **Section 3.7**. Odor control is discussed in **Section 4.5**. Dust monitoring is discussed in **Section 4.6**.

3.6 Sequencing

Construction sequencing is intended to minimize the total disturbed area associated with the BUD management activities and to expedite the completion of the project. Sequencing will be employed, as needed, during Site activities.

3.7 Dust and Vehicle Noise Controls

During construction, vehicles traveling on unpaved and paved roads may create dust during dry weather conditions. Dust may also result from wind blowing over surfaces of bare soils. The Site Owner will implement a dust control plan and dust monitoring (as described in **Section 4.6**) at the Site to mitigate fugitive dust during transport,unloading, placement and backfilling of BUD materials within the Site. Water will be applied,as necessary, through use of a water truck or hose to mitigate fugitive dust at the Site and that which may affect off-Site receptors. BUD management operations will be temporarily halted during periods of excessive winds and/or when the application of water under these conditions is ineffective. If necessary, a crushed stone/gravel pad will be construction at the trucking gate entrance/exit to remove soil buildup on truck wheels and minimize tracking of soil onto the public roadways. Further, roadways will be swept as needed to remove soil that may be tracked onto public roadways. Wood chips will be applied to un-vegetated areas to control dust, as required.

To minimize noise impacts, the sequencing (discussed in **Section 3.6**) will help create a buffer between BUD management activities and the surrounding properties.

3.8 Reuse Materials Placement

The equipment proposed for use at the Site may include an excavator, front-end loader, a track dozer, a dump truck, and a water truck. Other types of equipment will be made available as needed. Materials shall be placed as required by the geotechnical requirements as noted in **Section 2.2**.

3.9 Signoff Paperwork

Upon receipt of all material from an off-Site source and a request from the submitting party, the Owner or the Owner's authorized representative will sign off as representative of the Receiving Facility on the appropriate shipping papers. Signoffs will be forwarded electronically and by U.S. Mail to the party contracting the services or other party as authorized by the contracting party. A final report indicating the number of loads and tonnage received will be provided with the sign-off paperwork.

Upon completion of the project, SAGE will compile and retain documentation of material submittal packages, approvals, and tonnage received.

4.0 REUSE MATERIALS TESTING AND TRACKING

All incoming BUD materials will be weighed using a certified scale and the necessary information will be recorded using an appropriate logging system. Specifically, the following information will be recorded: vehicle identification, company delivering the material, the origin location (facility) of the material, tonnage, date, and time. All materials will be pre-characterized in accordance with the procedures below before they arrive at the Site.

In addition to this comprehensive logging system, records will be maintained for all necessary parameter testing of approved BUD materials (see Tables A, B, and C at the end of **Section 4**). For example, any urban fill (impacted soil) to be accepted at this Site will be sampled and analyzed in accordance with **Section 4**. In addition, materials shipping records must be completed for all urban soil loads that are delivered to the Site for use as BUD material.

4.1 Material Reuse Material Acceptance Criteria Evaluation

Anticipated BUD material sources include excavation and construction projects in Rhode Island, Massachusetts, Connecticut, and New Hampshire. Materials intended for reuse in the Site redevelopment must strictly adhere to specific geotechnical and chemical acceptance criteria outlined in this MMP.

Upon completion of BUD material placement, and as part of redevelopment activities, the entire Site will be capped with a RIDEM-approved engineered barrier and an ELUR will be implemented to prevent future human exposure to impacted soils. A capping plan and ELUR have not been proposed at this time and will be presented to the RIDEM for approval in future submittals.

4.1.1 Material Reuse Acceptance Criteria Evaluation and Selection

The following sections provide an evaluation of several resources for criteria/standards and a technical justification for the selection of proposed BUD material acceptance levels. The resources considered in

the below evaluations include the RIDEM, past-approved Coventry Landfill BUD, and Massachusetts Department of Environmental Protection (MassDEP).

RIDEM Industrial/Commercial Direct Exposure Criteria

The RIDEM Industrial/Commercial Direct Exposure Criteria (I/C-DEC) standards were developed to address soil at properties that:

- Are currently limited to industrial/commercial activity;
- Access is limited to individuals working at or temporarily visiting the property;
- The current and reasonably foreseeable future human exposure to soil is not expected to occur beyond a depth of 2 feet below ground surface; and,
- An ELUR is in effect to ensure that the property is not used for Residential Activity in the future and that any future use is limited to industrial/commercial activity.

The I/C-DEC standards consider risk related to ingestion only and were developed by utilizing a less conservative Non-cancer Hazard Index (HI) of 1 and an Excess Lifetime Cancer Risk (ELCR) of $1x10^{-6}$.

GB Leachability Criteria

The RIDEM GB Leachability Criteria (GB-LC) standards were developed to be protective of properties where:

- The GB groundwater objective is applicable to the groundwater of concern underlying and downgradient; and,
- The use of the GB-LC will not contribute to actual or potential impacts to surface water and/or sediments.

The GB-LC standards were derived utilizing the SESOIL and AT123D models to simulate the transport of organic oil and/or hazardous material (OHM) and estimate levels of soil contamination which are protective of the appropriate groundwater objectives. The GB-LC were derived for select chlorinated volatile organic compounds (CVOCs) as these models are primarily useful for mobile contaminants.

MassDEP Method 1 S-2 and S-3 Soil Standards

The MassDEP Method 1 Soil Standards consider both the potential risk of harm resulting from direct exposure and the potential impacts on the groundwater at the site. The applicability of a specific MassDEP Method 1 Soil Standard is thus a function of both the soil and groundwater category. The categories of soil (S-1, S-2, and/or S-3) and groundwater (GW-1, GW-2, and/or GW-3) are determined by each applicable exposure point. An exposure point means a location of potential contact between a human or environmental receptor and a release of OHM and may describe an area or zone of potential exposure, as well as a single discrete point. If more than one category is applicable, then multiple MassDEP Method 1 Soil Standards may be applicable.

The MassDEP Method 1 Category S-1 Soil Standards were developed to address soil at properties associated with unrestricted use (i.e., residential use, parks, playgrounds, and schoolyards) and are based on a residential exposure scenario in which the potential receptor may come into contact with contaminated soil in their yard while playing or gardening. Based upon the current and future planned use of the Site, the Category S-1 Soil Standards do not apply and are not discussed further.

The MassDEP Method 1 Category S-2 and S-3 Soil Standards consider risk related to incidental ingestion and dermal contact with soil and its leaching potential (for volatile organic compounds [VOCs], select semi-volatile organic compounds [SVOCs], chlorinated benzenes, and certain chlorinated pesticides).

Furthermore, the MassDEP developed the Method 1 Soil Standards considering a more conservative Non-Cancer HI of 0.2 and an ELCR of $1x10^{-6}$. A description of the development of the Method 1 S-2 and S-3 Soil Standards is as follows:

Method 1 S-2 Soil Standards were developed considering moderate soil exposures by adults and light use by children in scenarios such as retail use and landscaping.

Method 1 S-3 Soil Standards were developed considering limited soil exposures in scenarios such as short but intense construction/excavation.

The MassDEP Method 1 GW-1 Groundwater Standards apply to groundwater that is either a current drinking water resource or a potential future source of drinking water and are intended to address the potential health effects associated with the use of the groundwater, including ingestion of the water, inhalation of contaminants volatilizing from the water during showering, and dermal absorption of contaminants while in contact with the water. Based upon the current and future planned use of the Site, the Category GW-1 do not apply and are not discussed further.

The MassDEP Method 1 GW-2 Groundwater Standards are intended to address the potential migration of volatile OHM from groundwater into the indoor air. The model used to develop the Method 1 GW-2 Groundwater Standards calculates a unique attenuation factor (Î±, or "alpha") for each chemical, assuming highly permeable soil with low moisture content. The attenuation factor relates the indoor air concentration to the soil-gas concentration at the surface of the groundwater.

The MassDEP Method 1 GW-3 Groundwater Standards apply to all groundwater and are intended to address the adverse ecological effects that could result from discharge of OHM to surface water. Risk-based "target values" in surface water are modified by two dilution/attenuation factors to estimate an allowable concentration in groundwater. The two dilution attenuation factors are intended to conservatively account for dilution within the receiving waterbody and attenuation in the groundwater as the contaminant migrates towards the waterbody.

Reportable Concentration S-2

The S-2 Reportable Concentration (RCS-2) apply to all soil not within 500 feet of a residential dwelling, a residentially zoned property, school, playground, recreational area, or park and that is not within the boundaries of a current or potential drinking water source area (GA or GAA). The Site is located within a

GB groundwater area and is not within 500 feet of the aforementioned areas. The RCS-2 values are a combination of the MassDEP Method 1 S-2 and S-3 Soil Standards and are used for reporting obligations. The lower standard of the two Method 1 Soil Standards was selected to develop the RCS-2 values.

4.1.2 Material Reuse Acceptance Criteria Selection Methodology

The proposed revised Acceptance Criteria were derived by the following decision-making process which interprets and incorporates the RIDEM's comments:

1. Compare the lower of the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC) and Method 1 GB Leachability Criteria (GB-LC), as promulgated, for each analyte;
2. Simultaneously, compare the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standard, as promulgated, for each analyte;
3. Utilize the lower of the RIDEM Method 1 I/C-DEC, GB-LC, and MassDEP Method 1 S-2 GW-2/-3 Soil Standards as the Acceptance Criteria;
4. Where a RIDEM Method 1 I/C-DEC or GB-LC is not promulgated and a MassDEP Method 1 S-2 GW-2/-3 Soil Standard is, utilize the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standard as the Acceptance Criteria, and vice versa;
5. If no RIDEM Method 1 I/C-DEC, GB-LC, or MassDEP Method 1 S-2 GW-2/-3 Soil Standard is promulgated, the MassDEP S-2 Reportable Concentration (RCS-2) will be utilized to conservatively provide additional Acceptance Criteria for comparison/evaluation;
6. The Acceptance Criteria for five pyrogenic polycyclic aromatic hydrocarbons (PAHs) (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) will utilize the Proposed RIDEM Method 1 I/C-DEC as provided to SAGE by Ms. Ashley Blauvelt[1] of RIDEM, on October 21, 2022 *via* text message;
7. The Acceptance Criteria for two metals (arsenic and beryllium) will utilize the Site-specific Ecological Risk-Based Evaluation Soil Acceptance Criteria calculated by EcoTec, Inc. (EcoTec)[2];
8. The Acceptance Criteria for total petroleum hydrocarbons (TPH) will utilize the 1,000 milligrams per kilogram (mg/kg) value as noted below in RIDEM Comment #2(b)(I). In addition, TPH data must include the correct carbon ranges (gasoline range organics [GRO] and/or diesel range organics [DRO]) based upon the Site history. If TPH-GRO are not indicated as potential COCs, then TPH-DRO data is acceptable and vice versa. In the event TPH exceeds the Acceptance Criteria, MassDEP Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH) analysis may be used to speciate detections for comparison to alternate Acceptance Criteria defined as the lower of either the MassDEP Method 1 S-2 GW-2 or GW-3 Soil Standards for each carbon range (Note, no RIDEM *Remediation Regulations* Method 1 I/C-DEC or GB-LC exist for VPH or EPH); and,
9. For total chromium exceedances, speciation of the sample into chromium (III) and

[1] RIDEM Office of Land Revitalization & Sustainable Materials Management, Environmental Engineer IV.
[2] EcoTec, Inc. of Worcester, Massachusetts is an expert ecological risk assessment company with over 130 years of combined experience (https://ecotecinc.com/).

chromium (VI) can may be used for comparison to alternate approval/Acceptance Criteria defined as the lower of the MassDEP Method 1 S-2 GW-2/-3 Soil Standards.

As documented in the *Beneficial Use Determination (BUD) – Variance Application*, MassDEP Method 1 Soil Standards consider both the potential risk of harm resulting from direct exposure and the potential impacts on groundwater. The applicability of a specific MassDEP Method 1 Soil Standard is thus a function of both the soil and groundwater category. The categories of soil (S-1, S-2, and/or S-3) and groundwater (GW-1, GW-2, and/or GW-3) are determined by each applicable exposure point.

The MassDEP Method 1 Category S-2 Soil Standards consider risk related to incidental ingestion and dermal contact with soil and its leaching potential (for volatile organic compounds [VOCs], select semi-volatile organic compounds [SVOCs], chlorinated benzenes, and certain chlorinated pesticides). Method 1 S-2 Soil Standards were developed considering moderate soil exposures by adults and light use by children in scenarios such as retail use and landscaping.

The MassDEP Method 1 GW-3 Groundwater Standards apply to all groundwater and are intended to address the adverse ecological effects that could result from the discharge of oil and/or hazardous materials (OHM) to surface water. Risk-based "target values" in surface water are modified by two dilution/attenuation factors to estimate an allowable concentration in groundwater. The two dilution attenuation factors are intended to conservatively account for dilution within the receiving waterbody and attenuation in the groundwater as the contaminant migrates towards the waterbody.

Note, the underlying RIDEM groundwater classification of the Site and surrounding area is “GB.” GB areas are defined as “groundwater resources which are known or presumed to be unsuitable for drinking water use without treatment”. As such, neither the RIDEM GA-LC nor the MassDEP GW-1 standards apply to this Site as these apply to groundwater areas that are either a current or a potential future source of drinking water.

As the proposed revised Acceptance Criteria considers the lower of both the Method 1 S-2 GW-2 and GW-3 Soil Standards, the S-2 GW-3 Soil Standards are protective of surface water (i.e., Narragansett Bay) and/or any potential adverse ecological effects and are even more conservative as Acceptance Criteria when lower than the Method 1 I/C-DEC and/or GB-LC. In addition, the Method 1 S-2 GW-2/-3 account for:

- Soil leachability of various analytical sub-groups (including more analytes than the RIDEM Method 1 GB-LC);
- Were developed utilizing a more conservative risk assumption for the Non-cancer Hazard Index (HI) of 0.2 (versus the Method 1 I/C-DEC of 1); and,
- They evaluate for not only ingestion of soil (as evaluated by the RIDEM Method 1 I/C-DEC), but also for dermal absorption and inhalation of airborne particulates.

Therefore, the MassDEP Method 1 S-2 GW-2/-3 Soil Standards provide a more accurate representation and evaluation of potential exposure routes and risks. However, for conservancy, by utilizing the lower of the RIDEM’s Method 1 I/C-DEC, GB-LC, and MassDEP Method 1 S-2 GW-2/-3 Soil Standards, this proposed approach provides the most conservative, risk-based, compromise to the initially proposed Acceptance Criteria. Also, use of the MassDEP RCS-2 when RIDEM or MassDEP standards are not available

conservatively provides additional Acceptance Criteria for comparison/evaluation. The proposed revised Acceptance Criteria are summarized in the attached **Table C**.

As noted above, the Acceptance Criteria for five pyrogenic PAHs (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene) will utilize the Proposed RIDEM Method 1 I/C-DEC as provided to SAGE by Ms. Ashley Blauvelt of RIDEM, on October 21, 2022. According to Ms. Blauvelt, the proposed revised Method 1 I/C-DEC for these PAHs were developed by utilizing more recent toxicity and/or risk information documented by the United States Environmental Protection Agency (U.S. EPA). The Proposed RIDEM Method 1 I/C-DEC and associated proposed revised Acceptance Criteria for these five pyrogenic PAHs are documented in the attached **Table C**.

The RIDEM is receptive to proposed Acceptance Criteria exceeding RIDEM standards if justification is provided in the form of an ecological risk assessment for each contaminant which considers marine life, the water quality of the bay, human health and the environment. As noted above, the Acceptance Criteria for two metals (arsenic and beryllium) will utilize the Site-specific ecological risk based evaluation/documentation soil acceptance criteria values calculated by EcoTec (the Ecotec Ecological Risk-Based Evaluation Soil Acceptance Criteria) based upon a review of the Site and surrounding area in combination with all available ecological screening benchmarks. The Ecological Risk-Based Evaluation Soil Acceptance Criteria proposed by EcoTec were developed to be conservatively protective of marine life, the water quality of the bay, human health, and the environment. The Ecotec Ecological Risk-Based Evaluation Soil Acceptance Criteria and associated proposed revised Acceptance Criteria for arsenic and beryllium are documented in the attached **Table C**. A copy of EcoTec's ecological risk based evaluation/documentation is provided in **Appendix B**.

Please note, under no circumstance will the material delivered to the Site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations. Samples must be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) if analytes exceed 20x TCLP standard. Also, results of VOCs analysis will be required to meet a detection limit of 10x less than the Acceptance Criteria (unless detection limits are not achievable with available laboratory technology and documented as such in approval application paperwork) to safeguard against the delivery of potential listed hazardous waste to the Site.

4.1.3 Conclusions

The proposed redevelopment of the Site is for industrial/commercial use, and following the placement of BUD materials, the Site will be capped. Access to soils currently and following redevelopment is considered to be minimal and solely related to a utility and/or construction worker exposure. Therefore, the proposed combination of RIDEM and MassDEP standards and an ecological risk-based evaluation/documentation (for the proposed arsenic and beryllium Acceptance Criteria), the Acceptance Criteria, are conservatively protective of current and future risk to marine life, surface water quality (i.e., Narragansett Bay), groundwater, air, human health, and the environment.

In addition, this combination of standards includes a greater number of contaminants for comparison than do the RIDEM soil standards, thus providing a more detailed understanding of the risk of proposed

materials for import. Flowcharts depicting the afore outlined decision making process are included as **Appendix C**.

4.2 Pre-Characterization

Pre-characterization of each BUD material source will be completed prior to approval and acceptance at the Site. Pre-characterization information will be obtained and reviewed by SAGE to ensure compliance with the BUD requirements for use at the Site. It should be noted that acceptance of dredge material is not proposed under the subject BUD. Any dredge material proposed for reuse at the Site will be permitted by the Coastal Resources Management Council (CRMC) and/or others. For sources which may have existing sampling data or in cases where initial pre-characterization for acceptance is performed, review of such information may allow for the reduction and/or elimination of certain chemical analysis for initial permitting or permitting of additional material acceptance.

Each sample shall consist of a composite of a minimum of ten grab samples from the source of material (i.e., stockpile, in-situ pre-characterization, etc.) proposed for reuse under the BUD. Each sample set shall include VOCs analysis, collected from a discrete location (i.e., highest detection of TVOV utilizing a photoionization detector [PID], indication of visual or olfactory evidence of contamination, etc.) from the source of the material proposed for reuse under the BUD. Source viability will be assessed following review of each QEP Opinion Letter package submitted for potential approval under the BUD.

Chemical constituents within candidate materials must be less than the established Material Reuse Acceptance Criteria (see Tables A, B, and C at the end of **Section 4**). Other potential constituents will be reviewed on a case-by-case basis including: asbestos, amenable cyanide, dioxins, and per- and polyfluoroalkyl substances. Perchlorate testing for blasted or excavated ledge/bedrock is required unless technical justification is provided by the QEP for the Generator.

Test parameters required on materials (testing of ABC materials not required) to be considered for acceptance include:

- Volatile Organic Compounds (United States Environmental Protection Agency [U.S. EPA] 8260 Low-Level);
- Semi-volatile Organic Compounds (U.S. EPA 8270 full list);
- RIDEM 16 Metals (Antimony, Arsenic, Barium, Beryllium, Cadmium, Total Chromium, Copper, Lead, Manganese, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, and Zinc) via U.S. EPA Methods 6010/7471;
- Hexavalent Chromium if Total Chromium > 100 mg/kg via U.S. EPA Method 7196 and extracted via U.S. EPA Method 3060;
- Toxicity Characteristic Leaching Procedure (TCLP) for any analyte exceeding U.S EPA TCLP Trigger Values (20 times rule) via U.S. EPA Method 1311;
- Others as deemed prudent based on material source site history including asbestos via OSHA Method 160/NIOSH Method 7400, total and amenable cyanide via U.S. EPA Method 9010, dioxins/furans via U.S. EPA Method 1613 or 8290, per- and polyfluoroalkyl substances via U.S. EPA Draft Method 1633 with isotope dilution, and acid rock drainage (acid base accounting via Modified Acid Base Accounting (Lawrence, 1989) and net acid

generation potential via NAG Test)/perchlorate testing via U.S. EPA Method 6850 for blasted or excavated ledge or bedrock.

- Polychlorinated Biphenyls (U.S. EPA Method 8082 via Manual Soxhlet Extraction Method 3540);
- Total Petroleum Hydrocarbons (Modified U.S. EPA Method 8100). TPH laboratory analytical must include the correct carbon ranges (GRO and/or DRO) based upon the Site history. If TPH-GRO are not indicated as potential COCs, then TPH-DRO data is acceptable and vice versa. In the event TPH exceeds the Acceptance Criteria, MassDEP VPH and EPH analysis may be used to speciate detections for comparison to alternate Acceptance Criteria defined as the lower of either the MassDEP Method 1 S-2 GW-2 or GW-3 Soil Standards for each carbon range (Note, no RIDEM *Remediation Regulations* Method 1 I/C-DEC or GB-LC exist for VPH or EPH);
- pH/Corrosivity (U.S. EPA Method 9045);
- Ignitability/Flashpoint (U.S. EPA Method 1010);
- Reactive Cyanide (U.S. EPA Method 7.3.3.2);
- Reactive Sulfide (U.S. EPA Method 7.3.4.1);
- Free Liquid – Paint Filter (U.S. EPA Method 9095);
- Specific Conductance – conductivity; may be limited based on site history except for street sweepings, naturally deposited marine soils and Boston Blue Clay (U.S. EPA Method 9050);
- Particle Size (Sieve) *via* American Society for Testing and Materials (ASTM) Methods C117 and C136;
- Herbicides – may be excluded or limited based on site history (U.S. EPA Method 8151);
- Pesticides – may be excluded or limited based on site history (U.S. EPA Method 8081);
- Others as deemed prudent based on material source site history including asbestos, amenable cyanide, dioxins, per- and polyfluoroalkyl substances, and acid rock drainage (acid base accounting and net acid generation potential)/perchlorate testing for blasted or excavated ledge or bedrock; and,
- Field Screening for TVOV (PID following Jar Headspace Screening Procedure based upon an isobutylene response factor).

Laboratory analytical data must be analyzed by a Rhode Island Department of Health (RIDOH) licensed environmental laboratory, registered in the State of Rhode Island, and accredited by the National Environmental Laboratory Accreditation Program (NELAP).Detection limits for laboratory tests must be appropriate and adequate for evaluation and comparison to the Material Reuse Acceptance Criteria. Averaging of concentrations will not be allowed to meet Material Reuse Acceptance Criteria. Material containing a constituent at a concentration equal to or exceeding Material Reuse Acceptance Criteria will not be accepted. All material must meet Material Reuse Acceptance Criteria as established herein. Generator and QEP must ascertain data is appropriate for use as intended.

Please note, under no circumstance will the material delivered to the site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations. Samples must be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) if analytes exceed 20x TCLP standard. Also, results of VOCs analysis will be required to meet a detection limit of 10x less than the Material Reuse Acceptance Criteria to safeguard against the delivery of potential listed hazardous waste to the Site.

Upon review of initial submittal package information from a material source, source-specific supplemental testing of specific areas for specific contaminants where the proposed material is adjacent to other materials with exceedance(s) of Material Reuse Acceptance Criteria to define/confirm limits of acceptable material may be required at the discretion of SAGE prior to acceptance of proposed material.

For acceptance purposes, material density will be considered 1.5 tons per cubic yard for material sampled from a stockpile, and no greater than 1.7 ton per cubic yard for material sampled *in-situ* via borings or test pits. Further technical justification will be required for acceptance of material with assumed density greater than 1.7 ton per cubic yard.

Material specific review requirements are outlined below:

All materials

- All materials must comply with Table A requirements of this MMP (end of **Section 4**);
- Under no circumstance will the material delivered to the site be classified as a hazardous waste under the Federal Resource Conservation and Recovery Act (RCRA) or under RIDEM hazardous waste regulations; and,
- Each source must attach a letter from a QEP that has the following certification:

> *"In my opinion, the analyses performed and submitted for review are sufficient to adequately characterize the identity and concentrations of contaminants in the* [identify BUD Material] *proposed at the South Quay in East Providence, Rhode Island.*
>
> *Based on my review of the attached data, it is my opinion as a Qualified Environmental Professional that the* [identify BUD Material] *is appropriate as filling and grading material for the South Quay."*

Native and Non-native Deposits of Soil

- Each source of native and/or non-native soil must provide representative analytical data for compliance with Table B of this MMP.
- Each source must provide a certification of the origin of the material as virgin soil.
- Each facility must provide the applicable regulatory permit that governs the associated processing operation.
- Each source must provide a description of site history and activities that resulted in the generation of the soil. The information will include all available historical data relevant to the physical and chemical properties of the source, including a statement that the material meets the requirements identified under Tables A, B, and C of this MMP.

Rock (blasted or excavated ledge or bedrock)

- No soil included or additional testing may be required.

- Testing for perchlorate unless the Generator demonstrates that no perchlorate blasting agents were used. Testing for acid base accounting and net acid generation potential unless the Generator demonstrates the rock is not known or suspected to contain sulfide minerals. Therefore, rock (blasted or excavated ledge/bedrock) proposed for reuse under the BUD will require analysis for acid base accounting *via* Modified Acid Base Accounting (Lawrence, 1989) and net acid generation potential *via* Net Acid Generation (NAG) Test unless the QEP/Generator sufficiently demonstrate the source rock is not known or suspected to contain sulfide materials. Additional testing data, although not required, may include Net Acid Production (NAP) Test, Diagnostic Mineralogy (to identify sulfur mineral speciation, non-iron bearing sulphides, and the reactivity of sulphide minerals) using X-Ray Diffraction (XRD), X-Ray Fluorescence (XRF), Explomin, and/or Optical Microscopy, Standard Humidity Cell Testing (ASTM D5744-96), and/or Column Testing (sub-aqueous and/or sub-aerial).
- Rock (blasted or excavated ledge/bedrock) proposed for reuse under the BUD will require analysis for perchlorate *via* U.S. EPA Method 6850 unless technical justification is provided by the QEP for the Generator to document that perchlorate testing is not required.

ABC Materials

- No soil included or additional testing may be required.
- If trace amounts of soil are present in the ABC materials proposed for reuse under the BUD, the testing frequency for those soils will be determined based on the material and source-specific testing criteria in accordance with Table B – Requirements for Specific BUD Materials of the MMP.
- Each ABC processing facility must provide the applicable regulatory permit that governs the associated processing operation. The facility must provide a description of the material processing activities (i.e. equipment utilized to process ABC material and associated recycling activities) and gypsum removal program. The information will include all available historical data relevant to the physical and chemical properties of the source, including a statement that the material meets the requirements identified under Tables A, B, and C of this MMP.

Urban Fill (Impacted Soil)

- Each source of urban fill (i.e., impacted soil) must provide representative analytical data for compliance with Table B of this MMP.
- Each source must provide a description of site history and activities that resulted in the generation of the impacted fill. The information will include all available historical data relevant to the physical and chemical properties of the source, including a statement that the material meets the requirements identified under Tables A, B, and C of this MMP.

Other Materials (i.e. catch basin cleanings, street sweepings, etc.)

- Each source of other inert materials must provide representative composite sample and

analytical data for compliance with Table B of this MMP.

- Other information to describe the nature and origin of the material, as appropriate.

Given the detailed process to pre-characterize, review, approve and document each BUD material source, no sampling and analysis of BUD materials will be performed upon receipt at the Site.

4.3 Visual, Olfactory, and Field Screening Criteria

All material intended for reuse at the Site will meet visual, olfactory, and field screening criteria prior to being accepted and/or placed. Visual inspection of material is to be performed at the time of borings, test pits, stockpile sampling, at time of excavation, and/or upon arrival at the Site prior to acceptance and placement. SAGE will have an authorized representative on-Site on a full-time basis to observe off-loading of trucks and perform visual inspections of material.

Material will exhibit no indication of staining or other discoloration indicative of a release or impact of OHM or other nuisance conditions unless otherwise previously permitted. Materials approved for use at the Site shall meet geotechnical considerations concerning % ABC material, size of ABC material, and % solid waste allowable. Geotechnical requirements are outlined in **Section 2.2**.

Loads arriving with material not meeting acceptance criteria or determined to contain contaminants at levels at or exceeding Material Reuse Acceptance Criteria, based on quality assurance/quality control (QA/QC) sampling, will be rejected and removed from the Site at the expense of the Generator of that material. Loads not meeting acceptance criteria at the time of delivery to the Site due to debris, odors, or other nonconformance with Material Reuse Acceptance Criteria will be rejected prior to off-loading or reloaded immediately by the on-Site contractor. Such loads will be removed from the Site immediately in the truck they were delivered in. Should QA/QC testing indicate the material as delivered is not below Material Reuse Acceptance Criteria,then the Generator of that material and the party contracting with the Site owner for placement of material at the Site will promptly remove such material from the Site. Should the Generator and/or contracting party not promptly remove non-conforming material, SAGE will promptly act to remove that material from the Site. The Site owner will pursue cost recovery from the Generator and/or the contracting party for all costs associated with removal from the Site of material not below all Material Reuse Acceptance Criteria. Additional material will not be accepted from a source where material failed a monthly QA/QC test or material was rejected from the Site upon arrival until appropriate resolution is reached.

Material will contain no nuisance odors such as petroleum, chemicals, solvent, and/or organic material/hydrogen sulfide as described on boring or test pit logs, stockpile sampling plans,and/or upon arrival at the Site unless otherwise previously permitted. Material with natural organic/hydrogen sulfide odor that is mixed with an odor reducing agent at the location of origin will be evaluated on a case-by-case basis. The Safety Data Sheet (SDS) for all odor reducing products is required with material submittal packages.

Material must be field screened for TVOV following the Jar Headspace Screening Procedure at time of sample collection from borings, test pits, stockpiles, or other locations or at the time of excavation and loadout. Material must also be field screened at the time of excavation and load out to the Site at a

frequency of 1 field screening test per approximately 50 cubic yards. Material must contain less than 40 ppmv TVOV above ambient background by the jar headspace screening procedure to meet Material Reuse Acceptance Criteria. Natural organic material which exhibit TVOV screening levels above 40 ppmv may be considered for acceptance on a case-by-case basis provided the following: results of analyticaltesting, particularly VOC analysis, identifies no exceedances of Material Reuse Acceptance Criteria or the source of elevated TVOV screening levels can be attributed to a source other than OHM (such as hydrogen sulfide interference on PID).

4.4 Test Data Quality and Usability

Test data provided for review and acceptance must be considered current. If aged data (greater than 1 year old) is to be utilized for acceptance, then a statement from the QEP making the submittal must be provided indicating site conditions have not changed since collection of the data and that no documented releases that may impact site conditions have occurred since data was collected. Prior to submittal, the QEP making the submittal must perform a QA/QC evaluation of the data to document that data is representative and usable for its intended purpose.

For QA/QC purposes, the Site owner proposes to contract with SAGE to once monthly, randomly collect and analyze a material sample to confirm materials as received meet the established Material Reuse Acceptance Criteria. Material will be randomly obtained during off-loading of trucks at the Site and testing parameters will be as required in this MMP. Sampled loads will be segregated pending results of the analyses. This information will be utilized by SAGE as made available. Other sampling and testing may be performed by SAGE should material, as received, appear to be inconsistent with the characterization data and information used to obtain acceptance.

Material deemed not meeting Material Reuse Acceptance Criteria due to debris, odors, or other observations at the time of arrival at the Site will not be accepted. The Site contractor will reload such material into the truck upon which it arrived and reject the load. No additional loads will be accepted from that source until appropriate explanation and assurance that no additional similar loads will be delivered to the Site is provided by the Generator, Generator's QEP, and the party contracting delivery of material to the Site. When a sample fails the initial QA/QC inspection, QA/QC material inspections and testing will increase to twice per month until inspections demonstrate that material meets all Material Reuse Acceptance Criteria for three consecutive sampling events. One of the two inspections will specifically target the project having previously failed QA/QC in the prior sampling event.

Loads of material selected for monthly QA/QC sampling performed by SAGE will be segregated pending receipt of test results. Should the test results indicate that contaminants detected in material tested for QA/QC purposes are not below all Material Reuse Acceptance Criteria, then arrangements must be made promptly by the Generator and/or party contracting for material placement to immediately remove that material from the Site. If the Generator and/or party contracting for material placement fail to promptly remove non-conforming material, then SAGE will promptly remove the material from the Site and manage the material at an appropriate location or return it to the generating site. The Site owner will seek recovery from the Generator and/or party contracting for material placement for all costs associated with removal of any non-conforming material from the Site.

4.5 Material Submittal and Approval Process

A Material Submittal Package must be provided by representatives of each material source/origin for review and approval by representatives of the Site. A complete package is to be provided to:

SAGE Environmental, Inc.
301 Friendship Street
Providence, Rhode Island 02903
Phone: (401) 723-9900
E-mail: sage@sage-enviro.com

SAGE will perform a preliminary review to establish whether the submittal is complete, and if the material is appropriate for reuse at the Site. The submittal will then be assigned a Profile Number and forwarded to a Project Manager to perform the final review and approval.

Upon completion of the initial review, supplemental information, clarification, or additional delineation/frequency testing can be requested prior to acceptance. The source making the submittal must provide the information, clarification, or additional test data as requested for the approval process to proceed.

Relevant material source history and uses of each material origin/source regarding the presence, use, disposal, and/or release of OHM must be provided in submittal packages prior to acceptance at the Site. Reports including various State submittals (i.e., MCP and RIDEM Submittals), ASTM Environmental Site Assessment Reports and Limited Site Investigations, historical site- wide data, or similar documentation must be submitted and will be reviewed with regard to suitability of material for reuse at the Site.

Upon completion of the submittal review process and determination that material meets acceptance criteria, an Acceptance Letter will be issued. The Acceptance Letter will reference the assigned Profile Number, will state a review of information as provided was performed and found adequate and appropriate for acceptance, the quantity of material that is approved, materials that are not acceptable, and any other conditions applicable to the acceptance of the applicable material. Material submittal packages and Approval Letters will be retained by SAGE and submitted electronically to the RIDEM upon request.

The review process will typically take from 4 to 7 business days depending on the number ofsubmittals in the queue for review, the amount of material requested for approval, and available capacity. Submittal packages awaiting supplemental information will be placed back into thereview queue. Supplemental review will start once all required information is received.

All submittals must be complete at the time of submittal. No partial packages with information tobe submitted later will be considered for review. No preliminary reviews of data summaries will be performed.

A complete submittal package must contain the following:

- South Quay – Material Approval Application Form: Completely filled out and signed by the Generator;
- QEP Opinion Letter stating relevant site history and use, and a statement that the material requested for acceptance at the Site meets Material Reuse Acceptance Criteria established in this plan, or other explanations, as needed;
- Appropriate Shipping Papers signed by the QEP and Generator;
- Laboratory test data reports with Chain of Custody and QA/QC for the material samples intended for reuse at the Site;
- A Data Summary Table comparing source-specific material test data to the Material Reuse Acceptance Criteria. For values below the detection or minimum reporting limit, the limit should be identified. For example, ND <20 mg/kg, or <20 mg/kg must be in the summary table. Stating ND alone is not acceptable. Reporting limits shall be provided in the summary table for all compounds analyzed.
- A Data Summary Table containing site wide data is required to evaluate if delineation testing is necessary. However, site-wide and historical analytical data packages representative of material not intended for the Site must be included as a separate table in the submittal packages;
- Supplemental site investigation reports or information supporting acceptance of the subject material at the Site;
- Site figure showing where samples were collected (grab and composite), where material is being excavated or stockpiled, and locations of historical data; and,
- Photos of the material being submitted for approval.

A copy of the Material Approval Application Form is included in **Appendix D**. Material Reuse Acceptance Criteria for use in a data comparison table are listed in **Table B**.

The assigned Profile Number must be placed at the top right of each page of the intended shipping papers. Trucks will not be allowed access to the Site without the Profile Number on shipping papers.

Each truck will be weighed on a certified scaled upon arrival with a load at the Site and again after dropping the load (unless truck tare weight was previously recorded in the scale program). A net weight will be provided on a scale ticket to each truck leaving the Site.

4.6 Odor Assessment and Control Plan

Because the organic carbon content of the BUD materials will be limited in magnitude, significant odor issues are not anticipated. To ensure that this is the case, an odor assessment and control plan will be implemented for the project. Assessment will include weekly odor surveys, documentation, and response to odor complaints. If odor issues do arise, then odor mitigation procedures will be implemented, as discussed below.

4.6.1 Weekly Odor Survey

The on-Site staff will conduct an odor survey one day per week as part of their normal operational procedures. The survey will include olfactory and instrument-driven data collection along the Site

perimeter, as detailed below. The day of each survey will be identified by reviewing the upcoming weekly forecast and selecting the day most indicative to odor causing conditions (e.g., low wind speed, high temperatures, wet conditions, wind direction toward residential receptors, etc.). Once the day is determined, the survey will be conducted in the early morning as surveyor olfactory sensitivity is high and atmospheric dispersion tends to be low.

The survey will be conducted along the Site perimeter by recording hydrogen sulfide levels at prescribed locations along the perimeter of the landfill using a multi-gas meter. The prescribed locations are identified on the Weekly Odor Survey form (see example provided at the end of **Section 4**). In addition, while walking the perimeter of the Site, the surveyor will record odors based on olfactory sense. If odors are detected, the surveyor will stop to record hydrogen sulfide levels at those locations in addition to the fixed locations. The surveyor will identify and record conditions at each location (prescribed and detected) on the Weekly Odor Survey form. The following information will be recorded at each location:

- Location;
- Description of odor character and intensity (if any);
- Measured value of hydrogen sulfide (using a multi-gas meter with a <10 parts per billion [ppb] detection limit);
- Wind speed and direction; and,
- Closure construction activity.

In addition to the weekly survey, for each construction day, the following general information will be recorded:

- Wind speed and direction using either a site-specific weather station or other local data source (e.g., airport), as available;
- Weather observations (cloud cover, precipitation, haze, etc.); and,
- Type of landfill closure construction activity.

The survey results will be used to determine whether corrective action is necessary to eliminate the potential for an off-Site odor condition. A potential odor condition corrective action, as defined in **Section 4.6.3**, is initiated if either one of the following occurs:

- The surveyor smells an odor, and based on his/her understanding of the wind direction and the shaping and grading activity, determines that a corrective action should be taken; or,
- If hydrogen sulfide levels are detected above the project-specific screening level of 15 ppb, the surveyor will continue to record the hydrogen sulfide concentrations in approximately 15-minute increments until either the odor has dispersed below the screening level or the project-specific action level is exceeded. The action levels for the site are a hydrogen sulfide concentration of 15 ppb for one hour or 30 ppb for 30 minutes. Hydrogen sulfide concentration at the property line above these levels will trigger the mitigation response actions outlined in **Section 4.6.3**.

4.6.2 Response to Odor Complaints

A 24-hour call-in number will be established to address odor complaints from the Site. The telephone number will be posted at the Site entrance, provided on the City of East Providence website, and be included in flyers distributed to all abutting properties at the start of construction.

For each complaint call received, a Nuisance Complaint/Response Log will be completed. This form is located at the end of **Section 4**. The following procedures will be employed to resolve the complaint in a timely and professional manner:

1. Information to be obtained from the caller, when available, will include the name, address, telephone number, date, and time. In addition, the nature of the complaint should be identified to understand its source and cause;
2. The staff member that receives the call must complete the Nuisance Complaint/Response Log to include the above-mentioned information;
3. Upon receiving the complaint information from the caller, the designated staff member will investigate and visit the area of complaint as soon as possible within 24 hours. Corrective measures outlined in **Sections 4.6.3** will be taken as appropriate;
4. Concurrent with (3), a RIDEM representative will be notified of the complaint;
5. At the conclusion of the investigation, the designated staff member will complete the response section of the Nuisance Complaint/Response Log within 24 hours of the complaint. This response will include actions taken in response to the complaint, the identification of the root cause of the activity that may have resulted in the complaint, and the measures taken to correct and/or prevent reoccurrence; and,
6. Completed Logs will be forwarded to RIDEM in the quarterly reporting for the Site. A copy of the Logs will also be maintained on-Site for later use in modifying procedures and plans to effectively mitigate odor issues.

4.6.3 Mitigation Response Actions

The designated staff member will respond to odor complaints and to odors detected in the weekly survey to attempt to identify the root cause. If corrective measures are determined to be necessary as per the procedures defined in Sections **4.6.1 and 4.6.2**, one or more of the following activities will be initiated:

- Installation of a temporary soil cover;
- Installation of a temporary Dura-Skrim cover;
- Installation of a temporary chemical cover such as a Posi-shell;
- Review of operational procedures;
- Review of quality controls from sources of incoming materials; and/or,
- Temporary or permanent exclusion of the source of material suspected of causing the odor

4.7 Dust Monitoring

SAGE will conduct dust monitoring, during BUD management activities, using portable DustTrak field

monitors or equivalent to obtain real-time particulate data. The monitoring locations will be selected based on the specific work area, wind direction, and designed to be protective of fugitive dust escaping the work area(s). At a minimum, dust concentrations will be recorded in both the upwind and downwind direction.

Based upon the National Primary Ambient Air Quality Standard as promulgated by the U.S. EPA, the acceptable fugitive dust limit at the perimeter is considered to be a maximum 24-hour time-weighted average (TWA) with a permissible concentration of PM_{10} 150 micrograms per cubic meter (µg/m3) and a real-time 2-hour average of 200 µg/m3. However, as a conservative measure, the dust action level shall be PM_{10} 150 micrograms per cubic meter (µg/m3) sustained over a 15-minute period.

If visible dust is observed or if dust monitoring conducted during work activities indicates that concentrations of dust exceed the action levels, dust control measures shall be implemented (as outlined in **Section 3.7**) to mitigate dust concentrations. Following the implementation of dust suppression measures, work may proceed. During dry and windy weather conditions, watering trucks or other dust suppression measures shall be used to lessen wind erosion and dust problems on areas not surfaced with pavement, turf, or crushed rock and that are subject to wind erosion.

Shaping and Grading Material Requirements:

Table A
Standard Requirements for All BUD Materials

Handling Requirement at CSL	Pre - Approval	Geotechnical Properties As Placed
• Comply with South Quay Materials Management Plan	• Review of facility's operations. • Testing results/Site history. • Must not be a hazardous waste under RCRA. • Must conform to sampling and analytical requirements under attached Tables B and C. • Sampling and analysis performed at the source.	• Meeting geotechnical requirements, but at a minimum: o Total aggregate organic content o < 1% by weight of all material to minimize settlement and potential odors. o Maximum size of 12 inches. o No more than 10% by weight shall exceed 6 inches. o No free draining liquids. o Workable. o Free of rubbish, ice, and tree stumps.

Table B
Requirements for Specific BUD Materials

Category Number	Material	Material Specific Requirements	Pre-Characterization	
			Testing Frequency	Recommended Acceptable Levels
1	**NATURALLY DEPOSITED SOIL**	• Excludes soil from sources meeting Categories 2 through 4. • Provide the processing facility regulatory permit. • Provide a site history and description of the facility operations. • Provide a certification of the origin of the material.	• One test profile per 1,000 cubic yards (1,500 to 1,700 tons) of material per source.	• Table C
2	**ROCK: BLASTED OR EXCAVATED LEDGE OR BEDROCK**	• No soil included or additional testing may be required.	• One test for perchlorate per 500 cubic yards (750 to 850 tons) of material per source unless Generator demonstrates that no perchlorate blasting agents were used. One test for acid base accounting, and net acid generation potential per 500 cubic yards (750 to 850 tons) of material per source unless Generator demonstrates the rock is not known or suspected to contain sulfide minerals.	• Case-by-case basis
3	**PROCESSED ABC MATERIALS**	• Source removal of gypsum. • Removal of recyclables and miscellaneous debris. • No soil included or additional testing may be required. • Each ABC processing facility must provide the applicable regulatory permit that governs the associated processing operation. • The facility must provide a description of the material processing activities (i.e. equipment utilized to process ABC material and associated recycling activities) and gypsum removal program. • The information will include all available historical data relevant to the physical and chemical properties of the source.	• No testing required as no soil will be included with this source.	• Case-by-case basis
4	**SOILS** • **Urban Fill** • **Street Sweepings** • **Catch Basin Cleanings**	• The potential for the site to contain listed hazardous waste or to be a characteristic hazardous waste. • Visual/olfactory observations, field screening, analytical data, and/or in- situ pre-characterization data. • Provide a site history and description of the facility processing operations. • Disclose the presence or likelihood of any other OHM materials including, but not limited to solvents, metals, PCB's, SVOCs, VOCs and the potential for the site to contain listed hazardous waste or to be a characteristic hazardous waste. • If the material is Drinking Water Treatment Plant Residuals, provide a description of the treatment processes used at the facility in the QEP opinion letter. If the treatment processes include any specific treatment chemicals such that elevated levels would be anticipated in the residuals, the QEP shall adequately characterize the residuals and summarize all data collected in the submittal package.	• One test profile per 500 cubic yards (750 to 850 tons) of material per source. • One test profile per 100 cubic yards (150 to 170 tons) of material per source for "urban" street sweepings and one test profile per 500 cubic yards (750 to 850 tons) of material per source for "rural" street sweepings.	• Table C
5	**SOLID WASTE**	• No solid waste, as defined in Section 1.5 of the RIDEM's Rules and Regulations for Solid Waste Management Facilities and Organic Waste Management Facilities (Solid Waste Regulations), will be accepted for reuse under the BUD with the exception of incidental amounts of 6-mil polyethylene sheeting used during soil stockpiling, incidental debris within urban fill soils, etc.	• If any amount of solid waste is present in the material proposed for reuse under the BUD, the Generator/QEP must include this information in the QEP Opinion Letter package or include a statement that no solid waste is present.	• Case-by-case basis

Notes: Samples will be analyzed for Toxicity Characteristic Leaching Procedure (TCLP) if analytes exceed 20x TCLP standard

Table C
Proposed Reuse Acceptance Criteria

Volatile Organic Compounds (mg/kg)	MassDEP Method 1 S-2 & GW-2 Soil Standards	MassDEP Method 1 S-2 & GW-3 Soil Standards	Minimum of S-2 / GW-2 and GW-3 Soil Standards	MassDEP Reportable Concentration S-2	RIDEM Method 1 Industrial/ Commercial Direct Exposure Criteria	PROPOSED RIDEM Method 1 Industrial/ Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	Minimum of I/C-DEC and GB-LC Soil Standards	EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria	South Quay Material Reuse Acceptance Criteria
Acetone	50	400	50	50	10000	NE	NE	10000	NE	**50**
Benzene	200	200	200	200	200	NE	4.3	4.3	NE	**4.3**
Bromobenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Bromochloromethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Bromodichloromethane	0.1	100	0.1	0.1	92	NE	NE	92	NE	**0.1**
Bromoform	1	800	1	1	720	NE	NE	720	NE	**1**
Bromomethane	0.5	30	0.5	0.5	2900	NE	NE	2900	NE	**0.5**
2-Butanone	50	400	50	50	10000	NE	NE	10000	NE	**50**
tert-Butyl alcohol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
sec-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
n-Butylbenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
tert-Butylbenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Methyl t-butyl ether (MTBE)	100	500	100	100	10000	NE	100	100	NE	**100**
Carbon Disulfide	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Carbon Tetrachloride	5	100	5	5	44	NE	5	5	NE	**5**
Chlorobenzene	3	100	3	3	10000	NE	100	100	NE	**3**
Chloroethane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Chloroform	0.2	1000	0.2	0.2	940	NE	NE	940	NE	**0.2**
Chloromethane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
4-Chlorotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2-Chlorotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,2-Dibromo-3-chloropropane (DBCP)	NE	NE	NE	100	4.1	NE	NE	4.1	NE	**4.1**
Dibromochloromethane	0.03	100	0.03	0.03	68	NE	NE	68	NE	**0.03**
1,2-Dibromoethane (EDB)	0.1	5	0.1	0.1	0.07	NE	NE	0.07	NE	**0.07**
Dibromomethane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
1,2-Dichlorobenzene	100	300	100	100	10000	NE	NE	10000	NE	**100**
1,3-Dichlorobenzene	200	500	200	200	10000	NE	NE	10000	NE	**200**
1,4-Dichlorobenzene	1	400	1	1	240	NE	NE	240	NE	**1**
1,1-Dichloroethane	9	1000	9	9	10000	NE	NE	10000	NE	**9**
1,2-Dichloroethane	0.1	100	0.1	0.1	63	NE	2.3	2.3	NE	**0.1**
trans-1,2-Dichloroethene	1	1000	1	1	10000	NE	92	92	NE	**1**
cis-1,2-Dichloroethene	0.1	500	0.1	0.1	10000	NE	60	60	NE	**0.1**

1,1-Dichloroethene	40	1000	40	40	9.5	NE	0.7	0.7	NE	**0.7**
1,2-Dichloropropane	0.1	100	0.1	0.1	84	NE	70	70	NE	**0.1**
2,2-Dichloropropane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
cis-1,3-Dichloropropene	NE	NE	NE	0.1	NE	NE	NE	NE	NE	**0.1**
trans-1,3-Dichloropropene	NE	NE	NE	0.1	NE	NE	NE	NE	NE	**0.1**
1,1-Dichloropropene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,3-Dichloropropene (cis + trans)	0.4	90	0.4	0.4	NE	NE	NE	NE	NE	**0.4**
Diethyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,4-Dioxane	6	90	6	6	NE	NE	NE	NE	NE	**6**
Ethylbenzene	1000	1000	1000	1000	10000	NE	62	62	NE	**62**
Hexachlorobutadiene	100	100	100	100	NE	NE	NE	NE	NE	**100**
2-Hexanone	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Isopropylbenzene	NE	NE	NE	10000	10000	NE	NE	10000	NE	**10000**
p-Isopropyltoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Methylene Chloride	4	700	4	4	760	NE	NE	760	NE	**4**
4-Methyl-2-pentanone	50	400	50	50	10000	NE	NE	10000	NE	**50**
Naphthalene	20	1000	20	20	10000	NE	NE	10000	NE	**20**
n-Propylbenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Styrene	4	300	4	4	190	NE	64	64	NE	**4**
1,1,1,2-Tetrachloroethane	0.1	400	0.1	0.1	220	NE	NE	220	NE	**0.1**
Tetrachloroethene	10	200	10	10	110	NE	4.2	4.2	NE	**4.2**
Tetrahydrofuran	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Toluene	1000	1000	1000	1000	10000	NE	54	54	NE	**54**
1,2,4-Trichlorobenzene	6	3000	6	6	10000	NE	NE	10000	NE	**6**
1,2,3-Trichlorobenzene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,1,2-Trichloroethane	2	200	2	2	100	NE	NE	100	NE	**2**
1,1,1-Trichloroethane	600	1000	600	600	10000	NE	160	160	NE	**160**
Trichloroethene	0.3	60	0.3	0.3	520	NE	20	20	NE	**0.3**
1,2,3-Trichloropropane	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
1,3,5-Trimethylbenzene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
1,2,4-Trimethylbenzene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Vinyl Chloride	0.7	7	0.7	0.7	3	NE	NE	3	NE	**0.7**
o-Xylene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
m&p-Xylene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Total xylenes	100	1000	100	100	10000	NE	NE	10000	NE	**100**
1,1,2,2-Tetrachloroethane	0.02	50	0.02	0.02	29	NE	NE	29	NE	**0.02**
tert-Amyl methyl ether	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
1,3-Dichloropropane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Ethyl tert-butyl ether	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**

Diisopropyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Trichlorofluoromethane	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dichlorodifluoromethane	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
2-Isopropyltoluene	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Acrylonitrile	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
trans-1,4-dichloro-2-butene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Trichlorotrifluoroethane	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Semivolatile Organic Compounds (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
1,1-Biphenyl	6	3000	6	6	10000	NE	NE	10000	NE	**6**
1,2,4-Trichlorobenzene	6	3000	6	6	NE	NE	NE	NE	NE	**6**
1,2-Dichlorobenzene	100	300	100	100	10000	NE	NE	10000	NE	**100**
1,2-Diphenylhydrazine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
1,2,4,5-Tetrachlorobenzene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
1,3-Dichlorobenzene	200	500	200	200	10000	NE	NE	10000	NE	**200**
1,4-Dichlorobenzene	1	400	1	1	240	NE	NE	240	NE	**1**
Phenol	50	20	20	20	10000	NE	NE	10000	NE	**20**
2,4,5-Trichlorophenol	1000	600	600	600	10000	NE	NE	10000	NE	**600**
2,4,6-Trichlorophenol	20	20	20	20	520	NE	NE	520	NE	**20**
2,4-Dichlorophenol	60	40	40	40	6100	NE	NE	6100	NE	**40**
2,4-Dimethylphenol	100	1000	100	100	10000	NE	NE	10000	NE	**100**
2,4-Dinitrophenol	50	100	50	50	4100	NE	NE	4100	NE	**50**
2,4-Dinitrotoluene	10	10	10	10	8.4	NE	NE	8.4	NE	**8.4**
2,6-Dinitrotoluene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2-Chloronaphthalene	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
2-Chlorophenol	100	300	100	100	10000	NE	NE	10000	NE	**100**
2-Methylnaphthalene	80	500	80	80	10000	NE	NE	10000	NE	**80**
Nitrobenzene	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
2-Methylphenol	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
2-Nitroaniline	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
2-Nitrophenol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
3,3'-Dichlorobenzidine	20	20	20	20	13	NE	NE	13	NE	**13**
3-Nitroaniline	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
4,6-Dinitro-2-methylphenol	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
4-Bromophenyl phenyl ether	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
4-Chloro-3-methylphenol	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Chloroaniline	40	3	3	3	8200	NE	NE	8200	NE	**3**
4-Chlorophenyl phenyl ether	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**

4-Nitroaniline	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
4-Nitrophenol	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Acenaphthene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Acenaphthylene	600	10	10	10	10000	NE	NE	10000	NE	**10**
Acetophenone	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Aniline	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Anthracene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Benzo(a)anthracene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Benzo(a)pyrene	7	7	7	7	0.8	5.7	NE	NE	NE	**5.7**
Benzo(b)fluoranthene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Benzo(g,h,i)perylene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Benzo(k)fluoranthene	400	400	400	400	78	NE	NE	78	NE	**78**
Benzidine	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Benzoic acid	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Bis(2-chloroethoxy)methane	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Bis(2-chloroethyl)ether	0.7	8	0.7	0.7	5.2	NE	NE	5.2	NE	**0.7**
Bis(2-chloroisopropyl)ether	0.7	100	0.7	0.7	82	NE	NE	82	NE	**0.7**
Bis(2-ethylhexyl)phthalate	600	600	600	600	410	NE	NE	410	NE	**410**
Butyl benzyl phthalate	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Carbazole	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Chrysene	400	400	400	400	780	NE	NE	780	NE	**400**
Di(n)octyl phthalate	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dibenz(a,h)anthracene	4	4	4	4	0.8	5.7	NE	NE	NE	**5.7**
Dibenzofuran	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Diethyl phthalate	200	300	200	200	10000	NE	NE	10000	NE	**200**
Dimethyl phthalate	50	600	50	50	10000	NE	NE	10000	NE	**50**
Di-n-butylphthalate	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
Fluoranthene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Fluorene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Hexachlorobenzene	0.8	0.8	0.8	0.8	0.4	NE	NE	0.4	NE	**0.4**
Hexachlorobutadiene	100	100	100	100	73	NE	NE	73	NE	**73**
Hexachlorocyclopentadiene	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
Hexachloroethane	3	200	3	3	410	NE	NE	410	NE	**3**
Indeno(1,2,3-cd)pyrene	40	40	40	40	7.8	57	NE	NE	NE	**57**
Isophorone	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Naphthalene	20	1000	20	20	10000	NE	NE	10000	NE	**20**
N-Nitrosodimethylamine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
N-Nitrosodi-n-propylamine	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
N-Nitrosodiphenylamine	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**

Pentachloronitrobenzene	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Pentachlorophenol	20	10	10	10	48	NE	NE	48	NE	**10**
Phenanthrene	1000	1000	1000	1000	10000	NE	NE	10000	NE	**1000**
Pyrene	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
m&p-Cresol	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Pyridine	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Total Petroleum Hydrocarbons (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Total Petroleum Hydrocarbons	3000	3000	3000	3000	2500	NE	2500	2500	NE	**1000**
Volatile Petroleum Hydrocarbons (MADEP-VPH) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
C5-C8 Aliphatic Hydrocarbons	500	500	500	500	NE	NE	NE	NE	NE	**500**
C9-C12 Aliphatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
C9-C10 Aromatic Hydrocarbons	500	500	500	500	NE	NE	NE	NE	NE	**500**
Extractable Petroleum Hydrocarbons (MADEP-EPH) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
C9-C18 Aliphatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
C19-C36 Aliphatic Hydrocarbons	5000	5000	5000	5000	NE	NE	NE	NE	NE	**5000**
C11-C22 Aromatic Hydrocarbons	3000	3000	3000	3000	NE	NE	NE	NE	NE	**3000**
Total Metals (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Antimony	30	30	30	30	820	NE	NE	820	NE	**30**
Arsenic	20	20	20	20	7	NE	NE	7	14.48	**14.48**
Barium	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Beryllium	200	200	200	200	1.5	NE	NE	1.5	3	**3**
Cadmium	100	100	100	100	1000	NE	NE	1000	NE	**100**
Chromium (Total)	200	200	200	200	10000	NE	NE	10000	NE	**200**
Chromium (III)	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Chromium (VI)	200	200	200	200	10000	NE	NE	10000	NE	**200**
Copper	NE	NE	NE	10000	10000	NE	NE	10000	NE	**10000**

Cyanide	100	100	100	100	10000	NE	NE	10000	NE	**100**
Lead	600	600	600	600	500	NE	NE	500	NE	**500**
Manganese	NE	NE	NE	NE	10000	NE	NE	10000	NE	**10000**
Nickel	1000	1000	1000	1000	10000	NE	NE	10000	NE	**1000**
Selenium	700	700	700	700	10000	NE	NE	10000	NE	**700**
Silver	200	200	200	200	10000	NE	NE	10000	NE	**200**
Vanadium	700	700	700	700	10000	NE	NE	10000	NE	**700**
Zinc	3000	3000	3000	3000	10000	NE	NE	10000	NE	**3000**
Thallium	60	60	60	60	140	NE	NE	140	NE	**60**
Mercury	30	30	30	30	610	NE	NE	610	NE	**30**
Polychlorinated Biphenyls (PCBs) (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Aroclor-1016	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1221	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1232	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1242	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1248	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1254	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1260	NE	NE	NE	4	NE	NE	NE	NE	NE	**4**
Aroclor-1262	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Aroclor-1268	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
PCBs (Total)	4	4	4	4	10	NE	10	10	NE	**4**
Chlorinated Pesticides & Herbicides (mg/kg)	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Alachlor	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Aldrin	0.5	0.5	0.5	0.5	NE	NE	NE	NE	NE	**0.5**
a-BHC	NE	NE	NE	500	NE	NE	NE	NE	NE	**500**
1-BHC	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
v-BHC (Lindane, y-HCH)	2	0.5	0.5	0.5	NE	NE	NE	NE	NE	**0.5**
0-BHC	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Chlordane	30	30	30	30	4.4	NE	NE	4.4	NE	**4.4**
4,4-DDD (p,p')	40	40	40	40	NE	NE	NE	NE	NE	**40**
4,4-DDE (p,p')	30	30	30	30	NE	NE	NE	NE	NE	**30**
4,4-DDT (p,p')	30	30	30	30	NE	NE	NE	NE	NE	**30**
Dieldrin	0.5	0.5	0.5	0.5	0.4	NE	NE	0.4	NE	**0.4**

a-Endosulfan (I)	500	1	1	1	NE	NE	NE	NE	NE	**1**
1-Endosulfan (II)	500	1	1	1	NE	NE	NE	NE	NE	**1**
Endosulfan Sulfate	See Listed Constituents									**NE**
Endrin	20	20	20	20	NE	NE	NE	NE	NE	**20**
Endrin Aldehyde	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
Endrin ketone	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Heptachlor	2	2	2	2	NE	NE	NE	NE	NE	**2**
Heptachlor Epoxide	0.9	0.9	0.9	0.9	NE	NE	NE	NE	NE	**0.9**
Hexachlorobenzene	0.8	0.8	0.8	0.8	3.6	NE	NE	3.6	NE	**0.8**
Methoxychlor	400	400	400	400	NE	NE	NE	NE	NE	**400**
Toxaphene	NE	NE	NE	100	NE	NE	NE	NE	NE	**100**
2,4-D	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2,4-DB	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
Dalapon	NE	NE	NE	10000	NE	NE	NE	NE	NE	**10000**
Dicamba	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
Dichlorprop	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
Dinoseb	NE	NE	NE	5000	NE	NE	NE	NE	NE	**5000**
MCPA	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
MCPP	NE	NE	NE	NE	NE	NE	NE	NE	NE	**NE**
2,3,7,8-TCDD (equivalents)	0.00005	0.00005	0.00005	0.00005	NE	NE	NE	NE	NE	**0.00005**
2,4,5-T	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
2,4,5-TP (Silvex)	NE	NE	NE	1000	NE	NE	NE	NE	NE	**1000**
General Chemistry	**MassDEP Method 1 S-2 & GW-2 Soil Standards**	**MassDEP Method 1 S-2 & GW-3 Soil Standards**	**Minimum of S-2 / GW-2 and GW-3 Soil Standards**	**MassDEP Reportable Concentration S-2**	**RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**PROPOSED RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria**	**RIDEM Method 1 GB Leachability Criteria**	**Minimum of I/C-DEC and GB-LC Soil Standards**	**EcoTec, Inc. Ecological Risk-Based Evaluation Soil Acceptance Criteria**	**South Quay Material Reuse Acceptance Criteria**
Free Liquid - Paint Filter	NE	NE	NE	NE	NE	NE	NE	NE	NE	**No Free Liquids**
pH (SU)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**5.0-9.0 S.U.**
Corrosivity (positive/negative)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**Negative**
Specific Conductance (µmhos/cm)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**2000**
Flashpoint (°F)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**Non-Ignitable**
Ignitability (°F)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**>140 °F**
Reactive Cyanide (mg/kg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**<250**
Reactive Sulfide (mg/kg)	NE	NE	NE	NE	NE	NE	NE	NE	NE	**<500**

Notes:

NE = Not established for this analyte.

South Quay
Materials Management Plan
East Providence, Rhode Island

Monthly Summary Log for Aggregate, In-Place, Organic

Content Month & Year:_____

	(1) Material Type	(2) Source	(3) Tons	(4) Average % Organics	(5) Tons of Organics (3) x
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
		TOTAL			

Monthly Average Percent Organics $\frac{\Sigma(5)}{\Sigma(3)}$ _____ **%**

Notes:
1) For inert materials that include impacted soils (urban fill, street sweepings, and catch basin cleanings), organic content is assumed to be 1%.

South Quay
Materials Management Plan
Weekly Odor Survey

1) General Information:

Date:_____ Weather Conditions: _____

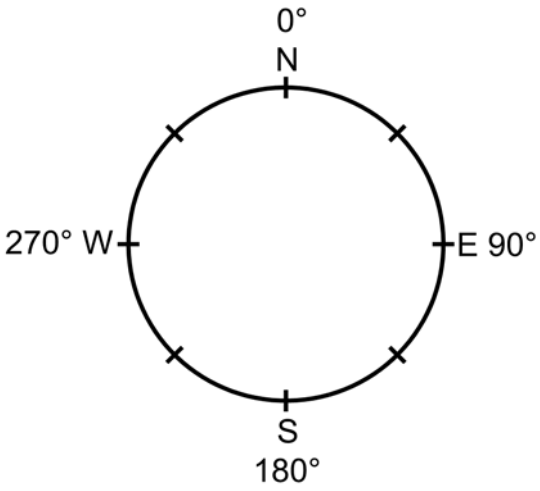
Time: _____

Surveyor:_____ Monitoring Equipment: _____

Construction Activities: _____

2) Survey:

Wind Speed & Direction:



Odor Survey Station	Observation (odor character/intensity)	Measured Value of H_2S (ppb)
1		
2		
3		
4		
5		
6		
7		

South Quay
Materials Management Plan
Nuisance Complaint/Response Log

1) Identification of Complaint:

- Caller Name / Address: _____
- Caller Phone Number: _____
- Date: _____
- Time: _____
- Location of Complaint: _____
- Weather Conditions: _____
- Complaint received by: _____

2) Nature of Complaint:

☐ Odors Description: _____

☐ Dust _____
☐ Other _____

3) Complaint Information Provided to PRP Group by Phone Call:

Contact person: _____
Date: _____ Time: _____

4) Complaint Investigation:

Contact person: _____
Date: _____ Time: _____
Findings:

_____
_____
_____

5) Response to Nuisance Complaint (Written response required below within 24 hours)

_____
_____
_____
_____

The Key (aka South Key/Quay) Air Monitoring Logs
649 Waterfront Drive, East Providence, Rhode Island
SAGE Job No.: S3291

Date: **Staff:** **Weather:** **Wind Direction:**

PID measurements are taken at each monitoring location.
(ND= <0.1 ppmV)
✖ Screening location (#### - Dustrak© Serial Number)

Dustrak© Screening Results (mg/m³)/PID (ppmV)

Dustrak No.:			**Dustrak No.:**			**Dustrak No.:**		
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**

5.0 REPORTING

A monthly summary shall be electronically sent to the Department listing the volume of soil accepted, the source location, the sampling analytical data and a figure that shows the location it was spread and/or stockpiled on the site. RI Waterfront Enterprises LLC and/or their consulting engineers are responsible for tracking the delivered tonnage and/or volume, source of the material and analytical data for this project.

Quarterly status reports shall be submitted to the RIDEM, which will summarize all BUD materials and quantities received by the Site and associated grading activities completed in accordance with the MMP. The quarterly report shall include a quarterly Site inspection completed by SAGE to review overall Site activities and progress in achieving final grade design elevations. The quarterly report shall be submitted to the RIDEM within 45 days from the end of each quarter.

Additional quarterly report requirements include the following:

- Records of non-conforming materials that include, but are not limited to, metals and miscellaneous debris. Records are to be completed by SAGE.
- Weekly Odor Survey completed by SAGE. Refer to the end of **Section 4** for the form.
- Nuisance Complaint/Response Log completed by SAGE. Refer to the end of **Section 4** for the form.
- Dust Monitoring Logs completed by SAGE. Refer to the end of **Section 4** for the form.

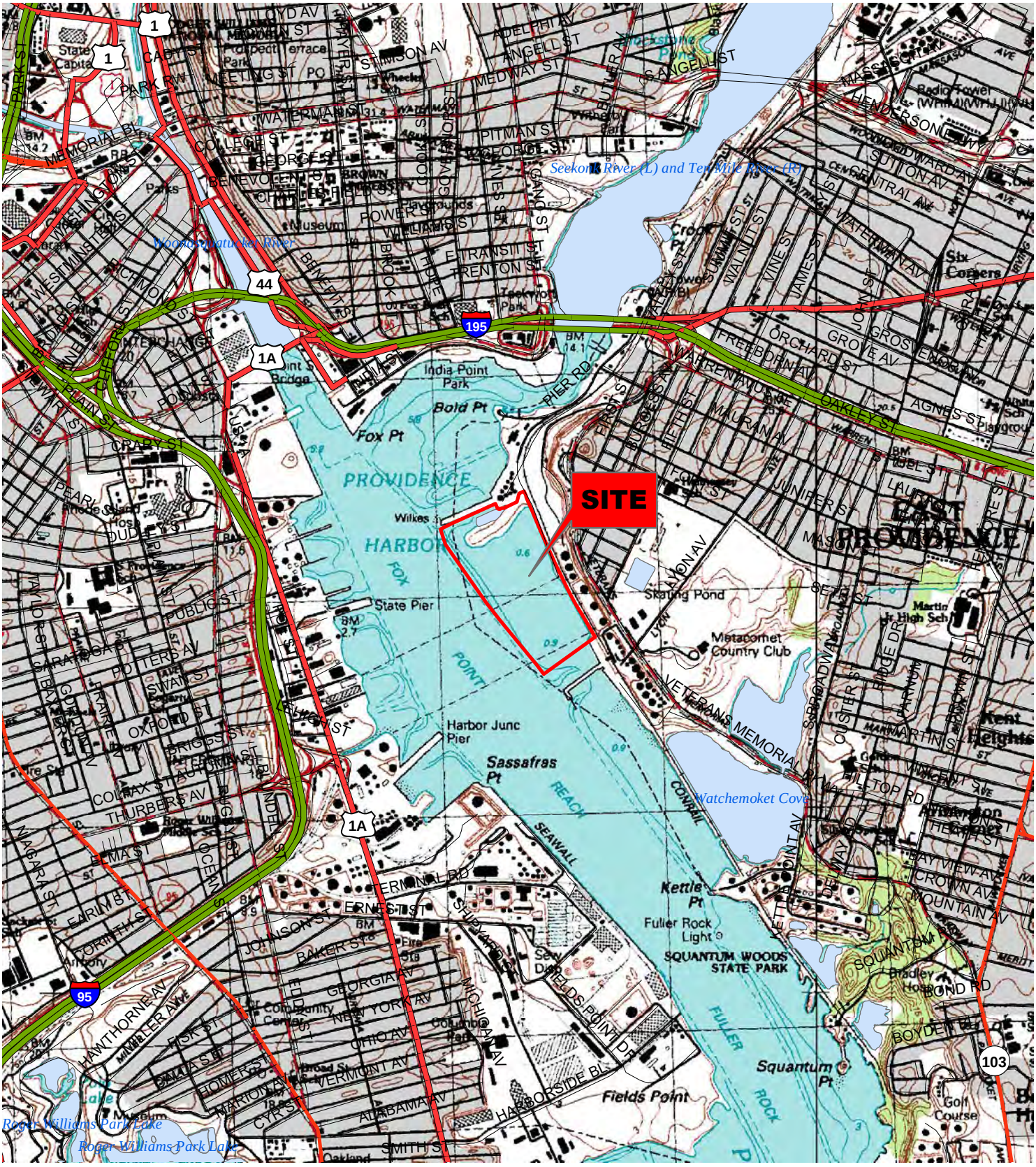
Semi-annual report requirements include the following:

- A topographic survey of the Site shall be prepared and submitted to the RIDEM to document progress of the grading activities, identify limits of completed final elevation, and identify anticipated limits to reach final elevation. The submittal will include a certification from SAGE that the completed grades are in substantial compliance with the final design plans.

Quarterly reports shall include the following certification statement signed by a representative of the Site:

"I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate, and complete to the best of my knowledge and belief."

FIGURES



USGS QUADRANGLE
PROVIDENCE, RHODE ISLAND

Site Location

USGS Quadrangle Site Location Map

649 Waterfront Drive
East Providence, Rhode Island

DATE: 09/29/2021

JOB #: S3291

CREATED BY: ALM

Data Provided by RIGIS

0 600 1,200 2,400 3,600 4,800 Feet

Figure 1

SAGE ENVIRONMENTAL

APPENDIX A

City of East Providence
Office of the Mayor
Roberto L. DaSilva
Mayor

January 3, 2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Re: Rhode Island Department of Environmental Management (RIDEM) Beneficial Use Determination (BUD) program

Dear Mr. Dennen,

It is an exciting time for the city of East Providence. I am reaching out on behalf of the city of East Providence to express my strong support for RI Waterfront Enterprises' application for the Rhode Island Department of Environmental Management (RIDEM) Beneficial Use Determination (BUD) program.

As a long-time resident and mayor of East Providence, I have seen how this area has remained vacant for decades. Building a mixed-use port for offshore wind energy aligns with East Providence's focus on attracting a variety of industry to the area and boosting development to our waterfront. The city has had great success in collaborating with the East Providence Waterfront Commission and has seen the benefits of waterfront concerts at Bold Point Park. Adding an offshore wind supply chain port would only compliment East Providence's renewed interest in economic development in the area.

Once approved, the Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program will help East Providence to realize its goals in a number of ways. It enables the city of East Providence to demonstrate a pivotal role in the development of the offshore wind industry in Southern New England. It also enables East Providence to benefit from future job growth and investment in the waterfront area. In addition to the positive economic impact this project will have on the city, it also promotes collaboration and creates a path to align local, state and federal interests.

East Providence is fully committed to providing the necessary resources to RI Waterfront Enterprises to see this project through fruition.

In conclusion, my administration supports RI Waterfront Enterprises' commitment to this project and -- highly recommends this application for the RIDEM-BUD program.

Sincerely,

Roberto L. DaSilva
Mayor

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East Providence Area Chamber of Commerce
1011 Waterman Avenue ● East Providence, Rhode Island 02914
phone: 401.438.1212 ● eastprovidenceareachamber.com
e-mail: office@eastprovidenceareachamber.com

January 3, 2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

I write to express my support for the application submitted by RI Waterfront Enterprises (RIWE) to Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

If approved, reuse and recycling materials will be used to develop a mixed-use port in East Providence to support the offshore wind industry (OSW). As economic activity and investments in infrastructure have increased in this region in recent years, Rhode Island's ports and transportation hubs have struggled to keep pace with the demand. This port project is necessary in order to support this increased demand.

The South Quay Marine Terminal is one of the best sites available on the East Coast to serve the OSW industry; combining nearly 1,500-ft of quayside with over 30 acres of laydown area, located near most OSW leases with direct proximity to a deep-water channel, and it's situated within a Federal Opportunity Zone. It is the right project, in the right place, at the right time!

Thank you for your consideration of the application submitted by RI Waterfront Enterprises.

Sincerely,

Laura A. McNamara, executive director

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145 Taunton Ave. East Providence, RI 02914 (401) 435-7500 x11151
www.eastprovidencewaterfront.com

East Providence
Waterfront Commission

1/03/2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

I write to express my support for the application submitted by RI Waterfront Enterprises (RIWE) to Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

If approved, reuse and recycling materials will be used to develop a mixed-use port to support the offshore wind industry. As economic activity and investments in infrastructure have increased in this region in recent years, Rhode Island's ports and transportation hubs have struggled to keep pace with the demand. This port project is necessary in order to support this increased demand.

We strongly support this application and the focus on Offshore Wind infrastructure an integrated approach with other Rhode Island ports within the state and the City of East Providence. As an organization which recognizes the wide-ranging advantages of alternative clean renewable energy sources we are happy to support an industry that will also provide valuable employment opportunities for our city and region.

Through this letter, we acknowledge specific roles and responsibilities we will fulfill in this partnership. In the event this application is approved, we would expect our role in the South Quay to include:

- Forming a genuine partnership to support an integrated port infrastructure model specifically through cooperation to create a stable and secure marketplace

- Establish workforce development partnerships and training opportunities in order to provide a ready pool of skilled labor to service this growing industry. We look forward to working with you in supporting Rhode Island port and transportation industry

- Committing to the redevelopment of East Providence Waterfront

Sincerely,

Chair
East Providence Waterfront Commission

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Waterson Terminal Services

Providence – Davisville – New Bedford

January 3, 2022

Mr. Mark Dennen, Supervisor
RI Department of Environmental Management
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

I write to express my support for the application submitted by RI Waterfront Enterprises (RIWE) to Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

If approved, reuse and recycling materials will be used to develop a mixed-use port to support the offshore wind industry. As economic activity and investments in infrastructure have increased in this region in recent years, Rhode Island's ports and transportation hubs have struggled to keep pace with the demand. This port project is necessary in order to support this increased demand.

WTS specializes in all-inclusive marine terminal management services, including the handling of bulk, break bulk, and project cargoes. The South Quay port project represents not only a unique opportunity for WTS to leverage its expertise in these areas, but we also believe that the presence of this port, through an integrated approach, will make Rhode Island as a whole an even more attractive transportation hub. As an organization invested in the operation of reliable transportation infrastructure, we strongly support this application and look forward to the opportunity to operate this port to the benefit of our customers and the region. We are committed to supporting development of this facility, including our support of this BUD application.

We look forward to working with you in supporting this critical port project which we deem critical to Rhode Island's future in Blue and Green Economy.

Sincerely,

Chris Waterson General Manager
Waterson Terminal Services, LLC

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Michael F. Sabitoni
President

Scott Duhamel
Secretary/Treasurer

RHODE ISLAND
BUILDING TRADES

January 3, 2022

Mr. Mark Dennen, Supervisor
Department of Environmental Management
State of Rhode Island
235 Promenade Street
Providence, RI 02908-5767

Dear Mr. Dennen,

The Rhode Island Building and Construction Trades Council is comprised of seventeen (17) Local Trade Unions and approximately 9,500 members in and around the Rhode Island area. On behalf of its officers and members, I am writing to SUPPORT RI Waterfront Enterprises' application for Rhode Island Department of Environmental Management Beneficial Use Determination (BUD) program.

The South Quay will benefit tremendously from RIDEM's BUD program by reusing specific materials for site improvements in order to create a coordinated mixed-use port to support the Offshore Wind Industry.

As you know, Rhode Island is home to the nation's first offshore windfarm and is a leader in the industry's development. This proposal will substantially advance the growth of the industry within our state, providing critical infrastructure for the construction, installation, and freight opportunities of wind turbine components thereby creating hundreds of work opportunities for Rhode Islanders. Accordingly, this will have an enormous economic impact on our local economy, the Offshore Wind Industry generally, the energy market, as well as greatly benefit the environment. Any assistance you can provide in advancing this application at RIDEM will pay significant dividends to our state now and in the future.

Thank you for your time and attention to this matter. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Michael F. Sabitoni
President

cc: RI Building and Construction Trades Council

Rhode Island Building and Construction Trades Council
410 South Main Street, Providence, RI 02903
P: (401)-331-9682; F: (401)-861-1480
www.buildingtradesri.com

APPENDIX B

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

November 3, 2022

Jacob H. Butterworth, MS, LSP
SAGE Environmental, Inc.
301 Friendship Street
Providence, RI 02903 Via email: Jbutterworth@Sage-Enviro.com

Re: Site-Specific Ecological Risk-Based Evaluation of Ecological Screening Benchmarks in the Providence River Marine Environment and Development of Soil Acceptance Criteria for Arsenic and Beryllium

Dear Mr. Butterworth:

It is my understanding that you are working with the Rhode Island Department of Environmental Management (RIDEM) to identify conservative concentration limits for arsenic and beryllium in potential soils proposed for reuse near (but not in) a marine environment of the Providence River at the property identified as The Key (aka South Key/Quay) located at 649 Waterfront Drive in East Providence, Rhode Island (hereinafter, the "Site"). The published marine ecological screening benchmarks for these two metals, an approach for calculating conservative soil acceptance criteria for the Site, and my proposed conservative Ecological Risk-Based Soil Acceptance Criteria (Acceptance Criteria) are presented within this report.

As you know, ecological screening benchmarks are utilized to identify concentrations of contaminants in environmental media which are unlikely to represent significant risk to environmental receptors. Benchmarks are designed to be conservative, and an exceedance of a benchmark does not necessarily mean that significant risk to the environment is present.

Please also note that the benchmarks discussed below are pertinent in evaluating potential concentrations in a marine environment that might result from either leaching of placed soils or incidental movement (e.g., by erosion) of placed soils into the Providence River. For sediment, movement of placed soils to the river is neither planned nor likely to occur accidentally to a substantial degree, and the effects of any such inputs would be diluted by native sediment and surface water concentrations. Therefore, I find it conservatively acceptable that for soils placed in the upland, Acceptance Criteria would be a factor significantly higher than the sediment benchmarks.

Evaluation of Available Ecological Screening Benchmarks

The NOAA Screening Quick Reference Tables ("SQuiRT") values are typically utilized as the industry-standard source of ecological screening benchmarks. Note, however, that the SQuiRTs

include a range of values with different meanings, calculated by different investigators and agencies. There is not a single generally accepted criterion for use as an ecological screening benchmark. For this Site-specific analysis, the following values are pertinent to consider:

SQuiRT Values for Possible Use as Ecological Screening Benchmarks (mg/Kg)

Benchmark	Arsenic	Beryllium	Comment
TEL = Threshold Effects Level	7.24	Not listed	Lowest value with observed effect
ERL = Effects Range Low	8.2	Not listed	Value below which negative effects are expected to be rare
T-50 = Toxicity 50% probability	20	Not listed	Use of a benchmark that indicates toxicity 50% of the time would generally not be appropriate
T-20 = Toxicity 20% probability	7.4	Not listed	Similar to TEL and ERL; indicative of unlikely risk
PEL = Probable Effects level	41.6	Not listed	Generally, a "probable" effects concentration is not suitable as a conservative screening benchmark without additional justification

Of note, there are no SQuiRT sediment values for beryllium. The United States Environmental Protection Agency (U.S. EPA) Region III has also developed ecological screening benchmarks which do not include beryllium. Additionally, the U.S. EPA Ecotox database (which contains information from more than 1 million references) was referenced related to beryllium toxicity in marine environments and very limited information was available for review.

Recommended Ecological Risk-Based Soil Acceptance Criteria

- Arsenic: Based upon a review of the SQuiRTs values above, the most conservative target concentration for the TEL of 7.24 mg/Kg is protective of the Site-specific Providence River flora and fauna. Therefore, assuming reasonable controls are in place to minimize the potential transport of placed soils to the Providence River, I recommend that a factor of 2 or more times the TEL, [i.e., **2 X 7.24 mg/Kg = 14.48 mg/Kg**] be utilized as the Soil Acceptance Criterion for arsenic, as this concentration in nearby placed soils would be conservatively protective of marine ecological receptors in the adjacent Providence River.
- Beryllium: Because there is no applicable sediment benchmark for beryllium, reasonable controls are assumed to be in place to minimize the potential transport of placed soils to the Providence River, and discharge of placed soils into the river should be minimal and diluted, I recommend that a factor of 2 times the Rhode Island background concentration of beryllium [i.e., **2 X 1.5 mg/Kg = 3 mg/Kg**] be utilized as the Soil Acceptance Criterion for beryllium, as this concentration in nearby placed soils would be

conservatively protective of marine ecological receptors in the adjacent Providence River.

I hope that this information is informative and helpful. Please feel free to reach out to me with any questions you may have.

Sincerely,

Paul J. McManus, LSP, PWS
President & Ecological Risk Assessor

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

Paul J. McManus, LSP, PWS
President

Paul McManus is the President and owner of EcoTec, Inc., which he founded in 1990. He is a certified Senior Professional Wetlands Scientist (SPWS) from the International Society of Wetlands Scientists (SWS), the leading professional organization in the field, where he served as President of the New England Chapter of SWS, representing the Chapter on the International Board of Directors for several years, and currently serves as Chapter Treasurer. Mr. McManus is also a Massachusetts Licensed Site Professional (LSP) with experience including a wide range of projects, focused on ecological risk assessment at sites with contaminated wetland resources. Prior to the founding of EcoTec, Mr. McManus was employed at other Massachusetts consulting firms and as an aquatic ecologist at the Massachusetts Division of Water Pollution Control. Mr. McManus brings a wide variety of environmental consulting experience to EcoTec, including oil and hazardous materials ecological risk assessment, wetland evaluation and delineation, lake and stream assessment, wildlife habitat evaluation, and a variety of other types of environmental impact assessment. He has conducted detailed wetland community surveys and impact restoration specifications in "Areas of Critical Environmental Concern" (ACECs), and led the local, state and federal wetland permitting, including vernal pool mitigation design and a Wetlands Protection Act Variance. He has directed thousands of other wetlands projects at sites including large and small residential and commercial developments and major utility infrastructure projects. He has completed all phases of environmental permitting work, including wetland delineation, replication and mitigation design, implementation, and monitoring in freshwater wetlands and salt marsh, as well as general wildlife and rare species assessments and trapping, including marbled salamander, 4-toed salamander, wood turtle, and eastern box turtle, under the MA Wetlands and Endangered Species Act Regulations. Permitting efforts regularly include federal, local and state permitting, including filings under the Massachusetts Environmental Policy Act (MEPA) regulations. Additional projects he has directed include major biological and chemical marine sampling programs; he has been involved in a variety of freshwater system evaluations, and conducted evaluations and sampling for proposed fresh water and marine dredging projects. He also has experience in large scale soil reuse projects, where he completed required environmental permitting and serves as the independent third-party monitor in accordance with voluntary Administrative Consent Orders for multiple sites. Mr. McManus serves as a consultant on behalf of government, business, private citizens, utility companies, the development community, conservation commissions, and concerned citizens' groups. He presently serves on a continual basis as technical wetlands consultant for the Town of Dover Conservation Commission, and works regularly for Boylston, Shrewsbury, and other Commissions providing peer review expertise for varied projects.

Education: Master of Science: Applied Marine Ecology - University of Massachusetts/Boston, 1988
Bachelor of Arts: Biology (Ecology emphasis) – College of the Holy Cross, Worcester, MA, 1984
U.S. Fish and Wildlife Service: Habitat Evaluation Procedure (HEP) Certification
Massachusetts Division of Water Pollution Control: Algal Assay (eutrophication) Short Course

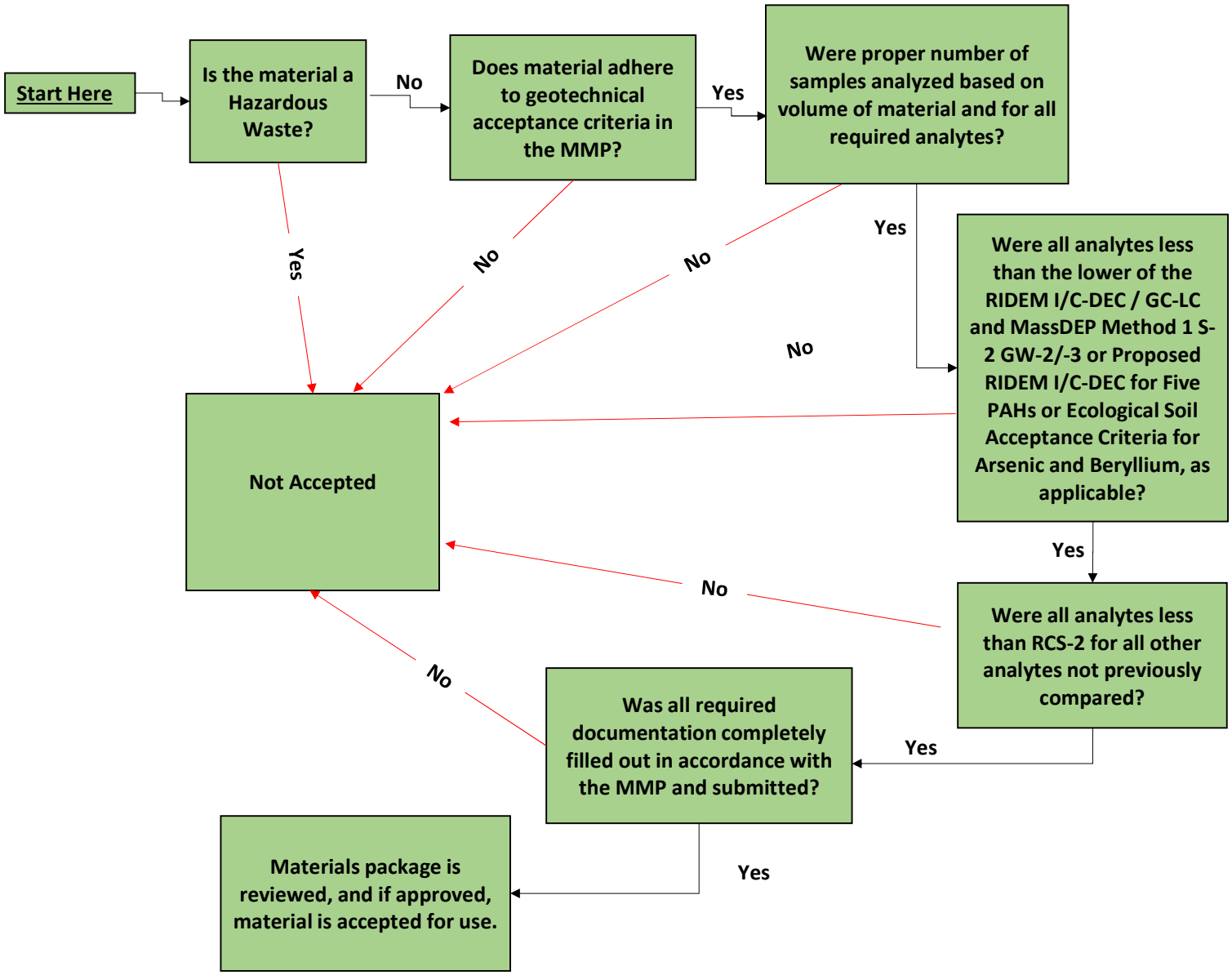
Professional Affiliations: Massachusetts Association of Conservation Commissioners (past Board of Directors)
(Partial list) Society of Wetland Scientists (Treasurer and former President of the New England Chapter)
Association of Massachusetts Wetlands Scientists
Licensed Site Professional Association

Certifications: Society of Wetlands Scientists: Senior Professional Wetlands Scientist # 962
Commonwealth of Massachusetts Licensed Site Professional # 5711
OSHA Health & Safety Hazardous Waste Safety Training, 29 CFR 1910.120 (40 hr & refresher)

APPENDIX C

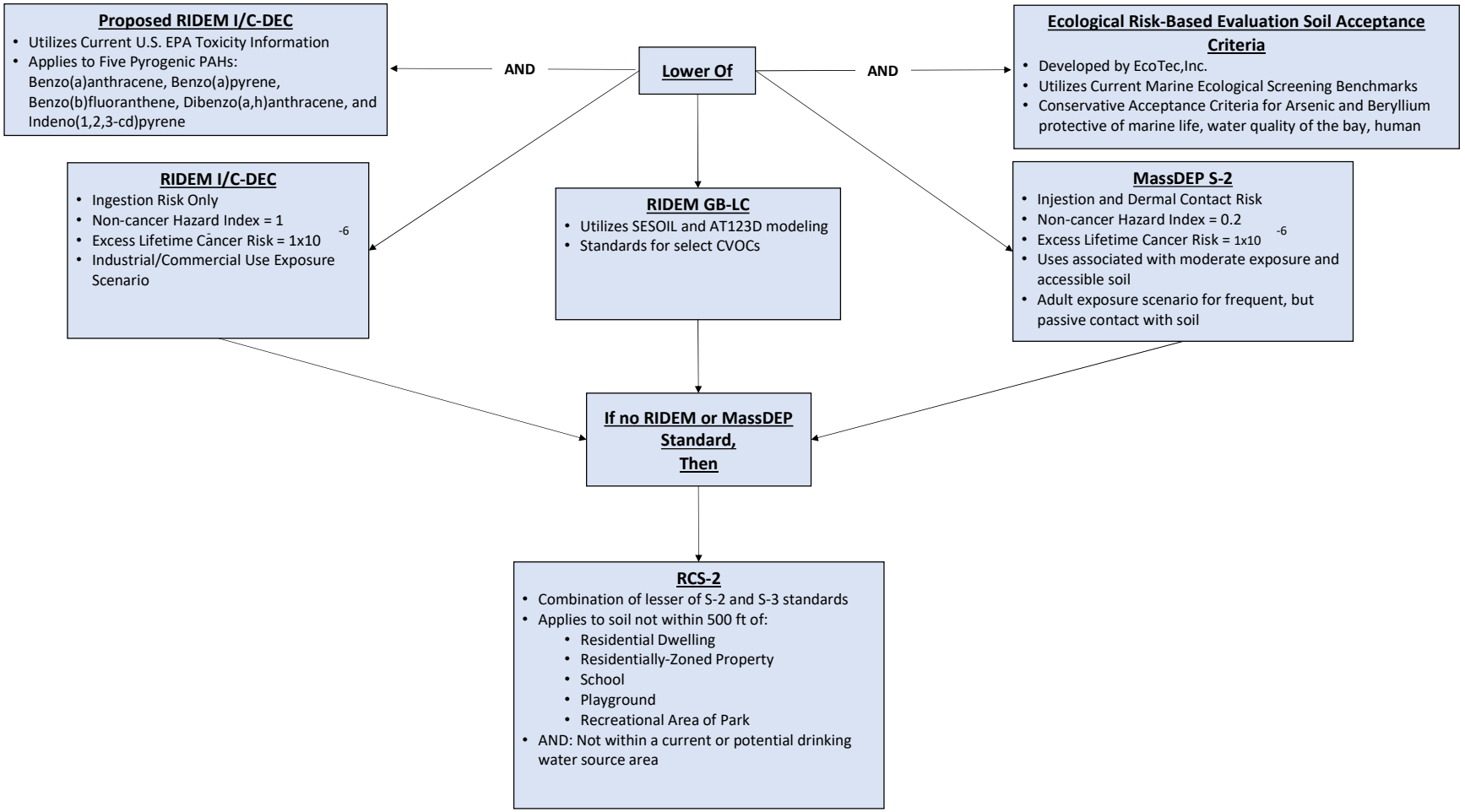
SAGE ENVIRONMENTAL

Material Acceptance



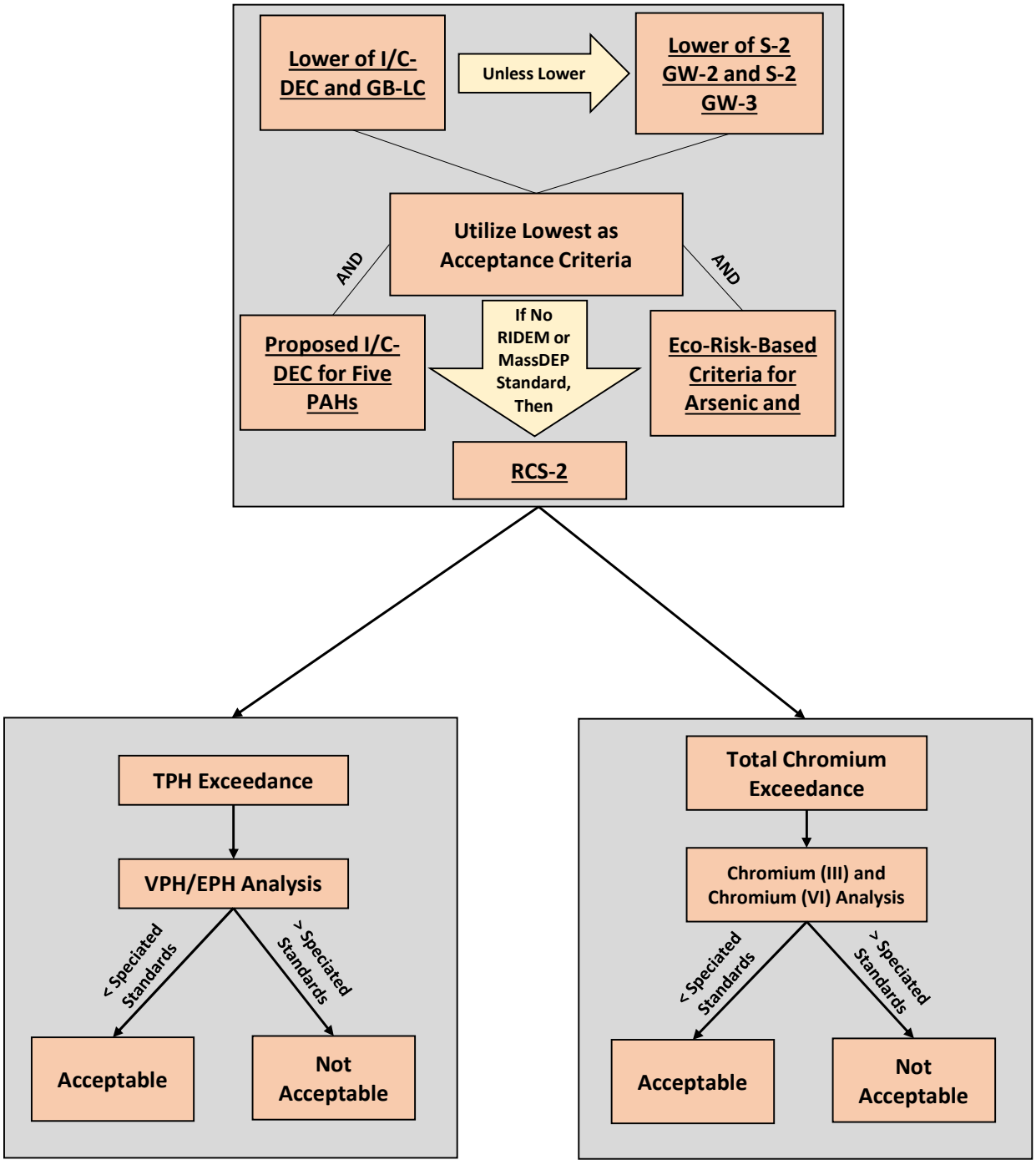
SAGE ENVIRONMENTAL

Material Reuse Acceptance Criteria Evaluation



SAGE ENVIRONMENTAL

Selection of Material Reuse Acceptance Criteria



APPENDIX 5

South Quay BUD Program

Consulting Engineer:	SAGE Environmental, Inc.
Address:	172 Armistice Boulevard Pawtucket, Rhode Island 02860
Contact:	Office: 401-723-9900 Fax: 401-723-9973 Email: sage@sage-enviro.com

Material Submittal Package Contents

- South Quay BUD Material Evaluation and Acceptance Protocol Sheet
- Material Approval Application Form
- Submittal Checklist Included as Section E of the Material Approval Application
- Analytical Testing Results as Outlined in the Materials Management Plan
- Summary Table(s) Comparing Analytical Data to Material Reuse Acceptance Criteria
- Site Sketch
- Photos of Material Submitted for Acceptance
- Environmental Professional Certification, Appendix 1
- Appropriate Shipping Papers Signed by the Qualified Environmental Professional (QEP)
- Affidavit for Processed Construction and Demolition Material, Appendix 2

Submittal Package Procedure

- Complete and submit the Material Approval Application Form, including all items identified above, to SAGE Environmental, Inc. (SAGE). Attach a written certification (Appendix 1) of completeness for administrative review and statement determination that all requirements have been met.
- Receive, sign and submit the Contract for Material Tipping to SAGE.
- Complete and submit the Appropriate Shipping Papers prior to arriving at the South Quay.
- Documentation to accompany each load: Approval Letter and Appropriate Shipping Papers with corresponding Profile Number.

South Quay BUD Material Evaluation and Acceptance Protocol

A. The following documents are to be submitted by the BUD Material Generator to the SAGE:

1. **Material Approval Application Form** (including sampling results from a RI certified laboratory, Site Sketch, Material Photos, and Submittal Checklist, (prepared and signed by the BUD Material Generator).
2. **Appropriate Shipping Papers** – Executed by the BUD Material Generator.
3. **Environmental Professional Certification** — submitted and signed by BUD Generator's Environmental Professional [1](Appendix 1).

B. Upon receipt of the above documentation, SAGE reviews the application and approves or rejects and notifies the applicant.

C. SAGE and BUD Material Generator then enter a **Contract for Material Tipping** with the tipping price established therein and ships materials to the site.

[1] The Environmental Professional must meet the definition of 'Environmental Professional' provided in ASTM E1527- 13.

SOUTH QUAY – EAST PROVIDENCE, RHODE ISLAND

MATERIAL APPROVAL APPLICATION FORM

Instructions: Complete this form with required attachments and submit via email to sage@sage-enviro.com and submit a hard copy to the address below. At least four to seven business days will be required to review a Material Approval Application Form once received. Questions should be directed to SAGE Environmental, Inc. One form shall be submitted per source.

Point of Contact:

SAGE Environmental, Inc.

172 Armistice Boulevard

Pawtucket, Rhode Island 02860

Office: (401) 723-9900

Fax: (401) 723-9973

Email: sage@sage-enviro.com

SECTION A: GENERAL MATERIAL INFORMATION

Project Name:	**SITE ID (leave blank):**	
Site Location/Address:	**Site or Sub-Area Identifier (if applicable)**	
Site Owner's Name/Address:	**Company Name**	
	Contact Person	
	Company Address	
Contact Person for Material Approval/Disposal:		
Contact Person Telephone	**Contact Person Email**	
Contact Person Fax	**Contact Person Alt.**	
Estimated Quantity of Material for Approval:	*Cubic Yards*	*Tons*
Anticipated Transportation Duration:	***Start*** / / *201*	***End*** / / *201*
Current and Former Site Usage:		

Has the Generator used Due Diligence in Characterizing the Material (circle one): YES NO

Is this material classified as hazardous or toxic material under RCRA or TSCA (circle one): YES NO

Classify Material Type for Approval

Material	Check Box	Description	Sampling Procedures
Native and Non-Native Deposits of Soil	☐	Sand, Gravel, Organic Soils, Estuarine Deposits, and Marine Sands	Refer to Materials Management Plan
Blasted or Excavated Ledge or Bedrock	☐	Rock	
Non-painted Asphalt, Brick, and Concrete (ABC)	☐	ABC	
Impacted Soils	☐	Urban Fill/Impacted Soil	
	☐	Street Sweepings	
	☐	Catch Basin Cleanings	
Other	☐	Describe:	

SECTION A: GENERAL MATERIAL INFORMATION (Continued)

Does this material conform to the following required specifications? YES □ NO □

1. All material must be less than 12 inches in size.
2. Must contain no more than 10%, by weight, material that exceeds 6 inches in size.
3. Must be workable and easy to spread and compact.
4. Must not contain free draining liquids.
5. Must not be a hazardous or toxic material under RCRA or TSCA.
6. Must be composed of little to no organic matte ·.
7. Must be free of rubbish, ice, and tree stumps.
8. Must conform to the applicable sampling procedures and analytical requirements defined in the Materials Management Plan.

Material Consistency (circle one)			
LOOSE	FRIABLE	FIRM	EXTREMELY FIRM

SECTION B

Sampler Information: The sampler information is as follows:

Company Name:	
Company Location:	
Sampling Date:	
Printed Samplers Name:	

Note: Testing results must be summarized in a table comparing analytical data to Material Reuse Acceptance Criteria and the Environmental Professional Certification, included in Appendix 1, must be completed and signed.

SECTION C

Transporter Information: The transporter information is as follows:

Operator/Company Name:	
Contact Person:	
Street:	
City/Town:	
State:	
Zip:	
Phone:	
Fax:	
Site ID Number: (Leave Blank)	

SECTION D

Receiving Facility Information: The receiving facility information for use on any shipping documents is as follows:

Operator/Facility Name:	South Quay
Contact Person:	To Be Determined
Street:	649 Waterfront Drive
City/Town:	East Providence
State:	Rhode Island
Zip:	02914
Phone:	(401) 723-9900
RIDEM Site Remediation ID Number:	SR-10-1455

SECTION E	
Required Information Checklist:	
□	Have you reviewed the South Quay BUD Material Evaluation and Acceptance Protocol sheet?
□	Has a Cover Letter summarizing the disposal request been provided?
□	Is there a signed Material Approval Application Form and are all fields completed?
□	Is there a signed Certification of Environmental Professional (Appendix 1)?
□	Is there a copy of the Generator executed Appropriate Shipping Papers?
□	Is the quantity requested for disposal identified on the Material Approval Application Form?
□	Are a site sketch and photos of the material included? Are material source location(s) and sample location(s) identified?
□	Is there a summary table(s) comparing the laboratory analytical data to the maximum acceptable levels listed in the appropriate material sampling requirements (Materials Management Plan)?
□	Has all of the Minimum Analytical Data Analysis been performed as identified in the Materials Management Plan?
□	Are the detection limits for all analytical parameters lower than the applicable maximum acceptable levels listed in the Materials Management Plan? If not, is there a statement in the QEP opinion letter explaining why this is not the case?
□	Are complete copies of the laboratory data, chain(s) of custody, and the QA/QC package for the analysis performed included?
□	Is there data for any sample(s) included with the submitted laboratory reports that is not part of the material review package and should be disregarded during our review? Are these samples crossed-out in the submittal and is there a statement in the QEP opinion letter explaining why the data should not be considered in the review?
□	Was TCLP testing performed for metals or organic compounds when the total concentrations in the material are above the theoretical (20:1) levels?
□	For processed ABC material, is a processing facility regulatory permit, description of the facility processing operations and activities (e.g., equipment utilized to process ABC material and associated recycling activities) provided?
□	For the processed ABC material, has the annual C&D Generator Affidavit form been provided, signed, and notarized?
□	For processed Drinking Water Treatment Plan Residuals, does the Cover Letter provide a description of the treatment processes used at the facility? If the treatment processes include any specific treatment chemicals such that the elevated levels would be anticipated in the residuals, does the QEP letter adequately characterize the residuals and summarize all data collected in the submittal package?

SECTION F
Site Sketch: A site diagram is required indicating any major structures or roads, excavation areas, and stockpile locations. All sampling locations must be noted.
(Attach separate sheet(s) if necessary-indicate below).

SECTION G

Photos of Material: Provide photographs of excavation areas and/or stockpiles as appropriate. Provide captions noting locations.

(Attach separate sheet(s) if necessary-indicate below).

SECTION H

Additional Information / Comments

SECTION I

Generators Signature: The Generator or duly authorized representative of the Generator shall sign and date this Material Approval Application Form certifying the following:

"To the best of my knowledge, I certify the information contained herein is a true and accurate description of the waste material requested for disposal at the South Quay. I further certify that by submitting this profile, neither myself nor any other employee of the company will deliver for disposal or attempt to deliver any material which is classified as toxic waste, hazardous waste, infectious waste, or any other material this facility is prohibited from accepting by law. I further certify that the company has not altered this form or its content in any way."

Printed Name	
Signature	Date

Appendix 1: Certification of Environmental Professional

I,_____, hereby certify to (1) SAGE Environmental, Inc., and (2) the South Quay Performing Parties Group as follows:

1. I am an environmental professional as that term is defined in 40 CFR §312.10(b) and pursuant to ASTM Standard E1527-13.

2. I have reviewed the following documents related to the South Quay located on Waterfront Drive in East Providence, Rhode Island:

   A. Beneficial Use Determination ("BUD") Application and Materials Management Plan (including the Material Reuse Acceptance Criteria) for the South Quay dated XXXX XX, 2021.
   B. Order of Approval of the Rhode Island Department of Environmental Management ("RIDEM") dated XXXX XX, 2021.

3. I have further reviewed the analytical results from a Rhode Island certified laboratory for the sampling of the materials from [insert name and location of source] _____ attached to the Material Submittal Request of [insert name of BUD generator]_____dated_____and to which the within certification is attached.

4. Based on my review of the above, it is my professional opinion that:

   A. The sampling methods and analytical results of the materials comply with all applicable Material Reuse Acceptance Criteria requirements of the above-referenced Materials Management Plan and Order of Approval for BUD materials.

   B. The frequency of sampling of such materials as reflected in the above-referenced Material Submittal Request complies with all applicable sampling frequency requirements of the above-referenced Materials Management Plan and Order of Approval for BUD materials.

   C. The materials described in the above-referenced Material Submittal Request are suitable for use for grading and shaping at the site as approved BUD materials.

Signature:_____ Date: _____
Name: _____
Title: _____
Company: _____
License #: _____

APPENDIX 2: Processed Asphalt, Brick, and Concrete Material

AFFIDAVIT
FOR
PROCESSED CONSTRUCTION AND DEMOLITION MATERIAL

TO: South Quay
C/O: SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, Rhode Island 02860

and

Rhode Island Department of Environmental Management
235 Promenade Street
Providence, RI 02908

STATE OF_____
COUNTY OF _____

The undersigned, being first duly sworn on oath, deposes and says:

Facility Name:_____

The above-referenced facility (1) is duly licensed to receive and process construction and demolition material under applicable state and federal laws, and (2) has not been assessed a criminal or administrative penalty in the past year for a violation of any environmental statute, regulation, or ordinance.

Company Name:_____

By:_____(SEAL)

Name:_____

Title:_____

ACKNOWLEDGED, SUBSCRIBED AND SWORN TO before me this _____ day of _____, 20___by_____.

My commission expires:_____

Registration #:_____

_____(SEAL)
Notary Public

ATTACHMENT C

RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

Meeting Minutes **South Key BUD, East Providence**

Meeting held via Teams conference call on October 5, 2021

Meeting Participants

Michael Donegan, Attorney	**Kelly Owens, RIDEM – Site Remediation**
Rick Mandile, Sage	**Jeff Crawford, RIDEM – Site Remediation**
Jacob Butterworth, Sage	**Mark Dennen, RIDEM – Solid Waste**
	Nathan Arruda, RIDEM – Solid Waste
	Susan Forcier, RIDEM – Office of Legal Services
	Ron Gagnon, RIDEM - OCTA RG

Purpose of the Meeting

The purpose of the meeting was to review submission requirements for a proposed Beneficial Use Determination (BUD) that would be used for the import of fill material to the South Key port development.

Meeting Minutes

- The South Key was originally approved for a container port by the ACOE in 1978. Dredging and construction of the key was started but the container port was not developed. The ACOE Permit has been continuously renewed. Development of the port for the staging of offshore wind farm components is under design.

- The project will require importing approximately 250,000 cubic yards of fill to raise the Key elevation above the floodplain elevation. A three-foot-thick cap consisting of highly dense material will be included to accommodate the proposed use as a wind farm port.

- It was noted that the dredge material from the Water Fire Dredging Project is currently stored on the site. It is expected that this material will be used for some of the material requirements. The submission and approval of a BUD Application will be required to meet the material import requirements of the project.

- The design of the port will be consistent with similar port designs in New Bedford, Massachusetts. Use of a high density, particulate aggregate CAP will accommodate heavy equipment port uses and allow for quicker repairs to the surface. Three venders are providing plans to conduct bench-scale testing of dredge materials for geo-technical requirements. It is expected that material conditioning will be required to meet the geo-tech requirements.

- The project representatives are proposing to use the existing Coventry Landfill BUD as a model for the Key BUD. Changes to the limits for Lead, Arsenic and benzo-a-pyrene will be proposed to allow for a broader range of materials that may be eligible for use as fill on the Key. It was noted that the higher acceptance levels for these components will be consistent with current approvals and projects in the State of Massachusetts.

- The BUD Application will be designed to allow use of materials from multiple sources that may include the use of tunnel boring materials from the NBC Pawtucket CSO Tunnel Project. It was noted that the use of bedrock material may require testing for the potential to leach sulfuric acid. Beryllium and Manganese were also noted as other possible contaminants of concern.

- It was agreed that a draft BUD Application may be submitted for DEM review and comment prior to a final submission. A 30-day Public Notice is required as part of the review process. The BUD Application will be followed by the submission of the Site Investigation Report required for the full remediation of the site.

To facilitate review of the permit applications, please include a copy of these notes with your application submittal. This meeting summary does not relieve the property owner from his/her obligation to obtain any local, state, or federal approvals or permits required by ordinance or law.

ATTACHMENT D

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02154

REPLY TO
ATTENTION OF

NEDOD-R-11-74-043
RI-PROV-78-425

22 August 1978

Providence and Worcester Company
94 Dexter Road
East Providence, RI 02914

Gentlemen:

Inclosed is a Federal permit authorizing the work stated therein. Please acquaint yourself with all the terms and conditions of the permit and particularly to those conditions which are binding upon you as the permittee. Your particular attention is called to condition (n) which requires you to notify this office when the work is commenced and when it is completed.

If any material changes in the plans are found necessary, revised plans should be submitted to this office. These revised plans must receive the approval required by law before the work is begun.

Sincerely yours,

for MORGAN R. REES
Chief, Regulatory Branch
Operations Division

Incl
Permit

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Application Number: 11-74-043 Permit Number: RI-PROV-78-425

Name of Applicant Providence and Worcester Company

Effective Date 22 August 1978

Expiration Date (if applicable)

DEPARTMENT OF THE ARMY

PERMIT

Referring to written request dated 28 January 1974 for a permit to:

(X) Perform work in or affecting navigable waters of the United States, upon the recommendation of the Chief of Engineers, pursuant to Section 10 of the River and Harbor Act of 3 March 1899 (33 U.S.C. 403);

(X) Discharge dredged or fill material into navigable waters of the United States upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (86 Stat. 816, P.L. 92-500);

( ) Transport dredged material for the purpose of dumping it into ocean waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (86 Stat. 1052; P.L. 92-532);

Providence & Worcester Co.
94 Dexter Road
East Providence, RI 02914

is hereby authorized by the Secretary of the Army to: construct a rail/ship cargo terminal consisting of: a hydraulically dredged berthing area adjacent to the Federal Channel, 1900' x 200' to a depth of -42.5' mean low water, a 1900' x 100' pile supported reinforced concrete breasting platform and a 45 acre fill. Dredged material, approx. 255,000 c.y. of river silts and organic muds will be contained in two permeable earth berm filter basins constructed of imported granular material for this purpose. These basins would extend from 250' shoreward of the breasting platform to shore. When completed, the facility will extend approx. 1200' beyond m.h.w. terminating approx. 100' shoreward of the Federal Channel. The basic purpose of this work is to provide a rail ship terminal for handling containerized and general cargo. The main purpose of the fill area is to dispose of the dredged material generated by the berthing facility. Once stabilized, however, it will be used for cargo storage & handling facilities. A railroad, buildings and storage areas used in dry bulk cargo facilities will be constructed on the fill.

in the Providence River

at East Providence, RI

in accordance with the plans and drawings attached hereto which are incorporated in and made a part of this permit, entitled, "Proposed Land Fill in Providence River at Wilkesbarre Pier, County of Providence, State of R.I." in five sheets, dated, "March 1977".

Subject to the following conditions:

I. General Conditions:

a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

b. That all activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), the Marine Protection, Research and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1052), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge during its construction or operation, of any pollutant (including dredged or fill material), into waters of the United States, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the Division Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species.

e. That the permittee agrees to make every reasonable effort to prosecute the construction or operation of the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife, and natural environmental values.

f. That the permittee agrees that it will prosecute the construction or work authorized herein in a manner so as to minimize any degradation of water quality.

g. That the permittee shall permit the Division Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

h. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

i. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the Division Engineer that immediate suspension of the activity authroized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventive measures to be taken by the permittee which are deemed necessary by the Division Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevant to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified, or revoked.

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct warranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension, or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the Division Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the Division Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein is not started on or before 31st day of AUGUST, 1979, and is not completed on or before 31st day of DECEMBER, 1984, this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

q. That if and when the permittee desires to abandon the activity authorized herein, unelss such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition "t" hereof, he must restore the area to a condition satisfactory to the Division Engineer.

r. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaning records of title to and interests in real property.

s. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

t. That this permit may not be transferred to a third party without prior written notice to the Division Engineer, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit in the space provide below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

II. SPECIAL CONDITIONS

a. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

b. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity by this permit.

c. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

d. That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permitteee.

e. That the discharge will be carried out in conformity with the goals and objectives of the EPA Guidelines established pursuant to Section 404(b) of the Federal Water Pollution Control Act Amendments and published in 40 CFR 230.

f. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities.

g. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution.

h. That the discharge will not occur in a component of the National Wild and Scenic River System or in a component of a State wild scenic river system.

This permit shall become effective on the date of the Division Engineer's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit

PROVIDENCE AND WORCESTER COMPANY

BY: Joseph R. Di Stefano, Secretary — AUGUST 22, 1978

PERMITTEE — DATE

JOSEPH R. DI STEFANO, SECRETARY

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

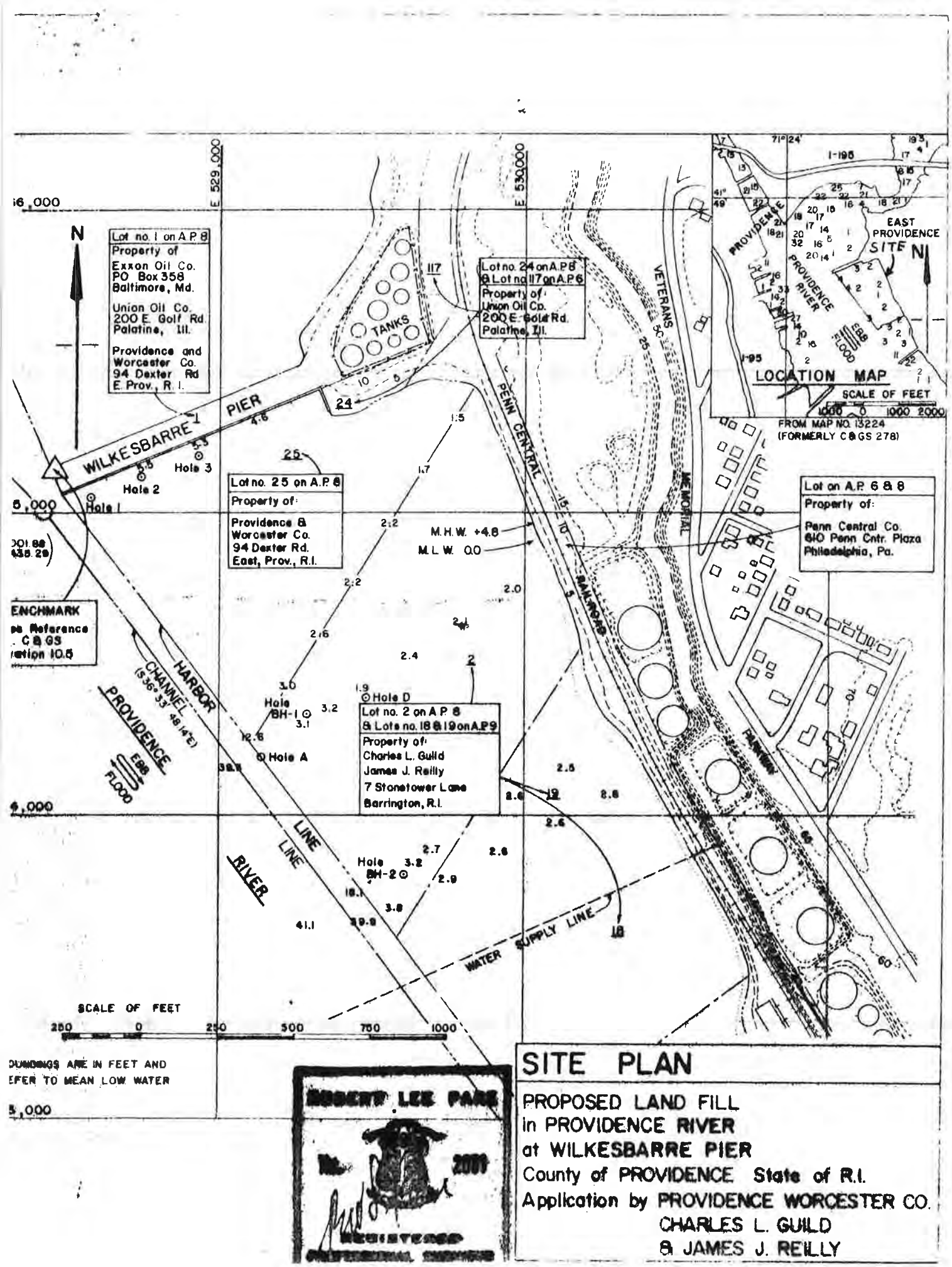
Jacob G. Bowin LtCol CE — 22 August 1978

DIVISION ENGINEER — DATE

for JOHN P. CHANDLER
Colonel, Corps of Engineers

Transferee hereby agrees to comply with the terms and conditions of this permit.

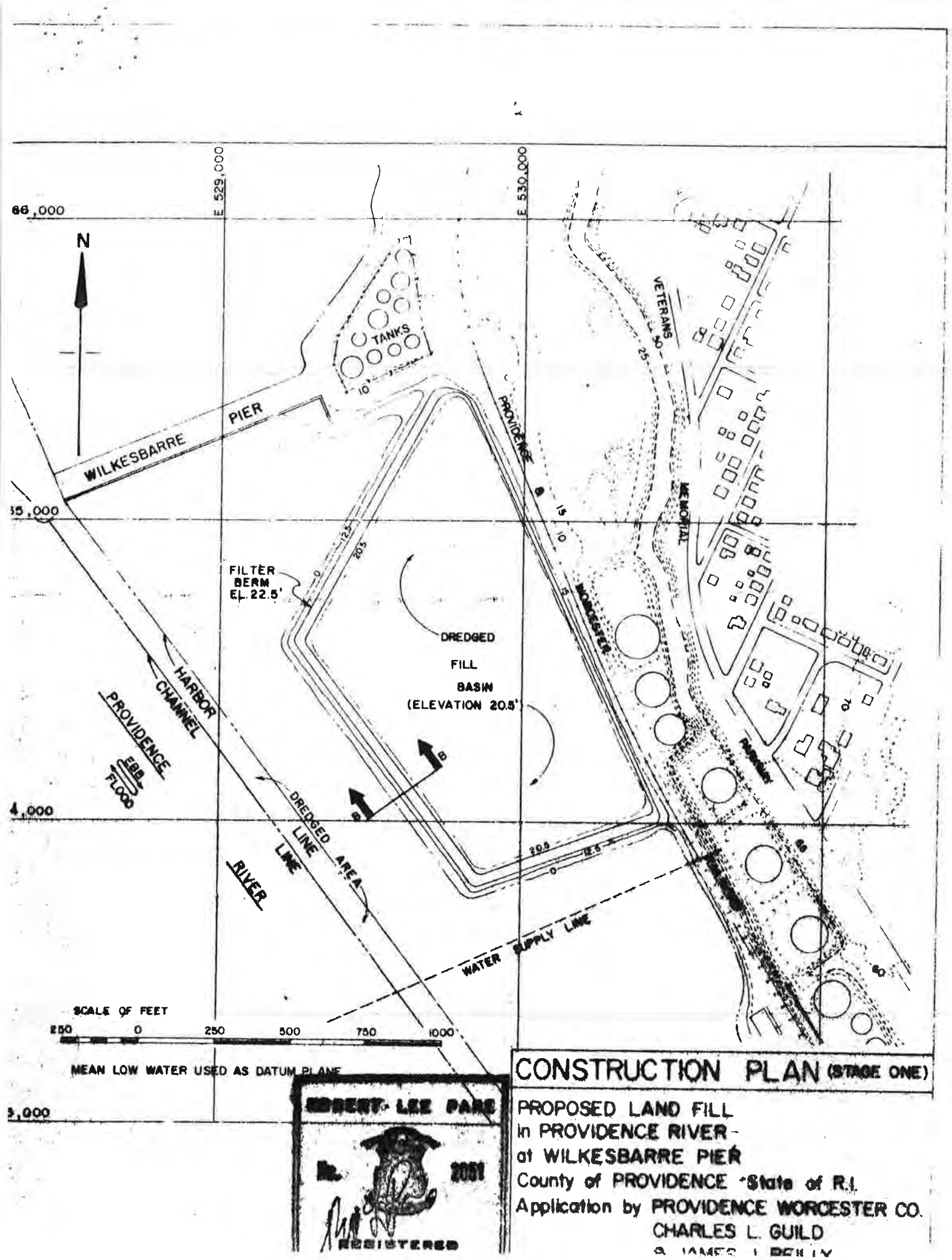
TRANSFEREE — DATE



ROBERT LEE PARE
No. 2001
REGISTERED
PROFESSIONAL ENGINEER

SITE PLAN

PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.
CHARLES L. GUILD
& JAMES J. REILLY

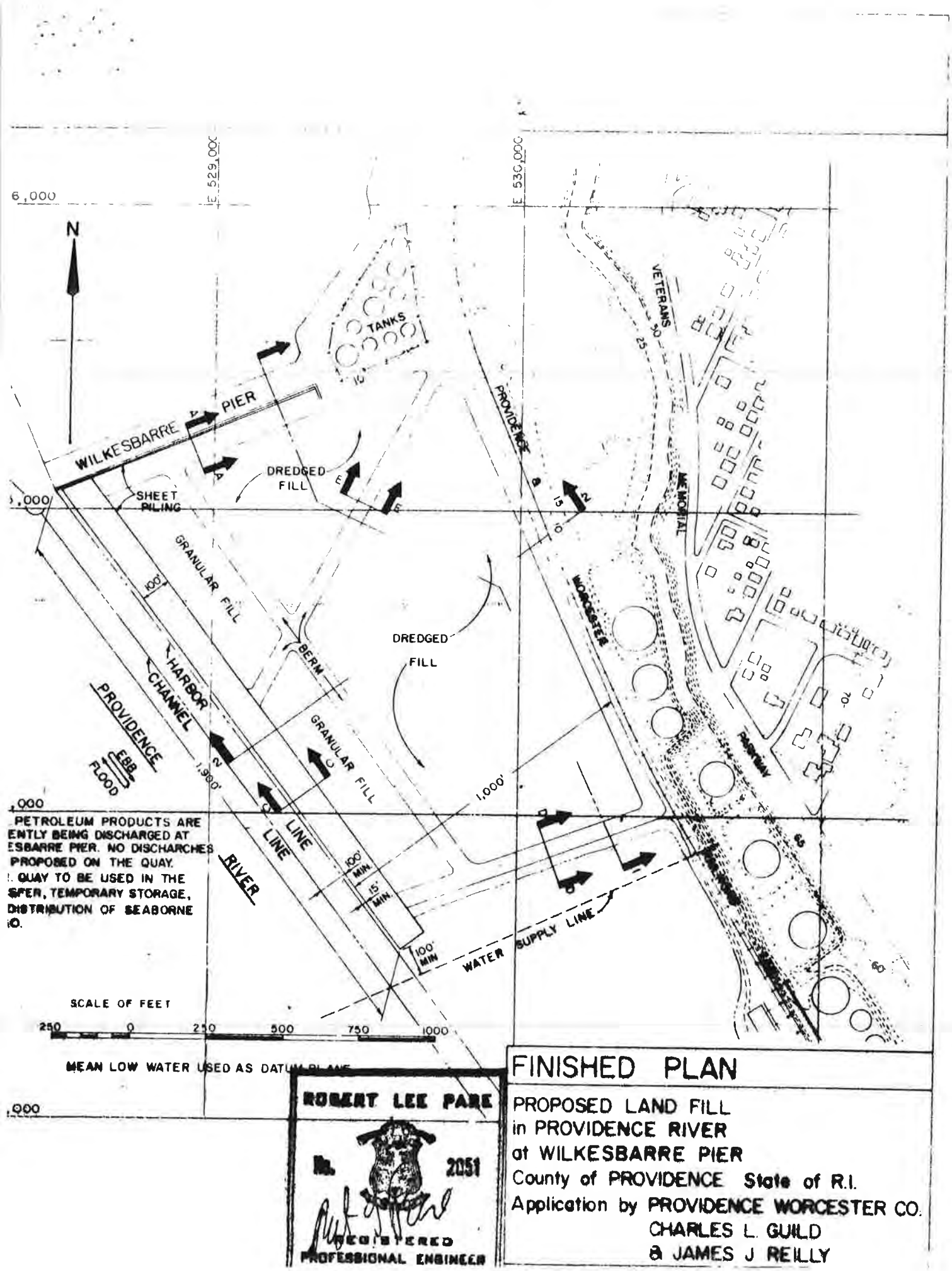


CONSTRUCTION PLAN (STAGE ONE)

PROPOSED LAND FILL
in PROVIDENCE RIVER -
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.

CHARLES L. GUILD
& JAMES J. REILLY

ROBERT LEE PARE
No. 2081
REGISTERED



PETROLEUM PRODUCTS ARE ENTLY BEING DISCHARGED AT ESBARRE PIER. NO DISCHARCHES PROPOSED ON THE QUAY. . QUAY TO BE USED IN THE SFER, TEMPORARY STORAGE, DISTRIBUTION OF SEABORNE IO.

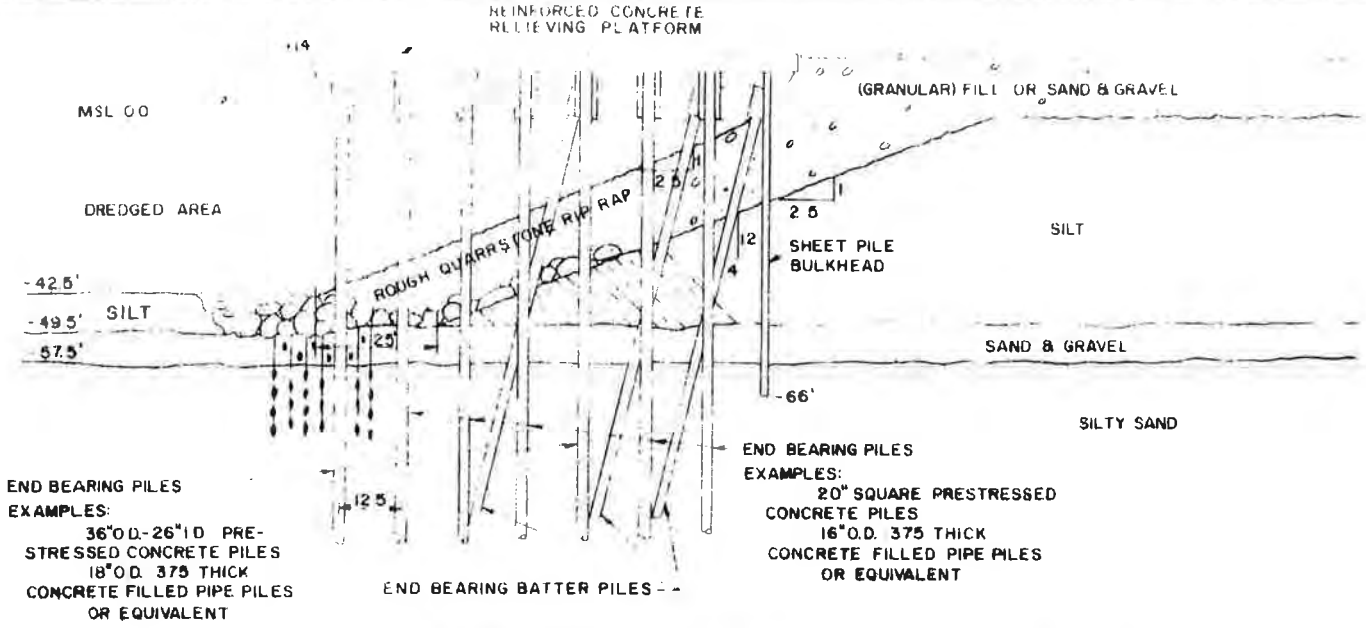
ROBERT LEE PARE

No. 2051

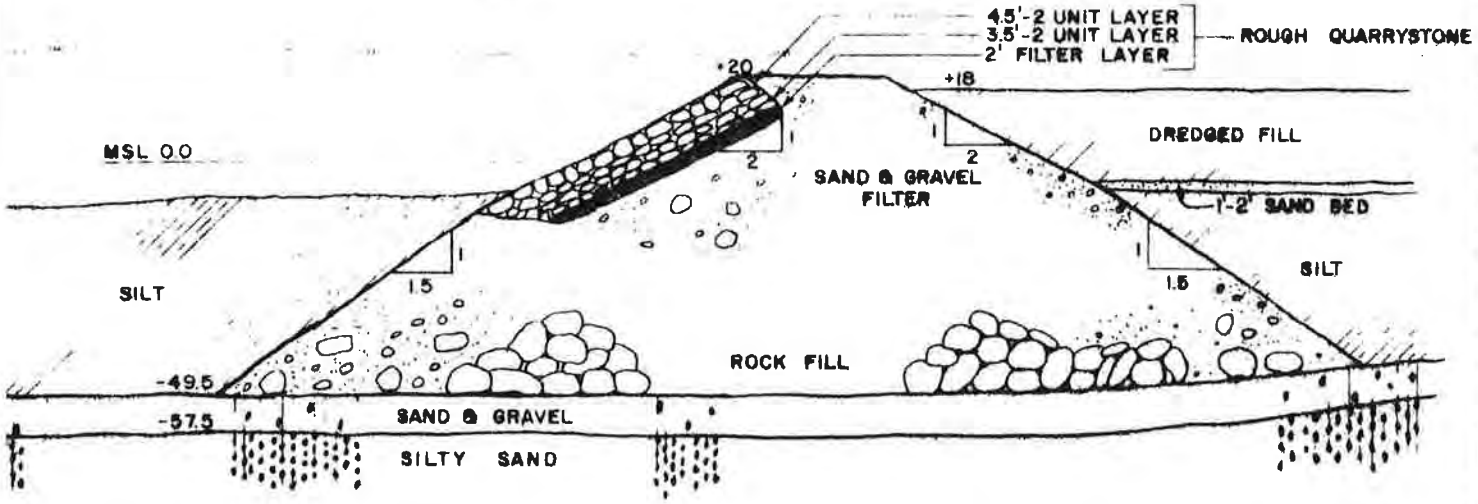
REGISTERED PROFESSIONAL ENGINEER

FINISHED PLAN

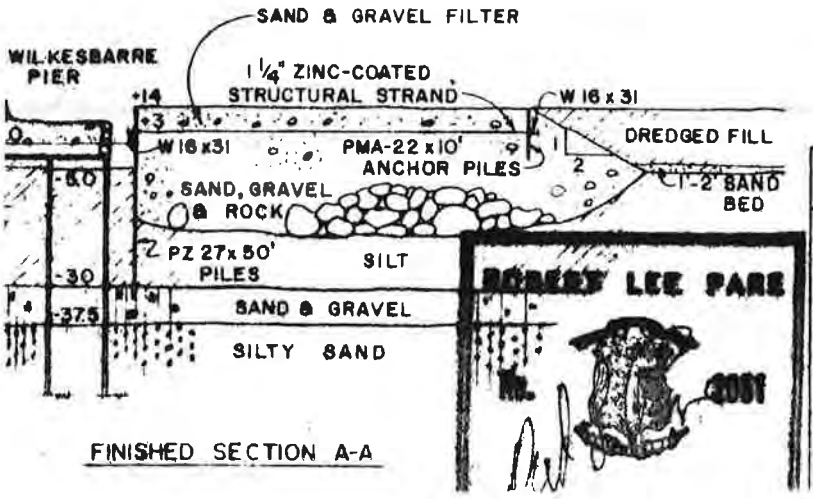
PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.
CHARLES L. GUILD
& JAMES J REILLY



FINISHED SECTION C-C



CONSTRUCTION SECTION B-B

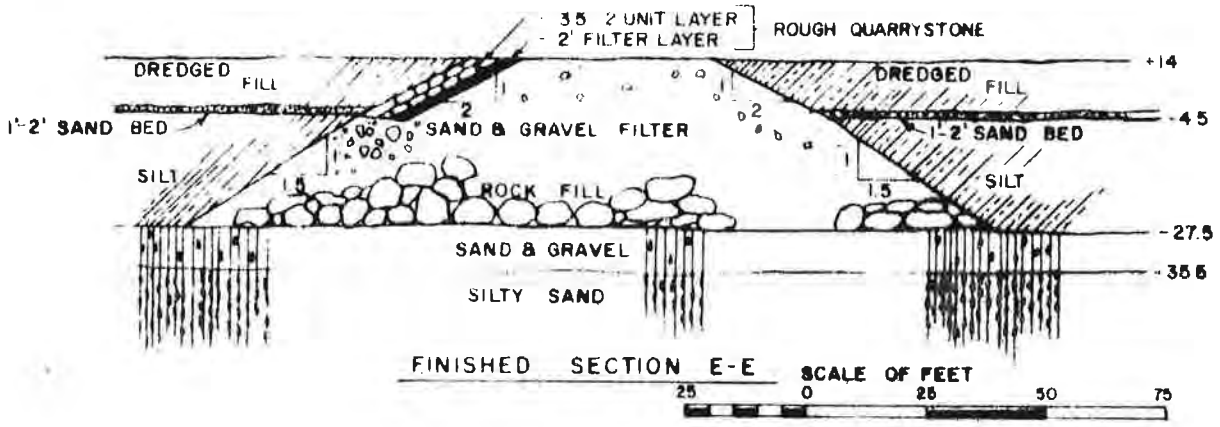


FINISHED SECTION A-A

SCALE OF FEET THIS SHEET
MEAN SEA LEVEL USED AS DATUM PLAN

SECTION DRAWINGS

PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.
CHARLES L. GUILD
& JAMES J. REILLY



FINISHED SECTION E-E SCALE OF FEET

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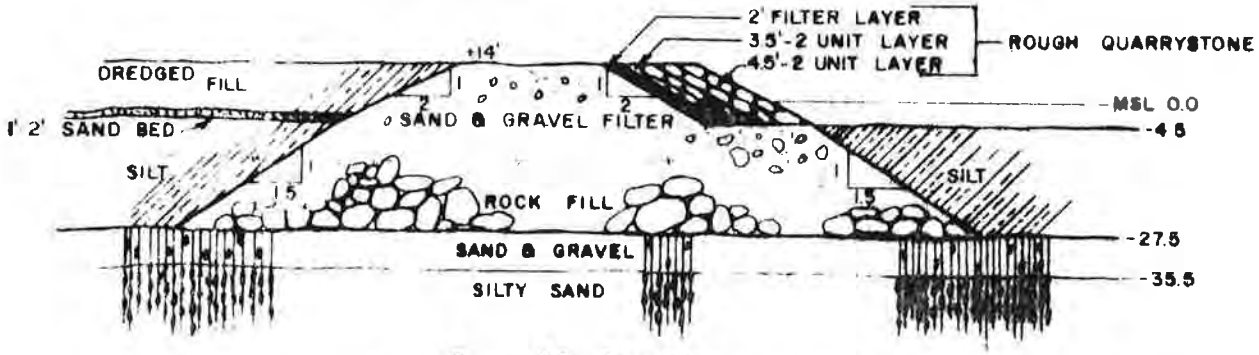

FINISHED SECTION D-D SCALE OF FEET

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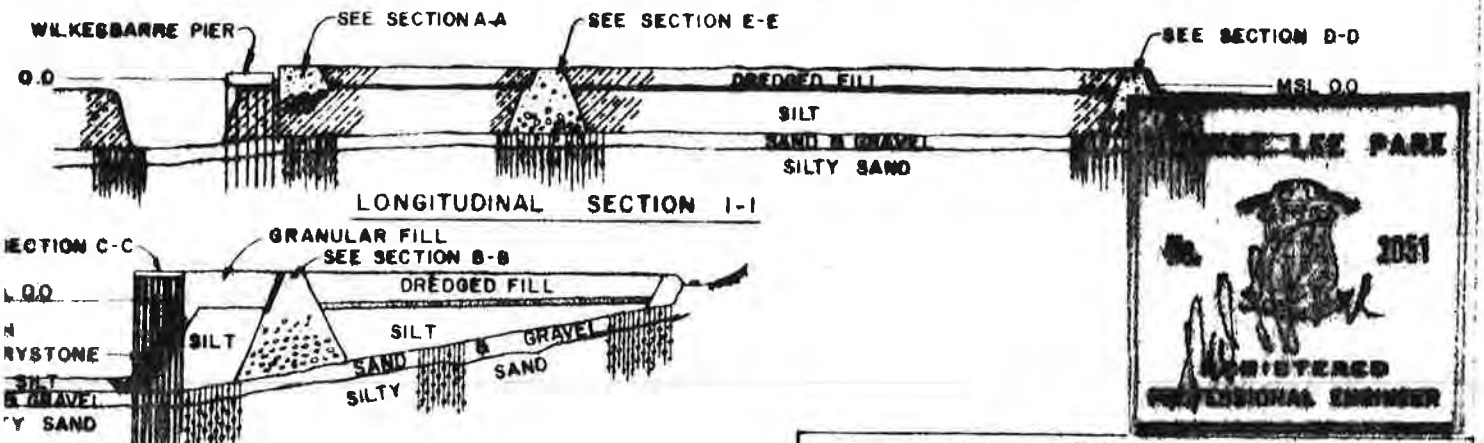
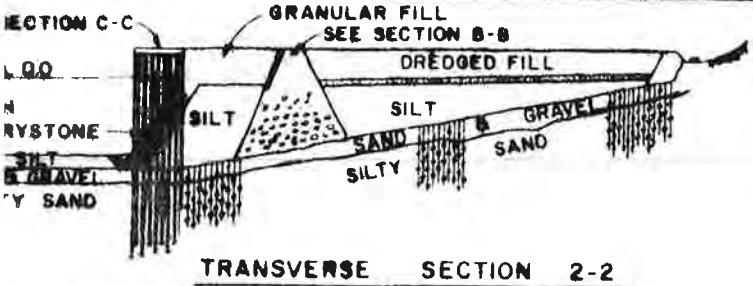


LONGITUDINAL SECTION 1-1



TRANSVERSE SECTION 2-2

SCALES FOR NUMBERED SECTIONS

HORIZONTAL SCALE OF FEET

0 300 300 750

VERTICAL SCALE OF FEET

0 50 100 150 200

MEAN SEA LEVEL USED AS DATUM PLAN

SECTION DRAWINGS

PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.

CHARLES L. GUILD
JAMES J REILLY

ATTACHMENT E

SAGE
ENVIRONMENTAL

May 13, 2022

Mr. Jeffrey Crawford
Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Site Remediation Program
235 Promenade Street
Providence, RI 02908
Sent via Hard copy and E-mail: jeff.crawford@dem.ri.gov

RE: South Quay – Site Investigation Report
649 Waterfront Drive
Assessor's Plat Map 7, Block 1, Lot 3
East Providence, Rhode Island 02914
RIDEM Case Nos. SR-10-1455 & SR-10-1954
SAGE Project No. S3291

Dear Mr. Crawford:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, (RIWE) has prepared the attached Site Investigation Report (SIR) for the property addressed as 649 Waterfront Drive in East Providence, Rhode Island and designated as Map 7, Block 1, Lot 3 by the City of East Providence Assessment Division (hereinafter, the "Site"). The purpose of this investigation was to evaluate subsurface conditions in advance of property redevelopment. A United States Geological Survey (USGS) Quadrangle Site Location Map is included as **Figure 1** and Site Plans are included as **Figures 2A through 2C** in the attached SIR.

The Site, known as the "South Quay", is an approximately 60-acre parcel located along the eastern shoreline of the Providence Harbor, in East Providence, Rhode Island, as depicted in **Figures 2A** through **2C.**

1) The "Main Quay" - An approximately 60-acre, ectangular shaped piece of man-made land was created by filling with dredge materials from approximately 1962 to 1997; and,

2) Attached to the southeast corner of the Main Quay parcel is a thin "tail" of land running north/south and is comprised of approximately 0.4-acres of land. The southernmost end of this tail is referred to as the "Chevron Sliver" due to it being impacted with contaminants from the former upgradient Chevron Oil Terminal (former tank farm) property that has subsequently been subject to a remedial solution consisting of the placement of a reactive core mat (RCM) and an oleophilic biobarrier (OBB) constructed by Chevron with approval and oversight by Rhode Island Department of Environmental Management (RIDEM).

SAGE conducted a Site Investigation which consisted of the collection and laboratory analysis of soil and groundwater samples to assess the nature and extent of contamination. No groundwater exceedances were identified during this assessment. Soils exceedances that were identified represent a release under the RIDEM *Rules and Regulations of the Investigation and Remediation of Hazardous Material Releases*, as amended April 22, 2020 (the "Remediation Regulations").

On June 17, 2019, SAGE submitted a *Hazardous Materials Release Notification Form* (RNF), on behalf of RIWE, to the RIDEM. Following notification, the RIDEM issued a Voluntary Procedure Letter (VPL) and assigned to the property RIDEM Case No. SR-10-1954.RIDEM Case No. SR-10-1455 also applies to the Site. Copies of the RNF and VPL are included in **Appendix C** of the attached SIR.

Note, between November 27 through December 20, 2019 and January 3 through 16, 2020, the Coastal Resource Management Council (CRMC) contracted dredging of approximately 8,500 cubic yards of sediment from the Providence River which was then transported and stockpiled on a portion of the South Quay (designated as Piles 1 through 15). Pre-characterization of proposed dredge material was conducted by The Nature Conservancy (TNC) in May 2019. Beneficial reuse of this dredge material was previously approved under a Permit issued by the Department of the Army – New England Division Corps. of Engineers to the Providence and Worcester Railroad Company on August 22, 1978 (ACOE Permit) and discussed in detail in the attached SIR. The extents of the dredge project and the data utilized to delineate the dredge area is included in **Appendix I,** a stockpile topography plan of the stockpiles is included as **Figure 4**, and a copy of the ACOE Permit is included in **Appendix E**, in the attached SIR.

To evaluate the dredge material stockpiled on-Site in comparison to the pre-characterization data collected by TNC, SAGE collected 17 samples, one from each of the 15 stockpiles and an additional sample from both Piles 1 and 2. As discussed in the attached SIR, these dredge materials are impacted with contaminants commonly found in dredge material/urban soils, specifically polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), and lead above their applicable RIDEM criteria.

All Site data are summarized in **Tables 3** through **7** of the attached SIR and are compared to their applicable RIDEM criteria. A summary of laboratory analytical detections and/or criteria exceedances is as follows:

- As indicated in **Table 3**, total volatile organic vapor (TVOV) screening values, for soils collected during soil boring and hand boring advancement ranged between less than the instrument detection limit of 0.1 parts per million by volume (ppmV) to 1,339 ppmV;
- Laboratory analytical results for soil samples collected by SAGE are summarized in **Table 4** and are compared to the applicable RIDEM Method 1 Residential Direct Exposure Criteria (R-DEC) and GB Leachability Criteria (GB-LC). Analytes are also compared to the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC) and Upper Concentration Limits (UCLs). As indicated in **Table 4**, at the "Main Quay" portion of the Site, benzo(a)pyrene was detected in excess of RIDEM Method 1 R-DEC and arsenic was detected in excess of both the RIDEM Method 1 R-DEC and I/C-DEC. At the "Chevron Sliver" portion of the Site, TPHs were detected in excess of the RIDEM Method 1 R-DEC,

I/C-DEC, and/or GB-LC. Select PAHS were detected in excess of the RIDEM Method 1 R-DEC, and lead and arsenic were detected in excess of the RIDEM Method 1 R-DEC and/or I/C-DEC;

- As indicated in **Table 5**, measured static depth to groundwater ranged between 1.37 to 11.33 feet below the top of polyvinyl (PVC) casing (btoc). No separate phased contaminants (i.e., oil) were identified in any of the monitoring wells gauged;
- Laboratory analytical results for groundwater samples are summarized in **Table 6** and are compared to the applicable RIDEM GB Groundwater Objectives (GB-GWO). Analytes are also compared to the RIDEM UCLs. As indicated in **Table 6**, a low-level detection of total xylenes (11 micrograms per liter (µg/l)) was reported in the sample collected from monitoring well SE-201 (MW), however no RIDEM GB-GWO has been established for this analyte. No other volatile organic compounds (VOCs) were detected in excess of a laboratory reporting limit, of which, all are below their applicable RIDEM Method 1 GB-GWOs (if promulgated), with the exception of 1,1-dichloroethene (1,1-DCE) in the samples collected from monitoring wells SE-108 (MW) and PE-MW-1. The laboratory analytical data reports for these two samples indicate that the elevated reporting limits were due to the foaming nature of the samples. 1,1-DCE was not detected in any soil samples collected as part of this investigation. As such, 1,1-DCE is not considered a contaminant of concern (COC) related to the Site; and,
- Laboratory analytical results for dredge stockpile samples collected by SAGE are summarized in **Table 7** and are compared to the applicable RIDEM Method 1 R-DEC and/or GB-LC. Analytes are also compared to the RIDEM Method 1 I/C-DEC and UCLs. As indicated in **Table 7**, select PAHs were detected in excess of RIDEM Method 1 R-DEC and/or I/C-DEC, TPH were detected in excess of the RIDEM Method 1 R-DEC, and lead was detected in excess of the RIDEM Method 1 R-DEC and I/C-DEC.

As noted above, the "Main Quay" portion of the Site was created by filling approximately 60-acres of the Providence Harbor with dredge material from the Providence River. As discussed in the attached SIR, "Main Quay" soils appear to be impacted with contaminants commonly found in dredge material/urban soils, specifically PAHs and arsenic above their applicable RIDEM criteria. Detections of TPH and additional metals were also identified below their applicable RIDEM criteria. These compounds were likely present in the sediments of the Providence River and were interred on-Site when the area was filled.

As noted above, the easterly and southerly abutting "Former Chevron Oil Terminal" property was used as a large tank farm for petroleum storage and distribution. As discussed in the attached SIR, the "Chevron Sliver" portion of the subject property is being impacted by the abutting and topographically upgradient "Former Chevron Oil Terminal" property. Known COCs at the "Former Chevron Oil Terminal" property are consistent with those found in "Chevron Sliver" soils, specifically petroleum related contaminants including TPHs and PAHs. Arsenic and lead were identified in sliver soils as well. A very small amount of separate phased petroleum (aka light non-aqueous phase liquid {LNAPL} was also observed immediately upgradient of the sliver emanating from Chevron soils and in nearby (off-site) groundwater monitor wells. See below for remedial details association with this area.

A December 2011 Remedial Action Work Plan (RAWP) prepared for the Chevron property identified groundwater and TPH exceedances of the RIDEM UCLs within soils located within approximately 50 feet of the "Chevron Sliver" portion of the subject property.

An August 2016 Waterfront Limited Remedial Action Work Plan (LRAWP), submitted to the RIDEM, described the remediation work to be performed on a portion of the the Chevron property which included the details for the placement of a sheen barrier consisting of a RCM, OBB, armoring in the intertidal zone, and replacement of rip rap feature. The August 2016 Waterfront LRAWP was approved by the RIDEM in its September 15, 2016 Remedial Approval Letter (RAL).

An August 1, 2018 LRAWP – Chevron EPRI Waterfront, submitted to the RIDEM, requested RIDEM approval of a modification of the August 2016 Waterfront LRAWP and September 15, 2016 RIDEM RAL. This document requested the following modifications:

- Removal of potentially sheen producing soil in the "Chevron Sliver" portion of the Site;
- Increasing the area of the RCM/OBB cap area to include approximately 2,200 square feet in the intertidal zone south of the originally planned cap area;
- Extending the direct contact cap to include the "Chevron Sliver" portion of the Site, with appropriate grading and surface cover to manage stormwater in accordance with RIDEM and CRMC requirements; and,
- Preparing an Environmental Land Use Restriction (ELUR) for the "Chevron Sliver" portion of the Site included in the proposed remedy.

The RIDEM subsequently issued a RAL, dated August 6, 2018, approving the LRAWP modification.

In 2021, as part of Chevron's RIDEM approved remedial measures, a RCM and an OBB was installed from the "Chevron Sliver" portion of the subject property southward along the Chevron parcel shoreline to address the above-noted TPH GB-LC exceedances, prevent known oil sheens located on the "Former Chevron Oil Terminal" property, and upgradient of the "Chevron Sliver" portion of the Site, from migrating through the "Chevron Sliver" portion of the Site and into the Providence Harbor, and address potential future contaminant migration. Copies of the August 2016 Waterfront LRAWP, the August 1, 2018 LRAWP modification, and the August 6, 2018 RAL are included as **Appendix G**.

Based on the assessment performed to-date SAGE opines that the Site has been adequately assessed, and as part of Site redevelopment, the chosen preferred remedial alternative will be the implementation of engineering controls (capping with RIDEM-approved engineered barriers (i.e. building footprints, hardscaped, and/or landscaped areas) and institutional controls (Environmental Land Use Restriction (ELUR) and pre and post redevelopment Soil Management Plans {SMP}) to limit contact with contaminant-impacted soils at the Site. Note, a Beneficial Use Determination (BUD) application is being submitted to the RIDEM to allow the Site to accept soils for fill and capping purposes as the Site is planned for redevelopment as a state-of-the-art offshore wind maritime port facility for shipping, commodity transport and heavy lift component transfer.

Should you have any questions, comments, or require additional information, please contact the undersigned at (401) 723-9900. Thank you for your time and assistance.

Sincerely,
SAGE Environmental, Inc.

Anthony Rossato	Jacob H. Butterworth	R J Mandile
Anthony Rossato	Jacob H. Butterworth, MS, LSP	Richard J. Mandile
Project Manager	Vice President	Principal

ec: Melissa Martin, RI Waterfront Enterprises LLC
Michael Donegan, Esq., Orson and Brusini Ltd.

Attachment

SITE INVESTIGATION REPORT

South Quay
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914

Submitted to:

Rhode Island Department of Environmental Management
Office of Land Revitalization and Sustainable Materials Management
Site Remediation Program
235 Promenade Street
Providence, Rhode Island 02908

On Behalf of:

RI Waterfront Enterprises LLC
1080 Main Street
Pawtucket, Rhode Island 02860

Prepared by:

SAGE Environmental, Inc.
301 Friendship Street
Providence, Rhode Island 02903

SAGE Project No. S3291

May 2022

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APPENDICES

1.0 INTRODUCTION, BACKGROUND, AND OBJECTIVES (1.8.3(A)(1))

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC (RIWE), has prepared this Site Investigation Report (SIR) for the property addressed at 649 Waterfront Drive in East Providence, Rhode Island and designated as Map 7, Block 1, Lot 3 by the City of East Providence Assessment Division (hereinafter, the "Site"). The purpose of this investigation was to evaluate subsurface conditions in advance of property redevelopment. A United States Geological Survey (USGS) Quadrangle Site Location Map is included as **Figure 1**. Site Plans are included as **Figures 2A through 2C**. This SIR is subject to the limitations presented in **Appendix A**.

The Site, known as the "South Quay", is a 60-acre parcel located along the eastern shoreline of the Providence Harbor, as depicted in **Figures 2A** through **2C.**

1) The "Main Quay" - An approximately 60-acre rectangular piece of man-made land created by filling with dredge materials from 1962 to 1997 and located at the northern and central portions of the Site;

The "Chevron Sliver" - An approximately 0.4-acre triangular piece of land or "tail"/"sliver" running southward from the "Main Quay" between Waterfront Drive and the Providence Harbor and located at the southeastern most corner of the Site. The southernmost end of this land is referred to as the "Chevron Sliver" due to being impacted with contaminants from the former upgradient Chevron Oil Terminal (former tank farm) property that has subsequently been subject to a remedial solution consisting of the placement of a reactive core mat (RCM) and an oleophilic bio barrier (OBB) constructed by Chevron with approval and oversight by Rhode Island Department of Environmental Management (RIDEM).

This SIR summarizes the work that was completed to assess the nature and extent of contamination at the Site and to present remedial alternatives to achieve compliance with the RIDEM *Rules and Regulations of the Investigation and Remediation of Hazardous Material Releases*, as amended April 22, 2020 (the "*Remediation Regulations*"). This SIR provides the information required under Section 1.8 of the RIDEM *Remediation Regulations* and provides an evaluation of remedial approaches along with the selection of the approach to address contamination identified at the Site. A completed SIR Checklist is included in **Appendix B**.

The objective of the Site Investigation activities described herein was to evaluate Site conditions in accordance with the *Remediation Regulations*. The investigation consisted of the collection and laboratory analysis of soil and groundwater samples to assess the nature and extent of contamination and to evaluate and identify a proposed remedy.

No groundwater exceedances were identified during this assessment. Soils exceedances that were identified represent a release under the RIDEM Rules and *Regulations of the Investigation and Remediation of Hazardous Material Releases*, as amended April 22, 2020 (the "Remediation Regulations"). On June 17, 2019, SAGE submitted a *Hazardous Materials Release Notification Form* (RNF), on behalf of RIWE, to the RIDEM. On June 18, 2019. RIDEM subsequently issued a Voluntary Procedure Letter (VPL) and assigned RIDEM Case No. SR-10-1954 to the Site. It should be noted that RIDEM Case No. SR-10-1455 also applies to the Site. Copies of the RNF and VPL are included in **Appendix C**.

2.0 INFORMATION FROM NOTIFICATION OF RELEASE (1.8.3(A)(2))

As described above, an RNF for the Site was submitted to the RIDEM on June 17, 2019. A copy of the RNF is included in **Appendix C**.

3.0 DOCUMENTATION OF PAST INCIDENCES OR RELEASES (1.8.3(A)(3))

No documentation of past environmental incidents or releases was identified in connection with the Site.

4.0 PAST OWNERS AND OPERATORS AND SITE HISTORY (1.8.3(A)(4))

Information pertaining current and historical Site usage and ownership were collected through a comprehensive review of available historical resources including, but not limited to, historical aerial photographs, Sanborn Fire Insurance Maps, local/municipal, state, and federal records. A summary of this information is presented in **Sections 4.1** through **4.3**, below.

4.1 Ownership Chronology

Historical Site ownership obtained from information reviewed through the City of East Providence Assessment Division is summarized in **Table 1**, below. This data was reviewed for the purposes of a land use evaluation and should not be relied upon as a complete chain-of-title.

Table 1 – Ownership Chronology
649 Waterfront Drive
Assessor's Plat Map 7, Block 1, Lot 3
East Providence, Rhode Island

Grantee	Date of Transfer	Book/Page
RI Waterfront Enterprises LLC	6/28/2019	4149/210

Grantee	Date of Transfer	Book/Page
Providence & Worcester Railroad Company	Unknown	656/336

4.2 Historical Uses of the Site

Historical resources indicate that portions of the Site were previously used as part of a railway system, nearby to the current location of Waterfront Drive. Sanborn map coverage was not found to exist for the Site and immediately surrounding area. A copy of the EDR Certified Sanborn Map Report is attached in **Appendix D.**

SAGE reviewed aerial photographs of the Site dated 1939, 1951-52, 1962, 1972, 1981, 1985, 2003-2004, 2006, 2008, 2011, 2014, and 2018 using the RIDEM Geographic Information Systems Historic Aerial Mapper. A summary of the Site and surrounding property descriptions is included in **Table 2**, below. Copies of the historical aerial photographs are included in **Appendix D**.

Table 2 – Historical Aerial Photographs
649 Waterfront Drive
East Providence, Rhode Island

Year	Site Description
1939	The Site is undeveloped and part of the Providence River and associated wetlands.
1951-52	No significant changes for the Site appear in comparison to the previous historical aerial photograph. A pier and several structures which appear to be bulk petroleum storage tanks are located to the north of the Site.
1962	The northeastern corner of the Site has been filled; the remainder of the Site remains unchanged. The filled portion of the Site appears to be used as a storage or staging area.
1972	No significant changes appear in comparison to the previous historical aerial photograph. Additional structures appearing to be bulk petroleum storage tanks are located on the property abutting the southeastern portion of the Site.
1981	The northern portion of the "Main Quay" has begun to be filled; the northeastern corner of the Site remains unchanged.
1985	Construction of the "Main Quay" continues with the apparent placement of the permeable earth berm filter basins referenced in the ACOE Permit on the northern and western sides of the "Main Quay"; the northeastern corner of the Site remains unchanged.
1992	Additional filling of the southern end of the "Main Quay" appears to have been performed; the northeastern portion of the Site remains unchanged.
1995	Additional filling of the "Main Quay" appears to have been performed; the northeastern portion of the Site remains unchanged.

Year	Site Description
2003-2004	Additional filling of the "Main Quay" appears to have been completed based on the lack of visible surface water; the northeastern portion of the Site remains unchanged. Structures presumed to be bulk petroleum storage tanks are no longer present on the northerly and easterly abutting properties.
2008	The configuration of the "Main Quay" appears consistent with current conditions. Areas of surface water are present on the northern portion of the "Main Quay"; the northeastern corner of the Site remains unchanged.
2011	The configuration of the "Main Quay" appears consistent with current conditions. Areas of surface water are present on the northern, central, and western portions of the "Main Quay"; the northeastern corner of the Site remains unchanged.
2014	Areas of surface water are no longer visible on the "Main Quay". Vegetation appears more prevalent on the "Main Quay" and the northeastern portion of the Site.
2018	An area on the northeastern portion of the "Main Quay" appears to have been cleared and leveled.

5.0 PREVIOUSLY EXISTING ENVIRONMENTAL INFORMATION (1.8.3(A)(5))

Information obtained during the Site Investigation included a Permit issued by the Department of the Army – New England Division Corps. of Engineers to the Providence and Worcester Railroad Company on August 22, 1978 (ACOE Permit) and the *Draft Geotechnical Report*, prepared by GZA GeoEnvironmental, Inc. (GZA) and dated December 14, 2017 (2017 GZA Report). No other previously existing environmental information was identified and/or provided to SAGE. A discussion of the ACOE Permit and the 2017 GZA Report are as follows.

5.1 Department of the Army – ACOE Permit

The Site was formerly a portion of the Providence Harbor. The ACOE Permit authorized the construction of a rail/ship cargo terminal which included a hydraulically dredged berthing area adjacent to the Federal Channel in Providence Harbor and filling of a 45-acre area with the resultant dredge material. Approximately 255,000 cubic yards of dredge material consisting of river silts and organic muds were to be placed in two permeable earth berm filter basins constructed of imported granular material. The basic purpose of this work was to provide a rail ship terminal for handling containerized and general cargo. The main purpose of the fill area was to dispose of the dredge material generated by the dredging of the berthing facility. Once stabilized, the filled area would be used for cargo storage and handling facilities. According to available documentation, dredge material was interred throughout the Site in order to create the 60-acre parcel of land referred to as the "Main Quay". The Providence Worcester Railroad Company was reportedly the Site owner at the time of the project. Historical documentation

indicates that filling at the Site reportedly occurred between 1962 and 1997. A copy of the ACOE Permit is included in **Appendix E**.

5.2 Draft Geotechnical Report – GZA

SAGE reviewed the 2017 GZA Report for pertinent information to aid in the characterization of the Site. Pertinent information includes the following subsurface soil characterization. GZA's geotechnical investigation at the Site included the advancement of five geotechnical test borings *via* drive-and-wash methodology and Standard Penetration Testing (SPT) and the advancement of 11 soil borings *via* direct-push methodology. Three observation wells were installed on-Site at locations GZ-1 (OW), GZ-2 (OW), and GZ-5 (OW). Observation wells GZ-2 (OW) and GZ-5 (OW) were discovered on-Site by SAGE during the Site Investigation and identified as PE-MW-1 and PE-MW-2.

Surficial artificial fill, consisting of sand with varying amounts of gravel and silt, was encountered at all boring locations with a thickness varying between 5 to 39 feet below ground surface (bgs). Organic silt was observed in all borings, except two locations, beginning at depths of 20 to 47.5 feet bgs and terminating between 35 to 57 feet bgs. The organic silt was underlain by naturally deposited sand, gravel, silty sand, and silty sand and gravel with cobbles and boulders frequently encountered (glacial outwash) and at which all borings were terminated. Bedrock was not encountered. A copy of the 2017 GZA Report, with observation well locations and the test boring logs, is included in **Appendix E.**

6.0 CURRENT USES AND ZONING (1.8.3(A)(6))

6.1 Zoning

According to information obtained from the City of East Providence Online resources, the Site is zoned "BPH" for Bold Point Harbor Waterfront District. Surrounding areas are included in the Bold Point Harbor District, the Veterans Memorial Parkway District (VMP) and the Cook Point (CP).

6.2 Current Site Usage

The Site consists of a portion of the Providence Harbor as well as a covered gravel parking area and unpaved grassy areas with dirt pathways throughout. The Site is currently not utilized and does not have any structures. The Site is not serviced by municipal utilities. Municipal sewer intersects the northern and western portions of the Site. Based on a review of available records, municipal water service is does not intersect the Site.

6.3 Waste Generated and Hazardous Materials Handled

No hazardous materials are currently generated or handled on-Site. As previously discussed, the Site is currently not utilized and does not have any structures.

6.4 Residential Activity

Pursuant to Section 1.4(A)(68) of the *Remediation Regulations*, "Residential activity" means any activity related to a residence or dwelling, including but not limited to a house, apartment, or condominium, or school, day care center, playground, or Recreational Facility for Public Use.

Under this definition, the Site is not currently utilized for residential purposes.

7.0 LOCUS MAP (1.8.3(A)(7))

A Locus Map showing the location of the Site using the USGS 7.5-minute quadrangle map and relative to pertinent geographic features is included in **Figure 1**.

8.0 SITE PLAN (1.8.3(A)(8))

Site Plans depicting sample locations and relevant Site features are included in **Figures 2A through 2C**.

9.0 GENERAL CHARACTERIZATION OF SURROUNDING AREA (1.8.3(A)(9))

The following provides a general characterization of the property surrounding the area affected by the release:

- According to the online RIDEM Environmental Resource Map, referenced on January 6, 2022:

- The Providence Harbor/Providence River abuts the Site's western and southern boundaries, and a portion of the northern boundary;
- No Environmentally Sensitive Areas, as defined by the *Remediation Regulations* (Section 1.4(A)(21)), are located within 500 feet of the Site except for the following:
  - A review of the information provided by the United States Fish and Wildlife Service (U.S. FWS) Information, Planning, and Conservation (IPAC) online database identified one threatened (Northern Long-eared Bat), one endangered (Roseate Tern), and one candidate (Monarch Butterfly) species as being potentially affected by activities at the Site; and,
  - A Natural Heritage Area intersects the northern portion of the "Main Quay" portion of the Site. A high value/high vulnerability habitat is located on the northern portion of the "Main Quay" portion of the Site.
- No public water supplies are located within one mile of the Site;
- The underlying groundwater classification of the Site and surrounding area is "GB." GB areas are defined as "groundwater resources which are known or presumed to be unsuitable for drinking water use without treatment"; and,
- The Site is not located within an Environmental Justice (EJ) Focus Area.

- Potable water for the surrounding area is provided by the municipal water system operated by the City of East Providence Water Utilities Division; and,
- The release does not impact any off-Site areas.

A copy of the RIDEM Groundwater Classification and Priority Resources Map is included as **Figure 3**.

10.0 CLASSIFICATION OF SURFACE WATER AND GROUNDWATER (1.8.3(A)(10))

As previously noted, the underlying groundwater classification at the Site and surrounding area is "GB." GB areas are defined as "groundwater resources which are known or presumed to be unsuitable for drinking water use without treatment."

The nearest mapped surface water feature is the Providence Harbor/Providence River, which abuts the Site's western and southern boundaries, and a portion of the northern boundary.

The surface water classification of the Providence River (RI000702E-01B) is "Class SB1." Class SB1 waters are designated for primary and secondary contact recreational activities and fish and wildlife habitat. They shall be suitable for aquacultural uses (other than shellfish for direct human consumption), navigation, and industrial cooling. These waters shall have good aesthetic value. Primary contact recreational activities may be impacted due to pathogens from approved wastewater discharges.

11.0 DESCRIPTION OF CONTAMINATION (1.8.3(A)(11))

A description of the environmental investigation at the Site, including sampling locations, sampling procedures, and copies of analytical results, is provided below.

11.1 Soil/Groundwater Regulatory Classification

SAGE reviewed the *Remediation Regulations* to identify the applicable soil criteria for soils at the Site. Pursuant to Section 1.9.1 and 1.9.2 of the *Remediation Regulations*, the Residential Direct Exposure Criteria (R-DEC), and the GB-LC apply to soils at the Site.

As previously noted, the groundwater classification at the Site is GB. Pursuant to Section 1.9.3 of the *Remediation Regulations*, the GB-GWO applies to groundwater at the Site.

11.2 Environmental Investigation and Concentrations of Hazardous Substances in Excess of Remedial Objectives

11.2.1 Soil Borings, Soil Sample Collection, and Monitoring Well Installation

Prior to advancing soil borings at the Site, SAGE marked the areas to be investigated and contacted DigSafe such that underground utilities could be marked prior to commencement of field work. On March 21, and March 25, 2019, SAGE oversaw the advancement of nine soil borings (SE-101 through SE-109) at select locations throughout the "Main Quay" portion of the Site. On May 20, 2019, SAGE oversaw the advancement of seven soil borings (SE-201 through SE-207) at select locations throughout the "Chevron Sliver" portion of the Site. On May 28, 2019, SAGE oversaw the advancement of seven hand borings (SE-208 through SE-214) at select locations throughout the "Chevron Sliver" portion of the Site.

SAGE Envirotech Drilling Services, Inc. completed the soil borings utilizing direct-push drilling methodology. Five of the soil borings on the "Main Quay" and four of the soil borings on the "Chevron Sliver" portions of the Site were subsequently completed as groundwater monitoring wells. The groundwater monitoring wells were installed to roughly bisect the groundwater

interface. The monitoring wells were constructed with one-inch-diameter, thread coupled, machine-cut, 0.010-inch slot well screen. The wells were completed with gripper plugs, and road boxes mounted flush with the ground surface to limit disturbance and surface water infiltration. Upon completion, the wells were developed with a peristaltic pump to reduce sample turbidity by removing fine particulate matter (clay and silt) from the filter pack and the geologic formation near the well intake, enhancing inflow to the well. Soil boring, hand boring, and monitoring well locations are identified in **Figures 2A, 2B, and 2C**. Soil lithology observations and monitoring well construction details are provided in the Soil Boring/Monitoring Well Logs included as **Appendix F**.

Please note, two pre-existing monitoring wells, labeled by SAGE as PE-MW-1 and PE-MW-2, were identified on the "Main Quay" portion of the Site. As noted in **Section 5.2** above, it appears that these two monitoring wells are the observation wells GZ-2 (OW) and GZ-5 (OW) installed by GZA. Based on GZA's test boring logs, both monitoring wells were constructed similarly to SAGE's and screened between 4 to 14 feet bgs.

During soil boring advancement, continuous soil samples were collected from soil borings in five-foot intervals and from hand borings in four-foot intervals. Soil samples were field screened for the presence of volatile organic compounds (VOCs) in the form of total volatile organic vapor (TVOV).

TVOV field screening was conducted *via* jar-headspace methodology using a photoionization detector (PID) equipped with a 10.6 electron volt (eV) lamp and calibrated to a 100 parts per million by volume (ppmV) isobutylene standard. TVOV screening values ranged between less than the instrument detection limit of 0.1 ppmV to 1,339 ppmV. A detailed summary of TVOV screening for each sample is provided in **Table 3**, attached.

Soil borings and hand borings were advanced to a terminal depth of approximately 10 to 20 feet bgs and four feet bgs, respectively. On the "Main Quay" portion of the Site, subsurface soil conditions observed during soil boring advancement consisted predominantly of sandy gravel from surface grade to approximately 14 to 20 feet bgs at soil boring locations SE-103 through SE-108. Additionally, subsurface soil conditions consisted of fine to coarse sand with traces of silt and gravel from surface grade to approximately two feet bgs (SE-109), 12 feet bgs (SE-102), and 13 feet bgs (SE-101) and underlain by silty clay river dredging fill materials containing organics. Groundwater was encountered at depths ranging from 4 to 6 feet bgs.

On the "Chevron Sliver" portion of the Site, subsurface soil conditions observed during soil boring and hand boring advancement consisted predominantly of sand with silt, clay, and gravel from surface grade to approximately 15 feet bgs. Please note, approximately one foot of NAPL

was observed in soil boring SE-203 at approximately 10 to 11 feet bgs constituting an Upper Concentration Limit (UCL) exceedance. Additionally, interspersed coal was observed in soil boring SE-205 at approximately zero to five feet bgs and coal and glass were observed in soil borings SE-206 and SE-207 at approximately zero to ten feet bgs. Groundwater was encountered at depths ranging from 8 to 9 feet bgs.

Please note, a monitoring well was not installed at soil boring location SE-203, at which approximately one foot of NAPL was observed between approximately 10 to 11 feet bgs, as this condition was to be remedied by the responsible party for the "Former Chevron Oil Terminal" property.

An August 2016 Waterfront Limited Remedial Action Work Plan (LRAWP), submitted to the RIDEM, described the remediation work to be performed on a portion of the the Chevron property which included the details for the placement of a sheen barrier consisting of a RCM, OBB, armoring in the intertidal zone, and replacement of rip rap feature. The August 2016 Waterfront LRAWP was approved by the RIDEM in its September 15, 2016 Remedial Approval Letter (RAL).

An August 1, 2018 LRAWP – Chevron EPRI Waterfront, submitted to the RIDEM, requested RIDEM approval of a modification of the August 2016 Waterfront LRAWP and September 15, 2016 RIDEM RAL. This document requested the following modifications:

- Removal of potentially sheen producing soil in the "Chevron Sliver" portion of the Site;
- Increasing the area of the RCM/OBB cap area to include approximately 2,200 square feet in the intertidal zone south of the originally planned cap area;
- Extending the direct contact cap to include the "Chevron Sliver" portion of the Site, with appropriate grading and surface cover to manage stormwater in accordance with RIDEM and CRMC requirements; and,
- Preparing an Environmental Land Use Restriction (ELUR) for the "Chevron Sliver" portion of the Site included in the proposed remedy.

The RIDEM subsequently issued a RAL, dated August 6, 2018, approving the LRAWP modification.

In 2021, as part of Chevron's RIDEM approved remedial measures, a RCM and an OBB was installed from the "Chevron Sliver" portion of the subject property southward along the Chevron parcel shoreline to address the below-noted TPH GB-LC exceedances, prevent known

oil sheens located on the "Former Chevron Oil Terminal" property, and upgradient of the "Chevron Sliver" portion of the Site, from migrating through the "Chevron Sliver" portion of the Site and into the Providence Harbor, and address potential future contaminant migration. Copies of the August 2016 Waterfront LRAWP, the August 1, 2018 LRAWP modification, and the August 6, 2018 RAL are included as **Appendix G**.

Remaining impacts to the "Chevron Sliver" portion of the Site from the "Former Chevron Oil Terminal" property will be the responsibility of the "Former Chevron Oil Terminal" responsible party.

11.2.2 Soil Sampling and Analysis

Select soil samples were collected from the soil and hand borings, placed in a cooler on ice, and transported/submitted under chain-of-custody protocol to a state-certified laboratory for one or more of the following analyses:

1. VOCs *via* United States Environmental Protection Agency (U.S. EPA) Method 8260C;
2. Total petroleum hydrocarbons (TPH) *via* modified U.S EPA Method 8100;
3. Polycyclic aromatic hydrocarbons (PAHs) *via* U.S. EPA Method 8270D; and/or,
4. Polychlorinated biphenyls (PCBs) *via* U.S. EPA Method 8082A; and/or,
5. Resource Conservation and Recovery Act (RCRA) 8 metals *via* U.S. EPA Methods 6010C and 7471B.

The analytical results of soil samples collected by SAGE are summarized in **Table 4**, attached, which provides a summary of all analytes detected above laboratory reporting limits and analytes for which the laboratory reporting limit is above applicable RIDEM Method 1 R-DEC and/or GB-LC. Analytes are also compared to the RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria (I/C-DEC) and UCLs. It should be noted that analytes that were not detected are not listed in the table. A complete list of analytes tested is included in the laboratory analytical report included as **Appendix H**.

<u>"Main Quay" Portion of the Site</u>

As indicated in **Table 4**:

- TPH and PCBs were not detected in excess of their applicable RIDEM Method 1 R-DEC and GB-LC;

- No VOCS were detected in excess of their laboratory reporting limits. 1,2-dibromomethane (EDB) and vinyl chloride (VC) were reported below the laboratory reporting limit, however the laboratory reporting limit exceeds their applicable RIDEM Method 1 R-DEC in all samples collected. EDB and VC have not been detected in any soil samples at the Site nor in groundwater. As such, EDB and VC are not contaminants of concern (COC) related to the Site;
- Benzo(a)pyrene was detected in the sample collected from soil boring SE-101 at a depth of 10-15 feet bgs at a concentration exceeding the applicable RIDEM Method 1 R-DEC; and,
- Arsenic was detected in the samples collected from soil borings SE-101 and SE-102 at a depth of 10-15 feet bgs at concentrations exceeding the applicable RIDEM Method 1 R-DEC and the I/C-DEC.

"Chevron Sliver" Portion of the Site

As indicated in **Table 4**:

- No PCBs were detected in excess of their laboratory reporting limits.
- VOCs were not detected in excess of their applicable RIDEM Method 1 R-DEC and GB-LC. EDB and VC were reported below the laboratory reporting limit, however the laboratory reporting limit exceeds their applicable RIDEM Method 1 R-DEC in all samples collected. EDB and VC have not been detected in any soil samples at the Site nor in groundwater. As such, EDB and VC are not COC related to the Site;
- TPH were detected in the samples collected from soil borings SE-201, SE-203, and SE-206 at a depth of 10-15 feet bgs at concentrations exceeding the applicable RIDEM Method 1 R-DEC;
- TPH were detected in the samples collected from soil borings SE-202 and SE-204 at a depth of 10-15 feet bgs and SE-207 at a depth of 0-5 feet bgs at concentrations exceeding the applicable RIDEM Method 1 R-DEC, I/C-DEC, and GB-LC;
- Benzo(a)pyrene and chrysene were detected in the sample collected from soil boring SE-206 at a depth of 10-15 feet bgs at a concentration exceeding the applicable RIDEM Method 1 R-DEC. Pyrene was detected in the sample collected from soil boring SE-207 at a depth of 0-5 feet bgs at a concentration exceeding the applicable RIDEM Method 1 R-DEC;

- Benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-cd)pyrene were reported below the laboratory reporting limit, however the laboratory reporting limit exceeds their applicable RIDEM Method 1 R-DEC in the samples collected from soil borings SE-202 at a depth of 10-15 feet bgs and SE-207 at a depth of 0-5 feet bgs. Chrysene was detected in one soil sample in excess of the applicable RIDEM Method 1 R-DEC. For the purposes of this SIR, the laboratory reporting limit exceedance for chrysene will be treated as an exceedance of the applicable RIDEM Method 1 R-DEC. Benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene were not detected in any soil samples in excess of their applicable RIDEM Method 1 R-DEC and therefore, the laboratory reporting limit exceedances will not be treated as an exceedance of the RIDEM Method 1 R-DEC;
- Benzo(a)pyrene and dibenz(a,h)anthracene were reported below the laboratory reporting limit, however the laboratory reporting limit exceeds their applicable RIDEM Method 1 R-DEC and I/C-DEC in the samples collected from soil borings SE-202 at a depth of 10-15 feet bgs and SE-207 at a depth of 0-5 feet bgs. Dibenz(a,h)anthracene has not been detected in any soil samples at the Site and is not a COC related to the Site. Benzo(a)pyrene was detected in two soil samples in excess of the applicable RIDEM Method 1 R-DEC. For the purposes of this SIR, the laboratory reporting limit exceedance for benzo(a)pyrene will be treated as an exceedance of the applicable RIDEM Method 1 R-DEC.
- Lead was detected in the sample collected from soil boring SE-207 at a depth of 0-5 feet bgs at a concentration exceeding the applicable RIDEM Method 1 R-DEC;
- Lead was detected in the sample collected from soil boring SE-203 at a depth of 10-15 feet bgs at a concentration exceeding the applicable RIDEM Method 1 R-DEC and I/C-DEC; and,
- Arsenic was detected in the samples collected from soil borings SE-201 and SE-203 at a depth of 10-15 feet bgs at concentrations exceeding the applicable RIDEM Method 1 R-DEC and the I/C-DEC.

11.2.3 Groundwater Sampling and Analysis

On April 1, 2019, SAGE collected groundwater samples from the five, newly-installed groundwater monitoring wells (SE-101 (MW), SE-103 (MW), SE-105 (MW), SE-107 (MW), and SE-108 (MW)) and the two pre-existing monitoring wells (labeled by SAGE as PE-MW-1 and PE-MW-2) located on the "Main Quay" portion of the Site. Subsequently, on May 24 and 28, 2019, SAGE collected groundwater samples from the three, newly-installed groundwater monitoring

wells (SE-201 (MW), SE-204 (MW), and SE-207 (MW)) located on the "Chevron Sliver" portion of the Site. Monitoring well locations are identified in **Figures 2A, 2B, and 2C**.

Prior to collecting groundwater samples, SAGE gauged each monitoring well utilizing an oil/water interface probe to determine the depth to groundwater and to assess for the presence and/or absence of non-aqueous phase liquid (NAPL). NAPL was not detected during the monitoring well gauging. Measured static depth to groundwater ranged between 1.37 to 11.33 feet below the top of the inner road box collar (btoc). A groundwater gauging log is provided in **Table 5**, attached.

Please note, the screened intervals for monitoring wells SE-101 (MW) (2'-12' bgs), SE-107 (MW) (5'-15' bgs), SE-108 (MW) (5'-15' bgs), and PE-MW-2 (4'-14' bgs) did not intersect the groundwater table interface during the April 1, 2019 gauging event; however, visual and olfactory observations, field screening, and/or laboratory analytical data from these four locations indicate that the presence of NAPL is unlikely. Gauging data is not available for monitoring wells SE-201 (MW) and SE-207 (MW) during the May 24 and 28, 2019 groundwater sampling events; therefore, it is unknown if the screened intervals intersected the groundwater table interface. As noted in **Section 11.2.1** above, an RCM/OBB was installed along a small portion of the "Chevron Sliver" portion of the Site to address the above-noted TPH GB-LC exceedances, prevent known oil sheens located on the "Former Chevron Oil Terminal" property, and upgradient of the "Chevron Sliver" portion of the Site, from migrating through the "Chevron Sliver" portion of the Site and into the Providence Harbor, and address potential future contaminant migration.

Following the gauging, each monitoring well was purged a minimum of three (3) static well volumes utilizing a low-flow peristaltic pump with dedicated tubing. The tubing was deployed at a depth approximately equivalent to the mid-screen point or the mid-water column height of the monitoring well, as applicable. Upon completion of purging, groundwater samples were collected from each monitoring well, placed in a cooler with ice, and were submitted under chain-of-custody protocol to a state-certified laboratory for analysis of VOCs *via* U.S. EPA Method 8260C.

The detected analytical results obtained from groundwater samples collected by SAGE are summarized in **Table 6**, which provides a summary of all analytes detected above laboratory reporting limits and analytes for which the laboratory reporting limit is above the applicable RIDEM Method 1 GB-GWO. Analytes are also compared to the RIDEM UCLs. It should be noted that analytes that were not detected are not listed in the table. A complete list of analytes tested is included in the laboratory analytical reports included as **Appendix I**.

As indicated in **Table 6**, a low-level detection of total xylenes (11 µg/l) was reported in the sample collected from monitoring well SE-201 (MW), however no RIDEM GB-GWO has been established for this analyte. No other VOCs were detected in excess of a laboratory reporting limit, of which, all are below their applicable RIDEM Method 1 GB-GWO (if promulgated), with the exception of 1,1-dichloroethene (1,1-DCE) in the samples collected from monitoring wells SE-108 (MW) and PE-MW-1. The laboratory analytical data reports for these two samples indicate that the elevated reporting limits were due to the foaming nature of the samples. 1,1-DCE was not detected in any soil samples collected as part of this investigation. As such, 1,1-DCE is not a COC related to the Site.

Please note, the case narrative of the laboratory analytical data reports for the groundwater samples collected on the "Main Quay" portion of the Site indicate that EDB, 1,2-dibromo-3-chloropropane (DBCP), and VC were estimated down to method detection limits (MDL) to meet their applicable GB-GWO. The case narrative of the laboratory analytical data report for the groundwater samples collected from the "Chevron Sliver" portion of the Site does not note this; however, the sample specific laboratory results page for each sample is "J" flagged for DBCP and VC similarly to the "Main Quay" results indicating that these results were estimated down to method detection limits (MDL) to meet their applicable GB-GWO. EDB, DBCP, and VC were not detected in any soil samples collected as part of this investigation. As such, EDB, DBCP, and VC are not COCs related to the Site.

11.2.4 Groundwater Elevation Survey

On April 1, 2021, a relative groundwater elevation survey was performed to determine the approximate groundwater flow direction at the Site. The seven monitoring wells located on the "Main Quay" portion of the Site were surveyed to establish relative elevations. Based on the elevation survey and groundwater elevation data, groundwater at the Site appears to flow in a westerly direction. Given that the property was created by filling in a portion of Providence Harbor, it is anticipated that groundwater is tidally influenced. A summary of the groundwater gauging and elevation survey has been provided in the attached **Table 5**. Groundwater elevation contours are depicted in **Figure 2A**.

11.2.5 Dredge Spoils Stockpiling - CRMC

Between November 27 through December 20, 2019 and January 3 through 16, 2020, the Coastal Resource Management Council (CRMC) contracted dredging of approximately 8,532 cubic yards of sediment from the Providence River which was then transported and stockpiled on a portion of the South Quay (designated as Piles 1 through 15). The northerly extent of the dredge area is located at approximately the Providence Place Mall and extends southerly to the south of the Crawford Street Bridge in Providence. The extents of the dredge area were

evaluated based on data generated during pre-characterization of sediments by The Nature Conservancy (TNC) in May 2019. Pre-characterization of proposed dredge material was conducted to delineate sediment that exhibited concentrations above the RIDEM Method 1 I/C-DEC. The extents of the dredge project and the data utilized to delineate the dredge area is included in **Appendix J**. A stockpile topography plan of the stockpiles is included as **Figure 4**.

11.2.5.1 Environmental Air Monitoring

During dredge stockpiling operations at the Site, SAGE conducted environmental air monitoring at a minimum of two locations (one location on December 17, 2019). Dust monitoring data was collected in real-time and time weighted average (TWA) utilizing TSI Dustrak aerosol dust monitor equipment, in addition to observations for visible evidence of dust by field personnel. At a minimum, one location was positioned on the upwind Site perimeter, and one dust monitor was positioned on the downwind Site perimeter and one dust monitor was position on the downwind Site perimeter. Field screening results were compared to a maximum 24-hour TWA with a permissible concentration of 150 $\mu g/m^3$ and a real-time 2-hour average of 200 $\mu g/m^3$ based on particle concentrations measured as PM10. Air monitoring TVOV data was collected in real-time utilizing a PID equipped with a 10.6 eV lamp and calibrated to a 100 ppmV isobutylene standard.

On November 27, 29, 30, December 1 through 8, 10, and 12 through 17, 2019, SAGE conducted environmental monitoring activities at the Site. All dust monitoring field screening results were below the TWA and 2-hour average permissible concentrations for all monitoring events, with the exception of results on December 1, which are likely attributable to a snow flurry. All TVOV readings were less than the instrument detection limit of 0.1 ppmV, with the exception of results on December 1, which are likely attributable to moisture in ambient air due to a snow flurry. Environmental monitoring documentation is included as **Appendix K**.

11.2.5.2 Dredge Stockpile Sampling and Analysis

To evaluate the dredge material stockpiled on-Site in comparison to the pre-characterization data collected by TNC, SAGE collected 17 samples, one from each of the 15 stockpiles and an additional sample from both Piles 1 and 2. Each stockpile sample was collected from multiple grab sample locations (one location for each stockpile chosen for collection of a discrete VOC sample) at depths ranging from 0 to 2 feet utilizing hand tools and composited together prior to collection in laboratory provided glassware. The samples were placed in a cooler on ice and transported/submitted under chain-of-custody protocol to a state-certified laboratory for one or more of the following analyses:

- VOCs *via* U.S. EPA Method 8260B;
- SVOCs *via* U.S. EPA Method 8270D;
- TPH *via* modified U.S. EPA Method 8100;
- PCBs *via* U.S. EPA Extraction Method 3540C (Soxhlet) and Method 8082A;
- Priority Pollutant 13 (PP13) Metals *via* U.S. EPA Methods 6010C/7471B; and/or,
- Synthetic precipitation leaching procedure (SPLP) lead *via* U.S. EPA Extraction Method 1312 and Method 6010C.

The analytical results of soil samples collected by SAGE are summarized in **Table 7**, attached, which provides a summary of all analytes detected above laboratory reporting limits and analytes for which the laboratory reporting limit is above applicable RIDEM Method 1 R-DEC and/or GB-LC. Analytes are also compared to the RIDEM Method 1 I/C-DEC and UCLs. It should be noted that analytes that were not detected are not listed in the table. A complete list of analytes tested is included in the laboratory analytical report included as **Appendix L**.

As indicated in **Table 7**,

- VOCs and PCBs were not detected in excess of their applicable RIDEM Method 1 R-DEC and GB-LC;
- Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene were detected in all samples collected at concentrations exceeding the applicable RIDEM Method 1 R-DEC. Benzo(g,h,i)perylene was detected in all samples, with the exception of the sample collected from Pile 4, at concentrations exceeding the applicable RIDEM Method 1 R-DEC. Dibenz(a,h)anthracene was detected in the samples collected from Piles 1, 2, 3, 5, 7, 8, 11, 12, and 13 at concentrations exceeding the applicable RIDEM Method 1 R-DEC. Indeno(1,2,3-cd)pyrene was detected in the samples collected from Piles 1, 2, 3, 5, 7, 8, 9, 11, 12, and 13 at concentrations exceeding the applicable RIDEM Method 1 R-DEC;
- Benzo(a)pyrene was detected in all samples collected at concentrations exceeding the applicable RIDEM Method 1 R-DEC and I/C-DEC;
- TPH was detected in the samples collected from Piles 2, 3, and 8 at concentrations exceeding the applicable RIDEM Method 1 R-DEC; and,
- Lead was detected in the sample collected from Pile 6 at a concentration exceeding the applicable RIDEM Method 1 R-DEC. Lead was detected in the

sample collected from Pile 7 at a concentration exceeding the applicable RIDEM Method 1 R-DEC and I/C-DEC.

Please note, samples from Stockpiles 1,6, and 7 were additionally analyzed for Synthetic Precipitation Leaching Procedure (SPLP)[1] lead due to total lead exceeding the TCLP 20x rule. SPLP results were all less than the TCLP limit of 5 mg/l and the dredge material is therefore not a RCRA regulated waste.

11.3 Free Liquids on the Surface

No "free liquids on the surface" have been observed at the Site with the exception of areas of surface water located on the earthen portion of the Site.

11.4 Non-Aqueous Phase Liquid (NAPL)

No NAPL has been detected on groundwater in any on-Site monitoring wells. Please note, the screened intervals for monitoring wells SE-101 (MW) (2'-12' bgs), SE-107 (MW) (5'-15' bgs), SE-108 (MW) (5'-15' bgs), and PE-MW-2 (4'-14' bgs) did not intersect the groundwater table interface during the April 1, 2019 gauging event; however, visual and olfactory observations, field screening, and/or laboratory analytical data from these four locations indicate that the presence of NAPL is unlikely. Gauging data is not available for monitoring wells SE-201 (MW) and SE-207 (MW) during the May 24 and 28, 2019 groundwater sampling events; therefore, it is unknown if the screened intervals intersected the groundwater table interface. As noted in **Section 11.2.1** above, an RCM/OBB was installed along a small portion of the "Chevron Sliver" to address the above-noted TPH GB-LC exceedances, prevent known oil sheens located on the "Former Chevron Oil Terminal" property, and upgradient of the "Chevron Sliver" portion of the Site, from migrating through the "Chevron Sliver" portion of the Site and into the Providence Harbor, and address potential future contaminant migration.

[1] SPLP is applicable to these soils as the SPLP method was developed to mimic an environment for materials where the leaching potential is due to normal rainfall and nitric/sulfuric acids are utilized to simulate acid rains resulting from airborne nitric and sulfuric oxides. TCLP was developed to mimic a typical landfill environment with organic solid waste where the leaching potential is due to acetic acid. There are no solid wastes in the soil stockpiles and the materials are being proposed for reuse on-Site in a future submittal.
https://envl4446.weebly.com/uploads/9/5/5/4/95542854/tclpvssplp-usepa.pdf

11.5 Impact to Environmentally Sensitive Areas

As noted in **Section 9.0** above, the U.S. FWS IPAC online database identified one threatened (Northern Long-eared Bat), one endangered (Roseate Tern), and one candidate (Monarch Butterfly) species as being potentially affected by activities at the Site, a Natural Heritage Area intersects the northern portion of the "Main Quay" portion of the Site, and a high value/high vulnerability habitat is located on the northern portion of the "Main Quay" portion of the Site.

Based on a review of the laboratory analytical data collected at the Site, surficial soils in the "Main Quay" portion of the Site do not exceed the R-DEC, I/C-DEC, GB-LC, or UCLs. Therefore, the release does not appear to have adversely impacted an "Environmentally Sensitive Area," as defined by the *Remediation Regulations*.

11.6 Contamination of Man-Made Structures

No man-made structures, buried or otherwise, are known to exist on-Site.

11.7 Odors or Stained Soil

No odors or stained soil have been observed at the Site.

11.8 Stressed Vegetation

No stressed vegetation has been observed at the Site.

11.9 Presence of Excavated or Stockpiled Material

As noted in **Section 5.0** above, according to available documentation, dredge material was interred throughout the Site in order to create the 60-acre parcel of land referred to as the "Main Quay". Historical documentation indicates that filling at the Site reportedly occurred between 1962 and 1997. Additionally, as noted in **Section 11.2.5** above, the Coastal Resource Management Council (CRMC) contracted dredging of approximately 8,532 cubic yards of sediment from the Providence River which was then transported and stockpiled on-Site in 15 separate stockpiles.

11.10 List of Hazardous Substances and/or Petroleum at the Site

No hazardous substances and/or petroleum products have been observed to be stored or utilized at the Site.

12.0 CONCENTRATION GRADIENTS (1.8.3(A)(12))

All Site data are summarized in **Tables 3** through **7**, attached, and are compared to their applicable RIDEM criteria. A summary of laboratory analytical detections and/or criteria exceedances is as follows:

- As indicated in **Table 3**, TVOV screening values, for soils collected during soil boring and hand boring advancement ranged between less than the instrument detection limit of 0.1 ppmV to 1,339 ppmV;
- Laboratory analytical results for soil samples collected by SAGE are summarized in **Table 4** and are compared to the applicable RIDEM Method 1 R-DEC and GB-LC. Analytes are also compared to the RIDEM Method 1 I/C-DEC and UCLs. As indicated in **Table 4**, at the "Main Quay" portion of the Site, benzo(a)pyrene was detected in excess of RIDEM Method 1 R-DEC and arsenic was detected in excess of both the RIDEM Method 1 R-DEC and I/C-DEC. At the "Chevron Sliver" portion of the Site, TPH were detected in excess of the RIDEM Method 1 R-DEC, I/C-DEC, and/or GB-LC, select PAHS were detected in excess of the RIDEM Method 1 R-DEC, and lead and arsenic were detected in excess of the RIDEM Method 1 R-DEC and/or I/C-DEC;
- As indicated in **Table 5**, measured static depth to groundwater ranged between 1.37 to 11.33 feet btoc. No separate phased contaminants (i.e., oil) were identified in any of the monitoring wells gauged;
- Laboratory analytical results for groundwater samples are summarized in **Table 6** and are compared to the applicable RIDEM GB-GWO. Analytes are also compared to the RIDEM UCLs. As indicated in **Table 6**, a low-level detection of total xylenes (11 µg/l) was reported in the sample collected from monitoring well SE-201 (MW), however no RIDEM GB-GWO has been established for this analyte. No other VOCs were detected in excess of a laboratory reporting limit, of which, all are below their applicable RIDEM Method 1 GB-GWO (if promulgated), with the exception of 1,1-dichloroethene (1,1-DCE) in the samples collected from monitoring wells SE-108 (MW) and PE-MW-1. The laboratory analytical data reports for these two samples indicate that the elevated reporting limits were due to the foaming nature of the samples. 1,1-DCE was not detected in any soil samples collected as part of this investigation. As such, 1,1-DCE is not considered a contaminant of concern (COC) related to the Site; and,
- Laboratory analytical results for dredge stockpile samples collected by SAGE are summarized in **Table 7** and are compared to the applicable RIDEM Method 1 R-DEC and/or GB-LC. Analytes are also compared to the RIDEM Method 1 I/C-DEC

and UCLs. As indicated in **Table 7**, select PAHs were detected in excess of RIDEM Method 1 R-DEC and/or I/C-DEC, TPH were detected in excess of the RIDEM Method 1 R-DEC, and lead was detected in excess of the RIDEM Method 1 R-DEC and I/C-DEC.

The "Main Quay" portion of the Site was created by filling approximately 60-acres of the Providence Harbor with dredge material from the Providence River. "Main Quay" soils appear to be impacted with contaminants commonly found in dredge material/urban soils, specifically PAHs and arsenic above their applicable RIDEM criteria. Detections of TPH and additional metals were also identified below their applicable RIDEM criteria. These compounds were likely present in the sediments of the Providence River and were interred on-Site when the area was filled.

The "Chevron Sliver" portion of the Site is being impacted by the abutting and topographically upgradient "Former Chevron Oil Terminal" property, which was formerly used for petroleum storage and distribution. Known COCs at the "Former Chevron Oil Terminal" property are consistent with those found in "Chevron Sliver" soils, specifically petroleum-related contaminants including TPHs and PAHs. Arsenic and lead were identified in sliver soils as well. A very small amount of separate phased petroleum (aka light non-aqueous phase liquid (LNAPL)) was also observed immediately upgradient of the sliver, emanating from Chevron soils and in nearby (off-Site) groundwater monitoring wells.

A December 2011 Remedial Action Work Plan (RAWP) prepared for the Chevron property by Arcadis US, Inc. identified separate phased petroleum on groundwater and TPH exceedances of the RIDEM Upper Concentration Limits (UCLs) within soils located within approximately 50 feet of the "Chevron Sliver" portion of the Site.

Please note, the soil sample collected at location SE-207 from a depth of 0-5 feet bgs reported TPH at 27,000 mg/kg, exceeding the RIDEM Method 1 R-DEC, I/C-DEC, and GB-LC, and lead at 471 mg/kg, exceeding the RIDEM Method 1 R-DEC. As indicated in **Section 11.2.4** above, it is anticipated that groundwater is tidally influenced. Therefore, the TPH and lead exceedances appear to be attributed to an upgradient source on the "Former Chevron Oil Terminal" property (i.e., 2.55 feet of NAPL was observed on upgradient monitoring well MW-60 on April 15, 2013).

In 2021, as part of Chevron's RIDEM-approved remedial measures, an RCM/OBB was installed along a portion of the Chevron parcel shoreline northward onto a small portion of the "Chevron Sliver". The RCM/OBB was installed/extended to address the above-noted TPH GB-LC exceedances, prevent known oil sheens located on the "Former Chevron Oil Terminal" property, and upgradient of the "Chevron Sliver" portion of the Site, from migrating through

the "Chevron Sliver" portion of the Site and into the Providence Harbor, and address potential future contaminant migration.

Based on the investigations completed at the Site to date, there does not appear to be gross contamination associated with the historical use of the Site.

13.0 BACKGROUND CONCENTRATION INVESTIGATIONS (1.8.3(A)(13))

No investigations have been conducted to determine background concentrations of hazardous substances identified at the Site. Background concentrations are assumed to be below laboratory reporting limits.

14.0 SITE-SPECIFIC HYDROGEOLOGICAL PROPERTIES (1.8.3(A)(14))

The following provides an evaluation of the site-specific hydrogeological properties which could influence migration of hazardous substances throughout and away from the Site:

- On May 26, 2021, depth to water ranged from approximately 1.37 to 11.33 feet btoc.
- There are no known man-made barriers to and conduits for contamination at the Site;
- There are no known natural barriers to and conduits for contamination at the Site;
- According to the Bedrock Geologic Map of Rhode Island (Hermes, et al., 1994), the Site is located in an area mapped as being underlain by the Pennsylvanian-aged Narragansett Bay Group of the Rhode Island Formation. In northern Rhode Island, the Narragansett Bay group consists of gray to black, fine-coarse-grained quartz arenite, litharenite, shale, and conglomerate, with minor beds of anthracite and meta-anthracite and in southern Rhode Island consists of meta-sandstone, meta-conglomerate, schist, carbonaceous schist, and graphite. Bedrock was not encountered during this investigation. As noted in **Section 5.2** above, previous geotechnical drilling at the Site did not encounter bedrock to depths of 57 feet bgs;
- The water table elevation contours depicted on **Figure 2A** illustrate the direction of groundwater flow at the Site as measured on April 1, 2019. Based on the elevation survey and groundwater elevation data, groundwater at the Site appears to flow in a westerly direction. Given that the property was created by

filling in a portion of Providence Harbor, it is anticipated that groundwater is tidally influenced; and,

- Subsurface soil conditions observed during soil boring and hand boring advancement consisted of sandy gravel, sand with trace silt and gravel, silty clay, and sand with silt, clay, and gravel. SAGE's field descriptions of Site soil are consistent with historical information which indicates that dredge material was interred throughout the Site in order to create the 60-acre parcel of land referred to as the "Main Quay". The "Main Quay" portion of the Site is identified as part of the Providence River/Harbor and the "Chevron Sliver" portion of the Site is identified as being located in an area of artificial fill on the Surficial Geology of the Providence Quadrangle (Smith, 1956). Literature values for the saturated hydraulic conductivity of clay to gravel range from 1×10^{-11} to 3×10^{-2} meters per second (Domenico and Schwartz, 1990).

15.0 TOPOGRAPHY, SURFACE WATER, AND RUN-OFF FLOW PATTERNS (1.8.3(A)(15))

The following provides a characterization of the topography, surface water, and run-off flow patterns, including the flooding potential of the Site:

- According to the Providence, Rhode Island USGS Quadrangle topographic map, the general elevation of the Site is approximately 10 feet above the National Geodetic Vertical Datum (NGVD). The topography of the Site is relatively flat. The "Main Quay" portion of the Site is graded to a bowl shape with the perimeter higher than the interior. The dredge stockpiles are located on the southwestern/central portion of the "Main Quay" and range in height from approximately 23 to 30 feet above grade. The "Chevron Sliver" portion of the Site is a banking that slopes to the west down to the elevation of the Providence River/Providence Harbor. The surrounding area is relatively flat with a steep gradient increase to the northeast adjacent to Veterans Memorial Parkway;
- The Site consists of a portion of the Providence Harbor as well as a covered gravel parking area and unpaved grassy areas with dirt pathways throughout. The Site is currently not utilized and does not have any structures. Based on topography of the "Main Quay" portion of the Site, surface runoff would appear to migrate towards the center portion of the Site. Based on the topography of the "Chevron Sliver" portion of the Site, surface runoff would appear to migrate towards the Providence River/Providence Harbor. Stormwater is expected to infiltrate on-Site in the gravel/grassy/dirt areas or flow off-Site to the Providence River/Providence Harbor; and,

- Based on information obtained from the online RIDEM Environmental Resource Map and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for East Providence, Rhode Island (Map 44007C0317J), the Site is located in an area mapped as a Special Flood Hazard Area – Zone VE14. A Zone VE area is defined as an area subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action. The Base Flood Elevation for the Site is listed as 14 feet. As such, the potential for flooding at the Site is high.

16.0 VOLATILIZATION POTENTIAL OF HAZARDOUS SUBSTANCES (1.8.3(A)(16))

The proposed redevelopment of the Site includes the construction of a state-of-the-art maritime port facility for shipping, commodity transport, heavy lift component transfer, and marshal industries. VOCs and TPH were identified in soil at the Site presenting a volatilization risk at the Site, but there is currently no complete vapor intrusion pathway. The proposed redevelopment does not include the construction of any permanent occupied structures; therefore, there is no future potential for a vapor intrusion pathway at the Site.

17.0 CONTAMINANT TRANSPORT BY WIND OR EROSION (1.8.3(A)(17))

Under current conditions, the Site consists of a portion of the Providence Harbor as well as a covered gravel parking area and unpaved grassy areas with dirt pathways throughout. The Site is currently not utilized and does not have any structures. Based on topography of the "Main Quay" portion of the Site, surface runoff would appear to migrate towards the center portion of the Site. Based on the topography of the "Chevron Sliver" portion of the Site, surface runoff would appear to migrate towards the Providence River/Providence Harbor; however, this portion of the Site is heavily vegetated and large riprap is located along the soil to water divide, reducing off-Site erosion.

As such, wind and erosion are not expected to contribute to contaminant migration until redevelopment of the Site commences. SAGE anticipates that appropriate dust and erosion control measures will be implemented during redevelopment.

18.0 FATE AND TRANSPORT MODELS (1.8.3(A)(18))

No fate and transport models were used during the Site investigation.

19.0 SUMMARY OF SAMPLING AND ANALYTICAL METHODS (1.8.3(A)(19))

Section 11.2, **Figures 2A** through **2C**, **Tables 3** through **7,** and **Appendices E** through **J** provide a summary of the samples taken, the location of all samples, the parameters tested for, and the analytical methods used during the Site investigation.

20.0 MONITORING WELL CONSTRUCTION PLAN AND DEVELOPMENT PROCEDURES (1.8.3(A)(20))

Monitoring well construction is consistent with the requirements of the Groundwater Quality Rules, Part 150-05-3. Groundwater monitoring wells were constructed with one-inch diameter, thread coupled PVC materials. Lengths of machine-cut, 0.010-inch slot well screen were installed roughly across the observed water table elevation to obtain an adequate and representative sample for laboratory analysis. Screened intervals were set in silica sand, and a one-foot bentonite seal was set above the well screen. The monitoring wells were completed with gripper plugs and road boxes mounted flush with ground surface to limit disturbance and surface water infiltration. Upon completion, the wells were developed with a peristaltic pump to reduce sample turbidity by removing fine particulate matter (clay and silt) from the filter pack and the geologic formation near the well intake, enhancing inflow to the well. Monitoring well construction details are presented on the Soil Boring/Monitoring Well Logs included as **Appendix F**.

21.0 MANAGEMENT OF INVESTIGATION-DERIVED WASTE (1.8.3(A)(21))

Investigation-derived waste was managed on-Site during the investigation in accordance with the RIDEM *Guidelines for the Management of Investigation Derived Waste (Policy Memo 95-01)*. Soil borings were advanced via mechanical methods and soil generated during the advancement of soil borings was used as backfill within the boreholes following the collection of soil samples.

Monitoring well development and purge groundwater was temporarily stored in a secure container pending Site investigation sample results. As noted above, all groundwater sample results were reported below the applicable RIDEM GB-GWO or are not a COC related to the Site (1,1-DCE). Therefore, the stored groundwater was disposed of on-Site in an area which did not lead to increased migration of contaminants from the Site nor impact a surface water body, wetland, or neighboring property, and infiltrated the ground surface.

22.0 QUALITY ASSURANCE AND QUALITY CONTROL EVALUATION (1.8.3(A)(22))

The *Remediation Regulations* require a quality assurance and quality control (QA/QC) evaluation summary for sample handling and analytical procedures. As documented herein, the analysis of soil samples was completed using U.S EPA Methods 8260C, 8100 (modified), 8270D, 8082A, 6010C, and 7471B. The analysis of groundwater samples was completed using U.S. EPA Method 8260C. The analysis of dredge stockpiles was completed using U.S. EPA Methods 8260B, 8100 (modified), 8270D, 8082A (*via* Soxhlet Extraction Method 3540C), 6010C, 471B, and 6010C (*via* SPLP Extraction Method 1312). The laboratory reports included in **Appendices H**, **I**, **J, and L** document the laboratory QA/QC concerns identified for each of the analyses. There is no impact to the overall usability of the data set for the purposes of this SIR.

With respect to field QA/QC, all analytical samples were collected using SAGE's standard operating procedures, which were prepared in accordance with RIDEM and/or U.S. EPA requirements. Samples were collected in laboratory-supplied containers, were placed in a cooler on ice, and submitted under chain-of-custody protocol to a state-certified laboratory.

23.0 PUBLIC INVOLVEMENT (1.8.3(A)(23))

Pre-Site Investigation public notification was distributed to Site abutters on July 2, 2019. Copies of the distributed public notification documents are included in **Appendix M**.

SAGE is prepared to implement post-SIR public notice requirements when the RIDEM deems the SIR to be complete.

24.0 OTHER SITE-SPECIFIC FACTORS (1.8.3(A)(24))

No other Site-specific factors are necessary to make an accurate decision as to the appropriate Remedial Action to be taken at the Site.

25.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES (1.8.4)

Based on the information presented herein, it is SAGE's opinion that remedial activities are warranted at the Site to achieve the Soil Objectives established within the *Remediation Regulations*. In compliance with Section 1.8.4 of the *Remediation Regulations* and based on the nature and extent of the contamination detected at the Site, SAGE has developed the following three remedial alternatives:

- Alternative 1 – No action/monitored natural attenuation: This option would retain all contaminant-impacted soil on-Site and Site conditions remain unchanged to attenuate naturally, where possible;
- Alternative 2 – Soil excavation and importation of clean fill material: This option would require excavation of all contaminant-impacted soil with concentrations above the applicable RIDEM Method 1 R-DEC and/or GB-LC (estimated at approximately 2,281,256 to 3,715,188 cubic yards based upon the thickness range of fill material reported in the 2017 GZA Report), including confirmatory soil sampling, followed by backfilling the Site with clean fill material; and
- Alternative 3 – Implementation of engineering controls (capping and institutional controls (Environmental Land Use Restriction (ELUR) and Soil Management Plan (SMP)) to limit contact with contaminant-impacted soil at the Site.

The following table summarizes our evaluation of the technical feasibility, permanency, cost efficiency, compliance with state/local laws or other public concerns, and the ability of the Performing Party to perform the preferred remedial alternative for the above-noted remedial alternatives:

Remedial Alternative	Risk Management	Technical Feasibility	Compliance with State/Local Laws or Other Public Concerns	Ability of Performing Party to Perform the Preferred Remedial Alternative
Alternative 1: No Action/Monitored Natural Attenuation	Will not comply with the *Remediation Regulations* – Soil concentrations of contaminants at the Site would remain in soil above their applicable RIDEM regulatory criteria.	Yes	No	Yes
Alternative 2: Soil Excavation and Importation of Clean Fill Material	Will comply with the *Remediation Regulations* by mitigating risk to human health and the environment, but not recommended due to the high cost associated with soil disposal.	No	Yes	No
Alternative 3: Implementation of Engineering Controls and	Will comply with the *Remediation Regulations* by mitigating the risk to human health and the environment. Site users will have	Yes	Yes	Yes

Remedial Alternative	Risk Management	Technical Feasibility	Compliance with State/Local Laws or Other Public Concerns	Ability of Performing Party to Perform the Preferred Remedial Alternative
Institutional Controls	a reduced potential to contact contaminated soil and future users of the Site will be mandated to maintain the cap and manage soil in accordance with a pre- and post-redevelopment SMP.			

Alternative 3 (Implementation of Engineering and Institutional Controls (ELUR and SMPs)) is the preferred alternative, as it is a cost-effective remedial alternative that complies with the intent of the RIDEM *Remediation Regulations* (as well as other applicable federal, state, and local laws or public concerns), it is technically feasible, it is consistent with current and future land use, and it manages actual and potential risks to human health and the environment. The Performing Party has the ability to implement the above-noted preferred remedial alternative.

Note, a Beneficial Use Determination (BUD) application is being submitted to the RIDEM to allow the Site to accept soils for fill and capping purposes as the Site is planned for redevelopment as a state-of-the-art maritime port facility for shipping, commodity transport, heavy lift component transfer, and marshal industries.

27.0 CERTIFICATION STATEMENTS (1.8.5)

This SIR was completed in accordance with the RIDEM *Remediation Regulations*. Accordingly, the following signed statements are included with regard to this SIR.

I certify that the SIR is complete and accurate representation of the contaminated Site and the release and contains all known facts surrounding the release to the best of my knowledge.

Melissa Martin 5/13/22
Melissa Martin Date
RI Waterfront Enterprises LLC

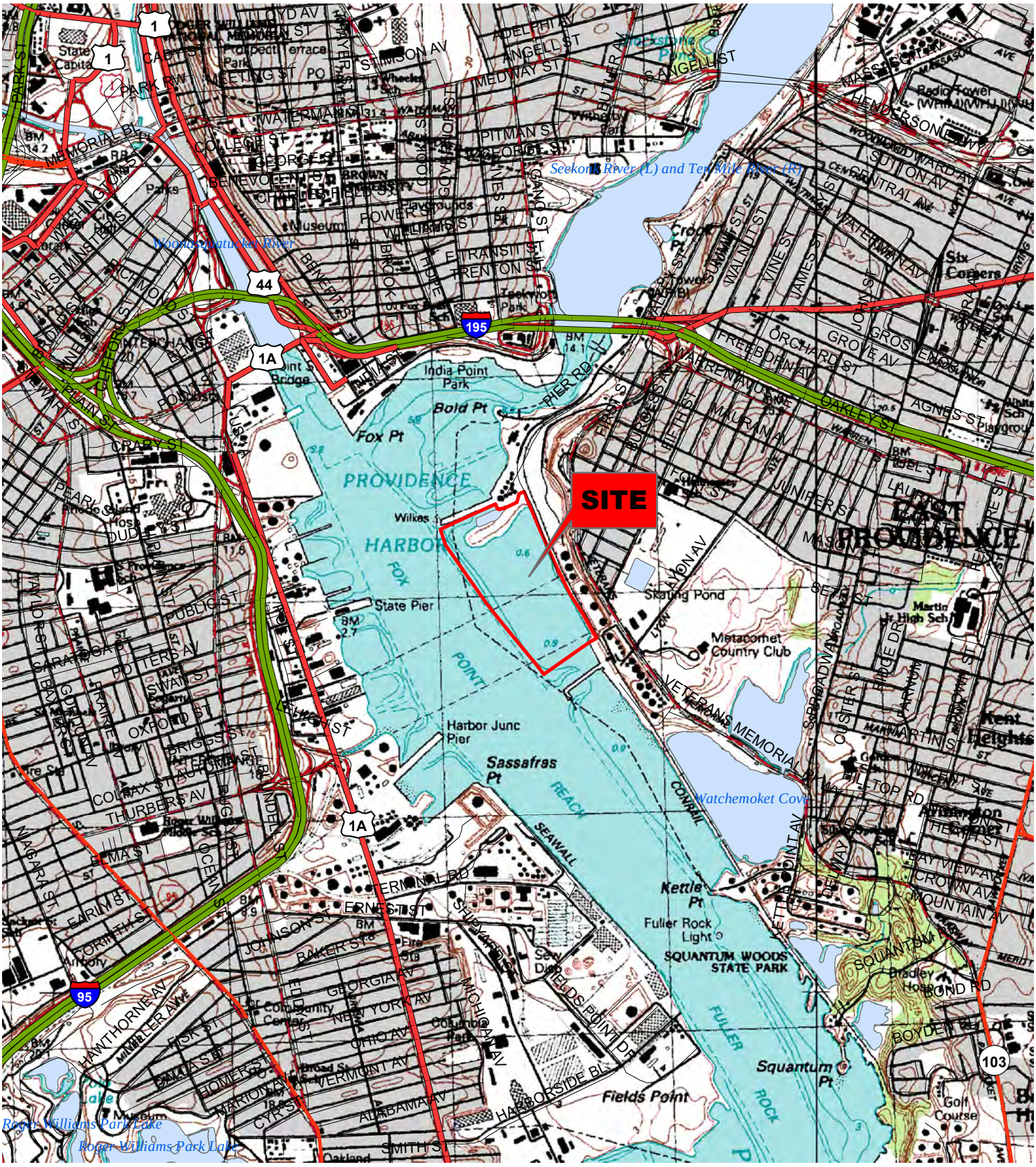
We certify that information contained within the SIR is complete and accurate to the best of our knowledge. This report has been prepared and reviewed by the undersigned staff in accordance with SAGE's standard Quality Control Procedures.

Anthony Rossato
Anthony Rossato
Project Manager

Jacob H. Butterworth
Jacob H. Butterworth, MS, LSP
Vice President

RJ Mandile
Richard J. Mandile
Principal

FIGURES



USGS QUADRANGLE
PROVIDENCE, RHODE ISLAND

Site Location

USGS Quadrangle Site Location Map

The Key (aka South Key/Quay)
649 Waterfront Drive
East Providence, Rhode Island
RIDEM Case Nos. SR-10-1455 & SR-10-1954

DATE: 01/25/2022

JOB #: S3291

CREATED BY: ALM

Figure 1

SAGE ENVIRONMENTAL

"Main Key" Groundwater Results

Sample ID	PW-MW-1	PW-MW-2	SE-101 (MW)	SE-103 (MW)	SE-105 (MW)	SE-107 (MW)	SE-108 (MW)	RIDEM Method 1 GB Groundwater Objectives	RIDEM GB Groundwater Upper Concentration Limits
Date	4/1/2019	4/1/2019	4/1/2019	4/1/2019	4/1/2019	4/1/2019	4/1/2019		
Volatile Organic Compounds (µg/l)									
1,1-Dichloroethene	*<10*	<5	<5	<1	<1	<1	*<10*	*7*	23,000
m&p-Xylene	<20	<10	<10	<2	<2	<2	<20	NE	NE
Total xylenes	<20	<10	<10	<2	<2	<2	<20	NE	NE

Notes:

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 GB Groundwater Objective. (Applicable objective also shaded.)

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 GB Groundwater Objective and GB Upper Concentration Limit or no standard is established.

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

Parcel 6-1-1
SHORESIDE
(north)

Parcel 17-1-2
SHORESIDE
(south)

Portion of
Parcel 7-1-3

"MAIN KEY"

SE-101(MW)

SE-102

SE-103(MW)

SE-104

SE-105(MW)

SE-106

SE-107(MW)

SE-108(MW)

SE-109

PE-MW-1(GZ-2(MW))

PE-MW-2(GZ-3(MW))

93.5

94.5

95.5

96.5

97.5

98.5

99.5

100.5

101.5

102.5

Parcel 17-1-1
CHEVRON

SE-214
SE-212
SE-213
SE-211
SE-210
SE-209
SE-208
SE-208
SE-207(MW)
SE-203
SE-205
SE-201(MW)
SE-202(MW)

Portion of
Parcel 7-1-3

"CHEVRON
SLIVER"

"Main Key" Soil Results

Sample ID	SE 101 (10-15) (MW)	SE 102 (10-15)	SE 105 (0-5)	SE 106 (5-10)	SE 108 (5-10) (MW)	SE 109 (0-5)	SE 104 (0-5)	RIDEM Method 1 Residential Direct Exposure Criteria	RIDEM Method 1 Industrial/Commerial Direct Exposure Criteria	RIDEM Method 1 GB Leachibility Criteria	RIDEM Upper Concentration Limits
Date	3/21/2019	3/21/2019	3/21/2019	3/21/2019	3/21/2019	3/21/2019	3/21/2019				
Volatile Organic Compounds (mg/kg)											
sec-Butylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
n-Butylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
tert-Butylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
1,2-Dibromoethane (EDB)	*<0.017*	*<0.015*	*<0.012*	*<0.011*	*<0.013*	*<0.012*	*<0.011*	*0.01*	0.07	NE	10,000
1,2-Dichloroethane	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	0.9	63	2.3	10,000
1,2-Dichloropropane	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	1.9	84	70	10,000
Ethylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	71	10,000	62	10,000
Isopropylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	27	10,000	NE	10,000
p-Isopropyltoluene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
Naphthalene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	54	10,000	NE	10,000
n-Propylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
Tetrachloroethene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	12	110	4.2	10,000
Toluene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	190	10,000	54	10,000
1,1,2-Trichloroethane	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	3.6	100	NE	10,000
1,3,5-Trimethylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
1,2,4-Trimethylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	NE	NE	NE	10,000
Vinyl Chloride	*<0.033*	*<0.028*	*<0.023*	*<0.023*	*<0.025*	*<0.024*	*<0.022*	*0.02*	3	NE	10,000
o-Xylene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	110	10,000	NE	10,000
m&p-Xylene	<0.18	<0.226	<0.047	<0.051	<0.049	<0.087	<0.054	110	10,000	NE	10,000
Total xylenes	<0.18	<0.226	<0.047	<0.051	<0.049	<0.087	<0.054	110	10,000	NE	10,000
Polycyclic Aromatic Hydrocarbons (mg/kg)											
2-Methylnaphthalene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	123	10,000	NE	10,000
Acenaphthylene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	23	10,000	NE	10,000
Anthracene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	35	10,000	NE	10,000
Benzo(a)anthracene	**0.296**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	*0.9*	7.8	NE	10,000
Benzo(a)pyrene	**0.683**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	**0.4**	*0.8*	NE	10,000
Benzo(b)fluoranthene	**0.332**	<0.210	<0.133	<0.131	**0.17**	<0.143	<0.132	*0.9*	7.8	NE	10,000
Benzo(g,h,i)perylene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	*0.8*	10,000	NE	10,000
Benzo(k)fluoranthene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	*0.9*	78	NE	10,000
Chrysene	**0.286**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	**0.4**	780	NE	10,000
Dibenz(a,h)anthracene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	*0.4*	*0.8*	NE	10,000
Dibenzofuran	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	NE	NE	NE	10,000
Fluoranthene	**0.509**	**0.294**	**0.173**	<0.131	<0.142	**0.245**	<0.132	20	10,000	NE	10,000
Indeno(1,2,3-cd)pyrene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	*0.9*	7.8	NE	10,000
Naphthalene	**0.222**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	54	10,000	NE	10,000
Phenanthrene	**0.337**	<0.210	<0.133	<0.131	<0.142	**0.16**	<0.132	40	10,000	NE	10,000
Pyrene	**0.75**	**0.318**	<0.133	<0.131	**0.221**	**0.229**	<0.132	**13**	10,000	NE	10,000
Total Petroleum Hydrocarbons (mg/kg)											
Total Petroleum Hydrocarbons	**313**	**299**	<28	<27	**220**	**42**	<27	**500**	**2,500**	**2,500**	30,000
Polychlorinated Biphenyls (mg/kg)											
Aroclor-1254	<0.109	<0.109	**0.125**	<0.068	**0.164**	<0.072	<0.065	10	10	NE	10,000
Total Polychlorinated Biphenyls	<0.109	<0.109	**0.125**	<0.068	**0.164**	<0.072	<0.065	10	10	NE	10,000
Total Metals (mg/kg)											
Arsenic	**12.4**	**11.4**	**1.94**	**1.19**	**1.17**	**1.85**	**1.23**	**7**	**7**	NE	10,000
Barium	**48.8**	**57.7**	**16.5**	**8.29**	**20**	**17.8**	**5.06**	5,500	10,000	NE	10,000
Cadmium	**3.03**	**4.21**	**0.72**	<0.30	**0.77**	**0.54**	<0.31	39	1,000	NE	10,000
Chromium	**86.1**	**71.9**	**6.07**	**1.2**	**5.65**	**7.02**	**0.82**	NE	NE	NE	10,000
Lead	**53**	**66.3**	**7.26**	**2.99**	**11.1**	**12.1**	**2.11**	**150**	**500**	NE	10,000
Selenium	<1.10	<0.97	<0.65	<0.60	<0.61	<0.71	<0.61	390	10,000	NE	10,000
Silver	<0.55	<0.48	<0.33	<0.30	<0.31	<0.36	<0.31	200	10,000	NE	10,000
Mercury	**0.358**	<0.111	<0.073	<0.068	<0.078	<0.080	<0.070	23	610	NE	10,000

Notes:

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, GB Leachability Criteria, and Upper Concentration Limit or no standard is established.

Cells with this color indicate: Cases where the analyte concentration exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

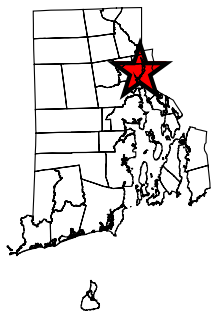
Cells with this color indicate: Cases where the analyte concentration exceeds both the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte concentration exceeds the RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, and GB Leachability Criteria. (Applicable criteria also shaded.)

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

NA: Not analyzed for this analyte.



★ Site Location

Site Plan (Main Quay Results)

The Key (aka South Key/Quay)
649 Waterfront Drive
East Providence, Rhode Island
RIDEM Case Nos. SR-10-1455 & SR-10-1954

Figure 2A

Date: 01/27/2022

Job #: S3291

Created By: ALM

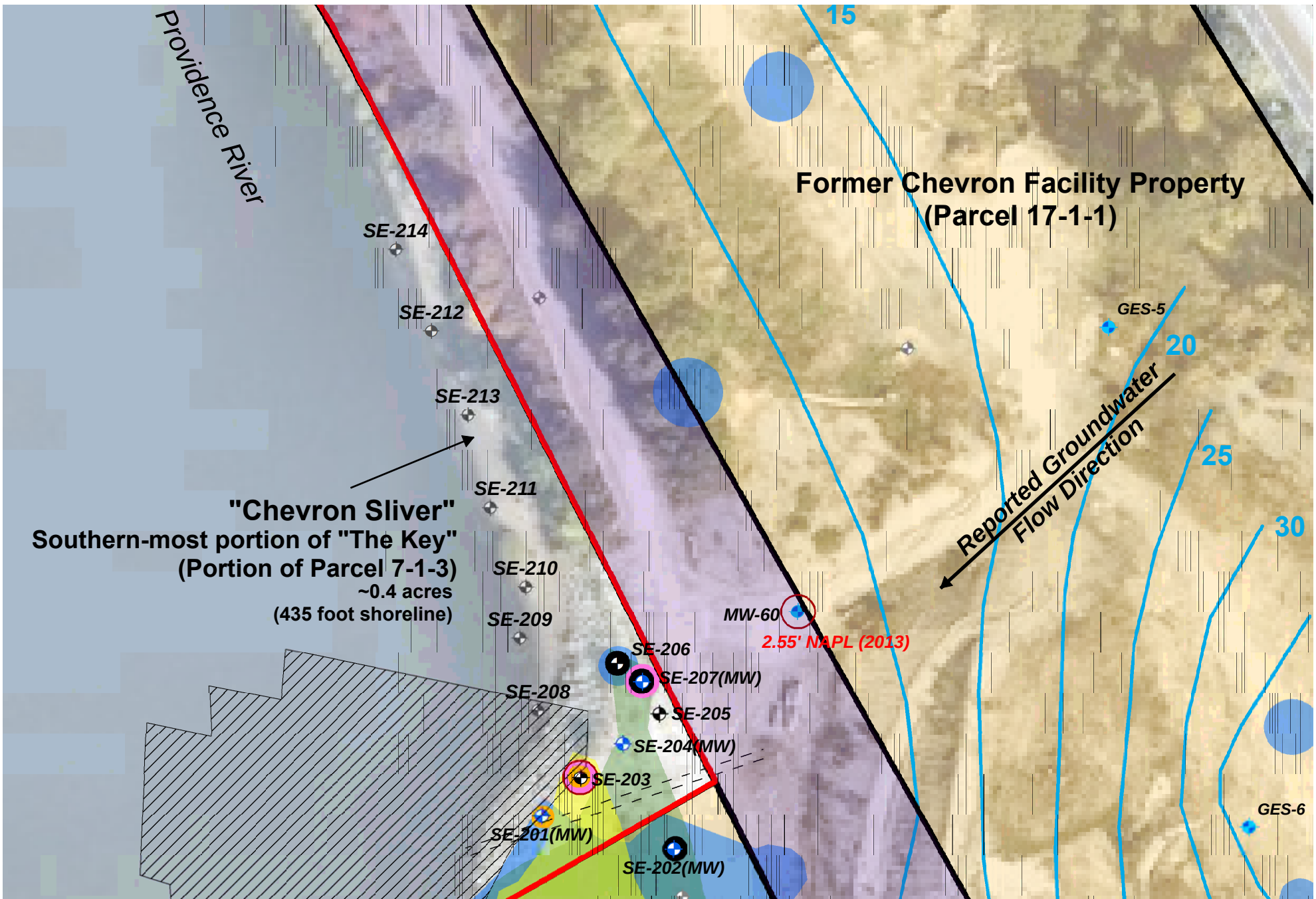
0 50 100 200 300 400 Feet

- Approximate Site Boundary
- Approximate Parcel Boundaries
- Former Chevron Land (to be remediated)
- State of Rhode Island Land (to be remediated)
- Approximate Location of Oleophilic Bio Barrier
- Overburden Groundwater Elevations (Feet) (April 1, 2019)
- Overburden Groundwater Flow Direction
- SAGE Hand Boring Location
- SAGE Soil Boring Location
- SAGE Soil Boring/Monitoring Well Location
- Previously Existing Monitoring Well Location (prior to 03/2019)

N

Data Provided by RIGIS
Orthoimagery provided by nearmap.com

SAGE ENVIRONMENTAL



"Chevron Sliver" Groundwater Results

Sample ID	SE-201 (MW)	SE-204 (MW)	SE-207 (MW)	RIDEM Method 1 GB Groundwater Objectives	RIDEM GB Groundwater Upper Concentration Limits
Date	5/28/2019	5/24/2019	5/28/2019		
Volatile Organic Compounds (µg/l)					
Total xylenes	**11**	<10	<10	NE	NE

Notes:

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 GB Groundwater Objective and

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

"Chevron Sliver" Soil Results

Sample ID	SE-201 (10-15)	SE-202 (10-15)	SE-203 (10-15)	SE-204 (10-15)	SE-205 (5-10)	SE-206 (10-15)	SE-207 (0-5)	SE-208 (2-4')	SE-209 (2-4')	SE-210 (2-4')	SE-211 (2-4')	SE-212 (2-4')	SE-213 (2-4')	SE-214 (2-4')	RIDEM Method 1 Residential Direct Exposure Criteria	RIDEM Method 1 Industrial/Commerial Direct Exposure Criteria	RIDEM Method 1 GB Leachibility Criteria	RIDEM Upper Concentration Limits
Date	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019				
Volatile Organic Compounds (mg/kg)																		
sec-Butylbenzene	<0.037	**0.952**	**0.902**	**0.897**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
n-Butylbenzene	<0.037	**0.788**	**0.979**	**0.997**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
tert-Butylbenzene	<0.037	**0.174**	**0.101**	**0.096**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
1,2-Dibromoethane (EDB)	*<0.034*	*<0.031*	*<0.036*	*<0.041*	*<0.032*	*<0.041*	*<0.013*	NA	NA	NA	NA	NA	NA	NA	*0.01*	0.07	NE	10,000
1,2-Dichloroethane	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	0.9	63	2.3	10,000
1,2-Dichloropropane	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	1.9	84	70	10,000
Ethylbenzene	**0.119**	<0.048	**0.339**	**0.339**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	71	10,000	62	10,000
isopropylbenzene	**0.076**	**0.225**	**1.5**	**1.45**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	27	10,000	NE	10,000
p-Isopropyltoluene	**0.137**	<0.048	**0.903**	**0.924**	<0.043	**16.4**	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Naphthalene	<0.037	<0.048	**1.19**	**1.46**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	54	10,000	NE	10,000
n-Propylbenzene	**0.065**	**0.439**	**2.6**	**2.5**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Tetrachloroethene	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	12	110	4.2	10,000
Toluene	**0.047**	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	190	10,000	54	10,000
1,1,2-Trichloroethane	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	3.6	100	NE	10,000
1,3,5-Trimethylbenzene	<0.037	**0.086**	**3.1**	**3.03**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
1,2,4-Trimethylbenzene	<0.037	**0.258**	**6.3**	**6.57**	<0.043	**0.055**	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Vinyl Chloride	*<0.034*	*<0.031*	*<0.034*	*<0.041*	*<0.032*	*<0.041*	*<0.026*	NA	NA	NA	NA	NA	NA	NA	*0.02*	3	NE	10,000
o-Xylene	**0.059**	<0.048	**0.123**	**0.108**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	110	10,000	NE	10,000
m&p-Xylene	**0.167**	<0.095	**1.88**	**1.72**	<0.085	<0.082	<0.102	NA	NA	NA	NA	NA	NA	NA	110	10,000	NE	10,000
Total xylenes	**0.226**	<0.095	**2.01**	**1.83**	<0.085	<0.082	<0.102	NA	NA	NA	NA	NA	NA	NA	110	10,000	NE	10,000
Polycyclic Aromatic Hydrocarbons (mg/kg)																		
2-Methylnaphthalene	<0.153	**5.75**	**1.61**	<0.171	<0.156	**0.825**	<3.82	NA	NA	NA	NA	NA	NA	NA	123	10,000	NE	10,000
Acenaphthylene	<0.153	<1.52	<0.156	<0.171	<0.156	**0.218**	<3.82	NA	NA	NA	NA	NA	NA	NA	23	10,000	NE	10,000
Anthracene	<0.153	<1.52	<0.156	<0.171	<0.156	**0.996**	<3.82	NA	NA	NA	NA	NA	NA	NA	35	10,000	NE	10,000
Benzo(a)anthracene	**0.165**	*<1.52*	<0.156	<0.171	<0.156	**0.849**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	7.8	NE	10,000
Benzo(a)pyrene	<0.153	*<1.52*	<0.156	<0.171	<0.156	**0.628**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	**0.4**	*0.8*	NE	10,000
Benzo(b)fluoranthene	**0.184**	*<1.52*	<0.156	<0.171	<0.156	**0.813**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	7.8	NE	10,000
Benzo(g,h,i)perylene	**0.185**	*<1.52*	<0.156	<0.171	<0.156	**0.36**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.8*	10,000	NE	10,000
Benzo(k)fluoranthene	<0.153	*<1.52*	<0.156	<0.171	<0.156	**0.273**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	78	NE	10,000
Chrysene	**0.202**	*<1.52*	<0.156	<0.171	<0.156	**0.836**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	**0.4**	780	NE	10,000
Dibenz(a,h)anthracene	<0.153	*<1.52*	<0.156	<0.171	<0.156	<0.146	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.4*	*0.8*	NE	10,000
Dibenzofuran	<0.153	<1.52	<0.156	<0.171	<0.156	**0.175**	<3.82	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Fluoranthene	**0.233**	<1.52	<0.156	**0.231**	<0.156	**2.09**	<3.82	NA	NA	NA	NA	NA	NA	NA	20	10,000	NE	10,000
Indeno(1,2,3-cd)pyrene	<0.153	*<1.52*	<0.156	<0.171	<0.156	**0.445**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	7.8	NE	10,000
Naphthalene	<0.153	<1.52	**1.25**	<0.171	<0.156	**0.227**	<3.82	NA	NA	NA	NA	NA	NA	NA	54	10,000	NE	10,000
Phenanthrene	<0.153	**1.82**	<0.156	<0.171	<0.156	**2.51**	<3.82	NA	NA	NA	NA	NA	NA	NA	40	10,000	NE	10,000
Pyrene	<0.153	<1.52	<0.156	<0.171	<0.156	**1.9**	**17.4**	NA	NA	NA	NA	NA	NA	NA	**13**	10,000	NE	10,000
Total Petroleum Hydrocarbons (mg/kg)																		
Total Petroleum Hydrocarbons	**1,400**	**13,300**	**1,770**	**2,520**	<32	**1,040**	**27,000**	**359**	<33	<32	**220**	<30	**90**	**95**	**500**	**2,500**	**2,500**	30,000
Polychlorinated Biphenyls (mg/kg)																		
Aroclor-1254	<0.078	<0.074	<0.077	<0.085	<0.078	<0.074	<0.079	NA	NA	NA	NA	NA	NA	NA	10	10	NE	10,000
Total Polychlorinated Biphenyls	<0.078	<0.074	<0.077	<0.085	<0.078	<0.074	<0.079	NA	NA	NA	NA	NA	NA	NA	10	10	NE	10,000
Total Metals (mg/kg)																		
Arsenic	**10.8**	**1.98**	**18.3**	**5.7**	**1.62**	**5.79**	**5.77**	NA	NA	NA	NA	NA	NA	NA	**7**	**7**	NE	10,000
Barium	**25.4**	**30**	**10.5**	**13.3**	**33.4**	**20**	**62.4**	NA	NA	NA	NA	NA	NA	NA	5,500	10,000	NE	10,000
Cadmium	**2.57**	**1.56**	**1.34**	**1.31**	**1.34**	**1.81**	**2.29**	NA	NA	NA	NA	NA	NA	NA	39	1,000	NE	10,000
Chromium	**15.1**	**12.7**	**7.18**	**8.15**	**8.32**	**10.1**	**32.8**	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Lead	**69.2**	**24.8**	**690**	**53.9**	**8.24**	**18.1**	**471**	NA	NA	NA	NA	NA	NA	NA	**150**	**500**	NE	10,000
Selenium	<0.17	<0.24	<0.20	<0.23	<0.29	<0.13	<0.38	NA	NA	NA	NA	NA	NA	NA	390	10,000	NE	10,000
Silver	<0.09	<0.12	<0.10	<0.12	<0.15	<0.07	<0.19	NA	NA	NA	NA	NA	NA	NA	200	10,000	NE	10,000
Mercury	<0.074	**0.093**	<0.058	**0.042**	<0.055	<0.058	<0.075	NA	NA	NA	NA	NA	NA	NA	23	610	NE	10,000

Notes:

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, and Upper Concentration Limit or no standard is established.

Cells with this color indicate: Cases where the analyte concentration exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

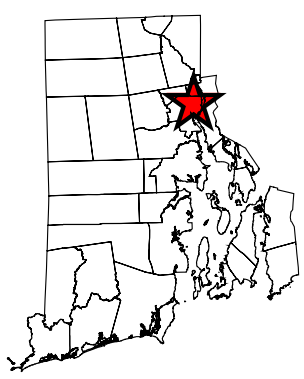
Cells with this color indicate: Cases where the analyte concentration exceeds both the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte concentration exceeds the RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, and GB Leachability Criteria. (Applicable criteria also shaded.)

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

NA: Not analyzed for this analyte.



Site Location

Site Plan (Chevron Sliver Results)

Chevron Sliver
The Key (aka South Key/Quay)
649 Waterfront Drive
East Providence, Rhode Island
RIDEM Case Nos. SR-10-1455 & SR-10-1954

Date: 01/26/2022

Job #: S3291

Created By: ALM

- Approximate Site Boundary
- Approximate Parcel Boundaries
- Former Chevron Land (to be remediated)
- State of Rhode Island Land (to be remediated)
- Approximate Extents of Total Petroleum Hydrocarbons Reported in Soil Above RIDEM Method 1 Residential Direct Exposure Criteria
- Approximate Extents of Total Petroleum Hydrocarbons Reported in Soil Above RIDEM Method 1 GB Leachability Criteria
- Approximate Extents of Total Petroleum Hydrocarbons Reported in Soil Above RIDEM Upper Concentration Limits (UCL) and/or a UCL Condition was Observed in Soil
- Polycyclic Aromatic Hydrocarbons Reported in Soil Above RIDEM Method 1 Residential Direct Exposure Criteria
- Arsenic Reported in Soil Above RIDEM Method 1 Direct Exposure Criteria
- Lead Reported in Soil Above RIDEM Method 1 Direct Exposure Criteria
- NAPL Reported in Soil and/or Groundwater
- Approximate Location of Oleophilic Bio Barrier
- Groundwater Elevation (2009)
- Abandoned Sewer Line
- SAGE Hand Boring Location
- SAGE Soil Boring Location
- SAGE Soil Boring/Monitoring Well Location
- Chevron Soil Boring Location
- Chevron Monitoring Well Location

N W E S

0 12.5 25 50 75 100 Feet

Data Provided by RIGIS
Orthoimagery provided by nearmap

Figure 2B

SAGE ENVIRONMENTAL

"Main Key"
aka South Quay or South Key
(Parcel 7-1-3)

Former Chevron Facility Property
(Parcel 17-1-1)

"Chevron Sliver"
Southern-most portion of "The Key"
Portion of (Parcel 7-1-3)

~0.4 acres
(435 foot shoreline)

Boom
(Installed 11/23/2010)

Reported Groundwater Flow Direction

Veterans Memorial Parkway

Providence River

Waterfront

Lower Tier North

Upper Tier North

Lower Tier Center

Upper Tier Center

Lower Tier South

Upper Tier South

TP-127 TP-4 SE-109 TW-01 SE-108(MW) SB-44 GES-1 SB-43 PE-MW-2 TP-16L24 GES-2 SB-70 SB-42 SE-107(MW) SB-41 SE-106 SB-40 GES-3 SE-105(MW) SB-39 DB-12 GES-4 SB-38 MW-8 10 15 DB-14 SE-214 SE-212 SE-213 SE-211 SE-210 SE-209 SE-208 DB-16 SB-37 TP-15 GES-5 SB-36 20 25 30 35 MW-60 2.55' NAPL (2013) GES-6 SB-35 SB-83 SE-206 SE-207(MW) SE-205 SE-204(MW) SE-203 SE-201(MW) SE-202(MW) MW-29 SB-109 SB-107 SB-116 SB-06/MW-51 SB-115 MW-87 SB-144 SB-142 TW-13 SB-113 SB-114 GZ-1B 0.01' NAPL (2011) MW-72 MW-54 0.82' NAPL (2013) MW-59 0.01' NAPL (2011) MW-44 SB-169 0.24' NAPL (2009) TP-118 SB-150 MW-55 0.06' NAPL (2013) TW-11(R) 0.31' NAPL (2002) TW-03(R) 0.21' NAPL (2009) MW-3 SB-168 SB-34 SB-169 TP-131 TW-04(R) 1.98' NAPL (2013) MW-46 1.93' NAPL (2013) SB-32/MW-64 1.67' NAPL (2013) SB-206 SB-205 MW-21 SB-179 MW-20 SB-209 SB-182 SB-211 SB-185 SB-212 SB-214 SB-215 SB-213 SB-217 SB-216

Site Location

- Approximate Site Boundary
- Approximate Parcel Boundaries
- Approximate Former Chevron Remediation Area Boundaries
- Former Chevron Land (to be remediated)
- State of Rhode Island Land (to be remediated)
- Former Bulk Petroleum Storage Tanks
- Approximate Extent of Total Petroleum Hydrocarbons Reported in Soil Above RIDEM Method 1 Residential Direct Exposure Criteria
- Approximate Extent of Total Petroleum Hydrocarbons Reported in Soil Above RIDEM Method 1 GB Leachability Criteria
- Approximate Extent of Total Petroleum Hydrocarbons Reported in Soil Above RIDEM Upper Concentration Limits (UCL) and/or a UCL Condition was Observed in Soil
- NAPL Reported in Soil and/or Groundwater
- Approximate Location of Oleophilic Bio Barrier
- Groundwater Elevation (2009)
- Abandoned Sewer Line
- SAGE Hand Boring Location
- SAGE Soil Boring Location
- SAGE Soil Boring/Monitoring Well Location
- Chevron Soil Boring Location
- Chevron Monitoring Well Location
- Chevron Destroyed Monitoring Well Location

N W E S

0 50 100 200 300 400 Feet

Chevron TPH Data Source: Arcadis Remedial Action Work Plan June 2011 (Revised December 2011)

Site Plan (Chevron Results)

Chevron Sliver
649 Waterfront Drive
East Providence, Rhode Island RIDEM
Case No. SR-10-1455 &
SR-10-1954

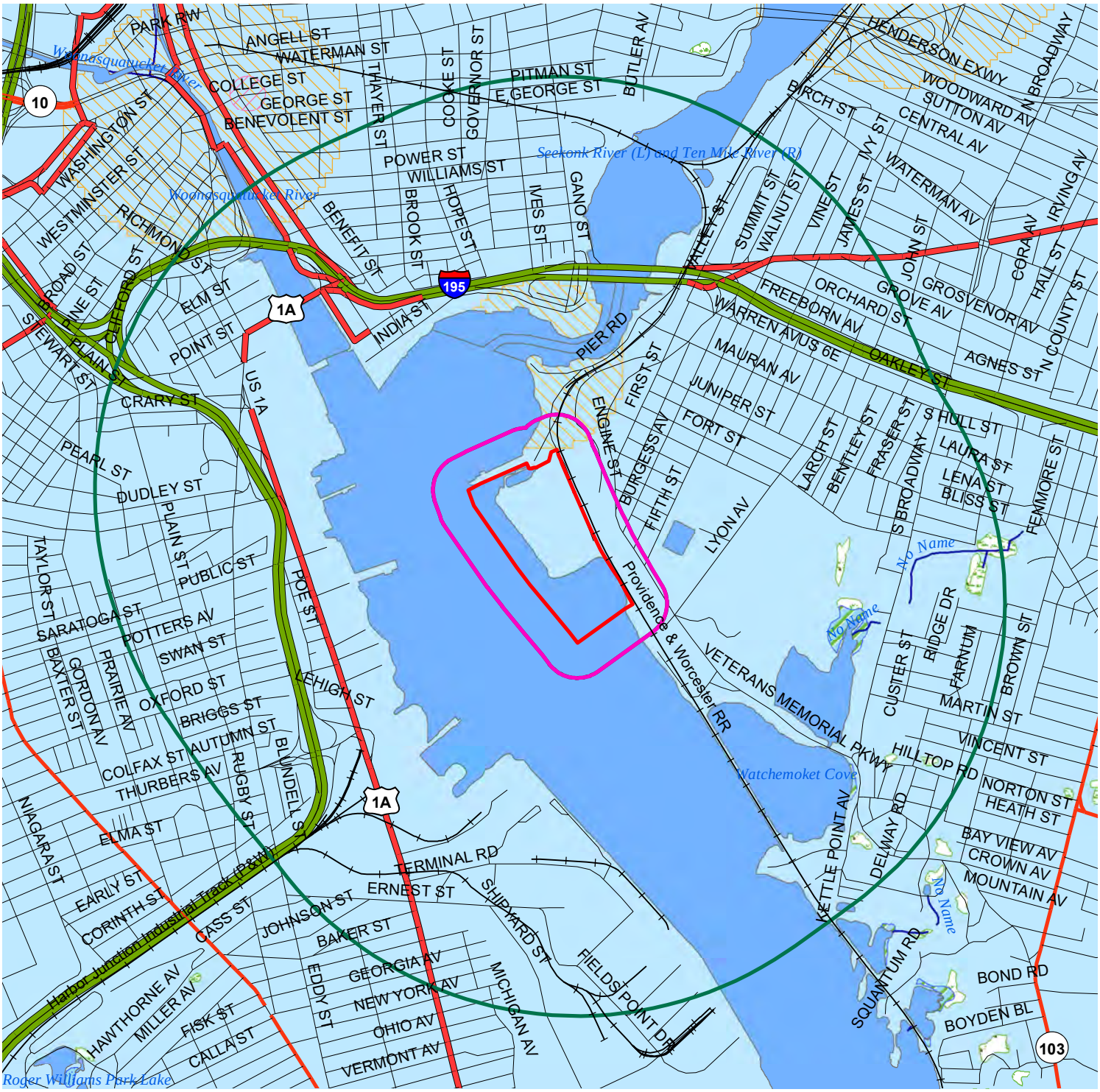
Date: 01/26/2022

Job#: S3291

Created By: SMS/alm

Figure 2C

SAGE ENVIRONMENTAL



Approximate Site Boundary
500' Radius
1 Mile Radius
Noncommunity Wells
Public Wells
Wildlife Management Areas
Rare Species Habitat
Lakes and Ponds
Streams and Rivers

Groundwater Quality Standard
GA
GAA
GB
GC

Wetlands
Emergent Wetland: Emergent Fen or
Emergent Wetland: Marsh/Wet Meadow
Estuarine Emergent Wetland
Estuarine Scrub-Shrub Wetland
Forested Wetland: Coniferous
Forested Wetland: Dead
Forested Wetland: Deciduous
Scrub-Shrub Swamp
Scrub-Shrub Wetland: Shrub Fen
Community Wellhead Protection Areas
Non Community Wellhead Protection Areas
Natural Heritage Areas

Not to Scale

Site Location

0 550 1,100 2,200 3,300 4,400 Feet

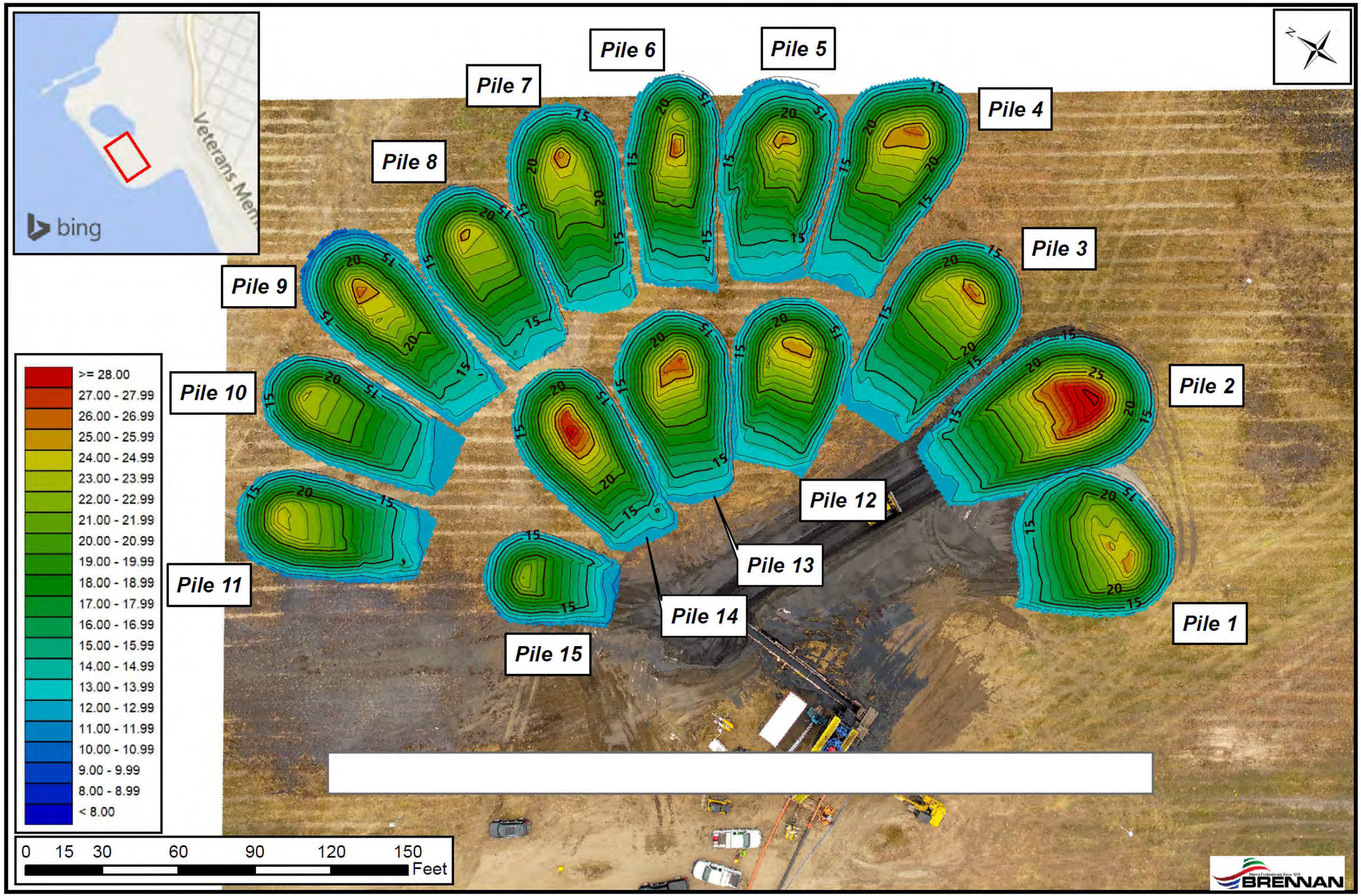
Groundwater Classification & Priority Resources Map

The Key (aka South Key/Quay)
649 Waterfront Drive
East Providence, Rhode Island
RIDEM Case Nos. SR-10-1455 & SR-10-1954

Figure 3

DATE:	01/25/2022 JOB #:	S3291
CREATED BY:	ALM	

SAGE ENVIRONMENTAL



200116 - A Quay Site
Dewatered Material Survey
Total Dewatered Material : 8,532 cy

Pile 1 Finalized 191129 : 626 cy
Pile 2 Finalized 191129 : 1,052 cy
Pile 3 Finalized 191205 : 643 cy
Pile 4 Finalized 191208: 656 cy
Pile 5 Finalized 191210: 508 cy
Pile 6 Finalized 191211 : 523 cy
Pile 7 Finalized 191213 : 584 cy
Pile 8 Finalized 191214: 505 cy
Pile 9 Finalized 191217: 591 cy
Pile 10 Finalized 191220: 447 cy
Pile 11 Finalized 200106: 511 cy
Pile 12 Finalized 200109: 504 cy
Pile 13 Finalized 200112: 561 cy
Pile 14 Finalized 200116: 580 cy
Pile 15 Finalized 200116: 241 cy

Data Provided by RIGIS
Orthoimagery provided by nearmap

Stockpile Topography Plan

The Key (aka South Key/Quay)
649 Waterfront Drive
East Providence, Rhode Island
RIDEM Case Nos. SR-10-1455 & SR-10-1954

Date: 01/12/2022

Job#: S3291

Created By: ALM

Figure 4

SAGE ENVIRONMENTAL

TABLES

Table 3 - TVOV Screening Results
The Key (aka South Key/Quay) 649
Waterfront Drive
East Providence, Rhode Island
RIDEM Case No. SR-10-1954

Soil Boring / Hand Boring ID	Depth (feet bgs)	TVOV (ppmV)
SE-101 (MW)	0 - 5'	ND
	5' - 10'	ND
	10' - 15'	ND
SE-102	0 - 5'	ND
	5' - 10'	ND
	10' - 15'	ND
SE-103 (MW)	0 - 5'	ND
	5' - 10'	ND
	10' - 14'	ND
SE-104	0 - 5'	ND
	5' - 10'	ND
	10' - 15'	ND
	15' - 20'	ND
SE-105 (MW)	0 - 5'	ND
	5' - 10'	NR
	10' - 15'	ND
SE-106	0 - 5'	ND
	5' - 10'	ND
SE-107 (MW)	0 - 5'	ND
	5' - 10'	NR
	10' - 15'	NR
SE-108 (MW)	0 - 5'	ND
	5' - 10'	ND
	10' - 15'	ND
SE-109	0 - 5'	ND
	5' - 10'	ND
SE-201 (MW)	0 - 5'	ND
	5' - 10'	5.5
	10' - 15'	43.5
SE-202 (MW)	0 - 5'	54.6
	5' - 10'	83.4
	10' - 15'	792
SE-203	0 - 5'	3.0
	5' - 10'	13.6
	10' - 15'	1,339
SE-204 (MW)	0 - 5'	ND
	5' - 10'	ND
	10' - 15'	548
SE-205	0 - 5'	ND
	5' - 10'	ND
	10' - 15'	ND
SE-206	0 - 5'	ND
	5' - 10'	10.0
	10' - 15'	45
SE-207(MW)	0 - 5'	3.0
	5' - 10'	ND
	10' - 15'	ND
SE-208	0 - 4'	ND
SE-209	0 - 4'	ND
SE-210	0 - 4'	ND
SE-211	0 - 4'	ND
SE-212	0 - 4'	ND
SE-213	0 - 4'	ND
SE-214	0 - 4'	ND

Notes:
bgs = below ground surface
TVOV = total volatile organic vapors
ppmV = parts per million by volume
NR = Not sample due to no soil recovery

Table 4 - Summary of Soil Sample Chemical Analysis Results
The Key (aka South Key/Quay)
649 Waterfront Drive, East Providence, Rhode Island
RIDEM Case No. SR-10-1954

Sample ID	SE 101 (10-15) (MW)	SE 102 (10-15)	SE 105 (0-5)	SE 106 (5-10)	SE 108 (5-10) (MW)	SE 109 (0-5)	SE 104 (0-5)	SE-201 (10-15)	SE-202 (10-15)	SE-203 (10-15)	SE-204 (10-15)	SE-205 (5-10)	SE-206 (10-15)	SE-207 (0-5)	SE-208 (2-4')	SE-209 (2-4')	SE-210 (2-4')	SE-211 (2-4')	SE-212 (2-4')	SE-213 (2-4')	SE-214 (2-4')	RIDEM Method 1 Residential Direct Exposure Criteria	RIDEM Method 1 Industrial/Commerial Direct Exposure Criteria	RIDEM Method 1 GB Leachibility Criteria	RIDEM Upper Concentration Limits
Date	3/21/2019	3/21/2019	3/21/2019	3/21/2019	3/21/2019	3/21/2019	3/21/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/20/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019	5/28/2019				
Volatile Organic Compounds (mg/kg)																									
sec-Butylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	**0.952**	**0.902**	**0.897**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
n-Butylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	**0.788**	**0.979**	**0.997**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
tert-Butylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	**0.174**	**0.101**	**0.096**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
1,2-Dibromoethane (EDB)	*<0.017*	*<0.015*	*<0.012*	*<0.011*	*<0.013*	*<0.012*	*<0.011*	*<0.034*	*<0.031*	*<0.036*	*<0.041*	*<0.032*	*<0.041*	*<0.013*	NA	NA	NA	NA	NA	NA	NA	*0.01*	0.07	NE	10,000
1,2-Dichloroethane	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	0.9	63	2.3	10,000
1,2-Dichloropropane	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	1.9	84	70	10,000
Ethylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	**0.119**	<0.048	**0.339**	**0.339**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	71	10,000	62	10,000
Isopropylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	**0.076**	**0.225**	**1.5**	**1.45**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	27	10,000	NE	10,000
p-Isopropyltoluene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	**0.137**	<0.048	**0.903**	**0.924**	<0.043	**16.4**	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Naphthalene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	<0.048	**1.19**	**1.46**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	54	10,000	NE	10,000
n-Propylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	**0.065**	**0.439**	**2.6**	**2.5**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Tetrachloroethene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	12	110	4.2	10,000
Toluene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	**0.047**	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	190	10,000	54	10,000
1,1,2-Trichloroethane	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	<0.048	<0.040	<0.041	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	3.6	100	NE	10,000
1,3,5-Trimethylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	**0.086**	**3.1**	**3.03**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
1,2,4-Trimethylbenzene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	<0.037	**0.258**	**6.3**	**6.57**	<0.043	**0.055**	<0.051	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Vinyl Chloride	*<0.033*	*<0.028*	*<0.023*	*<0.023*	*<0.025*	*<0.024*	*<0.022*	*<0.034*	*<0.031*	*<0.034*	*<0.041*	*<0.032*	*<0.041*	*<0.026*	NA	NA	NA	NA	NA	NA	NA	*0.02*	3	NE	10,000
o-Xylene	<0.090	<0.113	<0.024	<0.026	<0.025	<0.043	<0.027	**0.059**	<0.048	**0.123**	**0.108**	<0.043	<0.041	<0.051	NA	NA	NA	NA	NA	NA	NA	110	10,000	NE	10,000
m&p-Xylene	<0.18	<0.226	<0.047	<0.051	<0.049	<0.087	<0.054	**0.167**	<0.095	**1.88**	**1.72**	<0.085	<0.082	<0.102	NA	NA	NA	NA	NA	NA	NA	110	10,000	NE	10,000
Total xylenes	<0.18	<0.226	<0.047	<0.051	<0.049	<0.087	<0.054	**0.226**	<0.095	**2.01**	**1.83**	<0.085	<0.082	<0.102	NA	NA	NA	NA	NA	NA	NA	110	10,000	NE	10,000
Polycyclic Aromatic Hydrocarbons (mg/kg)																									
2-Methylnaphthalene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	**5.75**	**1.61**	<0.171	<0.156	**0.825**	<3.82	NA	NA	NA	NA	NA	NA	NA	123	10,000	NE	10,000
Acenaphthylene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	<1.52	<0.156	<0.171	<0.156	**0.218**	<3.82	NA	NA	NA	NA	NA	NA	NA	23	10,000	NE	10,000
Anthracene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	<1.52	<0.156	<0.171	<0.156	**0.996**	<3.82	NA	NA	NA	NA	NA	NA	NA	35	10,000	NE	10,000
Benzo(a)anthracene	**0.296**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	**0.165**	*<1.52*	<0.156	<0.171	<0.156	**0.849**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	7.8	NE	10,000
Benzo(a)pyrene	**0.683**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	*<1.52*	<0.156	<0.171	<0.156	**0.628**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	**0.4**	*0.8*	NE	10,000
Benzo(b)fluoranthene	**0.332**	<0.210	<0.133	<0.131	**0.17**	<0.143	<0.132	**0.184**	*<1.52*	<0.156	<0.171	<0.156	**0.813**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	7.8	NE	10,000
Benzo(g,h,i)perylene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	**0.185**	*<1.52*	<0.156	<0.171	<0.156	**0.36**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.8*	10,000	NE	10,000
Benzo(k)fluoranthene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	*<1.52*	<0.156	<0.171	<0.156	**0.273**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	78	NE	10,000
Chrysene	**0.286**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	**0.202**	*<1.52*	<0.156	<0.171	<0.156	**0.836**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	**0.4**	780	NE	10,000
Dibenz(a,h)anthracene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	*<1.52*	<0.156	<0.171	<0.156	<0.146	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.4*	*0.8*	NE	10,000
Dibenzofuran	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	<1.52	<0.156	<0.171	<0.156	**0.175**	<3.82	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Fluoranthene	**0.509**	**0.294**	**0.173**	<0.131	<0.142	**0.245**	<0.132	**0.233**	<1.52	<0.156	**0.231**	<0.156	**2.09**	<3.82	NA	NA	NA	NA	NA	NA	NA	20	10,000	NE	10,000
Indeno(1,2,3-cd)pyrene	<0.209	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	*<1.52*	<0.156	<0.171	<0.156	**0.445**	*<3.82*	NA	NA	NA	NA	NA	NA	NA	*0.9*	7.8	NE	10,000
Naphthalene	**0.222**	<0.210	<0.133	<0.131	<0.142	<0.143	<0.132	<0.153	<1.52	**1.25**	<0.171	<0.156	**0.227**	<3.82	NA	NA	NA	NA	NA	NA	NA	54	10,000	NE	10,000
Phenanthrene	**0.337**	<0.210	<0.133	<0.131	<0.142	**0.16**	<0.132	<0.153	**1.82**	<0.156	<0.171	<0.156	**2.51**	<3.82	NA	NA	NA	NA	NA	NA	NA	40	10,000	NE	10,000
Pyrene	**0.75**	**0.318**	<0.133	<0.131	**0.221**	**0.229**	<0.132	<0.153	<1.52	<0.156	<0.171	<0.156	**1.9**	**17.4**	NA	NA	NA	NA	NA	NA	NA	**13**	10,000	NE	10,000
Total Petroleum Hydrocarbons (mg/kg)																									
Total Petroleum Hydrocarbons	**313**	**299**	<28	<27	**220**	**42**	<27	**1,400**	**13,300**	**1,770**	**2,520**	<32	**1,040**	**27,000**	**359**	<33	<32	**220**	<30	**90**	**95**	**500**	**2,500**	**2,500**	30,000
Polychlorinated Biphenyls (mg/kg)																									
Aroclor-1254	<0.109	<0.109	**0.125**	<0.068	**0.164**	<0.072	<0.065	<0.078	<0.074	<0.077	<0.085	<0.078	<0.074	<0.079	NA	NA	NA	NA	NA	NA	NA	10	10	NE	10,000
Total Polychlorinated Biphenyls	<0.109	<0.109	**0.125**	<0.068	**0.164**	<0.072	<0.065	<0.078	<0.074	<0.077	<0.085	<0.078	<0.074	<0.079	NA	NA	NA	NA	NA	NA	NA	10	10	NE	10,000
Total Metals (mg/kg)																									
Arsenic	**12.4**	**11.4**	**1.94**	**1.19**	**1.17**	**1.85**	**1.23**	**10.8**	**1.98**	**18.3**	**5.7**	**1.62**	**5.79**	**5.77**	NA	NA	NA	NA	NA	NA	NA	**7**	**7**	NE	10,000
Barium	**48.8**	**57.7**	**16.5**	**8.29**	**20**	**17.8**	**5.06**	**25.4**	**30**	**10.5**	**13.3**	**33.4**	**20**	**62.4**	NA	NA	NA	NA	NA	NA	NA	5,500	10,000	NE	10,000
Cadmium	**3.03**	**4.21**	**0.72**	<0.30	**0.77**	**0.54**	<0.31	**2.57**	**1.56**	**1.34**	**1.31**	**1.34**	**1.81**	**2.29**	NA	NA	NA	NA	NA	NA	NA	39	1,000	NE	10,000
Chromium	**86.1**	**71.9**	**6.07**	**1.2**	**5.65**	**7.02**	**0.82**	**15.1**	**12.7**	**7.18**	**8.15**	**8.32**	**10.1**	**32.8**	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	10,000
Lead	**53**	**66.3**	**7.26**	**2.99**	**11.1**	**12.1**	**2.11**	**69.2**	**24.8**	**690**	**53.9**	**8.24**	**18.1**	**471**	NA	NA	NA	NA	NA	NA	NA	**150**	**500**	NE	10,000
Selenium	<1.10	<0.97	<0.65	<0.60	<0.61	<0.71	<0.61	<0.17	<0.24	<0.20	<0.23	<0.29	<0.13	<0.38	NA	NA	NA	NA	NA	NA	NA	390	10,000	NE	10,000
Silver	<0.55	<0.48	<0.33	<0.30	<0.31	<0.36	<0.31	<0.09	<0.12	<0.10	<0.12	<0.15	<0.07	<0.19	NA	NA	NA	NA	NA	NA	NA	200	10,000	NE	10,000
Mercury	**0.358**	<0.111	<0.073	<0.068	<0.078	<0.080	<0.070	<0.074	**0.093**	<0.058	**0.042**	<0.055	<0.058	<0.075	NA	NA	NA	NA	NA	NA	NA	23	610	NE	10,000

Notes:

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, GB Leachability Criteria, and Upper Concentration Limit or no standard is established.

Cells with this color indicate: Cases where the analyte concentration exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte concentration exceeds both the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte concentration exceeds the RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, and GB Leachability Criteria. (Applicable criteria also shaded.)

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

NA: Not analyzed for this analyte.

Table 5 - Groundwater Gauging Log

The Key (aka South Key/Quay)

649 Waterfront Drive, East Providence, Rhode Island

RIDEM Case No. SR-10-1954

Project Number: S3291 **Date:** April 1 and May 24, 2019 **Personnel:** BB, JW, MG, and RV	**Gauging Instrument:** Oil/Water Interface Probe **Purging Instrument:** Peristaltic Pump

Monitoring Well ID	Well Diameter (inches)	Screened Interval (feet)	Depth To Product (ft)	Depth to Water (ft)	Measuring Point Elevation (feet)	Groundwater Elevation (feet)
SE-101 (MW)	1	2-12	ND	1.37	102.47	101.1
SE-103 (MW)	1	4-14	ND	10.97	103.85	92.88
SE-105 (MW)	1	5-15	ND	11.33	104.34	93.01
SE-107 (MW)	1	5-15	ND	4.46	104.75	100.29
SE-108 (MW)	1	5-15	ND	4.76	104.47	99.71
PE-MW-1 / GZ-2 (OW	2	4-14	ND	4.25	104.67	100.42
PE-MW-2 / GZ-5 (OW)	2	4-14	ND	3.87	107.22	103.35
SE-204 (MW)	1	4-14	ND	7.79	NS	NS

Notes:

ND = Not Detected

NS = Not Surveyed

Table 6 - Summary of Groundwater Sample Chemical Analysis Results
The Key (aka South Key/Quay)
649 Waterfront Drive, East Providence, Rhode Island
RIDEM Case No. SR-10-1954

Sample ID	PW-MW-1	PW-MW-2	SE-101 (MW)	SE-103 (MW)	SE-105 (MW)	SE-107 (MW)	SE-108 (MW)	SE-201 (MW)	SE-204 (MW)	SE-207 (MW)	RIDEM Method 1 GB Groundwater Objectives	RIDEM GB Groundwater Upper Concentration Limits
Date	4/1/2019	4/1/2019	4/1/2019	4/1/2019	4/1/2019	4/1/2019	4/1/2019	5/28/2019	5/24/2019	5/28/2019		
Volatile Organic Compounds (µg/l)												
1,1-Dichloroethene	*<10*	<5	<5	<1	<1	<1	*<10*	<5	<5	<5	*7*	23,000
m&p-Xylene	<20	<10	<10	<2	<2	<2	<20	**11**	<10	<10	NE	NE
Total xylenes	<20	<10	<10	<2	<2	<2	<20	**11**	<10	<10	NE	NE

Notes:

Cells with this color indicate: Cases where the analyte reporting limit exceeded the RIDEM Method 1 GB Groundwater Objective. (Applicable objective also shaded.)

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 GB Groundwater Objective and GB Upper Concentration Limit or no standard is established.

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

Table 7 - Summary of Dredge Stockpile Sample Chemical Analysis Results
The Key (aka South Key/Quay)
649 Waterfront Drive, East Providence, Rhode Island
RIDEM Case No. SR-10-1954

Sample ID	20191127-001	20191129-001	20191129-002	20191201-001	20191206-001	20191208-001	20191211-001	20191212-001	20191213-001	20191216-001	20191217-001	20191220-001	20200107-001	20200109-001	20200113-001	20200114-001	20200116-001	RIDEM Method 1 Residential Direct Exposure Criteria	RIDEM Method 1 Industrial/Commercial Direct Exposure Criteria	RIDEM Method 1 GB Leachability Criteria	RIDEM Upper Concentration Limit
Pile Designation	Pile 1	Pile 1	Pile 2	Pile 2	Pile 3	Pile 4	Pile 5	Pile 6	Pile 7	Pile 8	Pile 9	Pile 10	Pile 11	Pile 12	Pile 13	Pile 14	Pile 15				
Date	11/27/2019	11/29/2019	11/29/2019	12/01/2019	12/06/2019	12/08/2019	12/11/2019	12/12/2019	12/13/2019	12/16/2019	12/17/2019	12/20/2019	01/07/2020	01/09/2020	01/13/2020	01/14/2020	01/16/2020				
Volatile Organic Compounds (mg/kg)																					
Acetone	<0.0406	<0.0439	<0.0449	<0.0410	<0.0345	**0.0257**	<0.0329	<0.0279	<0.0439	<0.0341	<0.0259	<0.0409	<0.0275	<0.0413	<0.0357	<0.0321	<0.0364	7,800	10,000	NE	10,000
Naphthalene	<0.0041	<0.0044	<0.0045	<0.0041	<0.0034	<0.0019	<0.0033	**0.0028**	<0.0044	<0.0034	<0.0026	<0.0041	<0.0027	<0.0041	<0.0036	<0.0032	<0.0036	54	10,000	NE	10,000
Semivolatile Organic Compounds (mg/kg)																					
Acenaphthene	<0.370	<0.366	<0.388	<0.368	<0.370	<0.354	<0.350	<0.366	<0.367	<0.438	<0.799	<0.378	**0.524**	<0.349	<0.339	<0.346	<0.394	43	10,000	NE	10,000
Acenaphthylene	**0.456**	<0.366	<0.388	<0.368	<0.370	<0.354	<0.350	<0.366	<0.367	<0.438	<0.799	<0.378	<0.351	<0.349	<0.339	<0.346	<0.394	23	10,000	NE	10,000
Anthracene	**1.40**	**0.757**	**1.06**	**1.03**	**0.950**	**0.424**	**0.830**	**0.579**	**0.881**	**0.793**	<0.799	**0.383**	**1.25**	**0.874**	**0.549**	**0.418**	**0.568**	35	10,000	NE	10,000
Benzo(a)anthracene	**3.31**	**2.36**	**2.66**	**2.36**	**2.73**	**1.48**	**2.40**	**1.66**	**2.56**	**2.50**	**2.04**	**1.26**	**3.26**	**2.02**	**1.64**	**1.38**	**1.64**	**0.9**	7.8	NE	10,000
Benzo(a)pyrene	**2.94**	**2.16**	**2.23**	**1.90**	**2.32**	**1.39**	**2.11**	**1.51**	**2.34**	**2.08**	**1.85**	**1.24**	**3.14**	**2.04**	**1.74**	**1.48**	**1.77**	**0.4**	**0.8**	NE	10,000
Benzo(b)fluoranthene	**2.42**	**1.91**	**2.08**	**1.70**	**2.37**	**1.36**	**2.23**	**1.30**	**2.20**	**2.13**	**1.59**	**1.27**	**3.56**	**2.07**	**1.59**	**1.36**	**1.55**	**0.9**	7.8	NE	10,000
Benzo(g,h,i)perylene	**1.69**	**1.24**	**1.17**	**0.982**	**1.34**	**0.799**	**1.13**	**0.924**	**1.42**	**1.21**	**1.27**	**0.815**	**1.83**	**1.20**	**1.12**	**0.915**	**0.947**	**0.8**	10,000	NE	10,000
Benzo(k)fluoranthene	**2.69**	**1.85**	**1.83**	**1.67**	**1.70**	**1.09**	**1.64**	**1.17**	**1.91**	**1.78**	**1.56**	**0.947**	**2.13**	**1.64**	**1.63**	**1.19**	**1.41**	**0.9**	78	NE	10,000
bis(2-Ethylhexyl)phthalate	**0.415**	**0.398**	<0.388	<0.368	**0.392**	**0.781**	**6.45**	<0.366	**0.869**	<0.438	<0.799	<0.378	**2.68**	**0.426**	<0.339	**0.739**	0.394	46	410	NE	10,000
Carbazole	**0.694**	<0.366	<0.388	**0.531**	**0.429**	<0.354	**0.438**	<0.366	**0.471**	**0.572**	<0.799	<0.378	**0.860**	**0.464**	<0.339	<0.346	0.394	NE	NE	NE	10,000
Chrysene	**2.75**	**2.00**	**2.21**	**1.99**	**2.41**	**1.33**	**2.11**	**1.53**	**2.51**	**2.43**	**1.99**	**1.22**	**3.08**	**1.93**	**1.71**	**1.43**	**1.70**	**0.4**	780	NE	10,000
Dibenzo(a,h)Anthracene	**0.729**	**0.532**	**0.547**	**0.473**	**0.470**	**0.269**	**0.422**	**0.307**	**0.512**	**0.413**	**0.400**	**0.327**	**0.798**	**0.540**	**0.447**	**0.270**	0.336	**0.4**	0.8	NE	10,000
Fluoranthene	**6.34**	**4.65**	**5.00**	**4.56**	**5.46**	**2.88**	**4.96**	**3.55**	**5.68**	**6.20**	**4.63**	**2.66**	**6.02**	**3.91**	**3.62**	**2.69**	**3.07**	20	10,000	NE	10,000
Fluorene	**0.479**	<0.366	<0.388	**0.540**	**0.373**	<0.354	**0.371**	<0.366	**0.478**	<0.438	<0.799	<0.378	**0.591**	**0.440**	<0.339	<0.346	0.394	28	10,000	NE	10,000
Indeno(1,2,3-cd)Pyrene	**1.61**	**1.18**	**1.15**	**0.951**	**1.24**	**0.782**	**1.12**	**0.822**	**1.30**	**1.12**	**1.09**	**0.732**	**1.68**	**1.13**	**1.01**	**0.862**	**0.898**	**0.9**	7.8	NE	10,000
Naphthalene	<0.370	<0.366	<0.388	<0.368	<0.370	<0.354	<0.350	<0.366	<0.367	<0.438	<0.799	<0.378	<0.351	**0.392**	<0.339	<0.346	0.394	54	10,000	NE	10,000
Phenanthrene	**4.48**	**2.60**	**2.91**	**3.54**	**3.85**	**1.71**	**3.13**	**2.73**	**4.32**	**4.48**	**3.08**	**1.33**	**5.00**	**2.71**	**2.12**	**1.55**	**1.92**	40	10,000	NE	10,000
Pyrene	**5.97**	**4.17**	**4.63**	**4.22**	**5.35**	**2.85**	**4.53**	**3.27**	**5.26**	**5.20**	**3.88**	**2.53**	**6.44**	**3.22**	**3.36**	**2.99**	**3.37**	13	10,000	NE	10,000
Total Petroleum Hydrocarbons (mg/kg)																					
Total Petroleum Hydrocarbons	**260**	**261**	**267**	**669**	**503**	**279**	**266**	**393**	**320**	**536**	**346**	**245**	**258**	**285**	**269**	**221**	**408**	**500**	2,500	2,500	30,000
Polychlorinated Biphenyls (mg/kg)																					
Aroclor 1248	**0.07**	<0.05	<0.06	<0.05	<0.06	<0.05	<0.05	<0.06	<0.06	<0.06	<0.06	<0.06	<0.05	<0.06	<0.05	<0.05	<0.06	10	10	10	10,000
Aroclor 1254	<0.05	<0.05	<0.06	**0.1**	**0.2**	**0.1**	**0.2**	**0.3**	**0.2**	**0.2**	**0.1**	<0.06	**0.1**	**0.1**	**0.1**	**0.07**	**0.1**	10	10	10	10,000
Aroclor 1260	<0.05	**0.1**	**0.08**	<0.05	**0.06**	<0.05	**0.1**	**0.2**	<0.06	**0.08**	<0.06	**0.06**	<0.05	<0.06	<0.05	<0.05	**0.08**	10	10	10	10,000
Total Polychlorinated Biphenyls	**0.07**	**0.1**	**0.08**	**0.1**	**0.26**	**0.1**	**0.3**	**0.5**	**0.2**	**0.28**	**0.1**	**0.06**	**0.1**	**0.1**	**0.1**	**0.07**	**0.18**	10	10	10	10,000
Total Metals (mg/kg)																					
Antimony	<4.53	<4.05	<4.81	<3.8	<4.12	<4.63	<4.84	<5.04	<5.03	<5.14	<4.1	<5.11	<5.31	<4.84	<4.7	<3.92	<5.01	10	820	NE	10,000
Arsenic	<2.27	<2.03	<2.41	<1.9	<2.06	<2.31	<2.42	<2.52	<2.52	<2.57	<2.05	<2.55	<2.65	<2.42	<2.35	<1.96	<2.5	7	7	NE	10,000
Barium	**14.0**	**14.7**	**12.7**	**10.5**	**35.9**	**127**	**18.4**	**458**	**17.4**	**17.1**	**12.9**	**14.9**	**15.8**	**13.8**	**12.1**	**12.7**	**12.0**	5,500	10,000	NE	10,000
Beryllium	**0.20**	**0.22**	**0.21**	**0.21**	**0.18**	**0.20**	**0.26**	**0.20**	**0.14**	**0.18**	**0.18**	**0.16**	**0.20**	**0.17**	**0.14**	**0.19**	**0.22**	1.5	1.5	NE	10,000
Cadmium	<0.45	<0.41	<0.48	<0.38	<0.41	<0.46	<0.48	<0.5	<0.5	<0.51	<0.41	<0.51	<0.53	<0.48	<0.47	<0.39	<0.5	39	1,000	NE	10,000
Chromium	**39.2**	**12.7**	**38.9**	**11.5**	**14.6**	**12.7**	**9.92**	**12.2**	**11.4**	**12.6**	**10.8**	**10.6**	**18.3**	**12.1**	**8.89**	**8.02**	**12.2**	1,400	10,000	NE	10,000
Copper	**37.7**	**31.1**	**27.1**	**23.2**	**26.7**	**19.9**	**18.1**	**27.2**	**82.1**	**19.4**	**23.5**	**17.9**	**32.7**	**28.1**	**44.7**	**27.1**	**32.7**	3,100	10,000	NE	10,000
Lead	**105**	**50.7**	**48.4**	**55.6**	**49.5**	**62.5**	**48.4**	**429**	**1,930**	**52.7**	**46.8**	**46.2**	**45.1**	**40.3**	**48.7**	**31.9**	**44.5**	**150**	**500**	NE	10,000
Mercury	**0.088**	**0.055**	**0.047**	**0.064**	**0.082**	**0.052**	**0.044**	**0.071**	**0.067**	**0.052**	**0.044**	**0.125**	**0.062**	**0.042**	**0.047**	**0.050**	**0.080**	23	610	NE	10,000
Nickel	**6.49**	**4.80**	**5.95**	**4.80**	**6.20**	**5.17**	**6.81**	**6.04**	**5.57**	**6.59**	**5.81**	**5.80**	**6.57**	**7.04**	**6.22**	**6.75**	**7.21**	1,000	10,000	NE	10,000
Selenium	<4.53	<4.05	<4.81	<3.8	<4.12	<4.63	<4.84	<5.04	<5.03	<5.14	<4.1	<5.11	<5.31	<4.84	<4.7	<3.92	<5.01	390	10,000	NE	10,000
Silver	**1.90**	<0.41	<0.48	**0.38**	<0.41	<0.46	<0.48	<0.5	**0.96**	<0.51	<0.41	**2.50**	<0.42	**0.68**	<0.47	<0.39	<0.5	200	10,000	NE	10,000
Thallium	<4.53	<4.05	<4.81	<3.8	<4.12	<4.63	<4.84	<5.04	<5.03	<5.14	<4.1	<5.11	<5.31	<4.84	<4.7	<3.92	<5.01	5.5	140	NE	10,000
Zinc	**51.3**	**41.1**	**49.8**	**43.1**	**80.1**	**115**	**61.5**	**92.9**	**39.6**	**62.0**	**43.8**	**39.0**	**41.8**	**49.3**	**43.8**	**47.3**	**53.9**	6,000	10,000	NE	10,000
SPLP Metals (mg/L)																					
Lead	**0.094**	NA	NA	NA	NA	NA	NA	**0.058**	**0.018**	NA	NA	NA	NA	NA	NA	NA	NA	NE	NE	NE	NE

Notes:

Cells with this color indicate: Cases where the analyte was detected but was below the applicable RIDEM Method 1 Residential Direct Exposure Criteria, Industrial/Commercial Direct Exposure Criteria, and Upper Concentration Limit or no standard is established.

Cells with this color indicate: Cases where the analyte concentration exceeded the RIDEM Method 1 Residential Direct Exposure Criteria. (Applicable criteria also shaded.)

Cells with this color indicate: Cases where the analyte concentration exceeds both the RIDEM Method 1 Residential Direct Exposure Criteria and Industrial/Commercial Direct Exposure Criteria. (Applicable criteria also shaded.)

<x: Cases where the analyte was not detected at or above the laboratory reporting limit (x).

NE: Standard not established for this analyte.

NA: Not analyzed for this analyte.

APPENDIX A

LIMITATIONS

1. This report was prepared for the exclusive use of RI Waterfront Enterprises LLC ("Client"). This report and any findings and conclusions contained therein shall not, in whole or in part, be provided to, used, or relied upon by any other person, firm, entity or governmental agency in whole or in part, without the prior written approval of SAGE. Reliance by any other person, firm, entity, or governmental agency in whole or in part, for any use, without SAGE's prior written approval, shall be at that party's sole risk and without any liability to SAGE.

2. This report, and the findings and conclusions contained therein, are based on services provided to Client under the conditions stated herein, pursuant to the agreement between SAGE and Client. Use of this report, in whole or in part, at other locations or for other purposes, without SAGE's prior written approval, will be at Client's sole risk and without any liability to SAGE.

3. This report has been prepared in accordance with generally accepted practices. SAGE'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.

4. In preparing this report, SAGE may have relied upon certain information made available by governmental agencies, Client, and/or other persons, firms, or entities. SAGE cannot verify the accuracy or completeness of that information and cannot guarantee or warrant the information provided by non-SAGE sources.

5. SAGE does not and cannot represent that a site contains no hazardous material, oil, or other condition beyond that observed by SAGE during its study. Additionally, SAGE does not assume responsibility for limited sampling and explorations, fluctuations in water levels, or the presence of chemical constituents that are not the subject of this investigation and which are not included in the of analyzed parameters for a study.

6. The findings and conclusions presented in this report are based solely on the information contained or referenced in this report. If additional environmental or other relevant information that was not made available to SAGE at the time of this report is developed at a later date, Client agrees to promptly bring such information to the attention of SAGE. Upon evaluation of such information, SAGE reserves the right to recommend modification of this report and its findings and conclusions.

7. No warranty, express or implied, is made by way of SAGE's performance of services or providing a work product, including but not limited to any warranty with the contents of a report or with any and all work product.

APPENDIX B

Section 1.20 of the "Remediation Regulations"
Site Investigation Report (SIR) Checklist

(The following information shall be completed and submitted with the SIR)

Contact Name: Rick Mandile, SAGE Environmental, Inc.
Contact Address: 301 Friendship Street, Providence, RI 02903
Contact Telephone: (401) 723-9900

Site Name: Portion of Providence & Worcester Railroad Co. (a.k.a Genesee & Wyoming Railroad Services Inc.) a.k.a. South Quay
Site Address: 649 Waterfront Dr. (Assessor's Plat Map 7, Block 1, Lot 3)

OFFICE USE ONLY
SITE INVESTIGATION REPORT (SIR) SITE:
PROJECT CODE:
SIR SUBMITTAL DATE:
CHECKLIST SUBMITTAL DATE:

DIRECTIONS: *The box to the left of each item listed below is for the administrative review of the SIR submission and is for **RIDEM USE ONLY**. Under each item listed below, cross-reference the specific sections and pages in the SIR that provide detailed information that addresses each stated requirement. Failure to include cross-references may delay review and approval. If an item is not applicable, simply state that it is not applicable and provide an explanation in the SIR.*

■ 1.8.3(A)(1) List specific objectives of the SIR related to characterization of the Release, impacts of the Release and remedy.
pp. 1-2

■ 1.8.3(A)(2) Include information reported in the Notification of Release. A copy of the Release notification form should be included in the SIR. Include information relating to short-term response, if applicable.
p. 2 and Appendix C

■ 1.8.3(A)(3) Include documentation of any past incidents or Releases.
p. 2 (not applicable)

■ 1.8.3(A)(4) Include list of prior property Owners and Operators, as well as sequencing of property transfers and time periods of occupancy.
pp. 2-3

■ 1.8.3(A)(5) Include previously existing environmental information which characterizes the Contaminated-Site and all information that led to the discovery of the Contaminated-Site.
pp. 4-5 and Appendix E

■ 1.8.3(A)(6) Include current uses and zoning of the Contaminated-Site, including brief statements of operations, processes employed, waste generated, Hazardous Materials handled, and any residential activities on the site, if applicable. (This section should be linked to the specific objectives section demonstrating how the compounds of concern in the investigation are

those that are used or may have been used on the site or are those that may have impacted the site from an off-site source.)

pp. 5-6

☒ 1.8.3(A)(7) Include a locus map showing the location of the site using US Geological Survey 7.5-min quadrangle map or a copy of a section of that USGS map.

p. 6 and Figure 1

☒ 1.8.3(A)(8) Include a site plan, to scale, showing:

- ☐ Buildings
- ☐ Activities
- ☐ Structures
- ☒ North Arrow
- ☒ Wells
- ☐ UIC Systems, septic tanks, UST, piping and other underground structures
- ☐ Outdoor Hazardous Materials storage and handling areas
- ☐ Extent of paved areas
- ☒ Location of environmental samples previously taken with analytical results
- ☐ Waste management and disposal areas
- ☒ Property Lines

p. 6 and Figures 2A, 2B & 2C

☐ 1.8.3(A)(9) Include a general characterization of the property surrounding the area including, but not limited to:

- ☒ Location and distance to any surface water bodies within 500 ft of the site.
- ☒ Location and distance to any Environmentally Sensitive Areas within 500 ft of the site.
- ☒ Actual sources of potable water for all properties immediately abutting the site.
- ☒ Location and distance to all public water supplies, which have been active within the previous 2 years and within one mile of the site.

- [x] Determination as to whether the Release impacts any off-site area utilized for residential or industrial/commercial property or both.

- [x] Determination of the underlying groundwater classification and if the classification is GB, the distance to the nearest GA area.

pp. 6-7 and Figure 3

- [x] 1.8.3(A)(10) Include classifications of surface and ground water at and surrounding the site that could be impacted by a Release.

pp. 7-8

- [x] 1.8.3(A)(11) Include a description of the contamination from the Release, including:

  - [x] Free liquids on the surface
  - [x] LNAPL and DNAPL
  - [x] Concentrations of Hazardous Substances which can be shown to present an actual or potential threat to human health and any concentrations in excess of any of the remedial objectives (reference Section 1.13)
  - [x] Impact to Environmentally Sensitive Areas
  - [x] Contamination of man-made structures
  - [x] Odors or stained soil
  - [x] Stressed vegetation
  - [x] Presence of excavated or stockpiled material and an estimate of its total volume
  - [x] Environmental sampling locations, procedures and copies of the results of any analytical testing at the site
  - [x] List of Hazardous Substances at the site
  - [ ] Discuss if the contamination falls outside of the jurisdiction of the Remediation Regulations, including but not limited to USTs, UICs, and wetlands.

pp. 8-19

- [x] 1.8.3(A)(12) Include the concentration gradients of Hazardous Substances throughout the site for each media impacted by the Release.

pp. 20-22

■ 1.8.3(A)(13) Include the methodology and results of any investigation conducted to determine background concentrations of Hazardous Substances identified at the Contaminated-Site (see Section 1.13).

p. 22 (not applicable)

■ 1.8.3(A)(14) Include a listing and evaluation of the site specific hydrogeological properties which could influence the migration of Hazardous Substances throughout and away from the site, including but not limited to, where appropriate:

- ■ Depth to GW
- ■ Presence and effects of both the natural and man-made barriers to and conduits for contaminant migration
- ■ Characterization of bedrock
- ■ Groundwater contours, flow rates and gradients throughout the site

pp. 22-23

■ 1.8.3(A)(15) Include a characterization of the topography, surface water and run-off flow patterns, including the flooding potential, of the site.

pp. 23-24

■ 1.8.3(A)(16) Include the potential for Hazardous Substances from the site to volatilize and any and all potential impacts of the volatilization to structures within the site.

p. 24

■ 1.8.3(A)(17) Include the potential for entrainment of Hazardous Substances from the site by wind or erosion actions.

p. 24

■ 1.8.3(A)(18) Include detailed protocols for all fate and transport models used in the Site Investigation.

p. 24 (not applicable)

■ 1.8.3(A)(19) Include a complete list of all samples taken, the location of all samples, parameters tested for and analytical methods used during the Site Investigation. (Be sure to include the samples locations and analytical results on a site figure).

p. 25 and Figures 2A through 2C

■ 1.8.3(A)(20) Include construction plans and development procedures for all monitoring wells. Well construction shall be consistent with the requirements of the Groundwater Quality Rules.

p. 25 and Appendix F

■ 1.8.3(A)(21) Include procedures for the handling, storage and disposal of wastes derived from and during the investigation.

p. 25

■ 1.8.3(A)(22) Include a quality assurance and quality control evaluation summary report for sample handling and analytical procedures, including, but not limited to, chain-of-custody procedures and sample preservation techniques.

p. 26

■ 1.8.3(A)(23) Include any other site-specific factor, that the Director believes, is necessary to make an accurate decision as to the appropriate Remedial Action to be taken at the site.

p. 26 (Not applicable)

■ 1.8.4 Include Remedial Alternatives. The Site Investigation Report shall contain a minimum of **TWO (2)** remedial alternatives other than no action/natural attenuation alternative, unless this requirement is waived by the Department. It should be clear which of these alternatives is most preferable. All alternatives shall be supported by relevant data contained in the Site Investigation Report and consistent with the current and reasonably forseeable land usage, and documentation of the following:

- Compliance with Section 1.9 (RISK MANGEMENT);
- Technical feasibility of the preferred remedial alternative;
- Compliance with federal, state and local laws or other public concerns; and
- The ability of the Performing Party to perform the preferred remedial alternative.

pp. 26-28

■ 1.8.5 **Certification Requirements:** The Site Investigation Report and all associated progress reports shall include the following statements signed by an authorized representative of the party specified:

A statement signed by an authorized representative of the Person who prepared the Site Investigation Report certifying the completeness and accuracy of the information contained in that report to the best of their knowledge; and

A statement signed by the Performing Party responsible for the submittal of the Site Investigation Report certifying that the report is a complete and accurate representation of the site and the Release and contains all known facts surrounding the Release to the best of their knowledge.

p. 29

■ 1.8.6 **Progress Reports:** If the Site Investigation is not complete, include a schedule for the submission of periodic progress reports on the status of the investigation and interim reports on any milestones achieved in the project.

Not applicable

■ **Public Involvement and Notice:** Be prepared to implement public notice requirements per Sections 1.8.7 and 1.8.9 of the Remediation Regulations when the Department deems the Site Investigation Report to be complete.

Indicate if the site falls within an Environmental Justice (EJ) area and, if applicable, include all EJ public notice documentation issued, and the list of recipients.

p. 26 and Appendix M

APPENDIX C

Appendix C
OFFICE OF WASTE MANAGEMENT – SITE REMEDIATION SECTION HAZARDOUS MATERIAL RELEASE NOTIFICATION FORM

THIS FORM IS NOT TO BE USED TO REPORT AN IMMINENT HAZARD

1. Notifier Information

Name: Rick Mandile, SAGE Environmental, Inc.
Address: 172 Armistice Blvd., Pawtucket, RI 02860

Phone: (401) 723-9900 ext. 107

Email: rmandile@sage-enviro.com

Status: X Environmental Professional ___ Owner ___ Operator ___ Secured Creditor __Voluntary

If Environmental Professional is selected, please supply the follow information for your client below:

Name: RI Waterfront Enterprises LLC
Address: 222 Berekley St., Boston, MA 02116

Phone: (401) 829-7225 or (617) 267-3000 Melissa Martin, Manager

Email: melissamartin604&gmail.com

Status: ___ Owner ___ Operator ___ Secured Creditor X Voluntary

2. Property Information

Name of Site: South Key and Henderson Bridge parcels
Site Address: Lot 2 on the City of East Providence Assessor's Map 105 Block 1 (Henderson Bridge parcel)
Lot 1 on the City of East Providence Assessor's Map 6 Block 1
Plat/Lot Numbers: Lot 2 on the City of East Providence Assessor's Map 17 Block 1 (3 parcels collectively South Key parcels
Lot 3 on the City of East Providence Assessor's Map 7 Block 1

Approximate Acreage of Property: 5.65 acres - Lot 2 Map 105 Block 1; 63.73 acres - Lot 1 Map 6 Block 1; 8.39 acres - Lot 2 Map 17 Block 1; 3.69 acres - Lot 3 Map 7 Block 1

Latitude/Longitude:
Lot 2 Map 105 Block 1 - 71.377252, 41.827508; remaining parcels -71.390588, 41.809557

Site Land Usage Type: ___ Residential X ___ Industrial/Commercial

Location of Release: See attached

(Attach site sketch as necessary)

3. Release Information

Date of Discovery: 5/1/19
Source: Historical Uses
Release Media: Soil

Hazardous Materials and Concentrations: See attached figures, tables and analytical reports

(Attach certificates of analysis as necessary)

Extent of Contamination: Soil from 0-10 feet BSG on Lot 2 Map 105 Block 1 (Property currently regulated by an ELUR)
Soil from 0-15 feet BSG on Lot 1 Map 6 Block 1, Lot 2 Map 17 Block 1, Lot 3 Map 7 Block 1

Approximate acreage of Contaminated Area: Small area proximal to SE-102 on Lot 2 Map 105 Block 1;
Soils proximal to SE-101, SE-102, SE-110, SE-112, SE-113 and SE-115 on remaining parcels

4. Resource Information

Site Land Usage:	X Industrial/Commercial	___ Residential
Adjacent Land Usage:	X Industrial/Commercial	___ Residential
Site Groundwater Class:	___ GA/GAA	X GB
Adjacent Groundwater Class: (if different than site groundwater classification within 500 feet)	___ GA/GAA	X GB

Nearest Surface Water or Wetland:

X Less Than 500 Feet ___ Greater Than 500 Feet

Potential for adverse impact No Yes/No

5. Potentially Responsible Parties

Name: RI Waterfront Enterprises LLC
Address: 222 Berkeley St., Boston, MA 02116

Status: ___ Owner ___ Operator X Other:

Name: _____
Address:

Status: ___ Owner ___ Operator ___ Other:

6. Measures Taken or Proposed to be Taken in Response to Release

Cap repairs/improvements and continued compliance and adherence to the ELUR on Lot 2 Map 105 Block 1

Capping of Lot 1 Map 6 Block 1, Lot 2 Map 17 Block 1, Lot 3 Map 7 Block 1

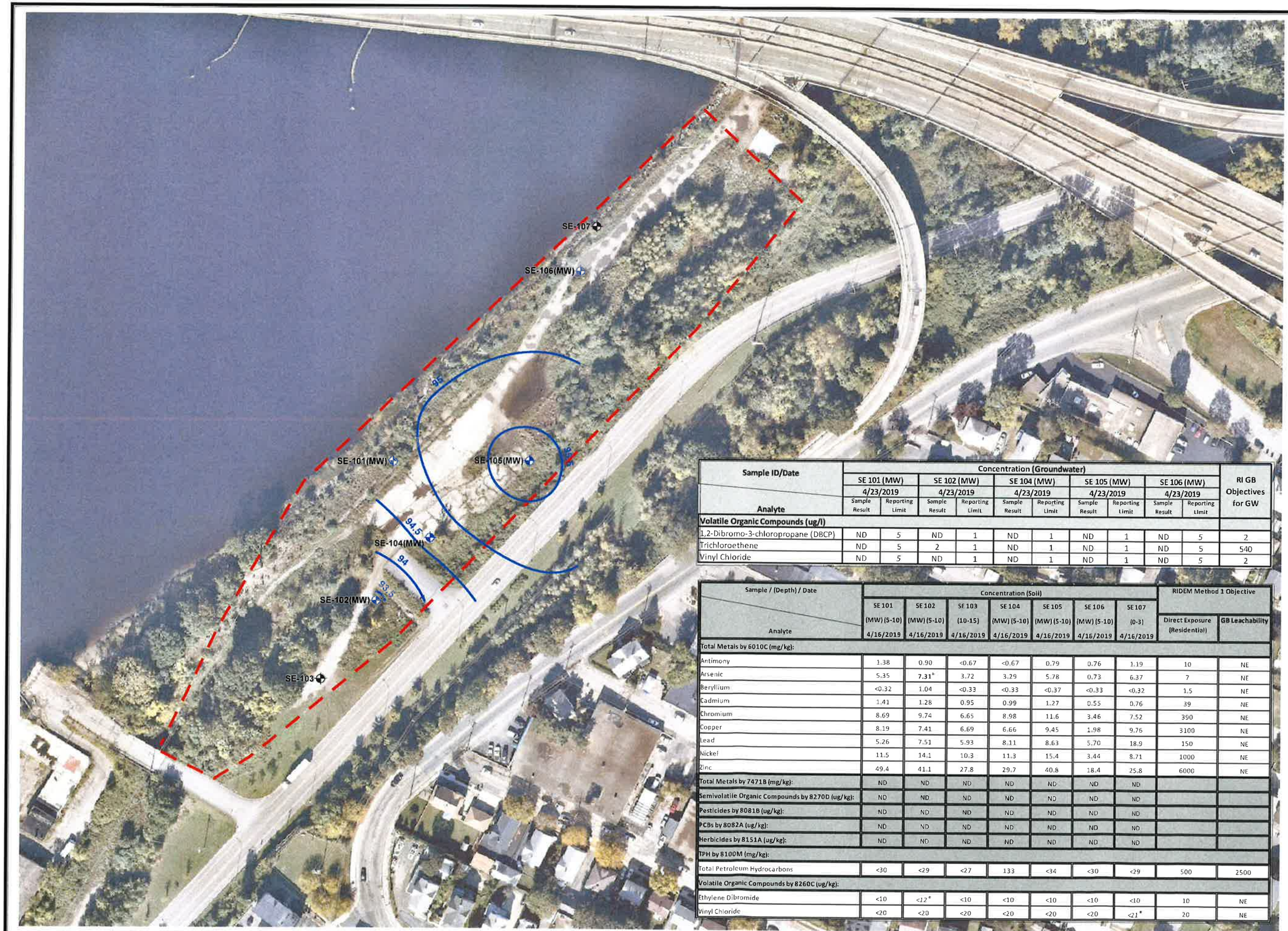
Check all that apply: X Site Investigation __Short-Term/Emergency __EXPRESS __ Dig & Haul

7. Other Significant Remarks about Release (Will a background determination be made?)

Signature: Melissa Martin Date 6/14/19

Title: Melissa Martin, Manager, RI Waterfront Enterprises, LLC

Henderson Bridge parcel



Sample ID/Date	Concentration (Groundwater)										RI GB Objectives for GW
	SE 101 (MW) 4/23/2019		SE 102 (MW) 4/23/2019		SE 104 (MW) 4/23/2019		SE 105 (MW) 4/23/2019		SE 106 (MW) 4/23/2019		
Analyte	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	Sample Result	Reporting Limit	
Volatile Organic Compounds (ug/l)											
1,2-Dibromo-3-chloropropane (DBCP)	ND	5	ND	1	ND	1	ND	1	ND	5	2
Trichloroethene	ND	5	2	1	ND	1	ND	1	ND	5	540
Vinyl Chloride	ND	5	ND	1	ND	1	ND	1	ND	5	2

Sample / (Depth) / Date	Concentration (Soil)							RIDEM Method 1 Objective	
	SE 101 (MW) (5-10) 4/16/2019	SE 102 (MW) (5-10) 4/16/2019	SE 103 (10-15) 4/16/2019	SE 104 (MW) (5-10) 4/16/2019	SE 105 (MW) (5-10) 4/16/2019	SE 106 (MW) (5-10) 4/16/2019	SE 107 (0-3) 4/16/2019	Direct Exposure (Residential)	GB Leachability
Analyte									
Total Metals by 6010C (mg/kg):									
Antimony	1.38	0.90	<0.67	<0.67	0.79	0.76	1.19	10	NE
Arsenic	5.35	7.31*	3.72	3.29	5.78	0.73	6.37	7	NE
Beryllium	<0.32	1.04	<0.33	<0.33	<0.37	<0.33	<0.32	1.5	NE
Cadmium	1.41	1.28	0.95	0.99	1.27	0.55	0.76	39	NE
Chromium	8.69	9.74	6.65	8.98	11.6	3.46	7.52	390	NE
Copper	8.19	7.41	6.69	6.66	9.45	1.98	9.76	3100	NE
Lead	5.26	7.51	5.93	8.11	8.63	5.70	18.9	150	NE
Nickel	11.5	14.1	10.3	11.3	15.4	3.44	8.71	1000	NE
Zinc	49.4	41.1	27.8	29.7	40.8	18.4	25.8	6000	NE
Total Metals by 7471B (mg/kg):	ND	ND	ND	ND	ND	ND	ND		
Semivolatile Organic Compounds by 8270D (ug/kg):	ND	ND	ND	ND	ND	ND	ND		
Pesticides by 8081B (ug/kg):	ND	ND	ND	ND	ND	ND	ND		
PCBs by 8082A (ug/kg):	ND	ND	ND	ND	ND	ND	ND		
Herbicides by 8151A (ug/kg):	ND	ND	ND	ND	ND	ND	ND		
TPH by 8100M (mg/kg):									
Total Petroleum Hydrocarbons	<30	<29	<27	133	<34	<30	<29	500	2500
Volatile Organic Compounds by 8260C (ug/kg):									
Ethylene Dibromide	<10	<12*	<10	<10	<10	<10	<10	10	NE
Vinyl Chloride	<20	<20	<20	<20	<20	<20	<21*	20	NE

Legend

- Approximate Property Boundary
- Groundwater Elevations (Feet)
- SAGE Monitoring Well Location
- SAGE Soil Boring Location

N

0 25 50 100 Feet

Data Provided by RIGIS
Orthoimagery provided by nearmap.com

Henderson Bridge Parcel

Parcel 105-01-002
East Providence, RI

Date: 05/23/2019
Job#: S3291
Created By: ALM

Figure

SAGE ENVIRONMENTAL

Soil - Henderson Bridge Parcel

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9D19020
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 30-April-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 04/19/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9D19020. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9D19020-01	SE 101 (MW) (5-10)	Soil	04/16/2019	04/19/2019
9D19020-02	SE 102 (MW) (5-10)	Soil	04/16/2019	04/19/2019
9D19020-03	SE 103 (10-15)	Soil	04/16/2019	04/19/2019
9D19020-04	SE 104 (MW) (5-10)	Soil	04/16/2019	04/19/2019
9D19020-05	SE 105 (MW) (5-10)	Soil	04/16/2019	04/19/2019
9D19020-06	SE 106 (MW) (5-10)	Soil	04/16/2019	04/19/2019
9D19020-07	SE 107 (0-3)	Soil	04/16/2019	04/19/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE 101 (MW) (5-10) (Lab Number: 9D19020-01)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

SE 102 (MW) (5-10) (Lab Number: 9D19020-02)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

SE 103 (10-15) (Lab Number: 9D19020-03)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C

Request for Analysis (continued)

SE 103 (10-15) (Lab Number: 9D19020-03) (continued)

Analysis	Method
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

SE 104 (MW) (5-10) (Lab Number: 9D19020-04)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

SE 105 (MW) (5-10) (Lab Number: 9D19020-05)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Request for Analysis (continued)

SE 106 (MW) (5-10) (Lab Number: 9D19020-06)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

SE 107 (0-3) (Lab Number: 9D19020-07)

Analysis	Method
Antimony	EPA 6010C
Arsenic	EPA 6010C
Beryllium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Copper	EPA 6010C
Herbicides	EPA 8151A
Lead	EPA 6010C
Mercury	EPA 7471B
Nickel	EPA 6010C
PCBs	EPA 8082A
Pesticides	EPA 8081B
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Thallium	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C
Zinc	EPA 6010C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

Herbicides

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

PCBs

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Pesticides

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

In order to meet client specified reporting limits the compounds "Ethylene dibromide and Vinyl Chloride" were estimated down to MDL limits as denoted by a "J" on the report forms.

Results: Total Metals

Sample: SE 101 (MW) (5-10)

Lab Number: 9D19020-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	**1.38**		0.65	mg/kg	04/22/19	04/23/19
Arsenic	**5.35**		0.65	mg/kg	04/22/19	04/23/19
Beryllium	ND		0.32	mg/kg	04/22/19	04/23/19
Cadmium	**1.41**		0.32	mg/kg	04/22/19	04/23/19
Chromium	**8.69**		0.32	mg/kg	04/22/19	04/23/19
Copper	**8.19**		1.31	mg/kg	04/22/19	04/23/19
Lead	**5.26**		0.32	mg/kg	04/22/19	04/23/19
Mercury	ND		0.076	mg/kg	04/23/19	04/23/19
Nickel	**11.5**		0.32	mg/kg	04/22/19	04/23/19
Selenium	ND		0.65	mg/kg	04/22/19	04/23/19
Silver	ND		0.32	mg/kg	04/22/19	04/23/19
Zinc	**49.4**		1.3	mg/kg	04/22/19	04/23/19
Thallium	ND		0.32	mg/kg	04/22/19	04/25/19

Results: Total Metals

Sample: SE 102 (MW) (5-10)

Lab Number: 9D19020-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	**0.90**		0.67	mg/kg	04/22/19	04/23/19
Arsenic	**7.31**		0.67	mg/kg	04/22/19	04/23/19
Beryllium	**1.04**		0.33	mg/kg	04/22/19	04/23/19
Cadmium	**1.28**		0.33	mg/kg	04/22/19	04/23/19
Chromium	**9.74**		0.33	mg/kg	04/22/19	04/23/19
Copper	**7.41**		1.34	mg/kg	04/22/19	04/23/19
Lead	**7.51**		0.33	mg/kg	04/22/19	04/23/19
Mercury	ND		0.078	mg/kg	04/23/19	04/23/19
Nickel	**14.1**		0.33	mg/kg	04/22/19	04/23/19
Selenium	ND		0.67	mg/kg	04/22/19	04/23/19
Silver	ND		0.33	mg/kg	04/22/19	04/23/19
Zinc	**41.1**		1.3	mg/kg	04/22/19	04/23/19
Thallium	ND		0.33	mg/kg	04/22/19	04/25/19

Results: Total Metals

Sample: SE 103 (10-15)
Lab Number: 9D19020-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	ND		0.67	mg/kg	04/22/19	04/23/19
Arsenic	**3.72**		0.67	mg/kg	04/22/19	04/23/19
Beryllium	ND		0.33	mg/kg	04/22/19	04/23/19
Cadmium	**0.95**		0.33	mg/kg	04/22/19	04/23/19
Chromium	**6.65**		0.33	mg/kg	04/22/19	04/23/19
Copper	**6.69**		1.34	mg/kg	04/22/19	04/23/19
Lead	**5.93**		0.33	mg/kg	04/22/19	04/23/19
Mercury	ND		0.064	mg/kg	04/23/19	04/23/19
Nickel	**10.3**		0.33	mg/kg	04/22/19	04/23/19
Selenium	ND		0.67	mg/kg	04/22/19	04/23/19
Silver	ND		0.33	mg/kg	04/22/19	04/23/19
Zinc	**27.8**		1.3	mg/kg	04/22/19	04/23/19
Thallium	ND		0.33	mg/kg	04/22/19	04/25/19

Results: Total Metals

Sample: SE 104 (MW) (5-10)

Lab Number: 9D19020-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	ND		0.67	mg/kg	04/22/19	04/23/19
Arsenic	**3.29**		0.67	mg/kg	04/22/19	04/23/19
Beryllium	ND		0.33	mg/kg	04/22/19	04/23/19
Cadmium	**0.99**		0.33	mg/kg	04/22/19	04/23/19
Chromium	**8.98**		0.33	mg/kg	04/22/19	04/23/19
Copper	**6.66**		1.35	mg/kg	04/22/19	04/23/19
Lead	**8.11**		0.33	mg/kg	04/22/19	04/23/19
Mercury	ND		0.074	mg/kg	04/23/19	04/23/19
Nickel	**11.3**		0.33	mg/kg	04/22/19	04/23/19
Selenium	ND		0.67	mg/kg	04/22/19	04/23/19
Silver	ND		0.33	mg/kg	04/22/19	04/23/19
Zinc	**29.7**		1.3	mg/kg	04/22/19	04/23/19
Thallium	ND		0.33	mg/kg	04/22/19	04/25/19

Results: Total Metals

Sample: SE 105 (MW) (5-10)

Lab Number: 9D19020-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	**0.79**		0.74	mg/kg	04/22/19	04/23/19
Arsenic	**5.78**		0.74	mg/kg	04/22/19	04/23/19
Beryllium	ND		0.37	mg/kg	04/22/19	04/23/19
Cadmium	**1.27**		0.37	mg/kg	04/22/19	04/23/19
Chromium	**11.6**		0.37	mg/kg	04/22/19	04/23/19
Copper	**9.45**		1.50	mg/kg	04/22/19	04/23/19
Lead	**8.63**		0.37	mg/kg	04/22/19	04/23/19
Mercury	ND		0.088	mg/kg	04/23/19	04/23/19
Nickel	**15.4**		0.37	mg/kg	04/22/19	04/23/19
Selenium	ND		0.74	mg/kg	04/22/19	04/23/19
Silver	ND		0.37	mg/kg	04/22/19	04/23/19
Zinc	**40.8**		1.5	mg/kg	04/22/19	04/23/19
Thallium	ND		0.37	mg/kg	04/22/19	04/25/19

Results: Total Metals

Sample: SE 106 (MW) (5-10)

Lab Number: 9D19020-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	**0.76**		0.67	mg/kg	04/22/19	04/23/19
Arsenic	**0.73**		0.67	mg/kg	04/22/19	04/23/19
Beryllium	ND		0.33	mg/kg	04/22/19	04/23/19
Cadmium	**0.55**		0.33	mg/kg	04/22/19	04/23/19
Chromium	**3.46**		0.33	mg/kg	04/22/19	04/23/19
Copper	**1.98**		1.35	mg/kg	04/22/19	04/23/19
Lead	**5.70**		0.33	mg/kg	04/22/19	04/23/19
Mercury	ND		0.077	mg/kg	04/23/19	04/23/19
Nickel	**3.44**		0.33	mg/kg	04/22/19	04/23/19
Selenium	ND		0.67	mg/kg	04/22/19	04/23/19
Silver	ND		0.33	mg/kg	04/22/19	04/23/19
Zinc	**18.4**		1.3	mg/kg	04/22/19	04/23/19
Thallium	ND		0.33	mg/kg	04/22/19	04/25/19

Results: Total Metals

Sample: SE 107 (0-3)

Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Antimony	**1.19**		0.64	mg/kg	04/22/19	04/23/19
Arsenic	**6.37**		0.64	mg/kg	04/22/19	04/23/19
Beryllium	ND		0.32	mg/kg	04/22/19	04/23/19
Cadmium	**0.76**		0.32	mg/kg	04/22/19	04/23/19
Chromium	**7.52**		0.32	mg/kg	04/22/19	04/23/19
Copper	**9.76**		1.29	mg/kg	04/22/19	04/23/19
Lead	**18.9**		0.32	mg/kg	04/22/19	04/23/19
Mercury	ND		0.061	mg/kg	04/23/19	04/23/19
Nickel	**8.71**		0.32	mg/kg	04/22/19	04/23/19
Selenium	ND		0.64	mg/kg	04/22/19	04/23/19
Silver	ND		0.32	mg/kg	04/22/19	04/23/19
Zinc	**25.8**		1.3	mg/kg	04/22/19	04/23/19
Thallium	ND		0.32	mg/kg	04/22/19	04/25/19

Results: Volatile Organic Compounds

Sample: SE 101 (MW) (5-10)

Lab Number: 9D19020-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		191	ug/kg	04/23/19	04/23/19
Benzene	ND		38	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		38	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		38	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		38	ug/kg	04/23/19	04/23/19
Bromoform	ND		38	ug/kg	04/23/19	04/23/19
Bromomethane	ND		38	ug/kg	04/23/19	04/23/19
2-Butanone	ND		191	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		191	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		38	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		38	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		38	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		38	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		38	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		38	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		38	ug/kg	04/23/19	04/23/19
Chloroethane	ND		38	ug/kg	04/23/19	04/23/19
Chloroform	ND		38	ug/kg	04/23/19	04/23/19
Chloromethane	ND		38	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		38	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		38	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		38	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		38	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		10	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		38	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		38	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		38	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		38	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		38	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		38	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		38	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		38	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		38	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		38	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		38	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		38	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		38	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		38	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		76	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		191	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		19100	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		38	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		38	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		191	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		38	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 101 (MW) (5-10) (Continued)

Lab Number: 9D19020-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		38	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		191	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		191	ug/kg	04/23/19	04/23/19
Naphthalene	ND		38	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		38	ug/kg	04/23/19	04/23/19
Styrene	ND		38	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		38	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		38	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		191	ug/kg	04/23/19	04/23/19
Toluene	ND		38	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		38	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		38	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		38	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		38	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		38	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		38	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		38	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		38	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		20	ug/kg	04/23/19	04/23/19
o-Xylene	ND		38	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		76	ug/kg	04/23/19	04/23/19
Total xylenes	ND		76	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		38	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		38	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		38	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		38	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		38	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		38	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		38	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*94.2%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*103%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*92.7%*	*70-130*	04/23/19	04/23/19

Results: Volatile Organic Compounds

Sample: SE 102 (MW) (5-10)

Lab Number: 9D19020-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		362	ug/kg	04/23/19	04/23/19
Benzene	ND		72	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		72	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		72	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		72	ug/kg	04/23/19	04/23/19
Bromoform	ND		72	ug/kg	04/23/19	04/23/19
Bromomethane	ND		72	ug/kg	04/23/19	04/23/19
2-Butanone	ND		362	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		362	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		72	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		72	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		72	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		72	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		72	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		72	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		72	ug/kg	04/23/19	04/23/19
Chloroethane	ND		72	ug/kg	04/23/19	04/23/19
Chloroform	ND		72	ug/kg	04/23/19	04/23/19
Chloromethane	ND		72	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		72	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		72	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		72	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		72	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		12	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		72	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		72	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		72	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		72	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		72	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		72	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		72	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		72	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		72	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		72	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		72	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		72	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		72	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		72	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		145	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		362	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		36200	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		72	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		72	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		362	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		72	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 102 (MW) (5-10) (Continued)

Lab Number: 9D19020-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		72	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		362	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		362	ug/kg	04/23/19	04/23/19
Naphthalene	ND		72	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		72	ug/kg	04/23/19	04/23/19
Styrene	ND		72	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		72	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		72	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		362	ug/kg	04/23/19	04/23/19
Toluene	ND		72	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		72	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		72	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		72	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		72	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		72	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		72	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		72	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		72	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		20	ug/kg	04/23/19	04/23/19
o-Xylene	ND		72	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		145	ug/kg	04/23/19	04/23/19
Total xylenes	ND		145	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		72	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		72	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		72	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		72	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		72	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		72	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		72	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.9%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*106%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*95.8%*	*70-130*	04/23/19	04/23/19

Results: Volatile Organic Compounds

Sample: SE 103 (10-15)
Lab Number: 9D19020-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		205	ug/kg	04/23/19	04/23/19
Benzene	ND		41	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		41	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		41	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		41	ug/kg	04/23/19	04/23/19
Bromoform	ND		41	ug/kg	04/23/19	04/23/19
Bromomethane	ND		41	ug/kg	04/23/19	04/23/19
2-Butanone	ND		205	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		205	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		41	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		41	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		41	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		41	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		41	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
Chloroethane	ND		41	ug/kg	04/23/19	04/23/19
Chloroform	ND		41	ug/kg	04/23/19	04/23/19
Chloromethane	ND		41	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		41	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		41	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		10	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		41	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		41	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		41	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		41	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		41	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		41	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		41	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		41	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		82	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		205	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		20500	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		41	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		205	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		41	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 103 (10-15) (Continued)

Lab Number: 9D19020-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		41	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		205	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		205	ug/kg	04/23/19	04/23/19
Naphthalene	ND		41	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Styrene	ND		41	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		41	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		41	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		205	ug/kg	04/23/19	04/23/19
Toluene	ND		41	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		41	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		41	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		41	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		41	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		41	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		20	ug/kg	04/23/19	04/23/19
o-Xylene	ND		41	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		82	ug/kg	04/23/19	04/23/19
Total xylenes	ND		82	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		41	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		41	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		41	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		41	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		41	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		41	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		41	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*95.2%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*111%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*97.1%*	*70-130*	04/23/19	04/23/19

Results: Volatile Organic Compounds

Sample: SE 104 (MW) (5-10)

Lab Number: 9D19020-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		143	ug/kg	04/23/19	04/23/19
Benzene	ND		29	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		29	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		29	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		29	ug/kg	04/23/19	04/23/19
Bromoform	ND		29	ug/kg	04/23/19	04/23/19
Bromomethane	ND		29	ug/kg	04/23/19	04/23/19
2-Butanone	ND		143	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		143	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		29	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		29	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		29	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		29	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		29	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		29	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		29	ug/kg	04/23/19	04/23/19
Chloroethane	ND		29	ug/kg	04/23/19	04/23/19
Chloroform	ND		29	ug/kg	04/23/19	04/23/19
Chloromethane	ND		29	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		29	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		29	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		29	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		29	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		10	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		29	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		29	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		29	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		29	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		29	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		29	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		29	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		29	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		29	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		29	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		29	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		29	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		29	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		29	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		57	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		143	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		14300	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		29	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		29	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		143	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		29	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 104 (MW) (5-10) (Continued)

Lab Number: 9D19020-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		29	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		143	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		143	ug/kg	04/23/19	04/23/19
Naphthalene	ND		29	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		29	ug/kg	04/23/19	04/23/19
Styrene	ND		29	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		29	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		29	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		143	ug/kg	04/23/19	04/23/19
Toluene	ND		29	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		29	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		29	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		29	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		29	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		29	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		29	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		29	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		29	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		20	ug/kg	04/23/19	04/23/19
o-Xylene	ND		29	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		57	ug/kg	04/23/19	04/23/19
Total xylenes	ND		57	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		29	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		29	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		29	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		29	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		29	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		29	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		29	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*96.6%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*101%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*89.7%*	*70-130*	04/23/19	04/23/19

Results: Volatile Organic Compounds

Sample: SE 105 (MW) (5-10)

Lab Number: 9D19020-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		200	ug/kg	04/23/19	04/23/19
Benzene	ND		40	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		40	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		40	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		40	ug/kg	04/23/19	04/23/19
Bromoform	ND		40	ug/kg	04/23/19	04/23/19
Bromomethane	ND		40	ug/kg	04/23/19	04/23/19
2-Butanone	ND		200	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		200	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		40	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		40	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		40	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		40	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		40	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		40	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		40	ug/kg	04/23/19	04/23/19
Chloroethane	ND		40	ug/kg	04/23/19	04/23/19
Chloroform	ND		40	ug/kg	04/23/19	04/23/19
Chloromethane	ND		40	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		40	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		40	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		40	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		40	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		10	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		40	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		40	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		40	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		40	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		40	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		40	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		40	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		40	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		40	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		40	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		40	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		40	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		40	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		40	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		80	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		200	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		20000	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		40	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		40	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		200	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		40	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 105 (MW) (5-10) (Continued)

Lab Number: 9D19020-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		40	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		200	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		200	ug/kg	04/23/19	04/23/19
Naphthalene	ND		40	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		40	ug/kg	04/23/19	04/23/19
Styrene	ND		40	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		40	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		40	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		200	ug/kg	04/23/19	04/23/19
Toluene	ND		40	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		40	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		40	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		40	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		40	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		40	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		40	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		40	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		40	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		20	ug/kg	04/23/19	04/23/19
o-Xylene	ND		40	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		80	ug/kg	04/23/19	04/23/19
Total xylenes	ND		80	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		40	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		40	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		40	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		40	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		40	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		40	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		40	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*92.1%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*113%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*95.9%*	*70-130*	04/23/19	04/23/19

Results: Volatile Organic Compounds

Sample: SE 106 (MW) (5-10)

Lab Number: 9D19020-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		203	ug/kg	04/23/19	04/23/19
Benzene	ND		41	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		41	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		41	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		41	ug/kg	04/23/19	04/23/19
Bromoform	ND		41	ug/kg	04/23/19	04/23/19
Bromomethane	ND		41	ug/kg	04/23/19	04/23/19
2-Butanone	ND		203	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		203	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		41	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		41	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		41	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		41	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		41	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
Chloroethane	ND		41	ug/kg	04/23/19	04/23/19
Chloroform	ND		41	ug/kg	04/23/19	04/23/19
Chloromethane	ND		41	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		41	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		41	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		10	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		41	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		41	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		41	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		41	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		41	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		41	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		41	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		41	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		41	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		81	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		203	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		20300	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		41	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		203	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		41	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 106 (MW) (5-10) (Continued)

Lab Number: 9D19020-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		41	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		203	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		203	ug/kg	04/23/19	04/23/19
Naphthalene	ND		41	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Styrene	ND		41	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		41	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		41	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		203	ug/kg	04/23/19	04/23/19
Toluene	ND		41	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		41	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		41	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		41	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		41	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		41	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		41	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		41	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		20	ug/kg	04/23/19	04/23/19
o-Xylene	ND		41	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		81	ug/kg	04/23/19	04/23/19
Total xylenes	ND		81	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		41	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		41	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		41	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		41	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		41	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		41	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		41	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.2%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*103%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*97.5%*	*70-130*	04/23/19	04/23/19

Results: Volatile Organic Compounds

Sample: SE 107 (0-3)

Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		209	ug/kg	04/23/19	04/23/19
Benzene	ND		42	ug/kg	04/23/19	04/23/19
Bromobenzene	ND		42	ug/kg	04/23/19	04/23/19
Bromochloromethane	ND		42	ug/kg	04/23/19	04/23/19
Bromodichloromethane	ND		42	ug/kg	04/23/19	04/23/19
Bromoform	ND		42	ug/kg	04/23/19	04/23/19
Bromomethane	ND		42	ug/kg	04/23/19	04/23/19
2-Butanone	ND		209	ug/kg	04/23/19	04/23/19
tert-Butyl alcohol	ND		209	ug/kg	04/23/19	04/23/19
sec-Butylbenzene	ND		42	ug/kg	04/23/19	04/23/19
n-Butylbenzene	ND		42	ug/kg	04/23/19	04/23/19
tert-Butylbenzene	ND		42	ug/kg	04/23/19	04/23/19
Methyl t-butyl ether (MTBE)	ND		42	ug/kg	04/23/19	04/23/19
Carbon Disulfide	ND		42	ug/kg	04/23/19	04/23/19
Carbon Tetrachloride	ND		42	ug/kg	04/23/19	04/23/19
Chlorobenzene	ND		42	ug/kg	04/23/19	04/23/19
Chloroethane	ND		42	ug/kg	04/23/19	04/23/19
Chloroform	ND		42	ug/kg	04/23/19	04/23/19
Chloromethane	ND		42	ug/kg	04/23/19	04/23/19
4-Chlorotoluene	ND		42	ug/kg	04/23/19	04/23/19
2-Chlorotoluene	ND		42	ug/kg	04/23/19	04/23/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		42	ug/kg	04/23/19	04/23/19
Dibromochloromethane	ND		42	ug/kg	04/23/19	04/23/19
1,2-Dibromoethane (EDB)	ND		10	ug/kg	04/23/19	04/23/19
Dibromomethane	ND		42	ug/kg	04/23/19	04/23/19
1,2-Dichlorobenzene	ND		42	ug/kg	04/23/19	04/23/19
1,3-Dichlorobenzene	ND		42	ug/kg	04/23/19	04/23/19
1,4-Dichlorobenzene	ND		42	ug/kg	04/23/19	04/23/19
1,1-Dichloroethane	ND		42	ug/kg	04/23/19	04/23/19
1,2-Dichloroethane	ND		42	ug/kg	04/23/19	04/23/19
trans-1,2-Dichloroethene	ND		42	ug/kg	04/23/19	04/23/19
cis-1,2-Dichloroethene	ND		42	ug/kg	04/23/19	04/23/19
1,1-Dichloroethene	ND		42	ug/kg	04/23/19	04/23/19
1,2-Dichloropropane	ND		42	ug/kg	04/23/19	04/23/19
2,2-Dichloropropane	ND		42	ug/kg	04/23/19	04/23/19
cis-1,3-Dichloropropene	ND		42	ug/kg	04/23/19	04/23/19
trans-1,3-Dichloropropene	ND		42	ug/kg	04/23/19	04/23/19
1,1-Dichloropropene	ND		42	ug/kg	04/23/19	04/23/19
1,3-Dichloropropene (cis + trans)	ND		84	ug/kg	04/23/19	04/23/19
Diethyl ether	ND		209	ug/kg	04/23/19	04/23/19
1,4-Dioxane	ND		20900	ug/kg	04/23/19	04/23/19
Ethylbenzene	ND		42	ug/kg	04/23/19	04/23/19
Hexachlorobutadiene	ND		42	ug/kg	04/23/19	04/23/19
2-Hexanone	ND		209	ug/kg	04/23/19	04/23/19
Isopropylbenzene	ND		42	ug/kg	04/23/19	04/23/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 107 (0-3) (Continued)

Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		42	ug/kg	04/23/19	04/23/19
Methylene Chloride	ND		209	ug/kg	04/23/19	04/23/19
4-Methyl-2-pentanone	ND		209	ug/kg	04/23/19	04/23/19
Naphthalene	ND		42	ug/kg	04/23/19	04/23/19
n-Propylbenzene	ND		42	ug/kg	04/23/19	04/23/19
Styrene	ND		42	ug/kg	04/23/19	04/23/19
1,1,1,2-Tetrachloroethane	ND		42	ug/kg	04/23/19	04/23/19
Tetrachloroethene	ND		42	ug/kg	04/23/19	04/23/19
Tetrahydrofuran	ND		209	ug/kg	04/23/19	04/23/19
Toluene	ND		42	ug/kg	04/23/19	04/23/19
1,2,4-Trichlorobenzene	ND		42	ug/kg	04/23/19	04/23/19
1,2,3-Trichlorobenzene	ND		42	ug/kg	04/23/19	04/23/19
1,1,2-Trichloroethane	ND		42	ug/kg	04/23/19	04/23/19
1,1,1-Trichloroethane	ND		42	ug/kg	04/23/19	04/23/19
Trichloroethene	ND		42	ug/kg	04/23/19	04/23/19
1,2,3-Trichloropropane	ND		42	ug/kg	04/23/19	04/23/19
1,3,5-Trimethylbenzene	ND		42	ug/kg	04/23/19	04/23/19
1,2,4-Trimethylbenzene	ND		42	ug/kg	04/23/19	04/23/19
Vinyl Chloride	ND		21	ug/kg	04/23/19	04/23/19
o-Xylene	ND		42	ug/kg	04/23/19	04/23/19
m&p-Xylene	ND		84	ug/kg	04/23/19	04/23/19
Total xylenes	ND		84	ug/kg	04/23/19	04/23/19
1,1,2,2-Tetrachloroethane	ND		42	ug/kg	04/23/19	04/23/19
tert-Amyl methyl ether	ND		42	ug/kg	04/23/19	04/23/19
1,3-Dichloropropane	ND		42	ug/kg	04/23/19	04/23/19
Ethyl tert-butyl ether	ND		42	ug/kg	04/23/19	04/23/19
Diisopropyl ether	ND		42	ug/kg	04/23/19	04/23/19
Trichlorofluoromethane	ND		42	ug/kg	04/23/19	04/23/19
Dichlorodifluoromethane	ND		42	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.6%*	*70-130*	04/23/19	04/23/19
1,2-Dichloroethane-d4	*106%*	*70-130*	04/23/19	04/23/19
Toluene-d8	*97.0%*	*70-130*	04/23/19	04/23/19

Results: Semivolatile organic compounds

Sample: SE 101 (MW) (5-10)

Lab Number: 9D19020-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		141	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		141	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		141	ug/kg	04/25/19	04/26/19
Anthracene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		141	ug/kg	04/25/19	04/26/19
Chrysene	ND		141	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		141	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		141	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		141	ug/kg	04/25/19	04/26/19
Fluorene	ND		141	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		141	ug/kg	04/25/19	04/26/19
Naphthalene	ND		141	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		141	ug/kg	04/25/19	04/26/19
Pyrene	ND		141	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*87.8%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*90.5%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*91.6%*	*34-130*	04/25/19	04/26/19

Results: Semivolatile organic compounds

Sample: SE 102 (MW) (5-10)

Lab Number: 9D19020-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		137	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		137	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		137	ug/kg	04/25/19	04/26/19
Anthracene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		137	ug/kg	04/25/19	04/26/19
Chrysene	ND		137	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		137	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		137	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		137	ug/kg	04/25/19	04/26/19
Fluorene	ND		137	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		137	ug/kg	04/25/19	04/26/19
Naphthalene	ND		137	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		137	ug/kg	04/25/19	04/26/19
Pyrene	ND		137	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*88.0%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*80.1%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*84.2%*	*34-130*	04/25/19	04/26/19

Results: Semivolatile organic compounds

Sample: SE 103 (10-15)

Lab Number: 9D19020-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		130	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		130	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		130	ug/kg	04/25/19	04/26/19
Anthracene	ND		130	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		130	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		130	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		130	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		130	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		130	ug/kg	04/25/19	04/26/19
Chrysene	ND		130	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		130	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		130	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		130	ug/kg	04/25/19	04/26/19
Fluorene	ND		130	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg	04/25/19	04/26/19
Naphthalene	ND		130	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		130	ug/kg	04/25/19	04/26/19
Pyrene	ND		130	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*77.0%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*72.7%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*75.1%*	*34-130*	04/25/19	04/26/19

Results: Semivolatile organic compounds

Sample: SE 104 (MW) (5-10)

Lab Number: 9D19020-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		141	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		141	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		141	ug/kg	04/25/19	04/26/19
Anthracene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		141	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		141	ug/kg	04/25/19	04/26/19
Chrysene	ND		141	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		141	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		141	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		141	ug/kg	04/25/19	04/26/19
Fluorene	ND		141	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		141	ug/kg	04/25/19	04/26/19
Naphthalene	ND		141	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		141	ug/kg	04/25/19	04/26/19
Pyrene	ND		141	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*67.8%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*102%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*80.9%*	*34-130*	04/25/19	04/26/19

Results: Semivolatile organic compounds

Sample: SE 105 (MW) (5-10)

Lab Number: 9D19020-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		164	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		164	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		164	ug/kg	04/25/19	04/26/19
Anthracene	ND		164	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		164	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		164	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		164	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		164	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		164	ug/kg	04/25/19	04/26/19
Chrysene	ND		164	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		164	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		164	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		164	ug/kg	04/25/19	04/26/19
Fluorene	ND		164	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		164	ug/kg	04/25/19	04/26/19
Naphthalene	ND		164	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		164	ug/kg	04/25/19	04/26/19
Pyrene	ND		164	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*76.7%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*99.4%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*83.4%*	*34-130*	04/25/19	04/26/19

Results: Semivolatile organic compounds

Sample: SE 106 (MW) (5-10)

Lab Number: 9D19020-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		151	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		151	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		151	ug/kg	04/25/19	04/26/19
Anthracene	ND		151	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		151	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		151	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		151	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		151	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		151	ug/kg	04/25/19	04/26/19
Chrysene	ND		151	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		151	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		151	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		151	ug/kg	04/25/19	04/26/19
Fluorene	ND		151	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		151	ug/kg	04/25/19	04/26/19
Naphthalene	ND		151	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		151	ug/kg	04/25/19	04/26/19
Pyrene	ND		151	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*78.6%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*99.8%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*86.5%*	*34-130*	04/25/19	04/26/19

Results: Semivolatile organic compounds

Sample: SE 107 (0-3)

Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		137	ug/kg	04/25/19	04/26/19
Acenaphthene	ND		137	ug/kg	04/25/19	04/26/19
Acenaphthylene	ND		137	ug/kg	04/25/19	04/26/19
Anthracene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(a)anthracene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(a)pyrene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(b)fluoranthene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(g,h,i)perylene	ND		137	ug/kg	04/25/19	04/26/19
Benzo(k)fluoranthene	ND		137	ug/kg	04/25/19	04/26/19
Chrysene	ND		137	ug/kg	04/25/19	04/26/19
Dibenz(a,h)anthracene	ND		137	ug/kg	04/25/19	04/26/19
Dibenzofuran	ND		137	ug/kg	04/25/19	04/26/19
Fluoranthene	ND		137	ug/kg	04/25/19	04/26/19
Fluorene	ND		137	ug/kg	04/25/19	04/26/19
Indeno(1,2,3-cd)pyrene	ND		137	ug/kg	04/25/19	04/26/19
Naphthalene	ND		137	ug/kg	04/25/19	04/26/19
Phenanthrene	ND		137	ug/kg	04/25/19	04/26/19
Pyrene	ND		137	ug/kg	04/25/19	04/26/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*92.2%*	*30-126*	04/25/19	04/26/19
p-Terphenyl-d14	*81.8%*	*47-130*	04/25/19	04/26/19
2-Fluorobiphenyl	*79.9%*	*34-130*	04/25/19	04/26/19

Results: Pesticides

Sample: SE 107 (0-3)

Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
alpha-BHC	ND		1.81	ug/kg	04/23/19	04/23/19
gamma-BHC (Lindane)	ND		1.81	ug/kg	04/23/19	04/23/19
beta-BHC	ND		1.81	ug/kg	04/23/19	04/23/19
delta-BHC	ND		1.81	ug/kg	04/23/19	04/23/19
Heptachlor	ND		1.81	ug/kg	04/23/19	04/23/19
Aldrin	ND		1.81	ug/kg	04/23/19	04/23/19
Heptachlor epoxide	ND		1.81	ug/kg	04/23/19	04/23/19
gamma-Chlordane	ND		1.81	ug/kg	04/23/19	04/23/19
alpha-Chlordane	ND		1.81	ug/kg	04/23/19	04/23/19
Chlordane	ND		18.1	ug/kg	04/23/19	04/23/19
4,4'-DDE	ND		3.62	ug/kg	04/23/19	04/23/19
Endosulfan I	ND		1.81	ug/kg	04/23/19	04/23/19
Dieldrin	ND		1.81	ug/kg	04/23/19	04/23/19
Endrin	ND		1.81	ug/kg	04/23/19	04/23/19
4,4'-DDD	ND		3.62	ug/kg	04/23/19	04/23/19
Endosulfan II	ND		1.81	ug/kg	04/23/19	04/23/19
Endrin aldehyde	ND		1.81	ug/kg	04/23/19	04/23/19
4,4'-DDT	ND		3.62	ug/kg	04/23/19	04/23/19
Methoxychlor	ND		3.62	ug/kg	04/23/19	04/23/19
Endosulfan sulfate	ND		1.81	ug/kg	04/23/19	04/23/19
Endrin Ketone	ND		1.81	ug/kg	04/23/19	04/23/19
Toxaphene	ND		18.1	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*91.2%*	*30-120*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*104%*	*32-120*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 101 (MW) (5-10)
Lab Number: 9D19020-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		73	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		73	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*86.0%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*86.1%*	*43.3-118*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 102 (MW) (5-10)
Lab Number: 9D19020-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		73	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		73	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		73	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*89.0%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*86.1%*	*43.3-118*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 103 (10-15)
Lab Number: 9D19020-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		67	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		67	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		67	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*82.7%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*83.2%*	*43.3-118*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 104 (MW) (5-10)

Lab Number: 9D19020-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		74	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		74	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		74	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*74.9%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*88.4%*	*43.3-118*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 105 (MW) (5-10)
Lab Number: 9D19020-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		83	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		83	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		83	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*85.2%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*87.2%*	*43.3-118*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 106 (MW) (5-10)
Lab Number: 9D19020-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		78	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		78	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		78	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*88.2%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*86.3%*	*43.3-118*	04/23/19	04/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 107 (0-3)
Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1221	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1232	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1242	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1248	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1254	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1260	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1262	ND		72	ug/kg	04/23/19	04/23/19
Aroclor-1268	ND		72	ug/kg	04/23/19	04/23/19
PCBs (Total)	ND		72	ug/kg	04/23/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*79.5%*	*36.2-108*	04/23/19	04/23/19
Decachlorobiphenyl (DCBP)	*87.4%*	*43.3-118*	04/23/19	04/23/19

Results: Herbicides

Sample: SE 107 (0-3)

Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Dalapon	ND		109	ug/kg	04/22/19	04/23/19
Dicamba	ND		54	ug/kg	04/22/19	04/23/19
Dichloroprop	ND		54	ug/kg	04/22/19	04/23/19
2,4-D	ND		54	ug/kg	04/22/19	04/23/19
2,4,5-TP (Silvex)	ND		54	ug/kg	04/22/19	04/23/19
2,4,5-T	ND		54	ug/kg	04/22/19	04/23/19
2,4-DB	ND		54	ug/kg	04/22/19	04/23/19
Dinoseb	ND		109	ug/kg	04/22/19	04/23/19

Surrogate(s)	Recovery%	Limits		
2,4-Dichlorophenyl acetic acid	*61.0%*	*41-145*	04/22/19	04/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE 101 (MW) (5-10)
Lab Number: 9D19020-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		30	mg/kg	04/22/19	04/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*86.7%*		*56.5-114*		04/22/19	04/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE 102 (MW) (5-10)

Lab Number: 9D19020-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		29	mg/kg	04/22/19	04/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*83.0%*		*56.5-114*		04/22/19	04/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE 103 (10-15)
Lab Number: 9D19020-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	04/22/19	04/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*87.2%*		*56.5-114*		04/22/19	04/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE 104 (MW) (5-10)
Lab Number: 9D19020-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**133**		30	mg/kg	04/22/19	04/24/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*90.5%*		*56.5-114*		04/22/19	04/24/19

Results: Total Petroleum Hydrocarbons

Sample: SE 105 (MW) (5-10)
Lab Number: 9D19020-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		34	mg/kg	04/22/19	04/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*79.0%*		*56.5-114*		04/22/19	04/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE 106 (MW) (5-10)
Lab Number: 9D19020-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		30	mg/kg	04/22/19	04/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*83.8%*		*56.5-114*		04/22/19	04/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE 107 (0-3)
Lab Number: 9D19020-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		29	mg/kg	04/22/19	04/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*85.1%*		*56.5-114*		04/22/19	04/23/19

Quality Control

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0860 - Metals Digestion Soils										
Blank (B9D0860-BLK1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Zinc	ND		1.3	mg/kg						
Selenium	ND		0.66	mg/kg						
Antimony	ND		0.66	mg/kg						
Lead	ND		0.33	mg/kg						
Nickel	ND		0.33	mg/kg						
Copper	ND		1.33	mg/kg						
Chromium	ND		0.33	mg/kg						
Arsenic	ND		0.66	mg/kg						
Cadmium	ND		0.33	mg/kg						
Silver	ND		0.33	mg/kg						
Beryllium	ND		0.33	mg/kg						
Thallium	ND		0.33	mg/kg						
LCS (B9D0860-BS1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Zinc	101		1.3	mg/kg	100		101	85-115		
Selenium	19.7		0.66	mg/kg	20.0		98.5	85-115		
Silver	44.7		0.33	mg/kg	40.0		112	85-115		
Cadmium	99.9		0.33	mg/kg	100		99.9	85-115		
Lead	102		0.33	mg/kg	100		102	85-115		
Arsenic	20.5		0.66	mg/kg	20.0		103	85-115		
Nickel	100		0.33	mg/kg	100		100	85-112		
Copper	97.7		1.33	mg/kg	100		97.7	85-115		
Beryllium	20.8		0.33	mg/kg	20.0		104	85-115		
Chromium	102		0.33	mg/kg	100		102	85-115		
Antimony	103		0.66	mg/kg	100		103	85-115		
Batch: B9D0936 - Metals Digestion Soils										
Blank (B9D0936-BLK1)					Prepared & Analyzed: 04/23/19					
Mercury	ND		0.071	mg/kg						

Quality Control
(Continued)

Total Metals (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0936 - Metals Digestion Soils (Continued)										
LCS (B9D0936-BS1)					Prepared & Analyzed: 04/23/19					
Mercury	0.140		0.071	mg/kg	0.143		98.1	93-114		
Batch: B9D0958 - Metals Digestion Soils										
Blank (B9D0958-BLK1)					Prepared & Analyzed: 04/23/19					
Mercury	ND		0.071	mg/kg						
LCS (B9D0958-BS1)					Prepared & Analyzed: 04/23/19					
Mercury	0.140		0.071	mg/kg	0.143		98.1	93-114		

Quality Control
(Continued)

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0947 - Purge-Trap										
Blank (B9D0947-BLK1)					Prepared & Analyzed: 04/23/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0947 - Purge-Trap (Continued)										
Blank (B9D0947-BLK1)					Prepared & Analyzed: 04/23/19					
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*47.6*	ug/l	*50.0*		*95.2*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.7*	ug/l	*50.0*		*107*	*70-130*		
Surrogate: Toluene-d8			*48.6*	ug/l	*50.0*		*97.1*	*70-130*		
LCS (B9D0947-BS1)					Prepared & Analyzed: 04/23/19					
Acetone	38			ug/l	50.0		76.8	70-130		
Benzene	50			ug/l	50.0		99.6	70-130		
Bromobenzene	51			ug/l	50.0		101	70-130		
Bromochloromethane	51			ug/l	50.0		103	70-130		
Bromodichloromethane	49			ug/l	50.0		97.7	70-130		
Bromoform	50			ug/l	50.0		100	70-130		
Bromomethane	58			ug/l	50.0		116	70-130		
2-Butanone	45			ug/l	50.0		89.4	70-130		
tert-Butyl alcohol	42			ug/l	50.0		83.1	70-130		
sec-Butylbenzene	54			ug/l	50.0		107	70-130		
n-Butylbenzene	56			ug/l	50.0		111	70-130		
tert-Butylbenzene	53			ug/l	50.0		107	70-130		
Methyl t-butyl ether (MTBE)	47			ug/l	50.0		93.2	70-130		
Carbon Disulfide	50			ug/l	50.0		99.1	70-130		
Carbon Tetrachloride	48			ug/l	50.0		96.2	70-130		
Chlorobenzene	51			ug/l	50.0		102	70-130		
Chloroethane	48			ug/l	50.0		95.3	70-130		
Chloroform	48			ug/l	50.0		96.8	70-130		
Chloromethane	49			ug/l	50.0		98.4	70-130		
4-Chlorotoluene	53			ug/l	50.0		106	70-130		
2-Chlorotoluene	53			ug/l	50.0		105	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	47			ug/l	50.0		93.6	70-130		
Dibromochloromethane	49			ug/l	50.0		97.6	70-130		
1,2-Dibromoethane (EDB)	49			ug/l	50.0		97.2	70-130		
Dibromomethane	46			ug/l	50.0		92.1	70-130		
1,2-Dichlorobenzene	52			ug/l	50.0		103	70-130		
1,3-Dichlorobenzene	52			ug/l	50.0		103	70-130		
1,4-Dichlorobenzene	51			ug/l	50.0		101	70-130		
1,1-Dichloroethane	48			ug/l	50.0		96.7	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0947 - Purge-Trap (Continued)										
LCS (B9D0947-BS1)					Prepared & Analyzed: 04/23/19					
1,2-Dichloroethane	47			ug/l	50.0		94.4	70-130		
trans-1,2-Dichloroethene	50			ug/l	50.0		101	70-130		
cis-1,2-Dichloroethene	49			ug/l	50.0		97.3	70-130		
1,1-Dichloroethene	49			ug/l	50.0		98.6	70-130		
1,2-Dichloropropane	50			ug/l	50.0		99.0	70-130		
2,2-Dichloropropane	49			ug/l	50.0		98.3	70-130		
cis-1,3-Dichloropropene	49			ug/l	50.0		98.9	70-130		
trans-1,3-Dichloropropene	47			ug/l	50.0		95.0	70-130		
1,1-Dichloropropene	53			ug/l	50.0		106	70-130		
Diethyl ether	46			ug/l	50.0		91.9	70-130		
1,4-Dioxane	315			ug/l	250		126	70-130		
Ethylbenzene	52			ug/l	50.0		104	70-130		
Hexachlorobutadiene	52			ug/l	50.0		104	70-130		
2-Hexanone	44			ug/l	50.0		87.3	70-130		
Isopropylbenzene	56			ug/l	50.0		112	70-130		
p-Isopropyltoluene	53			ug/l	50.0		106	70-130		
Methylene Chloride	50			ug/l	50.0		99.8	70-130		
4-Methyl-2-pentanone	46			ug/l	50.0		93.0	70-130		
Naphthalene	51			ug/l	50.0		102	70-130		
n-Propylbenzene	53			ug/l	50.0		106	70-130		
Styrene	53			ug/l	50.0		107	70-130		
1,1,1,2-Tetrachloroethane	50			ug/l	50.0		101	70-130		
Tetrachloroethene	50			ug/l	50.0		99.8	70-130		
Tetrahydrofuran	47			ug/l	50.0		93.7	70-130		
Toluene	50			ug/l	50.0		99.6	70-130		
1,2,4-Trichlorobenzene	54			ug/l	50.0		108	70-130		
1,2,3-Trichlorobenzene	52			ug/l	50.0		104	70-130		
1,1,2-Trichloroethane	47			ug/l	50.0		94.1	70-130		
1,1,1-Trichloroethane	49			ug/l	50.0		98.9	70-130		
Trichloroethene	46			ug/l	50.0		91.0	70-130		
1,2,3-Trichloropropane	47			ug/l	50.0		93.6	70-130		
1,3,5-Trimethylbenzene	53			ug/l	50.0		106	70-130		
1,2,4-Trimethylbenzene	53			ug/l	50.0		107	70-130		
Vinyl Chloride	50			ug/l	50.0		99.6	70-130		
o-Xylene	53			ug/l	50.0		107	70-130		
m&p-Xylene	110			ug/l	100		110	70-130		
1,1,2,2-Tetrachloroethane	51			ug/l	50.0		102	70-130		
tert-Amyl methyl ether	50			ug/l	50.0		100	70-130		
1,3-Dichloropropane	49			ug/l	50.0		97.5	70-130		
Ethyl tert-butyl ether	51			ug/l	50.0		101	70-130		
Diisopropyl ether	51			ug/l	50.0		102	70-130		
Trichlorofluoromethane	45			ug/l	50.0		90.5	70-130		
Dichlorodifluoromethane	46			ug/l	50.0		92.4	70-130		
Surrogate: 4-Bromofluorobenzene			*50.2*	ug/l	*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*44.6*	ug/l	*50.0*		*89.2*	*70-130*		
Surrogate: Toluene-d8			*47.9*	ug/l	*50.0*		*95.8*	*70-130*		

Quality Control
(Continued)

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D1013 - EPA 3546										
Blank (B9D1013-BLK1)					Prepared: 04/25/19 Analyzed: 04/26/19					
2-Methylnaphthalene	ND		130	ug/kg						
Acenaphthene	ND		130	ug/kg						
Acenaphthylene	ND		130	ug/kg						
Anthracene	ND		130	ug/kg						
Benzo(a)anthracene	ND		130	ug/kg						
Benzo(a)pyrene	ND		130	ug/kg						
Benzo(b)fluoranthene	ND		130	ug/kg						
Benzo(g,h,i)perylene	ND		130	ug/kg						
Benzo(k)fluoranthene	ND		130	ug/kg						
Chrysene	ND		130	ug/kg						
Dibenz(a,h)anthracene	ND		130	ug/kg						
Dibenzofuran	ND		130	ug/kg						
Fluoranthene	ND		130	ug/kg						
Fluorene	ND		130	ug/kg						
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg						
Naphthalene	ND		130	ug/kg						
Phenanthrene	ND		130	ug/kg						
Pyrene	ND		130	ug/kg						
Surrogate: Nitrobenzene-d5			*4840*	ug/kg	*6670*		*72.6*	*30-126*		
Surrogate: p-Terphenyl-d14			*4140*	ug/kg	*6670*		*62.1*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*3830*	ug/kg	*6670*		*57.4*	*34-130*		
LCS (B9D1013-BS1)					Prepared: 04/25/19 Analyzed: 04/26/19					
2-Methylnaphthalene	2620		130	ug/kg	3330		78.6	40-140		
Acenaphthene	2220		130	ug/kg	3330		66.5	40-140		
Acenaphthylene	2350		130	ug/kg	3330		70.6	40-140		
Anthracene	2490		130	ug/kg	3330		74.8	40-140		
Benzo(a)anthracene	2430		130	ug/kg	3330		72.8	40-140		
Benzo(a)pyrene	2560		130	ug/kg	3330		76.7	40-140		
Benzo(b)fluoranthene	2530		130	ug/kg	3330		76.0	40-140		
Benzo(g,h,i)perylene	2480		130	ug/kg	3330		74.4	40-140		
Benzo(k)fluoranthene	2550		130	ug/kg	3330		76.5	40-140		
Chrysene	2470		130	ug/kg	3330		74.2	40-140		
Dibenz(a,h)anthracene	2510		130	ug/kg	3330		75.2	40-140		
Dibenzofuran	2420		130	ug/kg	3330		72.5	40-140		
Fluoranthene	2470		130	ug/kg	3330		74.1	40-140		
Fluorene	2390		130	ug/kg	3330		71.6	40-140		
Indeno(1,2,3-cd)pyrene	2650		130	ug/kg	3330		79.4	40-140		
Naphthalene	2550		130	ug/kg	3330		76.4	40-140		
Phenanthrene	2420		130	ug/kg	3330		72.5	40-140		
Pyrene	2330		130	ug/kg	3330		70.0	40-140		
Surrogate: Nitrobenzene-d5			*4710*	ug/kg	*6670*		*70.6*	*30-126*		
Surrogate: p-Terphenyl-d14			*4100*	ug/kg	*6670*		*61.5*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*4070*	ug/kg	*6670*		*61.1*	*34-130*		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D1013 - EPA 3546 (Continued)										
LCS Dup (B9D1013-BSD1)					Prepared: 04/25/19 Analyzed: 04/26/19					
2-Methylnaphthalene	2680		130	ug/kg	3330		80.3	40-140	2.14	30
Acenaphthene	2140		130	ug/kg	3330		64.2	40-140	3.49	30
Acenaphthylene	2300		130	ug/kg	3330		68.9	40-140	2.47	30
Anthracene	2400		130	ug/kg	3330		72.1	40-140	3.67	30
Benzo(a)anthracene	2380		130	ug/kg	3330		71.5	40-140	1.89	30
Benzo(a)pyrene	2460		130	ug/kg	3330		73.7	40-140	4.02	30
Benzo(b)fluoranthene	2380		130	ug/kg	3330		71.5	40-140	6.18	30
Benzo(g,h,i)perylene	2410		130	ug/kg	3330		72.2	40-140	2.95	30
Benzo(k)fluoranthene	2470		130	ug/kg	3330		74.2	40-140	3.13	30
Chrysene	2400		130	ug/kg	3330		71.9	40-140	3.15	30
Dibenz(a,h)anthracene	2420		130	ug/kg	3330		72.5	40-140	3.58	30
Dibenzofuran	2380		130	ug/kg	3330		71.4	40-140	1.58	30
Fluoranthene	2400		130	ug/kg	3330		71.9	40-140	2.96	30
Fluorene	2340		130	ug/kg	3330		70.2	40-140	1.92	30
Indeno(1,2,3-cd)pyrene	2590		130	ug/kg	3330		77.8	40-140	2.04	30
Naphthalene	2420		130	ug/kg	3330		72.7	40-140	4.94	30
Phenanthrene	2360		130	ug/kg	3330		70.8	40-140	2.35	30
Pyrene	2290		130	ug/kg	3330		68.7	40-140	1.85	30
Surrogate: Nitrobenzene-d5			*4140*	ug/kg	*6670*		*62.1*	*30-126*		
Surrogate: p-Terphenyl-d14			*4030*	ug/kg	*6670*		*60.4*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*4010*	ug/kg	*6670*		*60.2*	*34-130*		

Quality Control
(Continued)

Pesticides

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0884 - EPA 3546										
Blank (B9D0884-BLK1)					Prepared & Analyzed: 04/23/19					
alpha-BHC	ND		1.67	ug/kg						
gamma-BHC (Lindane)	ND		1.67	ug/kg						
beta-BHC	ND		1.67	ug/kg						
delta-BHC	ND		1.67	ug/kg						
Heptachlor	ND		1.67	ug/kg						
Aldrin	ND		1.67	ug/kg						
Heptachlor epoxide	ND		1.67	ug/kg						
gamma-Chlordane	ND		1.67	ug/kg						
alpha-Chlordane	ND		1.67	ug/kg						
Chlordane	ND		16.7	ug/kg						
4,4'-DDE	ND		3.33	ug/kg						
Endosulfan I	ND		1.67	ug/kg						
Dieldrin	ND		1.67	ug/kg						
Endrin	ND		1.67	ug/kg						
4,4'-DDD	ND		3.33	ug/kg						
Endrin aldehyde	ND		1.67	ug/kg						
Endosulfan II	ND		1.67	ug/kg						
4,4'-DDT	ND		3.33	ug/kg						
Methoxychlor	ND		3.33	ug/kg						
Endosulfan sulfate	ND		1.67	ug/kg						
Endrin Ketone	ND		1.67	ug/kg						
Toxaphene	ND		16.7	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*13.2*	ug/kg	*13.3*		*98.9*	*30-120*		
Surrogate: Decachlorobiphenyl (DCBP)			*13.5*	ug/kg	*13.3*		*101*	*32-120*		
LCS (B9D0884-BS1)					Prepared & Analyzed: 04/23/19					
alpha-BHC	15.8		1.67	ug/kg	13.3		119	50-132		
gamma-BHC (Lindane)	15.9		1.67	ug/kg	13.3		119	54-128		
beta-BHC	15.0		1.67	ug/kg	13.3		112	69-126		
delta-BHC	13.8		1.67	ug/kg	13.3		104	40-126		
Heptachlor	15.9		1.67	ug/kg	13.3		119	55-125		
Aldrin	15.7		1.67	ug/kg	13.3		117	45-135		
Heptachlor epoxide	15.8		1.67	ug/kg	13.3		118	54-127		
gamma-Chlordane	15.3		1.67	ug/kg	13.3		115	55-124		
alpha-Chlordane	15.4		1.67	ug/kg	13.3		116	54-126		
4,4'-DDE	16.0		3.33	ug/kg	13.3		120	63-130		
Endosulfan I	15.3		1.67	ug/kg	13.3		115	53-128		
Dieldrin	16.1		1.67	ug/kg	13.3		121	57-124		
Endrin	18.4		1.67	ug/kg	13.3		138	40-140		
4,4'-DDD	15.6		3.33	ug/kg	13.3		117	74-140		
Endosulfan II	15.7		1.67	ug/kg	13.3		118	45-125		
Endrin aldehyde	15.3		1.67	ug/kg	13.3		115	40-140		
4,4'-DDT	17.5		3.33	ug/kg	13.3		131	60-140		
Methoxychlor	17.3		3.33	ug/kg	13.3		130	71-140		
Endosulfan sulfate	14.8		1.67	ug/kg	13.3		111	43-131		
Endrin Ketone	15.8		1.67	ug/kg	13.3		118	56-131		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*14.7*	ug/kg	*13.3*		*110*	*38-120*		
Surrogate: Decachlorobiphenyl (DCBP)			*15.2*	ug/kg	*13.3*		*114*	*32-120*		

Quality Control
(Continued)

Pesticides (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0884 - EPA 3546 (Continued)										
LCS Dup (B9D0884-BSD1)					Prepared & Analyzed: 04/23/19					
alpha-BHC	15.3		1.67	ug/kg	13.3		115	50-132	3.71	20
gamma-BHC (Lindane)	15.4		1.67	ug/kg	13.3		115	54-128	3.24	20
beta-BHC	14.3		1.67	ug/kg	13.3		107	69-126	4.90	20
delta-BHC	14.5		1.67	ug/kg	13.3		109	40-126	4.93	20
Heptachlor	15.3		1.67	ug/kg	13.3		115	55-125	3.81	20
Aldrin	15.2		1.67	ug/kg	13.3		114	45-135	3.16	20
Heptachlor epoxide	15.3		1.67	ug/kg	13.3		115	54-127	3.09	20
gamma-Chlordane	14.7		1.67	ug/kg	13.3		110	55-124	4.23	20
alpha-Chlordane	14.4		1.67	ug/kg	13.3		108	54-126	7.01	20
4,4'-DDE	15.3		3.33	ug/kg	13.3		115	63-130	4.11	20
Endosulfan I	14.4		1.67	ug/kg	13.3		108	53-128	5.98	20
Dieldrin	15.4		1.67	ug/kg	13.3		116	57-124	4.11	20
Endrin	17.8		1.67	ug/kg	13.3		134	40-140	3.02	20
4,4'-DDD	15.3		3.33	ug/kg	13.3		115	74-140	1.75	20
Endosulfan II	15.3		1.67	ug/kg	13.3		115	45-125	2.50	20
Endrin aldehyde	16.8		1.67	ug/kg	13.3		126	40-140	9.44	20
4,4'-DDT	17.6		3.33	ug/kg	13.3		132	60-140	0.475	20
Methoxychlor	16.8		3.33	ug/kg	13.3		126	71-140	2.94	20
Endosulfan sulfate	14.8		1.67	ug/kg	13.3		111	43-131	0.112	20
Endrin Ketone	15.5		1.67	ug/kg	13.3		116	56-131	1.86	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*14.1*	ug/kg	*13.3*		*106*	*38-120*		
Surrogate: Decachlorobiphenyl (DCBP)			*14.9*	ug/kg	*13.3*		*112*	*32-120*		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0883 - EPA 3546										
Blank (B9D0883-BLK1)					Prepared & Analyzed: 04/23/19					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*10.9*	ug/kg	*13.3*		*81.8*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*11.7*	ug/kg	*13.3*		*87.4*	*43.3-118*		
LCS (B9D0883-BS1)					Prepared & Analyzed: 04/23/19					
Aroclor-1016	130		66	ug/kg	167		78.1	58.2-125		
Aroclor-1260	145		66	ug/kg	167		87.0	65.5-130		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*11.8*	ug/kg	*13.3*		*88.2*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*12.6*	ug/kg	*13.3*		*94.9*	*43.3-118*		
LCS Dup (B9D0883-BSD1)					Prepared & Analyzed: 04/23/19					
Aroclor-1016	132		66	ug/kg	167		78.9	58.2-125	1.01	20
Aroclor-1260	147		66	ug/kg	167		88.0	65.5-130	1.10	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*11.8*	ug/kg	*13.3*		*88.6*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*12.8*	ug/kg	*13.3*		*96.2*	*43.3-118*		

Quality Control
(Continued)

Herbicides

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0824 - EPA 8151A										
Blank (B9D0824-BLK1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Dalapon	ND		100	ug/kg						
Dicamba	ND		50	ug/kg						
Dichloroprop	ND		50	ug/kg						
2,4-D	ND		50	ug/kg						
2,4,5-TP (Silvex)	ND		50	ug/kg						
2,4,5-T	ND		50	ug/kg						
2,4-DB	ND		50	ug/kg						
Dinoseb	ND		100	ug/kg						
Surrogate: 2,4-Dichlorophenyl acetic acid			*238*	ug/kg	*250*		*95.1*	*41-145*		
LCS (B9D0824-BS1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Dalapon	210		100	ug/kg	250		83.9	40-140		
Dicamba	243		50	ug/kg	250		97.1	40-140		
Dichloroprop	240		50	ug/kg	250		96.1	40-140		
2,4-D	226		50	ug/kg	250		90.5	40-140		
2,4,5-TP (Silvex)	251		50	ug/kg	250		101	40-140		
2,4,5-T	223		50	ug/kg	250		89.0	40-140		
2,4-DB	246		50	ug/kg	250		98.4	40-140		
Dinoseb	171		100	ug/kg	250		68.5	40-140		
Surrogate: 2,4-Dichlorophenyl acetic acid			*270*	ug/kg	*250*		*108*	*41-145*		
LCS Dup (B9D0824-BSD1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Dalapon	221		100	ug/kg	250		88.3	40-140	5.19	20
Dicamba	235		50	ug/kg	250		94.1	40-140	3.11	20
Dichloroprop	238		50	ug/kg	250		95.2	40-140	1.00	20
2,4-D	217		50	ug/kg	250		86.8	40-140	4.20	20
2,4,5-TP (Silvex)	243		50	ug/kg	250		97.2	40-140	3.48	20
2,4,5-T	205		50	ug/kg	250		82.1	40-140	8.11	20
2,4-DB	246		50	ug/kg	250		98.2	40-140	0.144	20
Dinoseb	152		100	ug/kg	250		60.7	40-140	12.0	20
Surrogate: 2,4-Dichlorophenyl acetic acid			*269*	ug/kg	*250*		*108*	*41-145*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0830 - EPA 3546										
Blank (B9D0830-BLK1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*6.79*	mg/kg	*8.33*		*81.5*	*56.5-114*		
LCS (B9D0830-BS1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Total Petroleum Hydrocarbons	476		27	mg/kg	667		71.5	44.7-98.7		
Surrogate: Chlorooctadecane			*7.10*	mg/kg	*8.33*		*85.2*	*56.5-114*		
LCS Dup (B9D0830-BSD1)					Prepared: 04/22/19 Analyzed: 04/23/19					
Total Petroleum Hydrocarbons	480		27	mg/kg	667		72.0	44.7-98.7	0.794	200
Surrogate: Chlorooctadecane			*6.95*	mg/kg	*8.33*		*83.4*	*56.5-114*		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 D 1 9020 u

CHAIN OF CUSTODY RE

PROJ. NO. 53291 | PROJECT NAME/LOCATION: Henderson Bridge East Providence RI

CLIENT: SAGE

REPORT TO:

INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** TPH	VOC	PP13 Metals	PCBs	PAHs	Pesticides and Herbicides	REMARKS
4/16			X	SE 101 (MW) (5-10)		X		2	Non/meth	X	X	X	X	X		
				SE 102 (MW) (5-10)												
				SE 103 ~~(MW)~~ (10-15)												
				SE 104 (MW) (5-10)												
				SE 105 (MW) (5-10)												
				SE 106 (MW) (5-10)												
				SE 107 ~~(MW)~~ (0-3)											X	

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	4/16		4/19/19 1524
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	4/19/19 1600		
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time
			4/19/19 1600

Laboratory Remarks:
Temp. received: _____
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements: RI DEM R-DEC and GB-LC

Turnaround (Business Days) 5

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

Groundwater - Henderson Bridge Parcel

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9D24002
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 01-May-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 04/24/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9D24002. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9D24002-01	SE 101 (MW)	Water	04/23/2019	04/24/2019
9D24002-02	SE 102 (MW)	Water	04/23/2019	04/24/2019
9D24002-03	SE 104 (MW)	Water	04/23/2019	04/24/2019
9D24002-04	SE 105 (MW)	Water	04/23/2019	04/24/2019
9D24002-05	SE 106 (MW)	Water	04/23/2019	04/24/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE 101 (MW) (Lab Number: 9D24002-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE 102 (MW) (Lab Number: 9D24002-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE 104 (MW) (Lab Number: 9D24002-03)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE 105 (MW) (Lab Number: 9D24002-04)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE 106 (MW) (Lab Number: 9D24002-05)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'SE-101 (MW)' and 'SE-106(MW)' were reported with elevated detection limits due to the foaming nature of the samples.

Results: Volatile Organic Compounds

Sample: SE 101 (MW)

Lab Number: 9D24002-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	04/25/19	04/25/19
Benzene	ND		5	ug/l	04/25/19	04/25/19
Bromobenzene	ND		5	ug/l	04/25/19	04/25/19
Bromochloromethane	ND		5	ug/l	04/25/19	04/25/19
Bromodichloromethane	ND		5	ug/l	04/25/19	04/25/19
Bromoform	ND		5	ug/l	04/25/19	04/25/19
Bromomethane	ND		5	ug/l	04/25/19	04/25/19
2-Butanone	ND		25	ug/l	04/25/19	04/25/19
tert-Butyl alcohol	ND		25	ug/l	04/25/19	04/25/19
sec-Butylbenzene	ND		5	ug/l	04/25/19	04/25/19
n-Butylbenzene	ND		5	ug/l	04/25/19	04/25/19
tert-Butylbenzene	ND		5	ug/l	04/25/19	04/25/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	04/25/19	04/25/19
Carbon Disulfide	ND		5	ug/l	04/25/19	04/25/19
Carbon Tetrachloride	ND		5	ug/l	04/25/19	04/25/19
Chlorobenzene	ND		5	ug/l	04/25/19	04/25/19
Chloroethane	ND		5	ug/l	04/25/19	04/25/19
Chloroform	ND		5	ug/l	04/25/19	04/25/19
Chloromethane	ND		5	ug/l	04/25/19	04/25/19
4-Chlorotoluene	ND		5	ug/l	04/25/19	04/25/19
2-Chlorotoluene	ND		5	ug/l	04/25/19	04/25/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		5	ug/l	04/25/19	04/25/19
Dibromochloromethane	ND		5	ug/l	04/25/19	04/25/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	04/25/19	04/25/19
Dibromomethane	ND		5	ug/l	04/25/19	04/25/19
1,2-Dichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,3-Dichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,4-Dichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,1-Dichloroethane	ND		5	ug/l	04/25/19	04/25/19
1,2-Dichloroethane	ND		5	ug/l	04/25/19	04/25/19
trans-1,2-Dichloroethene	ND		5	ug/l	04/25/19	04/25/19
cis-1,2-Dichloroethene	ND		5	ug/l	04/25/19	04/25/19
1,1-Dichloroethene	ND		5	ug/l	04/25/19	04/25/19
1,2-Dichloropropane	ND		5	ug/l	04/25/19	04/25/19
2,2-Dichloropropane	ND		5	ug/l	04/25/19	04/25/19
cis-1,3-Dichloropropene	ND		5	ug/l	04/25/19	04/25/19
trans-1,3-Dichloropropene	ND		5	ug/l	04/25/19	04/25/19
1,1-Dichloropropene	ND		5	ug/l	04/25/19	04/25/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	04/25/19	04/25/19
Diethyl ether	ND		25	ug/l	04/25/19	04/25/19
1,4-Dioxane	ND		2500	ug/l	04/25/19	04/25/19
Ethylbenzene	ND		5	ug/l	04/25/19	04/25/19
Hexachlorobutadiene	ND		5	ug/l	04/25/19	04/25/19
2-Hexanone	ND		25	ug/l	04/25/19	04/25/19
Isopropylbenzene	ND		5	ug/l	04/25/19	04/25/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 101 (MW) (Continued)

Lab Number: 9D24002-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	04/25/19	04/25/19
Methylene Chloride	ND		5	ug/l	04/25/19	04/25/19
4-Methyl-2-pentanone	ND		25	ug/l	04/25/19	04/25/19
Naphthalene	ND		5	ug/l	04/25/19	04/25/19
n-Propylbenzene	ND		5	ug/l	04/25/19	04/25/19
Styrene	ND		5	ug/l	04/25/19	04/25/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	04/25/19	04/25/19
Tetrachloroethene	ND		5	ug/l	04/25/19	04/25/19
Tetrahydrofuran	ND		25	ug/l	04/25/19	04/25/19
Toluene	ND		5	ug/l	04/25/19	04/25/19
1,2,4-Trichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,2,3-Trichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,1,2-Trichloroethane	ND		5	ug/l	04/25/19	04/25/19
1,1,1-Trichloroethane	ND		5	ug/l	04/25/19	04/25/19
Trichloroethene	ND		5	ug/l	04/25/19	04/25/19
1,2,3-Trichloropropane	ND		5	ug/l	04/25/19	04/25/19
1,3,5-Trimethylbenzene	ND		5	ug/l	04/25/19	04/25/19
1,2,4-Trimethylbenzene	ND		5	ug/l	04/25/19	04/25/19
Vinyl Chloride	ND		5	ug/l	04/25/19	04/25/19
o-Xylene	ND		5	ug/l	04/25/19	04/25/19
m&p-Xylene	ND		10	ug/l	04/25/19	04/25/19
Total xylenes	ND		10	ug/l	04/25/19	04/25/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	04/25/19	04/25/19
tert-Amyl methyl ether	ND		5	ug/l	04/25/19	04/25/19
1,3-Dichloropropane	ND		5	ug/l	04/25/19	04/25/19
Ethyl tert-butyl ether	ND		5	ug/l	04/25/19	04/25/19
Diisopropyl ether	ND		5	ug/l	04/25/19	04/25/19
Trichlorofluoromethane	ND		5	ug/l	04/25/19	04/25/19
Dichlorodifluoromethane	ND		5	ug/l	04/25/19	04/25/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.5%*	*70-130*	04/25/19	04/25/19
1,2-Dichloroethane-d4	*105%*	*70-130*	04/25/19	04/25/19
Toluene-d8	*96.2%*	*70-130*	04/25/19	04/25/19

Results: Volatile Organic Compounds

Sample: SE 102 (MW)

Lab Number: 9D24002-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		15	ug/l	04/29/19	04/29/19
Benzene	ND		1	ug/l	04/29/19	04/29/19
Bromobenzene	ND		1	ug/l	04/29/19	04/29/19
Bromochloromethane	ND		1	ug/l	04/29/19	04/29/19
Bromodichloromethane	ND		1	ug/l	04/29/19	04/29/19
Bromoform	ND		1	ug/l	04/29/19	04/29/19
Bromomethane	ND		1	ug/l	04/29/19	04/29/19
2-Butanone	ND		5	ug/l	04/29/19	04/29/19
tert-Butyl alcohol	ND		5	ug/l	04/29/19	04/29/19
sec-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
n-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
tert-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/29/19	04/29/19
Carbon Disulfide	ND		1	ug/l	04/29/19	04/29/19
Carbon Tetrachloride	ND		1	ug/l	04/29/19	04/29/19
Chlorobenzene	ND		1	ug/l	04/29/19	04/29/19
Chloroethane	ND		1	ug/l	04/29/19	04/29/19
Chloroform	ND		1	ug/l	04/29/19	04/29/19
Chloromethane	ND		1	ug/l	04/29/19	04/29/19
4-Chlorotoluene	ND		1	ug/l	04/29/19	04/29/19
2-Chlorotoluene	ND		1	ug/l	04/29/19	04/29/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l	04/29/19	04/29/19
Dibromochloromethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dibromoethane (EDB)	ND		1	ug/l	04/29/19	04/29/19
Dibromomethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,4-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloroethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichloroethane	ND		1	ug/l	04/29/19	04/29/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
2,2-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/29/19	04/29/19
Diethyl ether	ND		5	ug/l	04/29/19	04/29/19
1,4-Dioxane	ND		500	ug/l	04/29/19	04/29/19
Ethylbenzene	ND		1	ug/l	04/29/19	04/29/19
Hexachlorobutadiene	ND		1	ug/l	04/29/19	04/29/19
2-Hexanone	ND		5	ug/l	04/29/19	04/29/19
Isopropylbenzene	ND		1	ug/l	04/29/19	04/29/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 102 (MW) (Continued)

Lab Number: 9D24002-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/29/19	04/29/19
Methylene Chloride	ND		1	ug/l	04/29/19	04/29/19
4-Methyl-2-pentanone	ND		5	ug/l	04/29/19	04/29/19
Naphthalene	ND		1	ug/l	04/29/19	04/29/19
n-Propylbenzene	ND		1	ug/l	04/29/19	04/29/19
Styrene	ND		1	ug/l	04/29/19	04/29/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/29/19	04/29/19
Tetrachloroethene	ND		1	ug/l	04/29/19	04/29/19
Tetrahydrofuran	ND		5	ug/l	04/29/19	04/29/19
Toluene	ND		1	ug/l	04/29/19	04/29/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,1,2-Trichloroethane	ND		1	ug/l	04/29/19	04/29/19
1,1,1-Trichloroethane	ND		1	ug/l	04/29/19	04/29/19
Trichloroethene	**2**		1	ug/l	04/29/19	04/29/19
1,2,3-Trichloropropane	ND		1	ug/l	04/29/19	04/29/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/29/19	04/29/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/29/19	04/29/19
Vinyl Chloride	ND		1	ug/l	04/29/19	04/29/19
o-Xylene	ND		1	ug/l	04/29/19	04/29/19
m&p-Xylene	ND		2	ug/l	04/29/19	04/29/19
Total xylenes	ND		2	ug/l	04/29/19	04/29/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/29/19	04/29/19
tert-Amyl methyl ether	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
Ethyl tert-butyl ether	ND		1	ug/l	04/29/19	04/29/19
Diisopropyl ether	ND		1	ug/l	04/29/19	04/29/19
Trichlorofluoromethane	ND		1	ug/l	04/29/19	04/29/19
Dichlorodifluoromethane	ND		1	ug/l	04/29/19	04/29/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	04/29/19	04/29/19
1,2-Dichloroethane-d4	*103%*	*70-130*	04/29/19	04/29/19
Toluene-d8	*101%*	*70-130*	04/29/19	04/29/19

Results: Volatile Organic Compounds

Sample: SE 104 (MW)

Lab Number: 9D24002-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		15	ug/l	04/29/19	04/29/19
Benzene	ND		1	ug/l	04/29/19	04/29/19
Bromobenzene	ND		1	ug/l	04/29/19	04/29/19
Bromochloromethane	ND		1	ug/l	04/29/19	04/29/19
Bromodichloromethane	ND		1	ug/l	04/29/19	04/29/19
Bromoform	ND		1	ug/l	04/29/19	04/29/19
Bromomethane	ND		1	ug/l	04/29/19	04/29/19
2-Butanone	ND		5	ug/l	04/29/19	04/29/19
tert-Butyl alcohol	ND		5	ug/l	04/29/19	04/29/19
sec-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
n-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
tert-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/29/19	04/29/19
Carbon Disulfide	ND		1	ug/l	04/29/19	04/29/19
Carbon Tetrachloride	ND		1	ug/l	04/29/19	04/29/19
Chlorobenzene	ND		1	ug/l	04/29/19	04/29/19
Chloroethane	ND		1	ug/l	04/29/19	04/29/19
Chloroform	ND		1	ug/l	04/29/19	04/29/19
Chloromethane	ND		1	ug/l	04/29/19	04/29/19
4-Chlorotoluene	ND		1	ug/l	04/29/19	04/29/19
2-Chlorotoluene	ND		1	ug/l	04/29/19	04/29/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l	04/29/19	04/29/19
Dibromochloromethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dibromoethane (EDB)	ND		1	ug/l	04/29/19	04/29/19
Dibromomethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,4-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloroethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichloroethane	ND		1	ug/l	04/29/19	04/29/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
2,2-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/29/19	04/29/19
Diethyl ether	ND		5	ug/l	04/29/19	04/29/19
1,4-Dioxane	ND		500	ug/l	04/29/19	04/29/19
Ethylbenzene	ND		1	ug/l	04/29/19	04/29/19
Hexachlorobutadiene	ND		1	ug/l	04/29/19	04/29/19
2-Hexanone	ND		5	ug/l	04/29/19	04/29/19
Isopropylbenzene	ND		1	ug/l	04/29/19	04/29/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 104 (MW) (Continued)

Lab Number: 9D24002-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/29/19	04/29/19
Methylene Chloride	ND		1	ug/l	04/29/19	04/29/19
4-Methyl-2-pentanone	ND		5	ug/l	04/29/19	04/29/19
Naphthalene	ND		1	ug/l	04/29/19	04/29/19
n-Propylbenzene	ND		1	ug/l	04/29/19	04/29/19
Styrene	ND		1	ug/l	04/29/19	04/29/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/29/19	04/29/19
Tetrachloroethene	ND		1	ug/l	04/29/19	04/29/19
Tetrahydrofuran	ND		5	ug/l	04/29/19	04/29/19
Toluene	ND		1	ug/l	04/29/19	04/29/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,1,2-Trichloroethane	ND		1	ug/l	04/29/19	04/29/19
1,1,1-Trichloroethane	ND		1	ug/l	04/29/19	04/29/19
Trichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,2,3-Trichloropropane	ND		1	ug/l	04/29/19	04/29/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/29/19	04/29/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/29/19	04/29/19
Vinyl Chloride	ND		1	ug/l	04/29/19	04/29/19
o-Xylene	ND		1	ug/l	04/29/19	04/29/19
m&p-Xylene	ND		2	ug/l	04/29/19	04/29/19
Total xylenes	ND		2	ug/l	04/29/19	04/29/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/29/19	04/29/19
tert-Amyl methyl ether	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
Ethyl tert-butyl ether	ND		1	ug/l	04/29/19	04/29/19
Diisopropyl ether	ND		1	ug/l	04/29/19	04/29/19
Trichlorofluoromethane	ND		1	ug/l	04/29/19	04/29/19
Dichlorodifluoromethane	ND		1	ug/l	04/29/19	04/29/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	04/29/19	04/29/19
1,2-Dichloroethane-d4	*105%*	*70-130*	04/29/19	04/29/19
Toluene-d8	*103%*	*70-130*	04/29/19	04/29/19

Results: Volatile Organic Compounds

Sample: SE 105 (MW)

Lab Number: 9D24002-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		15	ug/l	04/29/19	04/29/19
Benzene	ND		1	ug/l	04/29/19	04/29/19
Bromobenzene	ND		1	ug/l	04/29/19	04/29/19
Bromochloromethane	ND		1	ug/l	04/29/19	04/29/19
Bromodichloromethane	ND		1	ug/l	04/29/19	04/29/19
Bromoform	ND		1	ug/l	04/29/19	04/29/19
Bromomethane	ND		1	ug/l	04/29/19	04/29/19
2-Butanone	ND		5	ug/l	04/29/19	04/29/19
tert-Butyl alcohol	ND		5	ug/l	04/29/19	04/29/19
sec-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
n-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
tert-Butylbenzene	ND		1	ug/l	04/29/19	04/29/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/29/19	04/29/19
Carbon Disulfide	ND		1	ug/l	04/29/19	04/29/19
Carbon Tetrachloride	ND		1	ug/l	04/29/19	04/29/19
Chlorobenzene	ND		1	ug/l	04/29/19	04/29/19
Chloroethane	ND		1	ug/l	04/29/19	04/29/19
Chloroform	ND		1	ug/l	04/29/19	04/29/19
Chloromethane	ND		1	ug/l	04/29/19	04/29/19
4-Chlorotoluene	ND		1	ug/l	04/29/19	04/29/19
2-Chlorotoluene	ND		1	ug/l	04/29/19	04/29/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l	04/29/19	04/29/19
Dibromochloromethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dibromoethane (EDB)	ND		1	ug/l	04/29/19	04/29/19
Dibromomethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,4-Dichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloroethane	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichloroethane	ND		1	ug/l	04/29/19	04/29/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,2-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
2,2-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
1,1-Dichloropropene	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/29/19	04/29/19
Diethyl ether	ND		5	ug/l	04/29/19	04/29/19
1,4-Dioxane	ND		500	ug/l	04/29/19	04/29/19
Ethylbenzene	ND		1	ug/l	04/29/19	04/29/19
Hexachlorobutadiene	ND		1	ug/l	04/29/19	04/29/19
2-Hexanone	ND		5	ug/l	04/29/19	04/29/19
Isopropylbenzene	ND		1	ug/l	04/29/19	04/29/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 105 (MW) (Continued)

Lab Number: 9D24002-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/29/19	04/29/19
Methylene Chloride	ND		1	ug/l	04/29/19	04/29/19
4-Methyl-2-pentanone	ND		5	ug/l	04/29/19	04/29/19
Naphthalene	ND		1	ug/l	04/29/19	04/29/19
n-Propylbenzene	ND		1	ug/l	04/29/19	04/29/19
Styrene	ND		1	ug/l	04/29/19	04/29/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/29/19	04/29/19
Tetrachloroethene	ND		1	ug/l	04/29/19	04/29/19
Tetrahydrofuran	ND		5	ug/l	04/29/19	04/29/19
Toluene	ND		1	ug/l	04/29/19	04/29/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/29/19	04/29/19
1,1,2-Trichloroethane	ND		1	ug/l	04/29/19	04/29/19
1,1,1-Trichloroethane	ND		1	ug/l	04/29/19	04/29/19
Trichloroethene	ND		1	ug/l	04/29/19	04/29/19
1,2,3-Trichloropropane	ND		1	ug/l	04/29/19	04/29/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/29/19	04/29/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/29/19	04/29/19
Vinyl Chloride	ND		1	ug/l	04/29/19	04/29/19
o-Xylene	ND		1	ug/l	04/29/19	04/29/19
m&p-Xylene	ND		2	ug/l	04/29/19	04/29/19
Total xylenes	ND		2	ug/l	04/29/19	04/29/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/29/19	04/29/19
tert-Amyl methyl ether	ND		1	ug/l	04/29/19	04/29/19
1,3-Dichloropropane	ND		1	ug/l	04/29/19	04/29/19
Ethyl tert-butyl ether	ND		1	ug/l	04/29/19	04/29/19
Diisopropyl ether	ND		1	ug/l	04/29/19	04/29/19
Trichlorofluoromethane	ND		1	ug/l	04/29/19	04/29/19
Dichlorodifluoromethane	ND		1	ug/l	04/29/19	04/29/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*104%*	*70-130*	04/29/19	04/29/19
1,2-Dichloroethane-d4	*102%*	*70-130*	04/29/19	04/29/19
Toluene-d8	*101%*	*70-130*	04/29/19	04/29/19

Results: Volatile Organic Compounds

Sample: SE 106 (MW)

Lab Number: 9D24002-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	04/25/19	04/25/19
Benzene	ND		5	ug/l	04/25/19	04/25/19
Bromobenzene	ND		5	ug/l	04/25/19	04/25/19
Bromochloromethane	ND		5	ug/l	04/25/19	04/25/19
Bromodichloromethane	ND		5	ug/l	04/25/19	04/25/19
Bromoform	ND		5	ug/l	04/25/19	04/25/19
Bromomethane	ND		5	ug/l	04/25/19	04/25/19
2-Butanone	ND		25	ug/l	04/25/19	04/25/19
tert-Butyl alcohol	ND		25	ug/l	04/25/19	04/25/19
sec-Butylbenzene	ND		5	ug/l	04/25/19	04/25/19
n-Butylbenzene	ND		5	ug/l	04/25/19	04/25/19
tert-Butylbenzene	ND		5	ug/l	04/25/19	04/25/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	04/25/19	04/25/19
Carbon Disulfide	ND		5	ug/l	04/25/19	04/25/19
Carbon Tetrachloride	ND		5	ug/l	04/25/19	04/25/19
Chlorobenzene	ND		5	ug/l	04/25/19	04/25/19
Chloroethane	ND		5	ug/l	04/25/19	04/25/19
Chloroform	ND		5	ug/l	04/25/19	04/25/19
Chloromethane	ND		5	ug/l	04/25/19	04/25/19
4-Chlorotoluene	ND		5	ug/l	04/25/19	04/25/19
2-Chlorotoluene	ND		5	ug/l	04/25/19	04/25/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		5	ug/l	04/25/19	04/25/19
Dibromochloromethane	ND		5	ug/l	04/25/19	04/25/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	04/25/19	04/25/19
Dibromomethane	ND		5	ug/l	04/25/19	04/25/19
1,2-Dichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,3-Dichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,4-Dichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,1-Dichloroethane	ND		5	ug/l	04/25/19	04/25/19
1,2-Dichloroethane	ND		5	ug/l	04/25/19	04/25/19
trans-1,2-Dichloroethene	ND		5	ug/l	04/25/19	04/25/19
cis-1,2-Dichloroethene	ND		5	ug/l	04/25/19	04/25/19
1,1-Dichloroethene	ND		5	ug/l	04/25/19	04/25/19
1,2-Dichloropropane	ND		5	ug/l	04/25/19	04/25/19
2,2-Dichloropropane	ND		5	ug/l	04/25/19	04/25/19
cis-1,3-Dichloropropene	ND		5	ug/l	04/25/19	04/25/19
trans-1,3-Dichloropropene	ND		5	ug/l	04/25/19	04/25/19
1,1-Dichloropropene	ND		5	ug/l	04/25/19	04/25/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	04/25/19	04/25/19
Diethyl ether	ND		25	ug/l	04/25/19	04/25/19
1,4-Dioxane	ND		2500	ug/l	04/25/19	04/25/19
Ethylbenzene	ND		5	ug/l	04/25/19	04/25/19
Hexachlorobutadiene	ND		5	ug/l	04/25/19	04/25/19
2-Hexanone	ND		25	ug/l	04/25/19	04/25/19
Isopropylbenzene	ND		5	ug/l	04/25/19	04/25/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 106 (MW) (Continued)

Lab Number: 9D24002-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	04/25/19	04/25/19
Methylene Chloride	ND		5	ug/l	04/25/19	04/25/19
4-Methyl-2-pentanone	ND		25	ug/l	04/25/19	04/25/19
Naphthalene	ND		5	ug/l	04/25/19	04/25/19
n-Propylbenzene	ND		5	ug/l	04/25/19	04/25/19
Styrene	ND		5	ug/l	04/25/19	04/25/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	04/25/19	04/25/19
Tetrachloroethene	ND		5	ug/l	04/25/19	04/25/19
Tetrahydrofuran	ND		25	ug/l	04/25/19	04/25/19
Toluene	ND		5	ug/l	04/25/19	04/25/19
1,2,4-Trichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,2,3-Trichlorobenzene	ND		5	ug/l	04/25/19	04/25/19
1,1,2-Trichloroethane	ND		5	ug/l	04/25/19	04/25/19
1,1,1-Trichloroethane	ND		5	ug/l	04/25/19	04/25/19
Trichloroethene	ND		5	ug/l	04/25/19	04/25/19
1,2,3-Trichloropropane	ND		5	ug/l	04/25/19	04/25/19
1,3,5-Trimethylbenzene	ND		5	ug/l	04/25/19	04/25/19
1,2,4-Trimethylbenzene	ND		5	ug/l	04/25/19	04/25/19
Vinyl Chloride	ND		5	ug/l	04/25/19	04/25/19
o-Xylene	ND		5	ug/l	04/25/19	04/25/19
m&p-Xylene	ND		10	ug/l	04/25/19	04/25/19
Total xylenes	ND		10	ug/l	04/25/19	04/25/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	04/25/19	04/25/19
tert-Amyl methyl ether	ND		5	ug/l	04/25/19	04/25/19
1,3-Dichloropropane	ND		5	ug/l	04/25/19	04/25/19
Ethyl tert-butyl ether	ND		5	ug/l	04/25/19	04/25/19
Diisopropyl ether	ND		5	ug/l	04/25/19	04/25/19
Trichlorofluoromethane	ND		5	ug/l	04/25/19	04/25/19
Dichlorodifluoromethane	ND		5	ug/l	04/25/19	04/25/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*92.1%*	*70-130*	04/25/19	04/25/19
1,2-Dichloroethane-d4	*98.6%*	*70-130*	04/25/19	04/25/19
Toluene-d8	*96.7%*	*70-130*	04/25/19	04/25/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0994 - Purge-Trap										
Blank (B9D0994-BLK1)					Prepared & Analyzed: 04/25/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0994 - Purge-Trap (Continued)										
Blank (B9D0994-BLK1)					Prepared & Analyzed: 04/25/19					
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*47.4*	ug/l	*50.0*		*94.7*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.3*	ug/l	*50.0*		*107*	*70-130*		
Surrogate: Toluene-d8			*46.0*	ug/l	*50.0*		*92.1*	*70-130*		
LCS (B9D0994-BS1)					Prepared & Analyzed: 04/25/19					
Acetone	47			ug/l	50.0		94.5	70-130		
Benzene	48			ug/l	50.0		96.3	70-130		
Bromobenzene	47			ug/l	50.0		94.3	70-130		
Bromochloromethane	48			ug/l	50.0		95.1	70-130		
Bromodichloromethane	45			ug/l	50.0		89.0	70-130		
Bromoform	46			ug/l	50.0		93.0	70-130		
Bromomethane	22			ug/l	50.0		44.8	70-130		
2-Butanone	47			ug/l	50.0		94.6	70-130		
tert-Butyl alcohol	41			ug/l	50.0		82.4	70-130		
sec-Butylbenzene	51			ug/l	50.0		103	70-130		
n-Butylbenzene	54			ug/l	50.0		107	70-130		
tert Butylbenzene	51			ug/l	50.0		102	70-130		
Methyl t-butyl ether (MTBE)	45			ug/l	50.0		90.2	70-130		
Carbon Disulfide	42			ug/l	50.0		84.6	70-130		
Carbon Tetrachloride	48			ug/l	50.0		95.6	70-130		
Chlorobenzene	48			ug/l	50.0		95.8	70-130		
Chloroethane	46			ug/l	50.0		92.4	70-130		
Chloroform	45			ug/l	50.0		90.7	70-130		
Chloromethane	43			ug/l	50.0		86.9	70-130		
4-Chlorotoluene	50			ug/l	50.0		100	70-130		
2-Chlorotoluene	50			ug/l	50.0		100	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	47			ug/l	50.0		93.2	70-130		
Dibromochloromethane	46			ug/l	50.0		91.6	70-130		
1,2-Dibromoethane (EDB)	46			ug/l	50.0		91.3	70-130		
Dibromomethane	46			ug/l	50.0		92.3	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		96.6	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0994 - Purge-Trap (Continued)										
LCS (B9D0994-BS1)					Prepared & Analyzed: 04/25/19					
1,3-Dichlorobenzene	48			ug/l	50.0		95.8	70-130		
1,4-Dichlorobenzene	48			ug/l	50.0		95.5	70-130		
1,1-Dichloroethane	46			ug/l	50.0		92.1	70-130		
1,2-Dichloroethane	44			ug/l	50.0		87.8	70-130		
trans-1,2-Dichloroethene	48			ug/l	50.0		95.8	70-130		
cis-1,2-Dichloroethene	45			ug/l	50.0		90.9	70-130		
1,1-Dichloroethene	44			ug/l	50.0		88.6	70-130		
1,2-Dichloropropane	48			ug/l	50.0		97.0	70-130		
2,2-Dichloropropane	48			ug/l	50.0		96.3	70-130		
cis-1,3-Dichloropropene	48			ug/l	50.0		96.7	70-130		
trans-1,3-Dichloropropene	48			ug/l	50.0		95.0	70-130		
1,1-Dichloropropene	49			ug/l	50.0		98.2	70-130		
Diethyl ether	45			ug/l	50.0		91.0	70-130		
1,4-Dioxane	179			ug/l	250		71.4	70-130		
Ethylbenzene	50			ug/l	50.0		99.9	70-130		
Hexachlorobutadiene	49			ug/l	50.0		98.2	70-130		
2-Hexanone	47			ug/l	50.0		93.9	70-130		
Isopropylbenzene	52			ug/l	50.0		103	70-130		
p-Isopropyltoluene	51			ug/l	50.0		101	70-130		
Methylene Chloride	47			ug/l	50.0		93.5	70-130		
4-Methyl-2-pentanone	46			ug/l	50.0		91.9	70-130		
Naphthalene	50			ug/l	50.0		99.1	70-130		
n-Propylbenzene	51			ug/l	50.0		102	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	49			ug/l	50.0		98.1	70-130		
Tetrachloroethene	47			ug/l	50.0		94.8	70-130		
Tetrahydrofuran	46			ug/l	50.0		92.3	70-130		
Toluene	49			ug/l	50.0		98.7	70-130		
1,2,4-Trichlorobenzene	50			ug/l	50.0		99.7	70-130		
1,2,3-Trichlorobenzene	48			ug/l	50.0		96.7	70-130		
1,1,2-Trichloroethane	46			ug/l	50.0		91.5	70-130		
1,1,1-Trichloroethane	45			ug/l	50.0		90.3	70-130		
Trichloroethene	42			ug/l	50.0		84.9	70-130		
1,2,3-Trichloropropane	47			ug/l	50.0		94.7	70-130		
1,3,5-Trimethylbenzene	50			ug/l	50.0		100	70-130		
1,2,4-Trimethylbenzene	51			ug/l	50.0		101	70-130		
Vinyl Chloride	41			ug/l	50.0		82.4	70-130		
o-Xylene	51			ug/l	50.0		103	70-130		
m&p-Xylene	101			ug/l	100		101	70-130		
1,1,2,2-Tetrachloroethane	51			ug/l	50.0		102	70-130		
tert-Amyl methyl ether	48			ug/l	50.0		95.5	70-130		
1,3-Dichloropropane	48			ug/l	50.0		95.6	70-130		
Ethyl tert-butyl ether	47			ug/l	50.0		93.2	70-130		
Diisopropyl ether	49			ug/l	50.0		98.5	70-130		
Trichlorofluoromethane	43			ug/l	50.0		85.7	70-130		
Dichlorodifluoromethane	29			ug/l	50.0		57.1	70-130		
Surrogate: 4-Bromofluorobenzene			*49.0*	ug/l	*50.0*		*98.0*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*51.3*	ug/l	*50.0*		*103*	*70-130*		
Surrogate: Toluene-d8			*49.4*	ug/l	*50.0*		*98.8*	*70-130*		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D1127 - Purge-Trap										
Blank (B9D1127-BLK1)					Prepared & Analyzed: 04/29/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D1127 - Purge-Trap (Continued)										
Blank (B9D1127-BLK1)					Prepared & Analyzed: 04/29/19					
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*51.4*	ug/l	*50.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		
Surrogate: Toluene-d8			*49.7*	ug/l	*50.0*		*99.4*	*70-130*		
LCS (B9D1127-BS1)					Prepared & Analyzed: 04/29/19					
Acetone	60			ug/l	50.0		120	70-130		
Benzene	50			ug/l	50.0		100	70-130		
Bromobenzene	51			ug/l	50.0		102	70-130		
Bromochloromethane	49			ug/l	50.0		98.7	70-130		
Bromodichloromethane	54			ug/l	50.0		107	70-130		
Bromoform	54			ug/l	50.0		109	70-130		
Bromomethane	55			ug/l	50.0		110	70-130		
2-Butanone	55			ug/l	50.0		110	70-130		
tert-Butyl alcohol	53			ug/l	50.0		106	70-130		
sec-Butylbenzene	50			ug/l	50.0		101	70-130		
n-Butylbenzene	50			ug/l	50.0		99.9	70-130		
tert-Butylbenzene	51			ug/l	50.0		102	70-130		
Methyl t-butyl ether (MTBE)	52			ug/l	50.0		103	70-130		
Carbon Disulfide	50			ug/l	50.0		101	70-130		
Carbon Tetrachloride	53			ug/l	50.0		106	70-130		
Chlorobenzene	50			ug/l	50.0		100	70-130		
Chloroethane	48			ug/l	50.0		96.2	70-130		
Chloroform	50			ug/l	50.0		99.3	70-130		
Chloromethane	43			ug/l	50.0		85.4	70-130		
4-Chlorotoluene	51			ug/l	50.0		103	70-130		
2-Chlorotoluene	51			ug/l	50.0		102	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	54			ug/l	50.0		109	70-130		
Dibromochloromethane	54			ug/l	50.0		108	70-130		
1,2-Dibromoethane (EDB)	53			ug/l	50.0		106	70-130		
Dibromomethane	52			ug/l	50.0		104	70-130		
1,2-Dichlorobenzene	50			ug/l	50.0		101	70-130		
1,3-Dichlorobenzene	52			ug/l	50.0		104	70-130		
1,4-Dichlorobenzene	51			ug/l	50.0		102	70-130		
1,1-Dichloroethane	50			ug/l	50.0		101	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D1127 - Purge-Trap (Continued)										
LCS (B9D1127-BS1)					Prepared & Analyzed: 04/29/19					
1,2-Dichloroethane	53			ug/l	50.0		107	70-130		
trans-1,2-Dichloroethene	49			ug/l	50.0		98.2	70-130		
cis-1,2-Dichloroethene	51			ug/l	50.0		101	70-130		
1,1-Dichloroethene	47			ug/l	50.0		94.2	70-130		
1,2-Dichloropropane	51			ug/l	50.0		102	70-130		
2,2-Dichloropropane	43			ug/l	50.0		85.3	70-130		
cis-1,3-Dichloropropene	51			ug/l	50.0		102	70-130		
trans-1,3-Dichloropropene	52			ug/l	50.0		103	70-130		
1,1-Dichloropropene	50			ug/l	50.0		100	70-130		
Diethyl ether	52			ug/l	50.0		104	70-130		
1,4-Dioxane	389			ug/l	250		156	70-130		
Ethylbenzene	50			ug/l	50.0		99.7	70-130		
Hexachlorobutadiene	49			ug/l	50.0		98.0	70-130		
2-Hexanone	57			ug/l	50.0		114	70-130		
Isopropylbenzene	50			ug/l	50.0		101	70-130		
p-Isopropyltoluene	51			ug/l	50.0		102	70-130		
Methylene Chloride	51			ug/l	50.0		101	70-130		
4-Methyl-2-pentanone	54			ug/l	50.0		107	70-130		
Naphthalene	51			ug/l	50.0		103	70-130		
n-Propylbenzene	50			ug/l	50.0		101	70-130		
Styrene	52			ug/l	50.0		104	70-130		
1,1,1,2-Tetrachloroethane	53			ug/l	50.0		106	70-130		
Tetrachloroethene	51			ug/l	50.0		102	70-130		
Tetrahydrofuran	56			ug/l	50.0		113	70-130		
Toluene	50			ug/l	50.0		99.3	70-130		
1,2,4-Trichlorobenzene	50			ug/l	50.0		101	70-130		
1,2,3-Trichlorobenzene	51			ug/l	50.0		103	70-130		
1,1,2-Trichloroethane	51			ug/l	50.0		103	70-130		
1,1,1-Trichloroethane	52			ug/l	50.0		105	70-130		
Trichloroethene	54			ug/l	50.0		108	70-130		
1,2,3-Trichloropropane	52			ug/l	50.0		104	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		103	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	46			ug/l	50.0		92.7	70-130		
o-Xylene	51			ug/l	50.0		102	70-130		
m&p-Xylene	99			ug/l	100		99.3	70-130		
1,1,2,2-Tetrachloroethane	47			ug/l	50.0		94.3	70-130		
tert-Amyl methyl ether	52			ug/l	50.0		104	70-130		
1,3-Dichloropropane	52			ug/l	50.0		105	70-130		
Ethyl tert-butyl ether	52			ug/l	50.0		104	70-130		
Diisopropyl ether	48			ug/l	50.0		95.7	70-130		
Trichlorofluoromethane	53			ug/l	50.0		105	70-130		
Dichlorodifluoromethane	49			ug/l	50.0		97.1	70-130		
Surrogate: 4-Bromofluorobenzene			*51.3*	ug/l	*50.0*		*103*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.2*	ug/l	*50.0*		*96.4*	*70-130*		
Surrogate: Toluene-d8			*51.4*	ug/l	*50.0*		*103*	*70-130*		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 D 2 4002 G

CHAIN OF CUSTODY RECORD

PROJ. NO. 53291

PROJECT NAME/LOCATION: Henderson Bridge E Providence RT

CLIENT

REPORT TO:

INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOC	REMARKS
4/23	955		X	SE 101 (MW)	X			2	HCl	X	
	945			SE 102 (MW)							
	950			SE 104 (MW)							
	1040			SE 105 (MW)							
	1020			SE 106 (MW)							

	Date/Time		Date/Time		
Sampled by: (Signature)	4/23	Received by: (Signature)		Laboratory Remarks: 4	Special Instructions: List Specific Detection Limit Requirements: RIDEM GB Standards
Relinquished by: (Signature)	4/24 8:45	Received by: (Signature)	4-24-19 8:45	Temp. received:	
Relinquished by: (Signature)	4-24-19 1445	Received for Laboratory by: (Signature)	4/24/19 1445	Cooled ☐	Turnaround (Business Days) 5

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

B6

South Key parcels

Site Location

Legend

- Approximate Site Boundary
- SAGE Monitoring Well Locations
- SAGE Soil Boring Locations
- Previously Existing Well Locations
- Current Chevron Land (to be remediated)

Data Provided by RIGIS
Orthoimagery provided by nearmap

Site Plan

South Key
East Providence, Rhode Island

Date: 04/04/2019

Job #: S3291

Created By: SMBS/alm

Figure

SAGE ENVIRONMENTAL

Sample / Date / Analyte	Concentration (Groundwater) SE-101 (MW) 4/1/2019	SE-103 (MW) 4/1/2019	SE-105 (MW) 4/1/2019	SE-107 (MW) 4/1/2019	SE-108 (MW) 4/1/2019	SE-110 (MW) 4/1/2019	SE-112 (MW) 4/1/2019	SE-113 (MW) 4/1/2019	SE-115 (MW) 4/1/2019	RIDEM Method 1 Objective GB Groundwater	RIDEM GB Groundwater UCL
Volatile Organic Compounds by 8260C (ug/L):											
1,1-Dichloroethene	<5	<1	<1	<1	<10 [4]	<10 [4]	<1	<1	<1	7	23000

Sample / (Depth) / Date / Analyte	Concentration (Soil) SE-101 (MW) (10-15') 3/21/2019	SE-102 (10-15') 3/21/2019	SE-104 (0-5') 3/21/2019	SE-105 (0-5') 3/21/2019	SE-106 (5-10') 3/21/2019	SE-108 (MW) (5-10') 3/21/2019	SE-109 (0-5') 3/21/2019	SE-110 (5-10') 3/25/2019	SE-111 (5-10') 3/25/2019	SE-112 (0-5') 3/25/2019	SE-113 (MW) (5-10') 3/25/2019	SE-113 (10-14') 3/21/2019	SE-114 (5-10') 3/25/2019	SE-115 (MW) (5-10') 3/25/2019	RIDEM Method 1 Objective Direct Exposure (Residential)	Direct Exposure (Ind. / Comm.)	GB Leachability
Total Metals by 6010C (mg/kg):																	
Arsenic	12.4 [ab]	11.4 [ab]	123	194	119	19	185	3.79	5.42	9.74 [ab]	5.81	9.03 [ab]	5.21	11.1 [ab]	7	7	NE
Barium	48.8	57.7	5.06	16.5	8.29	20.0	97.8	191	28.7	48.7	23.1	60.6	114	24.1	5500	10000	NE
Cadmium	3.03	4.21	<0.31	0.72	<0.3	0.77	0.54	148	148	191	133	2.30	106	3.02	39	1000	NE
Chromium	86.1	719	0.82	6.07	129	5.65	7.02	8.3	14.8	15.8	11.1	210	7.93	22.9	390	10000	NE
Lead	53.0	66.3	2.11	7.26	2.99	11.1	12.1	2280 [ab]	12.1	37.7	14.8	97.9	6.92	24.1	150	500	NE
Total Metals by 7471B (mg/kg):																	
Mercury	0.358	<0.111	<0.07	<0.073	<0.068	<0.078	<0.08	0.113	<0.079	<0.074	<0.079	0.138	<0.078	<0.072	23	610	NE
Semivolatile Organic Compounds by 8270D (ug/kg):																	
2-Methylnaphthalene	<209	<210	<102	<103	<101	<142	<143	<154	<148	<139	<152	212	<142	<134	123000	10000000	NE
Acenaphthene	<209	<210	<102	<103	<101	<142	<143	184	<148	<139	<152	422	<142	<134	43000	10000000	NE
Acenaphthylene	<209	<210	<102	<103	<101	<142	<143	<154	<148	1560	<152	<152	<142	<134	23000	10000000	NE
Anthracene	<209	<210	<102	<103	<101	<142	<143	622	<148	1020	<152	1220	<142	<134	35000	10000000	NE
Benzo(a)anthracene	296	<210	<102	<103	<101	<142	<143	1010 *	<148	5000 *	<152	1940 *	<142	<134	900	7800	NE
Benzo(a)pyrene	683 *	<210	<102	<103	<101	<142	<143	993 [ab]	<148	5230 [ab]	<152	1610 [ab]	<142	<134	400	800	NE
Benzo(b)fluoranthene	332	<210	<102	<103	<101	170	<143	1170 *	<148	7110 *	<152	2020 *	<142	<134	900	7800	NE
Benzo(g,h,i)perylene	<209	<210	<102	<103	<101	<142	<143	618	<148	3750 *	<152	999 *	<142	<134	800	10000000	NE
Benzo(k)fluoranthene	<209	<210	<102	<103	<101	<142	<143	439	<148	2560 *	<152	703	<142	<134	900	78000	NE
Chrysene	286	<210	<102	<103	<101	<142	<143	1030 *	<148	5650 *	<152	1800 *	<142	<134	400	780000	NE
Dibenz(a,h)anthracene	<209	<210	<102	<103	<101	<142	<143	<154	<148	1170 [ab]	<152	292	<142	<134	400	800	NE
Dibenzofuran	<209	<210	<102	<103	<101	<142	<143	<154	<148	287	<152	466	<142	<134	NE	NE	NE
Fluoranthene	509	294	<102	173	<101	<142	245	2350	<148	14000	<152	3960	<142	<134	26000	10000000	NE
Fluorene	<209	<210	<102	<103	<101	<142	<143	251	<148	460	<152	629	<142	<134	28000	10000000	NE
Indeno(1,2,3-cd)pyrene	<209	<210	<102	<103	<101	<142	<143	722	<148	4230 *	<152	1170 *	<142	<134	900	7800	NE
Naphthalene	222	<210	<102	<103	<101	<142	<143	<154	<148	<139	<152	421	<142	<134	54000	10000000	NE
Phenanthrene	337	<210	<102	<103	<101	<142	150	1890	<148	6140	<152	7330	<142	<134	40000	10000000	NE
Pyrene	750	318	<102	<103	<101	221	229	1990	<148	10300	<152	3790	<142	<134	19000	10000000	NE
PCBs by 8082A (ug/kg):																	
Aroclor-1254	<109	<109	<65	125	<68	164	<72	<84	<76	<70	<78	<83	<74	<67	NE	NE	NE
Total PCB	<109	<109	<65	125	<68	164	<72	<84	<76	<70	<78	<83	<74	<67	10000	10000	10000
TPH by 8100M (mg/kg):																	
Total Petroleum Hydrocarbons	310	299	<27	<28	<27	220	42	272	<31	218	<32	224	<30	<27	500	2500	2500
Volatile Organic Compounds by 8260C (ug/kg):																	
Chlorobenzene	<55	<79	<25	<21	<23	<19	<37	<45	<22	<26	<30	61	<31	<31	210000	10000000	100000
1,2-Dichlorobenzene	<55	<79	<25	<21	<23	<19	<37	<45	<22	<26	<30	28	<31	<31	510000	10000000	NE
1,4-Dichlorobenzene	<55	<79	<25	<21	<23	<19	<37	<45	<22	<26	<30	39	<31	<31	27000	240000	NE
p-Isopropyltoluene	<55	<79	<25	<21	<23	<19	<37	50	<22	<26	<30	<21	<31	<31	NE	NE	NE

Soil - South Key Parcels

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9C27008
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 02-April-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 03/27/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9C27008. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9C27008-01	SE 101 (10-15) (MW)	Soil	03/21/2019	03/27/2019
9C27008-02	SE 102 (10-15)	Soil	03/21/2019	03/27/2019
9C27008-03	SE 105 (0-5)	Soil	03/21/2019	03/27/2019
9C27008-04	SE 113 (10-14)	Soil	03/21/2019	03/27/2019
9C27008-05	SE 106 (5-10)	Soil	03/21/2019	03/27/2019
9C27008-06	SE 108 (5-10) (MW)	Soil	03/21/2019	03/27/2019
9C27008-07	SE 109 (0-5)	Soil	03/21/2019	03/27/2019
9C27008-08	SE 110 (5-10) (MW)	Soil	03/25/2019	03/27/2019
9C27008-09	SE 111 (5-10)	Soil	03/25/2019	03/27/2019
9C27008-10	SE 112 (0-5)	Soil	03/25/2019	03/27/2019
9C27008-11	SE 113 (5-10) (MW)	Soil	03/25/2019	03/27/2019
9C27008-12	SE114 (5-10)	Soil	03/25/2019	03/27/2019
9C27008-13	SE 115 (5-10) (MW)	Soil	03/25/2019	03/27/2019
9C27008-14	SE 104 (0-5)	Soil	03/21/2019	03/27/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE 101 (10-15) (MW) (Lab Number: 9C27008-01)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 102 (10-15) (Lab Number: 9C27008-02)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 104 (0-5) (Lab Number: 9C27008-14)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 105 (0-5) (Lab Number: 9C27008-03)

Analysis	Method
Arsenic	EPA 6010C

Request for Analysis (continued)

SE 105 (0-5) (Lab Number: 9C27008-03) (continued)

Analysis	Method
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 106 (5-10) (Lab Number: 9C27008-05)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 108 (5-10) (MW) (Lab Number: 9C27008-06)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Request for Analysis (continued)

SE 109 (0-5) (Lab Number: 9C27008-07)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 110 (5-10) (MW) (Lab Number: 9C27008-08)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 111 (5-10) (Lab Number: 9C27008-09)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Request for Analysis (continued)

SE 112 (0-5) (Lab Number: 9C27008-10)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 113 (10-14) (Lab Number: 9C27008-04)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 113 (5-10) (MW) (Lab Number: 9C27008-11)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Request for Analysis (continued)

SE 115 (5-10) (MW) (Lab Number: 9C27008-13)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE114 (5-10) (Lab Number: 9C27008-12)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

PCBs

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

The sample "SE 101 (10-15)(MW)" was reported with a surrogate recovery limit that is outside of recovery limits due to sample matrix interfence.

Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

Results: Total Metals

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**12.4**		1.10	mg/kg	03/28/19	03/29/19
Barium	**48.8**		0.55	mg/kg	03/28/19	03/29/19
Cadmium	**3.03**		0.55	mg/kg	03/28/19	03/29/19
Chromium	**86.1**		0.55	mg/kg	03/28/19	03/29/19
Lead	**53.0**		0.55	mg/kg	03/28/19	03/29/19
Mercury	**0.358**		0.118	mg/kg	03/29/19	03/29/19
Selenium	ND		1.10	mg/kg	03/28/19	03/29/19
Silver	ND		0.55	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 102 (10-15)
Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**11.4**		0.97	mg/kg	03/28/19	03/29/19
Barium	**57.7**		0.48	mg/kg	03/28/19	03/29/19
Cadmium	**4.21**		0.48	mg/kg	03/28/19	03/29/19
Chromium	**71.9**		0.48	mg/kg	03/28/19	03/29/19
Lead	**66.3**		0.48	mg/kg	03/28/19	03/29/19
Mercury	ND		0.111	mg/kg	03/29/19	03/29/19
Selenium	ND		0.97	mg/kg	03/28/19	03/29/19
Silver	ND		0.48	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 105 (0-5)
Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.94**		0.65	mg/kg	03/28/19	03/29/19
Barium	**16.5**		0.33	mg/kg	03/28/19	03/29/19
Cadmium	**0.72**		0.33	mg/kg	03/28/19	03/29/19
Chromium	**6.07**		0.33	mg/kg	03/28/19	03/29/19
Lead	**7.26**		0.33	mg/kg	03/28/19	03/29/19
Mercury	ND		0.073	mg/kg	03/29/19	03/29/19
Selenium	ND		0.65	mg/kg	03/28/19	03/29/19
Silver	ND		0.33	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 113 (10-14)

Lab Number: 9C27008-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**9.03**		0.81	mg/kg	03/28/19	03/29/19
Barium	**60.6**		0.40	mg/kg	03/28/19	03/29/19
Cadmium	**2.30**		0.40	mg/kg	03/28/19	03/29/19
Chromium	**21.0**		0.40	mg/kg	03/28/19	03/29/19
Lead	**97.9**		0.40	mg/kg	03/28/19	03/29/19
Mercury	**0.138**		0.081	mg/kg	03/29/19	03/29/19
Selenium	ND		0.81	mg/kg	03/28/19	03/29/19
Silver	ND		0.40	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.19**		0.60	mg/kg	03/28/19	03/29/19
Barium	**8.29**		0.30	mg/kg	03/28/19	03/29/19
Cadmium	ND		0.30	mg/kg	03/28/19	03/29/19
Chromium	**1.20**		0.30	mg/kg	03/28/19	03/29/19
Lead	**2.99**		0.30	mg/kg	03/28/19	03/29/19
Mercury	ND		0.068	mg/kg	03/29/19	03/29/19
Selenium	ND		0.60	mg/kg	03/28/19	03/29/19
Silver	ND		0.30	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.17**		0.61	mg/kg	03/28/19	03/29/19
Barium	**20.0**		0.31	mg/kg	03/28/19	03/29/19
Cadmium	**0.77**		0.31	mg/kg	03/28/19	03/29/19
Chromium	**5.65**		0.31	mg/kg	03/28/19	03/29/19
Lead	**11.1**		0.31	mg/kg	03/28/19	03/29/19
Mercury	ND		0.078	mg/kg	03/29/19	03/29/19
Selenium	ND		0.61	mg/kg	03/28/19	03/29/19
Silver	ND		0.31	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 109 (0-5)
Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.85**		0.71	mg/kg	03/28/19	03/29/19
Barium	**17.8**		0.36	mg/kg	03/28/19	03/29/19
Cadmium	**0.54**		0.36	mg/kg	03/28/19	03/29/19
Chromium	**7.02**		0.36	mg/kg	03/28/19	03/29/19
Lead	**12.1**		0.36	mg/kg	03/28/19	03/29/19
Mercury	ND		0.080	mg/kg	03/29/19	03/29/19
Selenium	ND		0.71	mg/kg	03/28/19	03/29/19
Silver	ND		0.36	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 110 (5-10) (MW)

Lab Number: 9C27008-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**3.79**		0.74	mg/kg	03/28/19	03/29/19
Barium	**191**		0.37	mg/kg	03/28/19	03/29/19
Cadmium	**1.48**		0.37	mg/kg	03/28/19	03/29/19
Chromium	**13.3**		0.37	mg/kg	03/28/19	03/29/19
Lead	**2280**		0.37	mg/kg	03/28/19	03/29/19
Mercury	**0.113**		0.085	mg/kg	03/29/19	03/29/19
Selenium	ND		0.74	mg/kg	03/28/19	03/29/19
Silver	ND		0.37	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 111 (5-10)
Lab Number: 9C27008-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.42**		0.75	mg/kg	03/28/19	03/29/19
Barium	**28.7**		0.38	mg/kg	03/28/19	03/29/19
Cadmium	**1.48**		0.38	mg/kg	03/28/19	03/29/19
Chromium	**14.8**		0.38	mg/kg	03/28/19	03/29/19
Lead	**12.1**		0.38	mg/kg	03/28/19	03/29/19
Mercury	ND		0.079	mg/kg	03/29/19	03/29/19
Selenium	ND		0.75	mg/kg	03/28/19	03/29/19
Silver	ND		0.38	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 112 (0-5)

Lab Number: 9C27008-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**9.74**		0.65	mg/kg	03/28/19	03/29/19
Barium	**48.7**		0.32	mg/kg	03/28/19	03/29/19
Cadmium	**1.91**		0.32	mg/kg	03/28/19	03/29/19
Chromium	**15.8**		0.32	mg/kg	03/28/19	03/29/19
Lead	**37.7**		0.32	mg/kg	03/28/19	03/29/19
Mercury	ND		0.074	mg/kg	03/29/19	03/29/19
Selenium	ND		0.65	mg/kg	03/28/19	03/29/19
Silver	ND		0.32	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 113 (5-10) (MW)
Lab Number: 9C27008-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.81**		0.74	mg/kg	03/28/19	03/29/19
Barium	**23.1**		0.37	mg/kg	03/28/19	03/29/19
Cadmium	**1.33**		0.37	mg/kg	03/28/19	03/29/19
Chromium	**11.1**		0.37	mg/kg	03/28/19	03/29/19
Lead	**14.8**		0.37	mg/kg	03/28/19	03/29/19
Mercury	ND		0.079	mg/kg	03/29/19	03/29/19
Selenium	ND		0.74	mg/kg	03/28/19	03/29/19
Silver	ND		0.37	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE114 (5-10)

Lab Number: 9C27008-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.21**		0.63	mg/kg	03/28/19	03/29/19
Barium	**11.4**		0.32	mg/kg	03/28/19	03/29/19
Cadmium	**1.06**		0.32	mg/kg	03/28/19	03/29/19
Chromium	**7.93**		0.32	mg/kg	03/28/19	03/29/19
Lead	**6.92**		0.32	mg/kg	03/28/19	03/29/19
Mercury	ND		0.078	mg/kg	03/29/19	03/29/19
Selenium	ND		0.63	mg/kg	03/28/19	03/29/19
Silver	ND		0.32	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 115 (5-10) (MW)
Lab Number: 9C27008-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**11.1**		0.58	mg/kg	03/28/19	03/29/19
Barium	**24.1**		0.29	mg/kg	03/28/19	03/29/19
Cadmium	**3.02**		0.29	mg/kg	03/28/19	03/29/19
Chromium	**22.9**		0.29	mg/kg	03/28/19	03/29/19
Lead	**24.1**		0.29	mg/kg	03/28/19	03/29/19
Mercury	ND		0.072	mg/kg	03/29/19	03/29/19
Selenium	ND		0.58	mg/kg	03/28/19	03/29/19
Silver	ND		0.29	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.23**		0.61	mg/kg	03/28/19	03/29/19
Barium	**5.06**		0.31	mg/kg	03/28/19	03/29/19
Cadmium	ND		0.31	mg/kg	03/28/19	03/29/19
Chromium	**0.82**		0.31	mg/kg	03/28/19	03/29/19
Lead	**2.11**		0.31	mg/kg	03/28/19	03/29/19
Mercury	ND		0.070	mg/kg	03/29/19	03/29/19
Selenium	ND		0.61	mg/kg	03/28/19	03/29/19
Silver	ND		0.31	mg/kg	03/28/19	03/29/19

Results: Volatile Organic Compounds

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		276	ug/kg	03/29/19	03/30/19
Benzene	ND		55	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		55	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		55	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		55	ug/kg	03/29/19	03/30/19
Bromoform	ND		55	ug/kg	03/29/19	03/30/19
Bromomethane	ND		55	ug/kg	03/29/19	03/30/19
2-Butanone	ND		276	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		276	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		55	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		55	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		55	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		55	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		55	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		55	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		55	ug/kg	03/29/19	03/30/19
Chloroethane	ND		55	ug/kg	03/29/19	03/30/19
Chloroform	ND		55	ug/kg	03/29/19	03/30/19
Chloromethane	ND		55	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		55	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		55	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		55	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		55	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		55	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		55	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		55	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		55	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		55	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		55	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		55	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		55	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		55	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		55	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		55	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		55	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		55	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		55	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		111	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		276	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		27600	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		55	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		55	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		276	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		55	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 101 (10-15) (MW) (Continued)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		55	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		55	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		276	ug/kg	03/29/19	03/30/19
Naphthalene	ND		55	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		55	ug/kg	03/29/19	03/30/19
Styrene	ND		55	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		55	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		55	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		276	ug/kg	03/29/19	03/30/19
Toluene	ND		55	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		55	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		55	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		55	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		55	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		55	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		55	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		55	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		55	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		55	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		111	ug/kg	03/29/19	03/30/19
Total xylenes	ND		111	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		55	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		55	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		55	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		55	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		55	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		55	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		55	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.8%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*102%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*98.6%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		396	ug/kg	03/29/19	03/30/19
Benzene	ND		79	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		79	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		79	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		79	ug/kg	03/29/19	03/30/19
Bromoform	ND		79	ug/kg	03/29/19	03/30/19
Bromomethane	ND		79	ug/kg	03/29/19	03/30/19
2-Butanone	ND		396	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		396	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		79	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		79	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		79	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		79	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		79	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		79	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		79	ug/kg	03/29/19	03/30/19
Chloroethane	ND		79	ug/kg	03/29/19	03/30/19
Chloroform	ND		79	ug/kg	03/29/19	03/30/19
Chloromethane	ND		79	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		79	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		79	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		79	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		79	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		79	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		79	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		79	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		79	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		79	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		79	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		79	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		79	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		79	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		79	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		79	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		79	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		79	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		79	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		158	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		396	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		39600	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		79	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		79	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		396	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		79	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 102 (10-15) (Continued)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		79	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		79	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		396	ug/kg	03/29/19	03/30/19
Naphthalene	ND		79	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		79	ug/kg	03/29/19	03/30/19
Styrene	ND		79	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		79	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		79	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		396	ug/kg	03/29/19	03/30/19
Toluene	ND		79	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		79	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		79	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		79	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		79	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		79	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		79	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		79	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		79	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		79	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		158	ug/kg	03/29/19	03/30/19
Total xylenes	ND		158	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		79	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		79	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		79	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		79	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		79	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		79	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		79	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*100%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*98.2%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.2%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		104	ug/kg	03/29/19	03/30/19
Benzene	ND		21	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		21	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		21	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		21	ug/kg	03/29/19	03/30/19
Bromoform	ND		21	ug/kg	03/29/19	03/30/19
Bromomethane	ND		21	ug/kg	03/29/19	03/30/19
2-Butanone	ND		104	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		104	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		21	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		21	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		21	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		21	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		21	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
Chloroethane	ND		21	ug/kg	03/29/19	03/30/19
Chloroform	ND		21	ug/kg	03/29/19	03/30/19
Chloromethane	ND		21	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		21	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		21	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		21	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		21	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		21	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		21	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		21	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		21	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		21	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		21	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		42	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		104	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		10400	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		21	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		104	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		21	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 105 (0-5) (Continued)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		21	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		21	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		104	ug/kg	03/29/19	03/30/19
Naphthalene	ND		21	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Styrene	ND		21	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		21	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		21	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		104	ug/kg	03/29/19	03/30/19
Toluene	ND		21	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		21	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		21	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		21	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		21	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		21	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		21	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		42	ug/kg	03/29/19	03/30/19
Total xylenes	ND		42	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		21	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		21	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		21	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		21	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		21	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		21	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		21	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.0%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*95.8%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.2%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 113 (10-14)

Lab Number: 9C27008-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		104	ug/kg	03/29/19	03/30/19
Benzene	ND		21	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		21	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		21	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		21	ug/kg	03/29/19	03/30/19
Bromoform	ND		21	ug/kg	03/29/19	03/30/19
Bromomethane	ND		21	ug/kg	03/29/19	03/30/19
2-Butanone	ND		104	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		104	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		21	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		21	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		21	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		21	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		21	ug/kg	03/29/19	03/30/19
Chlorobenzene	**61**		21	ug/kg	03/29/19	03/30/19
Chloroethane	ND		21	ug/kg	03/29/19	03/30/19
Chloroform	ND		21	ug/kg	03/29/19	03/30/19
Chloromethane	ND		21	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		21	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		21	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	**28**		21	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	**39**		21	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		21	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		21	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		21	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		21	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		21	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		21	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		21	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		21	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		21	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		42	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		104	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		10400	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		21	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		104	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		21	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 113 (10-14) (Continued)

Lab Number: 9C27008-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		21	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		21	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		104	ug/kg	03/29/19	03/30/19
Naphthalene	ND		21	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Styrene	ND		21	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		21	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		21	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		104	ug/kg	03/29/19	03/30/19
Toluene	ND		21	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		21	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		21	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		21	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		21	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		21	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		21	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		21	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		21	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		42	ug/kg	03/29/19	03/30/19
Total xylenes	ND		42	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		21	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		21	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		21	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		21	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		21	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		21	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		21	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*95.2%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.5%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		115	ug/kg	03/29/19	03/30/19
Benzene	ND		23	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		23	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		23	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		23	ug/kg	03/29/19	03/30/19
Bromoform	ND		23	ug/kg	03/29/19	03/30/19
Bromomethane	ND		23	ug/kg	03/29/19	03/30/19
2-Butanone	ND		115	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		115	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		23	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		23	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		23	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		23	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		23	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		23	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		23	ug/kg	03/29/19	03/30/19
Chloroethane	ND		23	ug/kg	03/29/19	03/30/19
Chloroform	ND		23	ug/kg	03/29/19	03/30/19
Chloromethane	ND		23	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		23	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		23	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		23	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		23	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		23	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		23	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		23	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		23	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		23	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		23	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		23	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		23	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		23	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		23	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		23	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		23	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		23	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		23	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		46	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		115	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		11500	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		23	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		23	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		115	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		23	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 106 (5-10) (Continued)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		23	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		23	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		115	ug/kg	03/29/19	03/30/19
Naphthalene	ND		23	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		23	ug/kg	03/29/19	03/30/19
Styrene	ND		23	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		23	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		23	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		115	ug/kg	03/29/19	03/30/19
Toluene	ND		23	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		23	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		23	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		23	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		23	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		23	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		23	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		23	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		23	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		23	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		46	ug/kg	03/29/19	03/30/19
Total xylenes	ND		46	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		23	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		23	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		23	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		23	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		23	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		23	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		23	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*101%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.5%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 108 (5-10) (MW)
Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		95	ug/kg	03/29/19	03/30/19
Benzene	ND		19	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		19	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		19	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		19	ug/kg	03/29/19	03/30/19
Bromoform	ND		19	ug/kg	03/29/19	03/30/19
Bromomethane	ND		19	ug/kg	03/29/19	03/30/19
2-Butanone	ND		95	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		95	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		19	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		19	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		19	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		19	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		19	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		19	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		19	ug/kg	03/29/19	03/30/19
Chloroethane	ND		19	ug/kg	03/29/19	03/30/19
Chloroform	ND		19	ug/kg	03/29/19	03/30/19
Chloromethane	ND		19	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		19	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		19	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		19	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		19	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		19	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		19	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		19	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		19	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		19	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		19	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		19	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		19	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		19	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		19	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		19	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		19	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		19	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		19	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		38	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		95	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		9550	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		19	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		19	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		95	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		19	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 108 (5-10) (MW) (Continued)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		19	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		19	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		95	ug/kg	03/29/19	03/30/19
Naphthalene	ND		19	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		19	ug/kg	03/29/19	03/30/19
Styrene	ND		19	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		19	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		19	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		95	ug/kg	03/29/19	03/30/19
Toluene	ND		19	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		19	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		19	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		19	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		19	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		19	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		19	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		19	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		19	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND		19	ug/kg	03/29/19	03/30/19
o-Xylene	ND		19	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		38	ug/kg	03/29/19	03/30/19
Total xylenes	ND		38	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		19	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		19	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		19	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		19	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		19	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		19	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		19	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*95.5%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.1%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 109 (0-5)
Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		186	ug/kg	03/29/19	03/30/19
Benzene	ND		37	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		37	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		37	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		37	ug/kg	03/29/19	03/30/19
Bromoform	ND		37	ug/kg	03/29/19	03/30/19
Bromomethane	ND		37	ug/kg	03/29/19	03/30/19
2-Butanone	ND		186	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		186	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		37	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		37	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		37	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		37	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		37	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		37	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		37	ug/kg	03/29/19	03/30/19
Chloroethane	ND		37	ug/kg	03/29/19	03/30/19
Chloroform	ND		37	ug/kg	03/29/19	03/30/19
Chloromethane	ND		37	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		37	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		37	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		37	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		37	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		37	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		37	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		37	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		37	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		37	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		37	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		37	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		37	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		37	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		37	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		37	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		37	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		37	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		37	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		74	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		186	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		18600	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		37	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		37	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		186	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		37	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 109 (0-5) (Continued)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		37	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		37	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		186	ug/kg	03/29/19	03/30/19
Naphthalene	ND		37	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		37	ug/kg	03/29/19	03/30/19
Styrene	ND		37	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		37	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		37	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		186	ug/kg	03/29/19	03/30/19
Toluene	ND		37	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		37	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		37	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		37	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		37	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		37	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		37	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		37	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		37	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		37	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		74	ug/kg	03/29/19	03/30/19
Total xylenes	ND		74	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		37	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		37	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		37	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		37	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		37	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		37	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		37	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*96.5%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*98.3%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 110 (5-10) (MW)
Lab Number: 9C27008-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		223	ug/kg	03/29/19	03/30/19
Benzene	ND		45	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		45	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		45	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		45	ug/kg	03/29/19	03/30/19
Bromoform	ND		45	ug/kg	03/29/19	03/30/19
Bromomethane	ND		45	ug/kg	03/29/19	03/30/19
2-Butanone	ND		223	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		223	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		45	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		45	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		45	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		45	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		45	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		45	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		45	ug/kg	03/29/19	03/30/19
Chloroethane	ND		45	ug/kg	03/29/19	03/30/19
Chloroform	ND		45	ug/kg	03/29/19	03/30/19
Chloromethane	ND		45	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		45	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		45	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		45	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		45	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		45	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		45	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		45	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		45	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		45	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		45	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		45	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		45	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		45	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		45	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		45	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		45	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		45	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		45	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		89	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		223	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		22300	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		45	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		45	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		223	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		45	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 110 (5-10) (MW) (Continued)

Lab Number: 9C27008-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**50**		45	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		45	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		223	ug/kg	03/29/19	03/30/19
Naphthalene	ND		45	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		45	ug/kg	03/29/19	03/30/19
Styrene	ND		45	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		45	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		45	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		223	ug/kg	03/29/19	03/30/19
Toluene	ND		45	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		45	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		45	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		45	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		45	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		45	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		45	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		45	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		45	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		45	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		89	ug/kg	03/29/19	03/30/19
Total xylenes	ND		89	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		45	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		45	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		45	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		45	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		45	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		45	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		45	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*96.2%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.2%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 111 (5-10)
Lab Number: 9C27008-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		108	ug/kg	03/29/19	03/30/19
Benzene	ND		22	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		22	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		22	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		22	ug/kg	03/29/19	03/30/19
Bromoform	ND		22	ug/kg	03/29/19	03/30/19
Bromomethane	ND		22	ug/kg	03/29/19	03/30/19
2-Butanone	ND		108	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		108	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		22	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		22	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		22	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		22	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		22	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		22	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		22	ug/kg	03/29/19	03/30/19
Chloroethane	ND		22	ug/kg	03/29/19	03/30/19
Chloroform	ND		22	ug/kg	03/29/19	03/30/19
Chloromethane	ND		22	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		22	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		22	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		22	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		22	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		22	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		22	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		22	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		22	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		22	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		22	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		22	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		22	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		22	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		22	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		22	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		22	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		22	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		22	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		43	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		108	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		10800	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		22	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		22	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		108	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		22	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 111 (5-10) (Continued)

Lab Number: 9C27008-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		22	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		22	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		108	ug/kg	03/29/19	03/30/19
Naphthalene	ND		22	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		22	ug/kg	03/29/19	03/30/19
Styrene	ND		22	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		22	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		22	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		108	ug/kg	03/29/19	03/30/19
Toluene	ND		22	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		22	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		22	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		22	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		22	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		22	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		22	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		22	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		22	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		22	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		43	ug/kg	03/29/19	03/30/19
Total xylenes	ND		43	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		22	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		22	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		22	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		22	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		22	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		22	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		22	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*93.9%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*98.9%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 112 (0-5)

Lab Number: 9C27008-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		132	ug/kg	03/29/19	03/30/19
Benzene	ND		26	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		26	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		26	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		26	ug/kg	03/29/19	03/30/19
Bromoform	ND		26	ug/kg	03/29/19	03/30/19
Bromomethane	ND		26	ug/kg	03/29/19	03/30/19
2-Butanone	ND		132	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		132	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		26	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		26	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		26	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		26	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		26	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
Chloroethane	ND		26	ug/kg	03/29/19	03/30/19
Chloroform	ND		26	ug/kg	03/29/19	03/30/19
Chloromethane	ND		26	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		26	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		26	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		26	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		26	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		26	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		26	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		26	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		26	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		26	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		26	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		53	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		132	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		13200	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		26	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		132	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		26	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 112 (0-5) (Continued)

Lab Number: 9C27008-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		26	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		26	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		132	ug/kg	03/29/19	03/30/19
Naphthalene	ND		26	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Styrene	ND		26	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		26	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		26	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		132	ug/kg	03/29/19	03/30/19
Toluene	ND		26	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		26	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		26	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		26	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		26	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		26	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		26	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		53	ug/kg	03/29/19	03/30/19
Total xylenes	ND		53	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		26	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		26	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		26	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		26	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		26	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		26	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		26	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*97.9%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.1%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 113 (5-10) (MW)

Lab Number: 9C27008-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		150	ug/kg	03/29/19	03/30/19
Benzene	ND		30	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		30	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		30	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		30	ug/kg	03/29/19	03/30/19
Bromoform	ND		30	ug/kg	03/29/19	03/30/19
Bromomethane	ND		30	ug/kg	03/29/19	03/30/19
2-Butanone	ND		150	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		150	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		30	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		30	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		30	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		30	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		30	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		30	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		30	ug/kg	03/29/19	03/30/19
Chloroethane	ND		30	ug/kg	03/29/19	03/30/19
Chloroform	ND		30	ug/kg	03/29/19	03/30/19
Chloromethane	ND		30	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		30	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		30	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		30	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		30	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		30	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		30	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		30	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		30	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		30	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		30	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		30	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		30	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		30	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		30	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		30	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		30	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		30	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		30	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		60	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		150	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		15000	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		30	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		30	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		150	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		30	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 113 (5-10) (MW) (Continued)

Lab Number: 9C27008-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		30	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		30	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		150	ug/kg	03/29/19	03/30/19
Naphthalene	ND		30	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		30	ug/kg	03/29/19	03/30/19
Styrene	ND		30	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		30	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		30	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		150	ug/kg	03/29/19	03/30/19
Toluene	ND		30	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		30	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		30	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		30	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		30	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		30	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		30	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		30	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		30	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		30	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		60	ug/kg	03/29/19	03/30/19
Total xylenes	ND		60	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		30	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		30	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		30	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		30	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		30	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		30	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		30	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.8%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*99.1%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.6%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE114 (5-10)
Lab Number: 9C27008-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		156	ug/kg	03/29/19	03/30/19
Benzene	ND		31	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		31	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		31	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		31	ug/kg	03/29/19	03/30/19
Bromoform	ND		31	ug/kg	03/29/19	03/30/19
Bromomethane	ND		31	ug/kg	03/29/19	03/30/19
2-Butanone	ND		156	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		156	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		31	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		31	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		31	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		31	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		31	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
Chloroethane	ND		31	ug/kg	03/29/19	03/30/19
Chloroform	ND		31	ug/kg	03/29/19	03/30/19
Chloromethane	ND		31	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		31	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		31	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		31	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		31	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		31	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		31	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		31	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		31	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		31	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		31	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		62	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		156	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		15600	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		31	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		156	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		31	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE114 (5-10) (Continued)

Lab Number: 9C27008-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		31	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		31	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		156	ug/kg	03/29/19	03/30/19
Naphthalene	ND		31	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Styrene	ND		31	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		31	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		31	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		156	ug/kg	03/29/19	03/30/19
Toluene	ND		31	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		31	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		31	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		31	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		31	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		31	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		31	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		62	ug/kg	03/29/19	03/30/19
Total xylenes	ND		62	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		31	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		31	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		31	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		31	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		31	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		31	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		31	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*100%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*100%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.3%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 115 (5-10) (MW)
Lab Number: 9C27008-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		153	ug/kg	03/29/19	03/30/19
Benzene	ND		31	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		31	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		31	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		31	ug/kg	03/29/19	03/30/19
Bromoform	ND		31	ug/kg	03/29/19	03/30/19
Bromomethane	ND		31	ug/kg	03/29/19	03/30/19
2-Butanone	ND		153	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		153	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		31	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		31	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		31	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		31	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		31	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
Chloroethane	ND		31	ug/kg	03/29/19	03/30/19
Chloroform	ND		31	ug/kg	03/29/19	03/30/19
Chloromethane	ND		31	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		31	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		31	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		31	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		31	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		31	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		31	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		31	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		31	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		31	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		31	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		31	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		61	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		153	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		15300	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		31	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		153	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		31	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 115 (5-10) (MW) (Continued)

Lab Number: 9C27008-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		31	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		31	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		153	ug/kg	03/29/19	03/30/19
Naphthalene	ND		31	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Styrene	ND		31	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		31	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		31	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		153	ug/kg	03/29/19	03/30/19
Toluene	ND		31	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		31	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		31	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		31	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		31	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		31	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		31	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		31	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		31	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		61	ug/kg	03/29/19	03/30/19
Total xylenes	ND		61	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		31	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		31	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		31	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		31	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		31	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		31	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		31	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.8%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*100%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*98.5%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 104 (0-5)
Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		127	ug/kg	03/29/19	03/30/19
Benzene	ND		25	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		25	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		25	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		25	ug/kg	03/29/19	03/30/19
Bromoform	ND		25	ug/kg	03/29/19	03/30/19
Bromomethane	ND		25	ug/kg	03/29/19	03/30/19
2-Butanone	ND		127	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		127	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		25	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		25	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		25	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		25	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		25	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
Chloroethane	ND		25	ug/kg	03/29/19	03/30/19
Chloroform	ND		25	ug/kg	03/29/19	03/30/19
Chloromethane	ND		25	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		25	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		25	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		25	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		25	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		25	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		25	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		25	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		25	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		25	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		25	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		51	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		127	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		12700	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		25	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		127	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		25	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 104 (0-5) (Continued)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		25	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		25	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		127	ug/kg	03/29/19	03/30/19
Naphthalene	ND		25	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Styrene	ND		25	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		25	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		25	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		127	ug/kg	03/29/19	03/30/19
Toluene	ND		25	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		25	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		25	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		25	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		25	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		25	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	20	ug/kg	03/29/19	03/30/19
o-Xylene	ND		25	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		51	ug/kg	03/29/19	03/30/19
Total xylenes	ND		51	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		25	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		25	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		25	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		25	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		25	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		25	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		25	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.8%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*101%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.3%*	*70-130*	03/29/19	03/30/19

Results: Semivolatile organic compounds

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		209	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		209	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		209	ug/kg	03/28/19	03/29/19
Anthracene	ND		209	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	**296**		209	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	**683**		209	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	**332**		209	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		209	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		209	ug/kg	03/28/19	03/29/19
Chrysene	**286**		209	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		209	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		209	ug/kg	03/28/19	03/29/19
Fluoranthene	**509**		209	ug/kg	03/28/19	03/29/19
Fluorene	ND		209	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		209	ug/kg	03/28/19	03/29/19
Naphthalene	**222**		209	ug/kg	03/28/19	03/29/19
Phenanthrene	**337**		209	ug/kg	03/28/19	03/29/19
Pyrene	**750**		209	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*70.1%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*81.4%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*71.6%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		210	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		210	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		210	ug/kg	03/28/19	03/29/19
Anthracene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		210	ug/kg	03/28/19	03/29/19
Chrysene	ND		210	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		210	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		210	ug/kg	03/28/19	03/29/19
Fluoranthene	**294**		210	ug/kg	03/28/19	03/29/19
Fluorene	ND		210	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		210	ug/kg	03/28/19	03/29/19
Naphthalene	ND		210	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		210	ug/kg	03/28/19	03/29/19
Pyrene	**318**		210	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*50.0%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*66.4%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*63.3%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		133	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		133	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		133	ug/kg	03/28/19	03/29/19
Anthracene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		133	ug/kg	03/28/19	03/29/19
Chrysene	ND		133	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		133	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		133	ug/kg	03/28/19	03/29/19
Fluoranthene	**173**		133	ug/kg	03/28/19	03/29/19
Fluorene	ND		133	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		133	ug/kg	03/28/19	03/29/19
Naphthalene	ND		133	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		133	ug/kg	03/28/19	03/29/19
Pyrene	ND		133	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*98.6%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*90.4%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*87.0%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 113 (10-14)

Lab Number: 9C27008-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**212**		162	ug/kg	03/28/19	04/01/19
Acenaphthene	**422**		162	ug/kg	03/28/19	04/01/19
Acenaphthylene	ND		162	ug/kg	03/28/19	04/01/19
Anthracene	**1220**		162	ug/kg	03/28/19	04/01/19
Benzo(a)anthracene	**1940**		162	ug/kg	03/28/19	04/01/19
Benzo(a)pyrene	**1610**		162	ug/kg	03/28/19	04/01/19
Benzo(b)fluoranthene	**2020**		162	ug/kg	03/28/19	04/01/19
Benzo(g,h,i)perylene	**999**		162	ug/kg	03/28/19	04/01/19
Benzo(k)fluoranthene	**703**		162	ug/kg	03/28/19	04/01/19
Chrysene	**1800**		162	ug/kg	03/28/19	04/01/19
Dibenz(a,h)anthracene	**292**		162	ug/kg	03/28/19	04/01/19
Dibenzofuran	**466**		162	ug/kg	03/28/19	04/01/19
Fluoranthene	**3960**		162	ug/kg	03/28/19	04/01/19
Fluorene	**629**		162	ug/kg	03/28/19	04/01/19
Indeno(1,2,3-cd)pyrene	**1170**		162	ug/kg	03/28/19	04/01/19
Naphthalene	**421**		162	ug/kg	03/28/19	04/01/19
Phenanthrene	**4330**		162	ug/kg	03/28/19	04/01/19
Pyrene	**3790**		162	ug/kg	03/28/19	04/01/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*79.5%*	*30-126*	03/28/19	04/01/19
p-Terphenyl-d14	*99.1%*	*47-130*	03/28/19	04/01/19
2-Fluorobiphenyl	*82.8%*	*34-130*	03/28/19	04/01/19

Results: Semivolatile organic compounds

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		131	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		131	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		131	ug/kg	03/28/19	03/29/19
Anthracene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		131	ug/kg	03/28/19	03/29/19
Chrysene	ND		131	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		131	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		131	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		131	ug/kg	03/28/19	03/29/19
Fluorene	ND		131	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		131	ug/kg	03/28/19	03/29/19
Naphthalene	ND		131	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		131	ug/kg	03/28/19	03/29/19
Pyrene	ND		131	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*103%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*94.2%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*90.0%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		142	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		142	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		142	ug/kg	03/28/19	03/29/19
Anthracene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	**170**		142	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Chrysene	ND		142	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		142	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		142	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Fluorene	ND		142	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		142	ug/kg	03/28/19	03/29/19
Naphthalene	ND		142	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		142	ug/kg	03/28/19	03/29/19
Pyrene	**221**		142	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*50.3%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*86.8%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*57.9%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		143	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		143	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		143	ug/kg	03/28/19	03/29/19
Anthracene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		143	ug/kg	03/28/19	03/29/19
Chrysene	ND		143	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		143	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		143	ug/kg	03/28/19	03/29/19
Fluoranthene	**245**		143	ug/kg	03/28/19	03/29/19
Fluorene	ND		143	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		143	ug/kg	03/28/19	03/29/19
Naphthalene	ND		143	ug/kg	03/28/19	03/29/19
Phenanthrene	**160**		143	ug/kg	03/28/19	03/29/19
Pyrene	**229**		143	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*74.6%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*94.3%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*69.8%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 110 (5-10) (MW)

Lab Number: 9C27008-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		164	ug/kg	03/28/19	03/29/19
Acenaphthene	**184**		164	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		164	ug/kg	03/28/19	03/29/19
Anthracene	**622**		164	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	**1010**		164	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	**993**		164	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	**1170**		164	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	**618**		164	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	**439**		164	ug/kg	03/28/19	03/29/19
Chrysene	**1030**		164	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		164	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		164	ug/kg	03/28/19	03/29/19
Fluoranthene	**2350**		164	ug/kg	03/28/19	03/29/19
Fluorene	**251**		164	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	**722**		164	ug/kg	03/28/19	03/29/19
Naphthalene	ND		164	ug/kg	03/28/19	03/29/19
Phenanthrene	**1890**		164	ug/kg	03/28/19	03/29/19
Pyrene	**1990**		164	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*94.0%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*94.5%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*87.0%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 111 (5-10)

Lab Number: 9C27008-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		148	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		148	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		148	ug/kg	03/28/19	03/29/19
Anthracene	ND		148	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		148	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		148	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		148	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		148	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		148	ug/kg	03/28/19	03/29/19
Chrysene	ND		148	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		148	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		148	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		148	ug/kg	03/28/19	03/29/19
Fluorene	ND		148	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		148	ug/kg	03/28/19	03/29/19
Naphthalene	ND		148	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		148	ug/kg	03/28/19	03/29/19
Pyrene	ND		148	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*95.0%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*89.0%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*85.7%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 112 (0-5)

Lab Number: 9C27008-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		139	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		139	ug/kg	03/28/19	03/29/19
Acenaphthylene	**1660**		139	ug/kg	03/28/19	03/29/19
Anthracene	**1020**		139	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	**5000**		139	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	**5230**		139	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	**7110**		139	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	**3750**		139	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	**2560**		139	ug/kg	03/28/19	03/29/19
Chrysene	**5650**		139	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	**1170**		139	ug/kg	03/28/19	03/29/19
Dibenzofuran	**287**		139	ug/kg	03/28/19	03/29/19
Fluoranthene	**14000**		695	ug/kg	03/28/19	04/01/19
Fluorene	**460**		139	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	**4230**		139	ug/kg	03/28/19	03/29/19
Naphthalene	ND		139	ug/kg	03/28/19	03/29/19
Phenanthrene	**6140**		139	ug/kg	03/28/19	03/29/19
Pyrene	**10300**		695	ug/kg	03/28/19	04/01/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*100%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*100%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*89.7%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 113 (5-10) (MW)

Lab Number: 9C27008-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		152	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		152	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		152	ug/kg	03/28/19	03/29/19
Anthracene	ND		152	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		152	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		152	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		152	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		152	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		152	ug/kg	03/28/19	03/29/19
Chrysene	ND		152	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		152	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		152	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		152	ug/kg	03/28/19	03/29/19
Fluorene	ND		152	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		152	ug/kg	03/28/19	03/29/19
Naphthalene	ND		152	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		152	ug/kg	03/28/19	03/29/19
Pyrene	ND		152	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*102%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*95.1%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*89.6%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE114 (5-10)

Lab Number: 9C27008-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		142	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		142	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		142	ug/kg	03/28/19	03/29/19
Anthracene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Chrysene	ND		142	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		142	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		142	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Fluorene	ND		142	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		142	ug/kg	03/28/19	03/29/19
Naphthalene	ND		142	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		142	ug/kg	03/28/19	03/29/19
Pyrene	ND		142	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*102%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*96.9%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*90.1%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 115 (5-10) (MW)

Lab Number: 9C27008-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		134	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		134	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		134	ug/kg	03/28/19	03/29/19
Anthracene	ND		134	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		134	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		134	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		134	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		134	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		134	ug/kg	03/28/19	03/29/19
Chrysene	ND		134	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		134	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		134	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		134	ug/kg	03/28/19	03/29/19
Fluorene	ND		134	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		134	ug/kg	03/28/19	03/29/19
Naphthalene	ND		134	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		134	ug/kg	03/28/19	03/29/19
Pyrene	ND		134	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*99.5%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*93.0%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*89.3%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		132	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		132	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		132	ug/kg	03/28/19	03/29/19
Anthracene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		132	ug/kg	03/28/19	03/29/19
Chrysene	ND		132	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		132	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		132	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		132	ug/kg	03/28/19	03/29/19
Fluorene	ND		132	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		132	ug/kg	03/28/19	03/29/19
Naphthalene	ND		132	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		132	ug/kg	03/28/19	03/29/19
Pyrene	ND		132	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*103%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*99.7%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*92.3%*	*34-130*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 101 (10-15) (MW)
Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		109	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		109	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*40.1%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*19.4%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 102 (10-15)
Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		109	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		109	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*62.3%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*76.4%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1254	**125**		66	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		66	ug/kg	03/28/19	03/29/19
PCBs (Total)	**125**		66	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*78.9%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*78.3%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 113 (10-14)

Lab Number: 9C27008-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		83	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		83	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		83	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*59.4%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*75.8%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		68	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		68	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%		Limits			
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*81.8%*		*36.2-108*		03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*87.8%*		*43.3-118*		03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1254	**164**		72	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		72	ug/kg	03/28/19	03/29/19
PCBs (Total)	**164**		72	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*60.0%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*73.6%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 109 (0-5)
Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		72	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		72	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%		Limits			
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*72.1%*		*36.2-108*		03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*63.5%*		*43.3-118*		03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 110 (5-10) (MW)
Lab Number: 9C27008-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		84	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		84	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		84	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*60.5%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*86.0%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 111 (5-10)
Lab Number: 9C27008-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		76	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		76	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		76	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%		Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*66.9%*		*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*71.2%*		*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 112 (0-5)
Lab Number: 9C27008-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		70	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		70	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		70	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*72.5%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*82.9%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 113 (5-10) (MW)

Lab Number: 9C27008-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		78	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		78	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		78	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*69.7%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*60.3%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE114 (5-10)

Lab Number: 9C27008-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		74	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		74	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		74	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*83.7%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*90.2%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 115 (5-10) (MW)

Lab Number: 9C27008-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		67	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		67	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		67	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*88.4%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*94.0%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 104 (0-5)
Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		65	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		65	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*85.4%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*86.8%*	*43.3-118*	03/28/19	03/29/19

Results: Total Petroleum Hydrocarbons

Sample: SE 101 (10-15) (MW)
Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**313**		45	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*70.6%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 102 (10-15)
Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**299**		45	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*61.8%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 105 (0-5)
Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		28	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*90.4%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 113 (10-14)
Lab Number: 9C27008-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**224**		34	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*85.6%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 106 (5-10)
Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*84.9%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 108 (5-10) (MW)
Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**220**		30	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*58.9%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**42**		30	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*88.3%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 110 (5-10) (MW)

Lab Number: 9C27008-08 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**272**		35	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*76.2%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 111 (5-10)
Lab Number: 9C27008-09 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		31	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*90.1%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 112 (0-5)
Lab Number: 9C27008-10 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**216**		28	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*83.6%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 113 (5-10) (MW)
Lab Number: 9C27008-11 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		32	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*87.7%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE114 (5-10)

Lab Number: 9C27008-12 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		30	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*83.2%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 115 (5-10) (MW)
Lab Number: 9C27008-13 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*87.2%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 104 (0-5)
Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*85.6%*		*56.5-114*		03/29/19	04/01/19

Quality Control

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C1029 - Metals Digestion Soils										
Blank (B9C1029-BLK1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Lead	ND		0.33	mg/kg						
Selenium	ND		0.66	mg/kg						
Chromium	ND		0.33	mg/kg						
Cadmium	ND		0.33	mg/kg						
Barium	ND		0.33	mg/kg						
Arsenic	ND		0.66	mg/kg						
Silver	ND		0.33	mg/kg						
LCS (B9C1029-BS1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Selenium	18.3		0.66	mg/kg	20.0		91.5	85-115		
Barium	97.3		0.33	mg/kg	100		97.3	85-115		
Cadmium	94.6		0.33	mg/kg	100		94.6	85-115		
Silver	35.0		0.33	mg/kg	40.0		87.6	85-115		
Chromium	86.0		0.33	mg/kg	100		86.0	85-115		
Lead	92.0		0.33	mg/kg	100		92.0	85-115		
Arsenic	18.6		0.66	mg/kg	20.0		92.9	85-115		
Batch: B9C1093 - Metals Digestion Soils										
Blank (B9C1093-BLK1)					Prepared & Analyzed: 03/29/19					
Mercury	ND		0.071	mg/kg						
LCS (B9C1093-BS1)					Prepared & Analyzed: 03/29/19					
Mercury	0.938			ug/l	1.00		93.8	93-114		

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap										
Blank (B9D0022-BLK1)					Prepared: 03/29/19 Analyzed: 03/30/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
Blank (B9D0022-BLK1)				Prepared: 03/29/19 Analyzed: 03/30/19						
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*49.6*	ug/l	*50.0*		*99.2*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*47.3*	ug/l	*50.0*		*94.6*	*70-130*		
Surrogate: Toluene-d8			*49.4*	ug/l	*50.0*		*98.8*	*70-130*		
LCS (B9D0022-BS1)				Prepared: 03/29/19 Analyzed: 03/30/19						
Acetone	49			ug/l	50.0		97.0	70-130		
Benzene	50			ug/l	50.0		100	70-130		
Bromobenzene	47			ug/l	50.0		94.4	70-130		
Bromochloromethane	50			ug/l	50.0		100	70-130		
Bromodichloromethane	50			ug/l	50.0		100	70-130		
Bromoform	47			ug/l	50.0		94.0	70-130		
Bromomethane	48			ug/l	50.0		95.3	70-130		
2-Butanone	49			ug/l	50.0		98.9	70-130		
tert-Butyl alcohol	59			ug/l	50.0		118	70-130		
sec-Butylbenzene	51			ug/l	50.0		102	70-130		
n-Butylbenzene	50			ug/l	50.0		99.2	70-130		
tert-Butylbenzene	49			ug/l	50.0		98.4	70-130		
Methyl t-butyl ether (MTBE)	52			ug/l	50.0		104	70-130		
Carbon Disulfide	58			ug/l	50.0		116	70-130		
Carbon Tetrachloride	49			ug/l	50.0		97.2	70-130		
Chlorobenzene	48			ug/l	50.0		96.2	70-130		
Chloroethane	51			ug/l	50.0		102	70-130		
Chloroform	48			ug/l	50.0		95.5	70-130		
Chloromethane	41			ug/l	50.0		82.8	70-130		
4-Chlorotoluene	49			ug/l	50.0		97.9	70-130		
2-Chlorotoluene	49			ug/l	50.0		97.9	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	46			ug/l	50.0		91.1	70-130		
Dibromochloromethane	49			ug/l	50.0		98.5	70-130		
1,2-Dibromoethane (EDB)	50			ug/l	50.0		100	70-130		
Dibromomethane	50			ug/l	50.0		100	70-130		
1,2-Dichlorobenzene	47			ug/l	50.0		94.0	70-130		
1,3-Dichlorobenzene	48			ug/l	50.0		95.1	70-130		
1,4-Dichlorobenzene	47			ug/l	50.0		94.1	70-130		
1,1-Dichloroethane	51			ug/l	50.0		101	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
LCS (B9D0022-BS1)					Prepared: 03/29/19 Analyzed: 03/30/19					
1,2-Dichloroethane	52			ug/l	50.0		105	70-130		
trans-1,2-Dichloroethene	52			ug/l	50.0		104	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.3	70-130		
1,1-Dichloroethene	55			ug/l	50.0		111	70-130		
1,2-Dichloropropane	51			ug/l	50.0		101	70-130		
2,2-Dichloropropane	35			ug/l	50.0		69.6	70-130		
cis-1,3-Dichloropropene	47			ug/l	50.0		94.5	70-130		
trans-1,3-Dichloropropene	50			ug/l	50.0		99.9	70-130		
1,1-Dichloropropene	53			ug/l	50.0		105	70-130		
Diethyl ether	55			ug/l	50.0		110	70-130		
1,4-Dioxane	256			ug/l	250		102	70-130		
Ethylbenzene	50			ug/l	50.0		99.3	70-130		
Hexachlorobutadiene	38			ug/l	50.0		75.6	70-130		
2-Hexanone	44			ug/l	50.0		87.1	70-130		
Isopropylbenzene	50			ug/l	50.0		100	70-130		
p-Isopropyltoluene	51			ug/l	50.0		102	70-130		
Methylene Chloride	58			ug/l	50.0		116	70-130		
4-Methyl-2-pentanone	52			ug/l	50.0		104	70-130		
Naphthalene	46			ug/l	50.0		91.6	70-130		
n-Propylbenzene	52			ug/l	50.0		104	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	48			ug/l	50.0		96.5	70-130		
Tetrachloroethene	45			ug/l	50.0		90.7	70-130		
Tetrahydrofuran	50			ug/l	50.0		99.4	70-130		
Toluene	49			ug/l	50.0		98.1	70-130		
1,2,4-Trichlorobenzene	43			ug/l	50.0		85.9	70-130		
1,2,3-Trichlorobenzene	44			ug/l	50.0		88.7	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		103	70-130		
1,1,1-Trichloroethane	49			ug/l	50.0		98.4	70-130		
Trichloroethene	52			ug/l	50.0		104	70-130		
1,2,3-Trichloropropane	49			ug/l	50.0		98.1	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	46			ug/l	50.0		91.5	70-130		
o-Xylene	49			ug/l	50.0		98.0	70-130		
m&p-Xylene	98			ug/l	100		97.8	70-130		
1,1,2,2-Tetrachloroethane	40			ug/l	50.0		80.7	70-130		
tert-Amyl methyl ether	49			ug/l	50.0		98.5	70-130		
1,3-Dichloropropane	52			ug/l	50.0		104	70-130		
Ethyl tert-butyl ether	50			ug/l	50.0		99.9	70-130		
Diisopropyl ether	52			ug/l	50.0		104	70-130		
Trichlorofluoromethane	54			ug/l	50.0		107	70-130		
Dichlorodifluoromethane	30			ug/l	50.0		60.8	70-130		
Surrogate: 4-Bromofluorobenzene			*50.8*	ug/l	*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.5*	ug/l	*50.0*		*105*	*70-130*		
Surrogate: Toluene-d8			*51.0*	ug/l	*50.0*		*102*	*70-130*		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
LCS Dup (B9D0022-BSD1)					Prepared: 03/29/19 Analyzed: 03/30/19					
Acetone	47			ug/l	50.0		94.0	70-130	3.16	200
Benzene	51			ug/l	50.0		102	70-130	2.09	200
Bromobenzene	47			ug/l	50.0		93.2	70-130	1.26	200
Bromochloromethane	50			ug/l	50.0		99.5	70-130	0.761	200
Bromodichloromethane	50			ug/l	50.0		99.5	70-130	0.880	200
Bromoform	46			ug/l	50.0		91.8	70-130	2.32	200
Bromomethane	52			ug/l	50.0		104	70-130	8.48	200
2-Butanone	43			ug/l	50.0		86.9	70-130	12.9	200
tert-Butyl alcohol	53			ug/l	50.0		106	70-130	10.6	200
sec-Butylbenzene	52			ug/l	50.0		104	70-130	2.15	200
n-Butylbenzene	52			ug/l	50.0		104	70-130	4.42	200
tert-Butylbenzene	51			ug/l	50.0		101	70-130	2.90	200
Methyl t-butyl ether (MTBE)	51			ug/l	50.0		102	70-130	2.50	200
Carbon Disulfide	60			ug/l	50.0		119	70-130	2.79	200
Carbon Tetrachloride	50			ug/l	50.0		101	70-130	3.68	200
Chlorobenzene	49			ug/l	50.0		98.1	70-130	1.98	200
Chloroethane	54			ug/l	50.0		108	70-130	5.00	200
Chloroform	49			ug/l	50.0		97.2	70-130	1.68	200
Chloromethane	42			ug/l	50.0		84.2	70-130	1.63	200
4-Chlorotoluene	49			ug/l	50.0		98.3	70-130	0.449	200
2-Chlorotoluene	49			ug/l	50.0		98.3	70-130	0.449	200
1,2-Dibromo-3-chloropropane (DBCP)	46			ug/l	50.0		91.5	70-130	0.460	200
Dibromochloromethane	48			ug/l	50.0		96.3	70-130	2.22	200
1,2-Dibromoethane (EDB)	48			ug/l	50.0		97.0	70-130	3.47	200
Dibromomethane	49			ug/l	50.0		97.3	70-130	2.94	200
1,2-Dichlorobenzene	47			ug/l	50.0		94.6	70-130	0.615	200
1,3-Dichlorobenzene	47			ug/l	50.0		93.9	70-130	1.27	200
1,4-Dichlorobenzene	48			ug/l	50.0		95.8	70-130	1.87	200
1,1-Dichloroethane	52			ug/l	50.0		104	70-130	2.42	200
1,2-Dichloroethane	51			ug/l	50.0		103	70-130	1.68	200
trans-1,2-Dichloroethene	54			ug/l	50.0		108	70-130	4.14	200
cis-1,2-Dichloroethene	49			ug/l	50.0		98.3	70-130	2.06	200
1,1-Dichloroethene	57			ug/l	50.0		114	70-130	2.97	200
1,2-Dichloropropane	52			ug/l	50.0		103	70-130	1.97	200
2,2-Dichloropropane	35			ug/l	50.0		69.4	70-130	0.230	200
cis-1,3-Dichloropropene	46			ug/l	50.0		92.6	70-130	2.05	200
trans-1,3-Dichloropropene	49			ug/l	50.0		97.4	70-130	2.51	200
1,1-Dichloropropene	53			ug/l	50.0		106	70-130	0.907	200
Diethyl ether	55			ug/l	50.0		110	70-130	0.563	200
1,4-Dioxane	222			ug/l	250		88.7	70-130	14.3	200
Ethylbenzene	51			ug/l	50.0		102	70-130	2.19	200
Hexachlorobutadiene	41			ug/l	50.0		81.9	70-130	7.92	200
2-Hexanone	41			ug/l	50.0		82.6	70-130	5.28	200
Isopropylbenzene	51			ug/l	50.0		103	70-130	2.15	200
p-Isopropyltoluene	52			ug/l	50.0		104	70-130	2.15	200
Methylene Chloride	57			ug/l	50.0		114	70-130	1.72	200
4-Methyl-2-pentanone	49			ug/l	50.0		98.6	70-130	5.58	200
Naphthalene	50			ug/l	50.0		99.7	70-130	8.47	200
n-Propylbenzene	53			ug/l	50.0		105	70-130	1.65	200
Styrene	51			ug/l	50.0		102	70-130	0.392	200
1,1,1,2-Tetrachloroethane	48			ug/l	50.0		96.4	70-130	0.0829	200
Tetrachloroethene	47			ug/l	50.0		94.0	70-130	3.51	200
Tetrahydrofuran	51			ug/l	50.0		101	70-130	1.64	200
Toluene	50			ug/l	50.0		99.2	70-130	1.03	200

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
LCS Dup (B9D0022-BSD1)					Prepared: 03/29/19 Analyzed: 03/30/19					
1,2,4-Trichlorobenzene	46			ug/l	50.0		91.4	70-130	6.16	200
1,2,3-Trichlorobenzene	47			ug/l	50.0		93.6	70-130	5.46	200
1,1,2-Trichloroethane	49			ug/l	50.0		98.1	70-130	5.12	200
1,1,1-Trichloroethane	48			ug/l	50.0		96.6	70-130	1.87	200
Trichloroethene	53			ug/l	50.0		107	70-130	2.62	200
1,2,3-Trichloropropane	48			ug/l	50.0		96.4	70-130	1.79	200
1,3,5-Trimethylbenzene	52			ug/l	50.0		104	70-130	1.62	200
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130	0.232	200
Vinyl Chloride	47			ug/l	50.0		94.4	70-130	3.12	200
o-Xylene	50			ug/l	50.0		101	70-130	2.56	200
m&p-Xylene	100			ug/l	100		100	70-130	2.52	200
1,1,2,2-Tetrachloroethane	38			ug/l	50.0		75.1	70-130	7.11	200
tert-Amyl methyl ether	49			ug/l	50.0		97.2	70-130	1.39	200
1,3-Dichloropropane	51			ug/l	50.0		101	70-130	2.30	200
Ethyl tert-butyl ether	49			ug/l	50.0		98.9	70-130	1.01	200
Diisopropyl ether	52			ug/l	50.0		104	70-130	0.0383	200
Trichlorofluoromethane	54			ug/l	50.0		109	70-130	1.61	200
Dichlorodifluoromethane	32			ug/l	50.0		64.2	70-130	5.47	200
Surrogate: 4-Bromofluorobenzene			*50.6*	ug/l	*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.4*	ug/l	*50.0*		*105*	*70-130*		
Surrogate: Toluene-d8			*50.7*	ug/l	*50.0*		*101*	*70-130*		

Quality Control
(Continued)

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C0991 - EPA 3546										
Blank (B9C0991-BLK1)				Prepared: 03/28/19 Analyzed: 03/29/19						
2-Methylnaphthalene	ND		130	ug/kg						
Acenaphthene	ND		130	ug/kg						
Acenaphthylene	ND		130	ug/kg						
Anthracene	ND		130	ug/kg						
Benzo(a)anthracene	ND		130	ug/kg						
Benzo(a)pyrene	ND		130	ug/kg						
Benzo(b)fluoranthene	ND		130	ug/kg						
Benzo(g,h,i)perylene	ND		130	ug/kg						
Benzo(k)fluoranthene	ND		130	ug/kg						
Chrysene	ND		130	ug/kg						
Dibenz(a,h)anthracene	ND		130	ug/kg						
Dibenzofuran	ND		130	ug/kg						
Fluoranthene	ND		130	ug/kg						
Fluorene	ND		130	ug/kg						
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg						
Naphthalene	ND		130	ug/kg						
Phenanthrene	ND		130	ug/kg						
Pyrene	ND		130	ug/kg						
Surrogate: Nitrobenzene-d5			*3130*	ug/kg	*3330*		*94.0*	*30-126*		
Surrogate: p-Terphenyl-d14			*2890*	ug/kg	*3330*		*86.8*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2760*	ug/kg	*3330*		*82.9*	*34-130*		
LCS (B9C0991-BS1)				Prepared: 03/28/19 Analyzed: 03/29/19						
2-Methylnaphthalene	2930		130	ug/kg	3330		88.0	40-140		
Acenaphthene	2660		130	ug/kg	3330		79.9	40-140		
Acenaphthylene	2680		130	ug/kg	3330		80.5	40-140		
Anthracene	2810		130	ug/kg	3330		84.3	40-140		
Benzo(a)anthracene	2840		130	ug/kg	3330		85.2	40-140		
Benzo(a)pyrene	3020		130	ug/kg	3330		90.6	40-140		
Benzo(b)fluoranthene	3000		130	ug/kg	3330		90.0	40-140		
Benzo(g,h,i)perylene	2700		130	ug/kg	3330		80.9	40-140		
Benzo(k)fluoranthene	2960		130	ug/kg	3330		88.7	40-140		
Chrysene	2790		130	ug/kg	3330		83.6	40-140		
Dibenz(a,h)anthracene	2760		130	ug/kg	3330		82.8	40-140		
Dibenzofuran	2760		130	ug/kg	3330		82.7	40-140		
Fluoranthene	2840		130	ug/kg	3330		85.1	40-140		
Fluorene	2790		130	ug/kg	3330		83.6	40-140		
Indeno(1,2,3-cd)pyrene	2970		130	ug/kg	3330		89.1	40-140		
Naphthalene	2790		130	ug/kg	3330		83.8	40-140		
Phenanthrene	2830		130	ug/kg	3330		85.0	40-140		
Pyrene	2700		130	ug/kg	3330		80.9	40-140		
Surrogate: Nitrobenzene-d5			*3070*	ug/kg	*3330*		*92.1*	*30-126*		
Surrogate: p-Terphenyl-d14			*2900*	ug/kg	*3330*		*87.1*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2810*	ug/kg	*3330*		*84.3*	*34-130*		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C0991 - EPA 3546 (Continued)										
LCS Dup (B9C0991-BSD1)					Prepared: 03/28/19 Analyzed: 03/29/19					
2-Methylnaphthalene	3030		130	ug/kg	3330		90.9	40-140	3.24	30
Acenaphthene	2760		130	ug/kg	3330		82.8	40-140	3.54	30
Acenaphthylene	2760		130	ug/kg	3330		82.7	40-140	2.77	30
Anthracene	2840		130	ug/kg	3330		85.3	40-140	1.13	30
Benzo(a)anthracene	2930		130	ug/kg	3330		87.8	40-140	2.96	30
Benzo(a)pyrene	3060		130	ug/kg	3330		91.9	40-140	1.45	30
Benzo(b)fluoranthene	3110		130	ug/kg	3330		93.4	40-140	3.71	30
Benzo(g,h,i)perylene	2720		130	ug/kg	3330		81.5	40-140	0.665	30
Benzo(k)fluoranthene	3020		130	ug/kg	3330		90.5	40-140	2.03	30
Chrysene	2860		130	ug/kg	3330		85.7	40-140	2.41	30
Dibenz(a,h)anthracene	2810		130	ug/kg	3330		84.2	40-140	1.75	30
Dibenzofuran	2840		130	ug/kg	3330		85.3	40-140	3.10	30
Fluoranthene	2880		130	ug/kg	3330		86.3	40-140	1.42	30
Fluorene	2870		130	ug/kg	3330		86.2	40-140	3.16	30
Indeno(1,2,3-cd)pyrene	3020		130	ug/kg	3330		90.7	40-140	1.87	30
Naphthalene	2900		130	ug/kg	3330		86.9	40-140	3.59	30
Phenanthrene	2890		130	ug/kg	3330		86.8	40-140	2.05	30
Pyrene	2750		130	ug/kg	3330		82.6	40-140	2.10	30
Surrogate: Nitrobenzene-d5			*3260*	ug/kg	*3330*		*97.9*	*30-126*		
Surrogate: p-Terphenyl-d14			*2920*	ug/kg	*3330*		*87.7*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2900*	ug/kg	*3330*		*87.0*	*34-130*		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C1037 - EPA 3546										
Blank (B9C1037-BLK1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*10.8*	ug/kg	*13.3*		*80.9*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*10.8*	ug/kg	*13.3*		*80.7*	*43.3-118*		
LCS (B9C1037-BS1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Aroclor-1016	143		66	ug/kg	167		85.8	58.2-125		
Aroclor-1260	152		66	ug/kg	167		91.0	65.5-130		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*11.8*	ug/kg	*13.3*		*88.4*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*11.2*	ug/kg	*13.3*		*83.6*	*43.3-118*		
LCS Dup (B9C1037-BSD1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Aroclor-1016	138		66	ug/kg	167		82.7	58.2-125	3.75	20
Aroclor-1260	161		66	ug/kg	167		96.3	65.5-130	5.66	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*10.2*	ug/kg	*13.3*		*76.8*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*11.2*	ug/kg	*13.3*		*83.7*	*43.3-118*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C1103 - EPA 3546										
Blank (B9C1103-BLK1)					Prepared: 03/29/19 Analyzed: 04/01/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*7.12*	mg/kg	*8.33*		*85.5*	*56.5-114*		
LCS (B9C1103-BS1)					Prepared: 03/29/19 Analyzed: 04/01/19					
Total Petroleum Hydrocarbons	558		27	mg/kg	667		83.8	44.7-98.7		
Surrogate: Chlorooctadecane			*7.38*	mg/kg	*8.33*		*88.6*	*56.5-114*		
LCS Dup (B9C1103-BSD1)					Prepared: 03/29/19 Analyzed: 04/01/19					
Total Petroleum Hydrocarbons	543		27	mg/kg	667		81.4	44.7-98.7	2.81	200
Surrogate: Chlorooctadecane			*6.61*	mg/kg	*8.33*		*79.3*	*56.5-114*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9C2 70081

CHAIN OF CUSTODY F

PROJ. NO. 53291 | PROJECT NAME/LOCATION: South Quay East Providence RI

CLIENT: SAGE

REPORT TO: ↓

INVOICE TO: ↓

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** TPH	VOC	PAHs	RCRA 8 Metals	PCB	REMARKS
3/21		X		SE 101 (10-15) (MW).		X		2	None/Ice	X	X	X	X	X	
3/21		↓		SE 102 (10-15).		↓		↓	↓	↓	↓	↓	↓	↓	
3/21				SE 105 (0-5).											
3/21				~~SE 105 (5-10)~~ SE 113 (10-14)											
3/21				SE 106 (5-10).											
3/21				SE 108 (5-10) (MW).											
3/21				SE 109 (0-5).											
3/25				SE 110 (5-10) (MW).											
3/25				SE 111 (5-10).											
3/25				SE 112 (0-5).											
3/25				SE 113 (5-10) (MW).											
3/25				SE 114 (5-10).											
3/25				SE 115 (5-10) (MW).											
3/21		↓		SE 104 (0-5).		↓		↓	↓	↓	↓	↓	↓	↓	

Sampled by: (Signature)	Date/Time 3/25	Received by: (Signature)	Date/Time	Laboratory Remarks: Temp. received: 4 ; Cooled ☐
Relinquished by: (Signature)	Date/Time 3/27 9:30	Received by: (Signature)	Date/Time 3/27/19 930	Special Instructions: List Specific Detection Limit Requirements: RIDEM R-DEC and GB Leachability criteria
Relinquished by: (Signature)	Date/Time 3/27/19 1515	Received for Laboratory by: (Signature)	Date/Time 3/27/19 1515	Turnaround (Business Days) 5

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

AA

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9E21011
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 24-May-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 05/21/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9E21011. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9E21011-01	SE-201 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-02	SE-202 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-03	SE-203 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-04	SE-204 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-05	SE-205 (5-10)	Soil	05/20/2019	05/21/2019
9E21011-06	SE-206 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-07	SE-207 (0-5)	Soil	05/20/2019	05/21/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-201 (10-15) (Lab Number: 9E21011-01)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-202 (10-15) (Lab Number: 9E21011-02)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-203 (10-15) (Lab Number: 9E21011-03)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-204 (10-15) (Lab Number: 9E21011-04)

Analysis	Method
Arsenic	EPA 6010C

Request for Analysis (continued)

SE-204 (10-15) (Lab Number: 9E21011-04) (continued)

Analysis	Method
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-205 (5-10) (Lab Number: 9E21011-05)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-206 (10-15) (Lab Number: 9E21011-06)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Request for Analysis (continued)

SE-207 (0-5) (Lab Number: 9E21011-07)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

PCBs

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

The samples "SE-201(10-15)" and "SE-207(0-5)" exceeded the instrument calibration range and were analyzed at a dilution. As a result, the assoicated surrogate was reported as 0% recovery.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

Results: Total Metals

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**10.8**		0.17	mg/kg	05/22/19	05/22/19
Barium	**25.4**		0.09	mg/kg	05/22/19	05/22/19
Cadmium	**2.57**		0.09	mg/kg	05/22/19	05/22/19
Chromium	**15.1**		0.09	mg/kg	05/22/19	05/22/19
Lead	**69.2**		0.09	mg/kg	05/22/19	05/22/19
Mercury	ND		0.074	mg/kg	05/23/19	05/24/19
Selenium	ND		0.17	mg/kg	05/22/19	05/22/19
Silver	ND		0.09	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.98**		0.24	mg/kg	05/22/19	05/22/19
Barium	**30.0**		0.12	mg/kg	05/22/19	05/22/19
Cadmium	**1.56**		0.12	mg/kg	05/22/19	05/22/19
Chromium	**12.7**		0.12	mg/kg	05/22/19	05/22/19
Lead	**24.8**		0.12	mg/kg	05/22/19	05/22/19
Mercury	**0.093**		0.048	mg/kg	05/23/19	05/24/19
Selenium	ND		0.24	mg/kg	05/22/19	05/22/19
Silver	ND		0.12	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**18.3**		0.20	mg/kg	05/22/19	05/22/19
Barium	**10.5**		0.10	mg/kg	05/22/19	05/22/19
Cadmium	**1.34**		0.10	mg/kg	05/22/19	05/22/19
Chromium	**7.18**		0.10	mg/kg	05/22/19	05/22/19
Lead	**690**		0.10	mg/kg	05/22/19	05/22/19
Mercury	ND		0.058	mg/kg	05/23/19	05/24/19
Selenium	ND		0.20	mg/kg	05/22/19	05/22/19
Silver	ND		0.10	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.70**		0.23	mg/kg	05/22/19	05/22/19
Barium	**13.3**		0.12	mg/kg	05/22/19	05/22/19
Cadmium	**1.31**		0.12	mg/kg	05/22/19	05/22/19
Chromium	**8.15**		0.12	mg/kg	05/22/19	05/22/19
Lead	**53.9**		0.12	mg/kg	05/22/19	05/22/19
Mercury	**0.042**		0.035	mg/kg	05/23/19	05/24/19
Selenium	ND		0.23	mg/kg	05/22/19	05/22/19
Silver	ND		0.12	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.62**		0.29	mg/kg	05/22/19	05/22/19
Barium	**33.4**		0.15	mg/kg	05/22/19	05/22/19
Cadmium	**1.34**		0.15	mg/kg	05/22/19	05/22/19
Chromium	**8.32**		0.15	mg/kg	05/22/19	05/22/19
Lead	**8.24**		0.15	mg/kg	05/22/19	05/22/19
Mercury	ND		0.055	mg/kg	05/23/19	05/24/19
Selenium	ND		0.29	mg/kg	05/22/19	05/22/19
Silver	ND		0.15	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.79**		0.13	mg/kg	05/22/19	05/22/19
Barium	**20.0**		0.07	mg/kg	05/22/19	05/22/19
Cadmium	**1.81**		0.07	mg/kg	05/22/19	05/22/19
Chromium	**10.1**		0.07	mg/kg	05/22/19	05/22/19
Lead	**18.1**		0.07	mg/kg	05/22/19	05/22/19
Mercury	ND		0.058	mg/kg	05/23/19	05/24/19
Selenium	ND		0.13	mg/kg	05/22/19	05/22/19
Silver	ND		0.07	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.77**		0.38	mg/kg	05/22/19	05/22/19
Barium	**62.4**		0.19	mg/kg	05/22/19	05/22/19
Cadmium	**2.29**		0.19	mg/kg	05/22/19	05/22/19
Chromium	**32.8**		0.19	mg/kg	05/22/19	05/22/19
Lead	**471**		0.19	mg/kg	05/22/19	05/22/19
Mercury	ND		0.075	mg/kg	05/23/19	05/24/19
Selenium	ND		0.38	mg/kg	05/22/19	05/22/19
Silver	ND		0.19	mg/kg	05/22/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		136	ug/kg	05/21/19	05/22/19
Benzene	ND		27	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		27	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		27	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		27	ug/kg	05/21/19	05/22/19
Bromoform	ND		27	ug/kg	05/21/19	05/22/19
Bromomethane	ND		27	ug/kg	05/21/19	05/22/19
2-Butanone	ND		136	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		136	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	ND		27	ug/kg	05/21/19	05/22/19
n-Butylbenzene	ND		27	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	ND		27	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		27	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		27	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		27	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
Chloroethane	ND		27	ug/kg	05/21/19	05/22/19
Chloroform	ND		27	ug/kg	05/21/19	05/22/19
Chloromethane	ND		27	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		27	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		27	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	24	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		27	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		27	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		27	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		27	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		27	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		27	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		27	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		27	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		54	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		136	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		13600	ug/kg	05/21/19	05/22/19
Ethylbenzene	**87**		27	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		27	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		136	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**55**		27	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-201 (10-15) (Continued)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**99**		27	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		27	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		136	ug/kg	05/21/19	05/22/19
Naphthalene	ND		27	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**47**		27	ug/kg	05/21/19	05/22/19
Styrene	ND		27	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		27	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		27	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		136	ug/kg	05/21/19	05/22/19
Toluene	**34**		27	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		27	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		27	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		27	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		27	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	ND		27	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	ND		27	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	24	ug/kg	05/21/19	05/22/19
o-Xylene	**43**		27	ug/kg	05/21/19	05/22/19
m&p-Xylene	**121**		54	ug/kg	05/21/19	05/22/19
Total xylenes	**164**		54	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		27	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		27	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		27	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		27	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		27	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		27	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		27	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*89.6%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*97.4%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*95.7%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		191	ug/kg	05/21/19	05/22/19
Benzene	ND		38	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		38	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		38	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		38	ug/kg	05/21/19	05/22/19
Bromoform	ND		38	ug/kg	05/21/19	05/22/19
Bromomethane	ND		38	ug/kg	05/21/19	05/22/19
2-Butanone	ND		191	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		191	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	**761**		38	ug/kg	05/21/19	05/22/19
n-Butylbenzene	**630**		38	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	**139**		38	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		38	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		38	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		38	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
Chloroethane	ND		38	ug/kg	05/21/19	05/22/19
Chloroform	ND		38	ug/kg	05/21/19	05/22/19
Chloromethane	ND		38	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		38	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		38	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	24	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		38	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		38	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		38	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		38	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		38	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		38	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		38	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		38	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		76	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		191	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		19100	ug/kg	05/21/19	05/22/19
Ethylbenzene	ND		38	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		38	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		191	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**180**		38	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-202 (10-15) (Continued)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		38	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		38	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		191	ug/kg	05/21/19	05/22/19
Naphthalene	ND		38	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**351**		38	ug/kg	05/21/19	05/22/19
Styrene	ND		38	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		38	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		38	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		191	ug/kg	05/21/19	05/22/19
Toluene	ND		38	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		38	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		38	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		38	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		38	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	**69**		38	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**207**		38	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	24	ug/kg	05/21/19	05/22/19
o-Xylene	ND		38	ug/kg	05/21/19	05/22/19
m&p-Xylene	ND		76	ug/kg	05/21/19	05/22/19
Total xylenes	ND		76	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		38	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		38	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		38	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		38	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		38	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		38	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		38	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*108%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*98.5%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*92.0%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		146	ug/kg	05/21/19	05/22/19
Benzene	ND		29	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		29	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		29	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		29	ug/kg	05/21/19	05/22/19
Bromoform	ND		29	ug/kg	05/21/19	05/22/19
Bromomethane	ND		29	ug/kg	05/21/19	05/22/19
2-Butanone	ND		146	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		146	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	**652**		29	ug/kg	05/21/19	05/22/19
n-Butylbenzene	**708**		29	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	**73**		29	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		29	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		29	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		29	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
Chloroethane	ND		29	ug/kg	05/21/19	05/22/19
Chloroform	ND		29	ug/kg	05/21/19	05/22/19
Chloromethane	ND		29	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		29	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		29	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	26	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		29	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		29	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		29	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		29	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		29	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		29	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		29	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		29	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		58	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		146	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		14600	ug/kg	05/21/19	05/22/19
Ethylbenzene	**245**		29	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		29	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		146	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**1080**		29	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-203 (10-15) (Continued)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**653**		29	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		29	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		146	ug/kg	05/21/19	05/22/19
Naphthalene	**860**		29	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**1880**		29	ug/kg	05/21/19	05/22/19
Styrene	ND		29	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		29	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		29	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		146	ug/kg	05/21/19	05/22/19
Toluene	ND		29	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		29	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		29	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		29	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		29	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	**2240**		29	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**4550**		29	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	25	ug/kg	05/21/19	05/22/19
o-Xylene	**89**		29	ug/kg	05/21/19	05/22/19
m&p-Xylene	**1360**		58	ug/kg	05/21/19	05/22/19
Total xylenes	**1450**		58	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		29	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		29	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		29	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		29	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		29	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		29	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		29	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*93.4%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*91.6%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		127	ug/kg	05/21/19	05/22/19
Benzene	ND		25	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		25	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		25	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		25	ug/kg	05/21/19	05/22/19
Bromoform	ND		25	ug/kg	05/21/19	05/22/19
Bromomethane	ND		25	ug/kg	05/21/19	05/22/19
2-Butanone	ND		127	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		127	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	**548**		25	ug/kg	05/21/19	05/22/19
n-Butylbenzene	**609**		25	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	**59**		25	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		25	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		25	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		25	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
Chloroethane	ND		25	ug/kg	05/21/19	05/22/19
Chloroform	ND		25	ug/kg	05/21/19	05/22/19
Chloromethane	ND		25	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		25	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		25	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	25	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		25	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		25	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		25	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		25	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		25	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		25	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		25	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		25	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		51	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		127	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		12700	ug/kg	05/21/19	05/22/19
Ethylbenzene	**207**		25	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		25	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		127	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**885**		25	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-204 (10-15) (Continued)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**565**		25	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		25	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		127	ug/kg	05/21/19	05/22/19
Naphthalene	**895**		25	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**1530**		25	ug/kg	05/21/19	05/22/19
Styrene	ND		25	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		25	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		25	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		127	ug/kg	05/21/19	05/22/19
Toluene	ND		25	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		25	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		25	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		25	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		25	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	**1850**		25	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**4020**		25	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	25	ug/kg	05/21/19	05/22/19
o-Xylene	**66**		25	ug/kg	05/21/19	05/22/19
m&p-Xylene	**1050**		51	ug/kg	05/21/19	05/22/19
Total xylenes	**1120**		51	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		25	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		25	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		25	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		25	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		25	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		25	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		25	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*97.7%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*103%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*92.8%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		161	ug/kg	05/21/19	05/22/19
Benzene	ND		32	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		32	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		32	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		32	ug/kg	05/21/19	05/22/19
Bromoform	ND		32	ug/kg	05/21/19	05/22/19
Bromomethane	ND		32	ug/kg	05/21/19	05/22/19
2-Butanone	ND		161	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		161	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	ND		32	ug/kg	05/21/19	05/22/19
n-Butylbenzene	ND		32	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		32	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		32	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		32	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
Chloroethane	ND		32	ug/kg	05/21/19	05/22/19
Chloroform	ND		32	ug/kg	05/21/19	05/22/19
Chloromethane	ND		32	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		32	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		32	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	25	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		32	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		32	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		32	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		32	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		32	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		32	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		32	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		32	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		65	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		161	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		16100	ug/kg	05/21/19	05/22/19
Ethylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		32	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		161	ug/kg	05/21/19	05/22/19
Isopropylbenzene	ND		32	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-205 (5-10) (Continued)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		32	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		32	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		161	ug/kg	05/21/19	05/22/19
Naphthalene	ND		32	ug/kg	05/21/19	05/22/19
n-Propylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Styrene	ND		32	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		32	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		32	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		161	ug/kg	05/21/19	05/22/19
Toluene	ND		32	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		32	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		32	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		32	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		32	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	ND		32	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	25	ug/kg	05/21/19	05/22/19
o-Xylene	ND		32	ug/kg	05/21/19	05/22/19
m&p-Xylene	ND		65	ug/kg	05/21/19	05/22/19
Total xylenes	ND		65	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		32	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		32	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		32	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		32	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		32	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		32	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		32	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.7%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*100%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*94.8%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		157	ug/kg	05/21/19	05/22/19
Benzene	ND		31	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		31	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		31	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		31	ug/kg	05/21/19	05/22/19
Bromoform	ND		31	ug/kg	05/21/19	05/22/19
Bromomethane	ND		31	ug/kg	05/21/19	05/22/19
2-Butanone	ND		157	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		157	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	ND		31	ug/kg	05/21/19	05/22/19
n-Butylbenzene	ND		31	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	ND		31	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		31	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		31	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		31	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
Chloroethane	ND		31	ug/kg	05/21/19	05/22/19
Chloroform	ND		31	ug/kg	05/21/19	05/22/19
Chloromethane	ND		31	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		31	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		31	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND		31	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		31	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		31	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		31	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		31	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		31	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		31	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		31	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		31	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		63	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		157	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		15700	ug/kg	05/21/19	05/22/19
Ethylbenzene	ND		31	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		31	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		157	ug/kg	05/21/19	05/22/19
Isopropylbenzene	ND		31	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-206 (10-15) (Continued)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**12600**		126	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		31	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		157	ug/kg	05/21/19	05/22/19
Naphthalene	ND		31	ug/kg	05/21/19	05/22/19
n-Propylbenzene	ND		31	ug/kg	05/21/19	05/22/19
Styrene	ND		31	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		31	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		31	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		157	ug/kg	05/21/19	05/22/19
Toluene	ND		31	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		31	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		31	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		31	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		31	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	ND		31	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**42**		31	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND		31	ug/kg	05/21/19	05/22/19
o-Xylene	ND		31	ug/kg	05/21/19	05/22/19
m&p-Xylene	ND		63	ug/kg	05/21/19	05/22/19
Total xylenes	ND		63	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		31	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		31	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		31	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		31	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		31	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		31	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		31	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*90.0%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*103%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*96.6%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		201	ug/kg	05/22/19	05/22/19
Benzene	ND		40	ug/kg	05/22/19	05/22/19
Bromobenzene	ND		40	ug/kg	05/22/19	05/22/19
Bromochloromethane	ND		40	ug/kg	05/22/19	05/22/19
Bromodichloromethane	ND		40	ug/kg	05/22/19	05/22/19
Bromoform	ND		40	ug/kg	05/22/19	05/22/19
Bromomethane	ND		40	ug/kg	05/22/19	05/22/19
2-Butanone	ND		201	ug/kg	05/22/19	05/22/19
tert-Butyl alcohol	ND		201	ug/kg	05/22/19	05/22/19
sec-Butylbenzene	ND		40	ug/kg	05/22/19	05/22/19
n-Butylbenzene	ND		40	ug/kg	05/22/19	05/22/19
tert-Butylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		40	ug/kg	05/22/19	05/22/19
Carbon Disulfide	ND		40	ug/kg	05/22/19	05/22/19
Carbon Tetrachloride	ND		40	ug/kg	05/22/19	05/22/19
Chlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
Chloroethane	ND		40	ug/kg	05/22/19	05/22/19
Chloroform	ND		40	ug/kg	05/22/19	05/22/19
Chloromethane	ND		40	ug/kg	05/22/19	05/22/19
4-Chlorotoluene	ND		40	ug/kg	05/22/19	05/22/19
2-Chlorotoluene	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		40	ug/kg	05/22/19	05/22/19
Dibromochloromethane	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	05/22/19	05/22/19
Dibromomethane	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,3-Dichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,4-Dichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,1-Dichloroethane	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dichloroethane	ND		40	ug/kg	05/22/19	05/22/19
trans-1,2-Dichloroethene	ND		40	ug/kg	05/22/19	05/22/19
cis-1,2-Dichloroethene	ND		40	ug/kg	05/22/19	05/22/19
1,1-Dichloroethene	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dichloropropane	ND		40	ug/kg	05/22/19	05/22/19
2,2-Dichloropropane	ND		40	ug/kg	05/22/19	05/22/19
cis-1,3-Dichloropropene	ND		40	ug/kg	05/22/19	05/22/19
trans-1,3-Dichloropropene	ND		40	ug/kg	05/22/19	05/22/19
1,1-Dichloropropene	ND		40	ug/kg	05/22/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		80	ug/kg	05/22/19	05/22/19
Diethyl ether	ND		201	ug/kg	05/22/19	05/22/19
1,4-Dioxane	ND		20100	ug/kg	05/22/19	05/22/19
Ethylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Hexachlorobutadiene	ND		40	ug/kg	05/22/19	05/22/19
2-Hexanone	ND		201	ug/kg	05/22/19	05/22/19
Isopropylbenzene	ND		40	ug/kg	05/22/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-207 (0-5) (Continued)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		40	ug/kg	05/22/19	05/22/19
Methylene Chloride	ND		40	ug/kg	05/22/19	05/22/19
4-Methyl-2-pentanone	ND		201	ug/kg	05/22/19	05/22/19
Naphthalene	ND		40	ug/kg	05/22/19	05/22/19
n-Propylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Styrene	ND		40	ug/kg	05/22/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		40	ug/kg	05/22/19	05/22/19
Tetrachloroethene	ND		40	ug/kg	05/22/19	05/22/19
Tetrahydrofuran	ND		201	ug/kg	05/22/19	05/22/19
Toluene	ND		40	ug/kg	05/22/19	05/22/19
1,2,4-Trichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,2,3-Trichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,1,2-Trichloroethane	ND		40	ug/kg	05/22/19	05/22/19
1,1,1-Trichloroethane	ND		40	ug/kg	05/22/19	05/22/19
Trichloroethene	ND		40	ug/kg	05/22/19	05/22/19
1,2,3-Trichloropropane	ND		40	ug/kg	05/22/19	05/22/19
1,3,5-Trimethylbenzene	ND		40	ug/kg	05/22/19	05/22/19
1,2,4-Trimethylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Vinyl Chloride	ND	J	21	ug/kg	05/22/19	05/22/19
o-Xylene	ND		40	ug/kg	05/22/19	05/22/19
m&p-Xylene	ND		80	ug/kg	05/22/19	05/22/19
Total xylenes	ND		80	ug/kg	05/22/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		40	ug/kg	05/22/19	05/22/19
tert-Amyl methyl ether	ND		40	ug/kg	05/22/19	05/22/19
1,3-Dichloropropane	ND		40	ug/kg	05/22/19	05/22/19
Ethyl tert-butyl ether	ND		40	ug/kg	05/22/19	05/22/19
Diisopropyl ether	ND		40	ug/kg	05/22/19	05/22/19
Trichlorofluoromethane	ND		40	ug/kg	05/22/19	05/22/19
Dichlorodifluoromethane	ND		40	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*84.9%*	*70-130*	05/22/19	05/22/19
1,2-Dichloroethane-d4	*107%*	*70-130*	05/22/19	05/22/19
Toluene-d8	*92.6%*	*70-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		153	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		153	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		153	ug/kg	05/22/19	05/22/19
Anthracene	ND		153	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	**165**		153	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		153	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	**184**		153	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	**185**		153	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		153	ug/kg	05/22/19	05/22/19
Chrysene	**202**		153	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		153	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		153	ug/kg	05/22/19	05/22/19
Fluoranthene	**233**		153	ug/kg	05/22/19	05/22/19
Fluorene	ND		153	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		153	ug/kg	05/22/19	05/22/19
Naphthalene	ND		153	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		153	ug/kg	05/22/19	05/22/19
Pyrene	ND		153	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*71.8%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*82.8%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*71.1%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**5750**		1520	ug/kg	05/22/19	05/24/19
Acenaphthene	ND		1520	ug/kg	05/22/19	05/24/19
Acenaphthylene	ND		1520	ug/kg	05/22/19	05/24/19
Anthracene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(a)anthracene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(a)pyrene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(b)fluoranthene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(g,h,i)perylene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(k)fluoranthene	ND		1520	ug/kg	05/22/19	05/24/19
Chrysene	ND		1520	ug/kg	05/22/19	05/24/19
Dibenz(a,h)anthracene	ND		1520	ug/kg	05/22/19	05/24/19
Dibenzofuran	ND		1520	ug/kg	05/22/19	05/24/19
Fluoranthene	ND		1520	ug/kg	05/22/19	05/24/19
Fluorene	ND		1520	ug/kg	05/22/19	05/24/19
Indeno(1,2,3-cd)pyrene	ND		1520	ug/kg	05/22/19	05/24/19
Naphthalene	ND		1520	ug/kg	05/22/19	05/24/19
Phenanthrene	**1820**		1520	ug/kg	05/22/19	05/24/19
Pyrene	ND		1520	ug/kg	05/22/19	05/24/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*86.2%*	*30-126*	05/22/19	05/24/19
p-Terphenyl-d14	*90.6%*	*47-130*	05/22/19	05/24/19
2-Fluorobiphenyl	*79.6%*	*34-130*	05/22/19	05/24/19

Results: Semivolatile organic compounds

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**1610**		156	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		156	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		156	ug/kg	05/22/19	05/22/19
Anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Chrysene	ND		156	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		156	ug/kg	05/22/19	05/22/19
Fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Fluorene	ND		156	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Naphthalene	**1250**		156	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		156	ug/kg	05/22/19	05/22/19
Pyrene	ND		156	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*84.3%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*93.3%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*75.3%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		171	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		171	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		171	ug/kg	05/22/19	05/22/19
Anthracene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		171	ug/kg	05/22/19	05/22/19
Chrysene	ND		171	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		171	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		171	ug/kg	05/22/19	05/22/19
Fluoranthene	**231**		171	ug/kg	05/22/19	05/22/19
Fluorene	ND		171	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		171	ug/kg	05/22/19	05/22/19
Naphthalene	ND		171	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		171	ug/kg	05/22/19	05/22/19
Pyrene	ND		171	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*74.9%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*86.1%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*70.0%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		156	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		156	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		156	ug/kg	05/22/19	05/22/19
Anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Chrysene	ND		156	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		156	ug/kg	05/22/19	05/22/19
Fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Fluorene	ND		156	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Naphthalene	ND		156	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		156	ug/kg	05/22/19	05/22/19
Pyrene	ND		156	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*76.5%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*98.6%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*89.1%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**825**		146	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		146	ug/kg	05/22/19	05/22/19
Acenaphthylene	**218**		146	ug/kg	05/22/19	05/22/19
Anthracene	**996**		146	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	**849**		146	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	**628**		146	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	**813**		146	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	**360**		146	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	**273**		146	ug/kg	05/22/19	05/22/19
Chrysene	**836**		146	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		146	ug/kg	05/22/19	05/22/19
Dibenzofuran	**175**		146	ug/kg	05/22/19	05/22/19
Fluoranthene	**2090**		146	ug/kg	05/22/19	05/22/19
Fluorene	ND		146	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	**445**		146	ug/kg	05/22/19	05/22/19
Naphthalene	**227**		146	ug/kg	05/22/19	05/22/19
Phenanthrene	**2510**		146	ug/kg	05/22/19	05/22/19
Pyrene	**1900**		146	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*80.1%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*83.3%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*76.9%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		3820	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		3820	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		3820	ug/kg	05/22/19	05/22/19
Anthracene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		3820	ug/kg	05/22/19	05/22/19
Chrysene	ND		3820	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		3820	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		3820	ug/kg	05/22/19	05/22/19
Fluoranthene	ND		3820	ug/kg	05/22/19	05/22/19
Fluorene	ND		3820	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		3820	ug/kg	05/22/19	05/22/19
Naphthalene	ND		3820	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		3820	ug/kg	05/22/19	05/22/19
Pyrene	**17400**		3820	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*75.0%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*88.5%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*80.5%*	*34-130*	05/22/19	05/22/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		78	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		78	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*55.0%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*63.0%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-202 (10-15)
Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		74	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		74	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6 Tetrachloro m xylene (TCMX)	*53.1%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*62.1%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		77	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		77	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*62.3%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*71.4%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		85	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		85	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*16.8%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*56.4%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		78	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		78	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*83.5%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*70.1%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		74	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		74	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*64.0%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*69.1%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1221	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1232	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1242	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1248	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1254	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1260	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1262	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1268	ND		79	ug/kg	05/22/19	05/24/19
PCBs (Total)	ND		79	ug/kg	05/22/19	05/24/19

Surrogate(s)	Recovery%		Limits			
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*55.1%*		*36.2-108*		05/22/19	05/24/19
Decachlorobiphenyl (DCBP)	*61.5%*		*43.3-118*		05/22/19	05/24/19

Results: Total Petroleum Hydrocarbons

Sample: SE-201 (10-15)
Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**1400**		32	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*68.7%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**13300**		637	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	%		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**1770**		33	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*68.4%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**2520**		35	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*64.9%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		32	mg/kg	05/22/19	05/22/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*74.0%*		*56.5-114*		05/22/19	05/22/19

Results: Total Petroleum Hydrocarbons

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**1040**		31	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*75.4%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**27000**		1620	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	%		*56.5-114*		05/22/19	05/23/19

Quality Control

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0902 - Metals Digestion Soils										
Blank (B9E0902-BLK1)					Prepared & Analyzed: 05/22/19					
Lead	ND		0.33	mg/kg						
Selenium	ND		0.66	mg/kg						
Chromium	ND		0.33	mg/kg						
Cadmium	ND		0.33	mg/kg						
Barium	ND		0.33	mg/kg						
Arsenic	ND		0.66	mg/kg						
Silver	ND		0.33	mg/kg						
LCS (B9E0902-BS1)					Prepared & Analyzed: 05/22/19					
Chromium	99.4		0.33	mg/kg	100		99.4	85-115		
Arsenic	19.6		0.66	mg/kg	20.0		98.1	85-115		
Barium	100		0.33	mg/kg	100		100	85-115		
Lead	96.4		0.33	mg/kg	100		96.4	85-115		
Cadmium	97.0		0.33	mg/kg	100		97.0	85-115		
Selenium	19.3		0.66	mg/kg	20.0		96.5	85-115		
Silver	39.4		0.33	mg/kg	40.0		98.5	85-115		
Batch: B9E0992 - Metals Digestion Soils										
Blank (B9E0992-BLK1)					Prepared: 05/23/19 Analyzed: 05/24/19					
Mercury	ND		0.071	mg/kg						
LCS (B9E0992-BS1)					Prepared: 05/23/19 Analyzed: 05/24/19					
Mercury	0.145		0.071	mg/kg	0.143		101	93-114		

Quality Control
(Continued)

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap										
Blank (B9E0892-BLK1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
Blank (B9E0892-BLK1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*44.8*	ug/l	*50.0*		*89.5*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.4*	ug/l	*50.0*		*96.9*	*70-130*		
Surrogate: Toluene-d8			*47.2*	ug/l	*50.0*		*94.5*	*70-130*		
LCS (B9E0892-BS1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Acetone	44			ug/l	50.0		88.2	70-130		
Benzene	52			ug/l	50.0		104	70-130		
Bromobenzene	55			ug/l	50.0		109	70-130		
Bromochloromethane	48			ug/l	50.0		97.0	70-130		
Bromodichloromethane	50			ug/l	50.0		99.5	70-130		
Bromoform	56			ug/l	50.0		113	70-130		
Bromomethane	48			ug/l	50.0		96.8	70-130		
2-Butanone	53			ug/l	50.0		106	70-130		
tert-Butyl alcohol	52			ug/l	50.0		105	70-130		
sec-Butylbenzene	63			ug/l	50.0		126	70-130		
n-Butylbenzene	65			ug/l	50.0		129	70-130		
tert-Butylbenzene	61			ug/l	50.0		121	70-130		
Methyl t-butyl ether (MTBE)	49			ug/l	50.0		97.7	70-130		
Carbon Disulfide	51			ug/l	50.0		103	70-130		
Carbon Tetrachloride	53			ug/l	50.0		105	70-130		
Chlorobenzene	56			ug/l	50.0		112	70-130		
Chloroethane	48			ug/l	50.0		95.6	70-130		
Chloroform	50			ug/l	50.0		99.7	70-130		
Chloromethane	50			ug/l	50.0		99.2	70-130		
4-Chlorotoluene	58			ug/l	50.0		115	70-130		
2-Chlorotoluene	58			ug/l	50.0		115	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	53			ug/l	50.0		106	70-130		
Dibromochloromethane	51			ug/l	50.0		103	70-130		
1,2-Dibromoethane (EDB)	50			ug/l	50.0		100	70-130		
Dibromomethane	50			ug/l	50.0		99.6	70-130		
1,2-Dichlorobenzene	58			ug/l	50.0		116	70-130		
1,3-Dichlorobenzene	58			ug/l	50.0		116	70-130		
1,4-Dichlorobenzene	57			ug/l	50.0		114	70-130		
1,1-Dichloroethane	51			ug/l	50.0		101	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
LCS (B9E0892-BS1)					Prepared: 05/21/19 Analyzed: 05/22/19					
1,2-Dichloroethane	52			ug/l	50.0		104	70-130		
trans-1,2-Dichloroethene	50			ug/l	50.0		101	70-130		
cis-1,2-Dichloroethene	52			ug/l	50.0		104	70-130		
1,1-Dichloroethene	52			ug/l	50.0		105	70-130		
1,2-Dichloropropane	49			ug/l	50.0		98.1	70-130		
2,2-Dichloropropane	40			ug/l	50.0		79.9	70-130		
cis-1,3-Dichloropropene	50			ug/l	50.0		101	70-130		
trans-1,3-Dichloropropene	51			ug/l	50.0		102	70-130		
1,1-Dichloropropene	52			ug/l	50.0		104	70-130		
Diethyl ether	50			ug/l	50.0		100	70-130		
1,4-Dioxane	195			ug/l	250		78.0	70-130		
Ethylbenzene	58			ug/l	50.0		116	70-130		
Hexachlorobutadiene	60			ug/l	50.0		119	70-130		
2-Hexanone	43			ug/l	50.0		85.3	70-130		
Isopropylbenzene	61			ug/l	50.0		121	70-130		
p-Isopropyltoluene	64			ug/l	50.0		129	70-130		
Methylene Chloride	44			ug/l	50.0		88.8	70-130		
4-Methyl-2-pentanone	46			ug/l	50.0		92.0	70-130		
Naphthalene	55			ug/l	50.0		111	70-130		
n-Propylbenzene	63			ug/l	50.0		125	70-130		
Styrene	63			ug/l	50.0		127	70-130		
1,1,1,2-Tetrachloroethane	54			ug/l	50.0		109	70-130		
Tetrachloroethene	51			ug/l	50.0		103	70-130		
Tetrahydrofuran	47			ug/l	50.0		94.2	70-130		
Toluene	50			ug/l	50.0		99.8	70-130		
1,2,4-Trichlorobenzene	52			ug/l	50.0		105	70-130		
1,2,3-Trichlorobenzene	51			ug/l	50.0		101	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130		
1,1,1-Trichloroethane	52			ug/l	50.0		104	70-130		
Trichloroethene	52			ug/l	50.0		104	70-130		
1,2,3-Trichloropropane	52			ug/l	50.0		104	70-130		
1,3,5-Trimethylbenzene	61			ug/l	50.0		123	70-130		
1,2,4-Trimethylbenzene	62			ug/l	50.0		124	70-130		
Vinyl Chloride	51			ug/l	50.0		102	70-130		
o-Xylene	58			ug/l	50.0		116	70-130		
m&p-Xylene	117			ug/l	100		117	70-130		
1,1,2,2-Tetrachloroethane	53			ug/l	50.0		105	70-130		
tert-Amyl methyl ether	50			ug/l	50.0		99.3	70-130		
1,3-Dichloropropane	53			ug/l	50.0		106	70-130		
Ethyl tert-butyl ether	50			ug/l	50.0		101	70-130		
Diisopropyl ether	51			ug/l	50.0		102	70-130		
Trichlorofluoromethane	52			ug/l	50.0		105	70-130		
Dichlorodifluoromethane	50			ug/l	50.0		101	70-130		
Surrogate: 4-Bromofluorobenzene			*50.3*	ug/l	*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.0*	ug/l	*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8			*49.3*	ug/l	*50.0*		*98.5*	*70-130*		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
LCS Dup (B9E0892-BSD1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Acetone	47			ug/l	50.0		94.0	70-130	6.37	200
Benzene	52			ug/l	50.0		103	70-130	1.12	200
Bromobenzene	57			ug/l	50.0		113	70-130	3.63	200
Bromochloromethane	50			ug/l	50.0		100	70-130	3.05	200
Bromodichloromethane	50			ug/l	50.0		101	70-130	1.40	200
Bromoform	55			ug/l	50.0		111	70-130	1.49	200
Bromomethane	52			ug/l	50.0		104	70-130	7.14	200
2-Butanone	54			ug/l	50.0		108	70-130	1.75	200
tert-Butyl alcohol	63			ug/l	50.0		125	70-130	17.7	200
sec-Butylbenzene	62			ug/l	50.0		124	70-130	1.42	200
n-Butylbenzene	65			ug/l	50.0		130	70-130	0.418	200
tert-Butylbenzene	61			ug/l	50.0		122	70-130	0.740	200
Methyl t-butyl ether (MTBE)	48			ug/l	50.0		95.8	70-130	1.96	200
Carbon Disulfide	51			ug/l	50.0		102	70-130	0.664	200
Carbon Tetrachloride	52			ug/l	50.0		103	70-130	2.07	200
Chlorobenzene	56			ug/l	50.0		111	70-130	0.305	200
Chloroethane	47			ug/l	50.0		94.4	70-130	1.33	200
Chloroform	49			ug/l	50.0		97.7	70-130	2.03	200
Chloromethane	49			ug/l	50.0		98.0	70-130	1.24	200
4-Chlorotoluene	57			ug/l	50.0		115	70-130	0.418	200
2-Chlorotoluene	57			ug/l	50.0		115	70-130	0.418	200
1,2-Dibromo-3-chloropropane (DBCP)	53			ug/l	50.0		106	70-130	0.717	200
Dibromochloromethane	51			ug/l	50.0		102	70-130	0.254	200
1,2-Dibromoethane (EDB)	50			ug/l	50.0		99.5	70-130	0.741	200
Dibromomethane	51			ug/l	50.0		101	70-130	1.73	200
1,2-Dichlorobenzene	58			ug/l	50.0		116	70-130	0.328	200
1,3-Dichlorobenzene	58			ug/l	50.0		116	70-130	0.275	200
1,4-Dichlorobenzene	57			ug/l	50.0		114	70-130	0.140	200
1,1-Dichloroethane	50			ug/l	50.0		101	70-130	0.555	200
1,2-Dichloroethane	50			ug/l	50.0		101	70-130	2.64	200
trans-1,2-Dichloroethene	50			ug/l	50.0		100	70-130	0.698	200
cis-1,2-Dichloroethene	51			ug/l	50.0		103	70-130	0.909	200
1,1-Dichloroethene	52			ug/l	50.0		104	70-130	0.192	200
1,2-Dichloropropane	49			ug/l	50.0		98.9	70-130	0.893	200
2,2-Dichloropropane	40			ug/l	50.0		79.1	70-130	1.03	200
cis-1,3-Dichloropropene	48			ug/l	50.0		96.7	70-130	3.95	200
trans-1,3-Dichloropropene	49			ug/l	50.0		97.8	70-130	3.75	200
1,1-Dichloropropene	50			ug/l	50.0		100	70-130	3.95	200
Diethyl ether	50			ug/l	50.0		99.4	70-130	0.542	200
1,4-Dioxane	248			ug/l	250		99.2	70-130	23.9	200
Ethylbenzene	58			ug/l	50.0		115	70-130	0.693	200
Hexachlorobutadiene	61			ug/l	50.0		122	70-130	2.34	200
2-Hexanone	47			ug/l	50.0		93.5	70-130	9.08	200
Isopropylbenzene	60			ug/l	50.0		120	70-130	1.41	200
p-Isopropyltoluene	64			ug/l	50.0		128	70-130	0.218	200
Methylene Chloride	45			ug/l	50.0		90.1	70-130	1.43	200
4-Methyl-2-pentanone	48			ug/l	50.0		95.9	70-130	4.15	200
Naphthalene	62			ug/l	50.0		124	70-130	11.4	200
n-Propylbenzene	62			ug/l	50.0		124	70-130	1.33	200
Styrene	63			ug/l	50.0		126	70-130	0.888	200
1,1,1,2-Tetrachloroethane	53			ug/l	50.0		106	70-130	2.31	200
Tetrachloroethene	49			ug/l	50.0		97.8	70-130	4.81	200
Tetrahydrofuran	53			ug/l	50.0		107	70-130	12.4	200
Toluene	51			ug/l	50.0		102	70-130	1.85	200

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
LCS Dup (B9E0892-BSD1)					Prepared: 05/21/19 Analyzed: 05/22/19					
1,2,4-Trichlorobenzene	55			ug/l	50.0		110	70-130	4.68	200
1,2,3-Trichlorobenzene	61			ug/l	50.0		123	70-130	19.0	200
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130	0.424	200
1,1,1-Trichloroethane	51			ug/l	50.0		102	70-130	1.67	200
Trichloroethene	52			ug/l	50.0		105	70-130	0.402	200
1,2,3-Trichloropropane	51			ug/l	50.0		102	70-130	1.75	200
1,3,5-Trimethylbenzene	61			ug/l	50.0		121	70-130	1.13	200
1,2,4-Trimethylbenzene	61			ug/l	50.0		123	70-130	0.648	200
Vinyl Chloride	52			ug/l	50.0		104	70-130	1.50	200
o-Xylene	57			ug/l	50.0		113	70-130	2.43	200
m&p-Xylene	116			ug/l	100		116	70-130	0.558	200
1,1,2,2-Tetrachloroethane	50			ug/l	50.0		99.5	70-130	5.70	200
tert-Amyl methyl ether	48			ug/l	50.0		96.5	70-130	2.90	200
1,3-Dichloropropane	53			ug/l	50.0		105	70-130	0.341	200
Ethyl tert-butyl ether	49			ug/l	50.0		98.3	70-130	2.37	200
Diisopropyl ether	51			ug/l	50.0		102	70-130	0.0586	200
Trichlorofluoromethane	51			ug/l	50.0		102	70-130	2.63	200
Dichlorodifluoromethane	50			ug/l	50.0		99.9	70-130	0.777	200
Surrogate: 4-Bromofluorobenzene			*50.2*	ug/l	*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.4*	ug/l	*50.0*		*107*	*70-130*		
Surrogate: Toluene-d8			*48.7*	ug/l	*50.0*		*97.5*	*70-130*		
Batch: B9E0945 - Purge-Trap										
Blank (B9E0945-BLK1)					Prepared & Analyzed: 05/22/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
Blank (B9E0945-BLK1)					Prepared & Analyzed: 05/22/19					
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*43.2*	ug/l	*50.0*		*86.4*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*51.1*	ug/l	*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8			*47.4*	ug/l	*50.0*		*94.8*	*70-130*		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
LCS (B9E0945-BS1)					Prepared & Analyzed: 05/22/19					
Acetone	38			ug/l	50.0		76.7	70-130		
Benzene	54			ug/l	50.0		108	70-130		
Bromobenzene	58			ug/l	50.0		117	70-130		
Bromochloromethane	52			ug/l	50.0		104	70-130		
Bromodichloromethane	50			ug/l	50.0		99.3	70-130		
Bromoform	55			ug/l	50.0		110	70-130		
Bromomethane	51			ug/l	50.0		101	70-130		
2-Butanone	52			ug/l	50.0		103	70-130		
tert-Butyl alcohol	31			ug/l	50.0		62.9	70-130		
sec-Butylbenzene	64			ug/l	50.0		128	70-130		
n-Butylbenzene	66			ug/l	50.0		133	70-130		
tert-Butylbenzene	62			ug/l	50.0		124	70-130		
Methyl t-butyl ether (MTBE)	48			ug/l	50.0		96.2	70-130		
Carbon Disulfide	53			ug/l	50.0		105	70-130		
Carbon Tetrachloride	52			ug/l	50.0		104	70-130		
Chlorobenzene	57			ug/l	50.0		115	70-130		
Chloroethane	42			ug/l	50.0		84.2	70-130		
Chloroform	49			ug/l	50.0		97.4	70-130		
Chloromethane	47			ug/l	50.0		93.4	70-130		
4-Chlorotoluene	57			ug/l	50.0		114	70-130		
2-Chlorotoluene	57			ug/l	50.0		114	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	50			ug/l	50.0		101	70-130		
Dibromochloromethane	50			ug/l	50.0		100	70-130		
1,2-Dibromoethane (EDB)	51			ug/l	50.0		103	70-130		
Dibromomethane	50			ug/l	50.0		99.3	70-130		
1,2-Dichlorobenzene	59			ug/l	50.0		118	70-130		
1,3-Dichlorobenzene	60			ug/l	50.0		120	70-130		
1,4-Dichlorobenzene	60			ug/l	50.0		119	70-130		
1,1-Dichloroethane	50			ug/l	50.0		101	70-130		
1,2-Dichloroethane	47			ug/l	50.0		93.7	70-130		
trans-1,2-Dichloroethene	52			ug/l	50.0		104	70-130		
cis-1,2-Dichloroethene	55			ug/l	50.0		110	70-130		
1,1-Dichloroethene	55			ug/l	50.0		111	70-130		
1,2-Dichloropropane	50			ug/l	50.0		100	70-130		
2,2-Dichloropropane	55			ug/l	50.0		109	70-130		
cis-1,3-Dichloropropene	54			ug/l	50.0		108	70-130		
trans-1,3-Dichloropropene	52			ug/l	50.0		104	70-130		
1,1-Dichloropropene	57			ug/l	50.0		113	70-130		
Diethyl ether	47			ug/l	50.0		93.1	70-130		
1,4-Dioxane	298			ug/l	250		119	70-130		
Ethylbenzene	59			ug/l	50.0		118	70-130		
Hexachlorobutadiene	62			ug/l	50.0		124	70-130		
2-Hexanone	43			ug/l	50.0		86.7	70-130		
Isopropylbenzene	61			ug/l	50.0		122	70-130		
p-Isopropyltoluene	66			ug/l	50.0		132	70-130		
Methylene Chloride	43			ug/l	50.0		86.5	70-130		
4-Methyl-2-pentanone	42			ug/l	50.0		83.8	70-130		
Naphthalene	50			ug/l	50.0		99.7	70-130		
n-Propylbenzene	63			ug/l	50.0		126	70-130		
Styrene	65			ug/l	50.0		130	70-130		
1,1,1,2-Tetrachloroethane	54			ug/l	50.0		108	70-130		
Tetrachloroethene	57			ug/l	50.0		113	70-130		
Tetrahydrofuran	54			ug/l	50.0		109	70-130		
Toluene	53			ug/l	50.0		107	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
LCS (B9E0945-BS1)					Prepared & Analyzed: 05/22/19					
1,2,4-Trichlorobenzene	48			ug/l	50.0		96.4	70-130		
1,2,3-Trichlorobenzene	42			ug/l	50.0		84.1	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130		
1,1,1-Trichloroethane	52			ug/l	50.0		104	70-130		
Trichloroethene	52			ug/l	50.0		104	70-130		
1,2,3-Trichloropropane	48			ug/l	50.0		96.2	70-130		
1,3,5-Trimethylbenzene	61			ug/l	50.0		123	70-130		
1,2,4-Trimethylbenzene	62			ug/l	50.0		125	70-130		
Vinyl Chloride	52			ug/l	50.0		104	70-130		
o-Xylene	59			ug/l	50.0		118	70-130		
m&p-Xylene	124			ug/l	100		124	70-130		
1,1,2,2-Tetrachloroethane	53			ug/l	50.0		106	70-130		
tert-Amyl methyl ether	52			ug/l	50.0		104	70-130		
1,3-Dichloropropane	53			ug/l	50.0		106	70-130		
Ethyl tert-butyl ether	51			ug/l	50.0		101	70-130		
Diisopropyl ether	49			ug/l	50.0		98.3	70-130		
Trichlorofluoromethane	46			ug/l	50.0		92.5	70-130		
Dichlorodifluoromethane	48			ug/l	50.0		95.2	70-130		
Surrogate: 4-Bromofluorobenzene			*47.2*	ug/l	*50.0*		*94.5*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.9*	ug/l	*50.0*		*108*	*70-130*		
Surrogate: Toluene-d8			*48.7*	ug/l	*50.0*		*97.4*	*70-130*		
LCS Dup (B9E0945-BSD1)					Prepared & Analyzed: 05/22/19					
Acetone	38			ug/l	50.0		76.3	70-130	0.601	200
Benzene	55			ug/l	50.0		110	70-130	2.48	200
Bromobenzene	58			ug/l	50.0		115	70-130	1.48	200
Bromochloromethane	53			ug/l	50.0		106	70-130	1.12	200
Bromodichloromethane	50			ug/l	50.0		99.6	70-130	0.382	200
Bromoform	56			ug/l	50.0		111	70-130	1.26	200
Bromomethane	56			ug/l	50.0		112	70-130	9.74	200
2-Butanone	48			ug/l	50.0		95.1	70-130	8.29	200
tert-Butyl alcohol	32			ug/l	50.0		64.2	70-130	2.01	200
sec-Butylbenzene	65			ug/l	50.0		129	70-130	0.699	200
n-Butylbenzene	68			ug/l	50.0		136	70-130	2.19	200
tert-Butylbenzene	62			ug/l	50.0		123	70-130	0.194	200
Methyl t-butyl ether (MTBE)	48			ug/l	50.0		95.6	70-130	0.709	200
Carbon Disulfide	54			ug/l	50.0		108	70-130	2.38	200
Carbon Tetrachloride	54			ug/l	50.0		107	70-130	3.51	200
Chlorobenzene	60			ug/l	50.0		119	70-130	3.76	200
Chloroethane	47			ug/l	50.0		93.7	70-130	10.7	200
Chloroform	50			ug/l	50.0		99.3	70-130	1.93	200
Chloromethane	47			ug/l	50.0		94.8	70-130	1.55	200
4-Chlorotoluene	58			ug/l	50.0		115	70-130	1.31	200
2-Chlorotoluene	58			ug/l	50.0		115	70-130	1.31	200
1,2-Dibromo-3-chloropropane (DBCP)	51			ug/l	50.0		101	70-130	0.594	200
Dibromochloromethane	52			ug/l	50.0		105	70-130	4.45	200
1,2-Dibromoethane (EDB)	52			ug/l	50.0		104	70-130	1.18	200
Dibromomethane	51			ug/l	50.0		102	70-130	2.60	200
1,2-Dichlorobenzene	60			ug/l	50.0		120	70-130	1.50	200
1,3-Dichlorobenzene	61			ug/l	50.0		122	70-130	1.68	200
1,4-Dichlorobenzene	60			ug/l	50.0		119	70-130	0.218	200
1,1-Dichloroethane	51			ug/l	50.0		103	70-130	2.18	200
1,2-Dichloroethane	48			ug/l	50.0		95.5	70-130	1.99	200
trans-1,2-Dichloroethene	53			ug/l	50.0		105	70-130	1.48	200

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
LCS Dup (B9E0945-BSD1)					Prepared & Analyzed: 05/22/19					
cis-1,2-Dichloroethene	55			ug/l	50.0		111	70-130	0.797	200
1,1-Dichloroethene	57			ug/l	50.0		115	70-130	3.31	200
1,2-Dichloropropane	51			ug/l	50.0		102	70-130	2.35	200
2,2-Dichloropropane	56			ug/l	50.0		111	70-130	1.54	200
cis-1,3-Dichloropropene	52			ug/l	50.0		105	70-130	2.46	200
trans-1,3-Dichloropropene	54			ug/l	50.0		108	70-130	3.82	200
1,1-Dichloropropene	59			ug/l	50.0		118	70-130	3.88	200
Diethyl ether	47			ug/l	50.0		94.2	70-130	1.22	200
1,4-Dioxane	278			ug/l	250		111	70-130	7.08	200
Ethylbenzene	60			ug/l	50.0		120	70-130	1.58	200
Hexachlorobutadiene	68			ug/l	50.0		135	70-130	8.33	200
2-Hexanone	45			ug/l	50.0		89.1	70-130	2.68	200
Isopropylbenzene	62			ug/l	50.0		124	70-130	1.15	200
p-Isopropyltoluene	68			ug/l	50.0		135	70-130	2.17	200
Methylene Chloride	43			ug/l	50.0		86.9	70-130	0.461	200
4-Methyl-2-pentanone	43			ug/l	50.0		86.1	70-130	2.73	200
Naphthalene	61			ug/l	50.0		123	70-130	20.8	200
n-Propylbenzene	64			ug/l	50.0		128	70-130	1.42	200
Styrene	66			ug/l	50.0		132	70-130	0.855	200
1,1,1,2-Tetrachloroethane	56			ug/l	50.0		111	70-130	2.33	200
Tetrachloroethene	58			ug/l	50.0		116	70-130	2.06	200
Tetrahydrofuran	53			ug/l	50.0		106	70-130	3.13	200
Toluene	55			ug/l	50.0		109	70-130	2.15	200
1,2,4-Trichlorobenzene	58			ug/l	50.0		115	70-130	17.7	200
1,2,3-Trichlorobenzene	47			ug/l	50.0		94.2	70-130	11.4	200
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130	0.0961	200
1,1,1-Trichloroethane	53			ug/l	50.0		106	70-130	1.81	200
Trichloroethene	53			ug/l	50.0		106	70-130	2.43	200
1,2,3-Trichloropropane	48			ug/l	50.0		96.9	70-130	0.808	200
1,3,5-Trimethylbenzene	62			ug/l	50.0		123	70-130	0.650	200
1,2,4-Trimethylbenzene	63			ug/l	50.0		126	70-130	1.05	200
Vinyl Chloride	53			ug/l	50.0		107	70-130	2.77	200
o-Xylene	59			ug/l	50.0		119	70-130	0.405	200
m&p-Xylene	124			ug/l	100		124	70-130	0.435	200
1,1,2,2-Tetrachloroethane	54			ug/l	50.0		107	70-130	0.880	200
tert-Amyl methyl ether	52			ug/l	50.0		104	70-130	0.212	200
1,3-Dichloropropane	54			ug/l	50.0		108	70-130	2.26	200
Ethyl tert-butyl ether	51			ug/l	50.0		102	70-130	0.592	200
Diisopropyl ether	50			ug/l	50.0		99.9	70-130	1.61	200
Trichlorofluoromethane	49			ug/l	50.0		98.7	70-130	6.44	200
Dichlorodifluoromethane	50			ug/l	50.0		99.6	70-130	4.50	200
Surrogate: 4-Bromofluorobenzene			*47.4*	ug/l	*50.0*		*94.7*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.0*	ug/l	*50.0*		*106*	*70-130*		
Surrogate: Toluene-d8			*48.8*	ug/l	*50.0*		*97.7*	*70-130*		

Quality Control
(Continued)

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0870 - EPA 3546										
Blank (B9E0870-BLK1)					Prepared & Analyzed: 05/22/19					
2-Methylnaphthalene	ND		130	ug/kg						
Acenaphthene	ND		130	ug/kg						
Acenaphthylene	ND		130	ug/kg						
Anthracene	ND		130	ug/kg						
Benzo(a)anthracene	ND		130	ug/kg						
Benzo(a)pyrene	ND		130	ug/kg						
Benzo(b)fluoranthene	ND		130	ug/kg						
Benzo(g,h,i)perylene	ND		130	ug/kg						
Benzo(k)fluoranthene	ND		130	ug/kg						
Chrysene	ND		130	ug/kg						
Dibenz(a,h)anthracene	ND		130	ug/kg						
Dibenzofuran	ND		130	ug/kg						
Fluoranthene	ND		130	ug/kg						
Fluorene	ND		130	ug/kg						
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg						
Naphthalene	ND		130	ug/kg						
Phenanthrene	ND		130	ug/kg						
Pyrene	ND		130	ug/kg						
Surrogate: Nitrobenzene-d5			*2810*	ug/kg	*3330*		*84.3*	*30-126*		
Surrogate: p-Terphenyl-d14			*2680*	ug/kg	*3330*		*80.5*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2230*	ug/kg	*3330*		*67.0*	*34-130*		
LCS (B9E0870-BS1)					Prepared & Analyzed: 05/22/19					
2-Methylnaphthalene	2900		130	ug/kg	3330		86.9	40-140		
Acenaphthene	2550		130	ug/kg	3330		76.5	40-140		
Acenaphthylene	2700		130	ug/kg	3330		81.0	40-140		
Anthracene	2860		130	ug/kg	3330		85.8	40-140		
Benzo(a)anthracene	2980		130	ug/kg	3330		89.4	40-140		
Benzo(a)pyrene	3040		130	ug/kg	3330		91.2	40-140		
Benzo(b)fluoranthene	3080		130	ug/kg	3330		92.3	40-140		
Benzo(g,h,i)perylene	2960		130	ug/kg	3330		88.9	40-140		
Benzo(k)fluoranthene	2920		130	ug/kg	3330		87.6	40-140		
Chrysene	2930		130	ug/kg	3330		87.8	40-140		
Dibenz(a,h)anthracene	3020		130	ug/kg	3330		90.5	40-140		
Dibenzofuran	2780		130	ug/kg	3330		83.4	40-140		
Fluoranthene	2830		130	ug/kg	3330		84.8	40-140		
Fluorene	2670		130	ug/kg	3330		80.2	40-140		
Indeno(1,2,3-cd)pyrene	3250		130	ug/kg	3330		97.4	40-140		
Naphthalene	2870		130	ug/kg	3330		86.0	40-140		
Phenanthrene	2870		130	ug/kg	3330		86.0	40-140		
Pyrene	2920		130	ug/kg	3330		87.6	40-140		
Surrogate: Nitrobenzene-d5			*2570*	ug/kg	*3330*		*77.2*	*30-126*		
Surrogate: p-Terphenyl-d14			*2980*	ug/kg	*3330*		*89.4*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2680*	ug/kg	*3330*		*80.3*	*34-130*		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0870 - EPA 3546 (Continued)										
LCS Dup (B9E0870-BSD1)					Prepared & Analyzed: 05/22/19					
2-Methylnaphthalene	3000		130	ug/kg	3330		90.1	40-140	3.62	30
Acenaphthene	2600		130	ug/kg	3330		78.0	40-140	1.94	30
Acenaphthylene	2810		130	ug/kg	3330		84.2	40-140	3.80	30
Anthracene	2980		130	ug/kg	3330		89.3	40-140	4.07	30
Benzo(a)anthracene	3030		130	ug/kg	3330		91.0	40-140	1.82	30
Benzo(a)pyrene	3220		130	ug/kg	3330		96.6	40-140	5.79	30
Benzo(b)fluoranthene	3210		130	ug/kg	3330		96.3	40-140	4.26	30
Benzo(g,h,i)perylene	3130		130	ug/kg	3330		94.0	40-140	5.53	30
Benzo(k)fluoranthene	3110		130	ug/kg	3330		93.3	40-140	6.37	30
Chrysene	3010		130	ug/kg	3330		90.3	40-140	2.81	30
Dibenz(a,h)anthracene	3190		130	ug/kg	3330		95.8	40-140	5.75	30
Dibenzofuran	2910		130	ug/kg	3330		87.2	40-140	4.48	30
Fluoranthene	2990		130	ug/kg	3330		89.8	40-140	5.75	30
Fluorene	2790		130	ug/kg	3330		83.7	40-140	4.34	30
Indeno(1,2,3-cd)pyrene	3460		130	ug/kg	3330		104	40-140	6.32	30
Naphthalene	2970		130	ug/kg	3330		89.1	40-140	3.52	30
Phenanthrene	3030		130	ug/kg	3330		90.8	40-140	5.36	30
Pyrene	2980		130	ug/kg	3330		89.4	40-140	2.08	30
Surrogate: Nitrobenzene-d5			*2590*	ug/kg	*3330*		*77.8*	*30-126*		
Surrogate: p-Terphenyl-d14			*3080*	ug/kg	*3330*		*92.5*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2810*	ug/kg	*3330*		*84.4*	*34-130*		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0919 - EPA 3546										
Blank (B9E0919-BLK1)					Prepared: 05/22/19 Analyzed: 05/23/19					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*12.2*	ug/kg	*13.3*		*91.6*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*12.5*	ug/kg	*13.3*		*93.5*	*43.3-118*		
LCS (B9E0919-BS1)					Prepared: 05/22/19 Analyzed: 05/23/19					
Aroclor-1016	142		66	ug/kg	167		85.3	58.2-125		
Aroclor-1260	150		66	ug/kg	167		90.1	65.5-130		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*12.4*	ug/kg	*13.3*		*93.2*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*13.2*	ug/kg	*13.3*		*98.7*	*43.3-118*		
LCS Dup (B9E0919-BSD1)					Prepared: 05/22/19 Analyzed: 05/23/19					
Aroclor-1016	157		66	ug/kg	167		94.3	58.2-125	9.94	20
Aroclor-1260	155		66	ug/kg	167		92.7	65.5-130	2.85	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*12.2*	ug/kg	*13.3*		*91.5*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*12.8*	ug/kg	*13.3*		*96.2*	*43.3-118*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0897 - EPA 3546										
Blank (B9E0897-BLK1)					Prepared & Analyzed: 05/22/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*4.81*	mg/kg	*8.33*		*57.8*	*56.5-114*		
LCS (B9E0897-BS1)					Prepared & Analyzed: 05/22/19					
Total Petroleum Hydrocarbons	382		27	mg/kg	667		57.3	44.7-98.7		
Surrogate: Chlorooctadecane			*5.98*	mg/kg	*8.33*		*71.7*	*56.5-114*		
LCS Dup (B9E0897-BSD1)					Prepared & Analyzed: 05/22/19					
Total Petroleum Hydrocarbons	420		27	mg/kg	667		63.0	44.7-98.7	9.48	200
Surrogate: Chlorooctadecane			*7.57*	mg/kg	*8.33*		*90.8*	*56.5-114*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECORD

9 E 2 1011 P

PROJ. NO. S3291

PROJECT NAME/LOCATION: S3291 — CHEVRON SLIVER, EAST PROVIDENCE

CLIENT: SAGE

REPORT TO: sage@sage-envires.com

INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** RCRA 8 METALS	VOCs	TPH	PAHs	PCBs	REMARKS
5/20			X	SE-201 (10-15)		X		2	NaOH/MeOH	X	X	X	X	X	
				SE-202 (10-15)											
				SE-203 (10-15)											
				SE-204 (10-15)											
				SE-205 (5-10)											
				SE-206 (10-15)											
				SE-207 (0-5)											

	Date/Time		Date/Time	
Sampled by: (Signature)		Received by: (Signature)	5/21/19	0947
Relinquished by: (Signature)	5/21/19 1600	Received by: (Signature)		
Relinquished by: (Signature)		Received for Laboratory by: (Signature)	5/21/19	1600

Laboratory Remarks:
Temp. received: 4
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM R-DEC
GB-LC

Turnaround (Business Days): 72 Hr

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9E31042
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 03-June-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 05/31/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9E31042. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9E31042-01	SE-208 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-02	SE-209 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-03	SE-210 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-04	SE-211 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-05	SE-212 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-06	SE-213 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-07	SE-214 (2-4')	Soil	05/28/2019	05/31/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-208 (2-4') (Lab Number: 9E31042-01)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-209 (2-4') (Lab Number: 9E31042-02)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-210 (2-4') (Lab Number: 9E31042-03)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-211 (2-4') (Lab Number: 9E31042-04)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-212 (2-4') (Lab Number: 9E31042-05)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-213 (2-4') (Lab Number: 9E31042-06)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-214 (2-4') (Lab Number: 9E31042-07)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Results: Total Petroleum Hydrocarbons

Sample: SE-208 (2-4')

Lab Number: 9E31042-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**359**		33	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*71.5%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-209 (2-4')
Lab Number: 9E31042-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		33	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*74.2%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-210 (2-4')

Lab Number: 9E31042-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		32	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*56.9%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-211 (2-4')
Lab Number: 9E31042-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**220**		34	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*64.5%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-212 (2-4')

Lab Number: 9E31042-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		30	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*59.2%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-213 (2-4')
Lab Number: 9E31042-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**90**		31	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*75.2%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-214 (2-4')
Lab Number: 9E31042-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**95**		29	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*76.0%*		*56.5-114*		06/03/19	06/03/19

Quality Control

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9F0003 - EPA 3546										
Blank (B9F0003-BLK1)					Prepared & Analyzed: 06/03/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*6.26*	mg/kg	*8.33*		*75.1*	*56.5-114*		
LCS (B9F0003-BS1)					Prepared & Analyzed: 06/03/19					
Total Petroleum Hydrocarbons	387		27	mg/kg	667		58.0	44.7-98.7		
Surrogate: Chlorooctadecane			*6.68*	mg/kg	*8.33*		*80.2*	*56.5-114*		
LCS Dup (B9F0003-BSD1)					Prepared & Analyzed: 06/03/19					
Total Petroleum Hydrocarbons	371		27	mg/kg	667		55.6	44.7-98.7	4.27	200
Surrogate: Chlorooctadecane			*5.11*	mg/kg	*8.33*		*61.3*	*56.5-114*		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 E 3 1042?

CHAIN OF CUSTODY RECO

PROJ. NO.	PROJECT NAME/LOCATION
S3291	S3291 — CHEVRON SLIVER

CLIENT: SAGE ENVIRONMENTAL
REPORT TO: sage @ sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS: TPH	REMARKS
5/28			X	SE-208 (2-4')		X		1	NON	X	
				SE-209 (2-4')							
				SE-210 (2-4')							
				SE-211 (2-4')							
				SE-212 (2-4)							
				SE-213 (2-4')							
				SE-214 (2-4')							

	Date/Time		Date/Time	
Sampled by: (Signature)	5/28 1600	Received by: (Signature)		Laboratory Remarks:
Relinquished by: (Signature)	5/31 2:25	Received by: (Signature)	5-31-19 1425	Temp. received: 4
Relinquished by: (Signature)	5-31-19 1525	Received for Laboratory by: (Signature)	5/31/19 1525	Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:

RIDEM R-DEC
GB-LC

Turnaround (Business Days) 24 HR

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

B6

Groundwater - South Key Parcels

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9D02067
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 04-April-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 04/02/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9D02067. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9D02067-01	SE-101 (MW)	Water	04/01/2019	04/02/2019
9D02067-02	SE-103 (MW)	Water	04/01/2019	04/02/2019
9D02067-03	SE-105 (MW)	Water	04/01/2019	04/02/2019
9D02067-04	SE-107 (MW)	Water	04/01/2019	04/02/2019
9D02067-05	SE-108 (MW)	Water	04/01/2019	04/02/2019
9D02067-06	SE-110 (MW)	Water	04/01/2019	04/02/2019
9D02067-07	SE-112 (MW)	Water	04/01/2019	04/02/2019
9D02067-08	SE-113 (MW)	Water	04/01/2019	04/02/2019
9D02067-09	SE-115 (MW)	Water	04/01/2019	04/02/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-101 (MW) (Lab Number: 9D02067-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-103 (MW) (Lab Number: 9D02067-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-105 (MW) (Lab Number: 9D02067-03)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-107 (MW) (Lab Number: 9D02067-04)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-108 (MW) (Lab Number: 9D02067-05)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-110 (MW) (Lab Number: 9D02067-06)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-112 (MW) (Lab Number: 9D02067-07)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-113 (MW) (Lab Number: 9D02067-08)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-115 (MW) (Lab Number: 9D02067-09)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'SE-101,' 'SE-108,' and 'SE-110' were reported with elevated detection limits due to the foaming nature of the samples.

In order to meet client specified reporting limits, the compounds '1,2-Dibromomethane (EDB),' '1,2-Dibromo-3-chloropropane,' and 'Vinyl Chloride' were estimated down to MDL limits as denoted by a 'J' on the report forms.

Results: Volatile Organic Compounds

Sample: SE-101 (MW)

Lab Number: 9D02067-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	04/03/19	04/03/19
Benzene	ND		5	ug/l	04/03/19	04/03/19
Bromobenzene	ND		5	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromoform	ND		5	ug/l	04/03/19	04/03/19
Bromomethane	ND		5	ug/l	04/03/19	04/03/19
2-Butanone	ND		25	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		25	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		5	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		5	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		5	ug/l	04/03/19	04/03/19
Chloroethane	ND		5	ug/l	04/03/19	04/03/19
Chloroform	ND		5	ug/l	04/03/19	04/03/19
Chloromethane	ND		5	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromomethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	04/03/19	04/03/19
Diethyl ether	ND		25	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		2500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		5	ug/l	04/03/19	04/03/19
2-Hexanone	ND		25	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		5	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-101 (MW) (Continued)

Lab Number: 9D02067-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		25	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		25	ug/l	04/03/19	04/03/19
Naphthalene	ND		5	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		5	ug/l	04/03/19	04/03/19
Styrene	ND		5	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		5	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		25	ug/l	04/03/19	04/03/19
Toluene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
Trichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		5	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		5	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		10	ug/l	04/03/19	04/03/19
Total xylenes	ND		10	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		5	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		5	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		5	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		5	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*92.1%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*116%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*105%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-103 (MW)

Lab Number: 9D02067-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-103 (MW) (Continued)

Lab Number: 9D02067-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*89.5%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*90.5%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*102%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-105 (MW)

Lab Number: 9D02067-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-105 (MW) (Continued)

Lab Number: 9D02067-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*91.8%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*105%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*96.3%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-107 (MW)

Lab Number: 9D02067-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-107 (MW) (Continued)

Lab Number: 9D02067-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*96.7%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*112%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*108%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-108 (MW)

Lab Number: 9D02067-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		50	ug/l	04/03/19	04/03/19
Benzene	ND		10	ug/l	04/03/19	04/03/19
Bromobenzene	ND		10	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromoform	ND		10	ug/l	04/03/19	04/03/19
Bromomethane	ND		10	ug/l	04/03/19	04/03/19
2-Butanone	ND		50	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		50	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		10	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		10	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		10	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		10	ug/l	04/03/19	04/03/19
Chloroethane	ND		10	ug/l	04/03/19	04/03/19
Chloroform	ND		10	ug/l	04/03/19	04/03/19
Chloromethane	ND		10	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromomethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		20	ug/l	04/03/19	04/03/19
Diethyl ether	ND		50	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		5000	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		10	ug/l	04/03/19	04/03/19
2-Hexanone	ND		50	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		10	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-108 (MW) (Continued)

Lab Number: 9D02067-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		10	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		50	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		50	ug/l	04/03/19	04/03/19
Naphthalene	ND		10	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		10	ug/l	04/03/19	04/03/19
Styrene	ND		10	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		10	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		50	ug/l	04/03/19	04/03/19
Toluene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
Trichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		10	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		10	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		20	ug/l	04/03/19	04/03/19
Total xylenes	ND		20	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		10	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		10	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		10	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		10	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*90.1%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*101%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*102%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-110 (MW)

Lab Number: 9D02067-06 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		50	ug/l	04/03/19	04/03/19
Benzene	ND		10	ug/l	04/03/19	04/03/19
Bromobenzene	ND		10	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromoform	ND		10	ug/l	04/03/19	04/03/19
Bromomethane	ND		10	ug/l	04/03/19	04/03/19
2-Butanone	ND		50	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		50	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		10	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		10	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		10	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		10	ug/l	04/03/19	04/03/19
Chloroethane	ND		10	ug/l	04/03/19	04/03/19
Chloroform	ND		10	ug/l	04/03/19	04/03/19
Chloromethane	ND		10	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromomethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		20	ug/l	04/03/19	04/03/19
Diethyl ether	ND		50	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		5000	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		10	ug/l	04/03/19	04/03/19
2-Hexanone	ND		50	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		10	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-110 (MW) (Continued)

Lab Number: 9D02067-06 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		10	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		50	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		50	ug/l	04/03/19	04/03/19
Naphthalene	ND		10	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		10	ug/l	04/03/19	04/03/19
Styrene	ND		10	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		10	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		50	ug/l	04/03/19	04/03/19
Toluene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
Trichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		10	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		10	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		20	ug/l	04/03/19	04/03/19
Total xylenes	ND		20	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		10	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		10	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		10	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		10	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*90.2%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*106%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*97.8%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-112 (MW)

Lab Number: 9D02067-07 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-112 (MW) (Continued)

Lab Number: 9D02067-07 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*95.7%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*105%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*103%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-113 (MW)

Lab Number: 9D02067-08 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-113 (MW) (Continued)

Lab Number: 9D02067-08 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*89.8%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*105%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*99.9%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-115 (MW)

Lab Number: 9D02067-09 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-115 (MW) (Continued)

Lab Number: 9D02067-09 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*90.2%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*106%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*104%*	*70-130*	04/03/19	04/03/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*45.3*	ug/l	*50.0*		*90.6*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.1*	ug/l	*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8			*51.3*	ug/l	*50.0*		*103*	*70-130*		
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
Acetone	23			ug/l	50.0		45.1	70-130		
Benzene	46			ug/l	50.0		91.9	70-130		
Bromobenzene	55			ug/l	50.0		110	70-130		
Bromochloromethane	54			ug/l	50.0		108	70-130		
Bromodichloromethane	51			ug/l	50.0		103	70-130		
Bromoform	53			ug/l	50.0		106	70-130		
Bromomethane	35			ug/l	50.0		70.1	70-130		
2-Butanone	31			ug/l	50.0		62.8	70-130		
tert-Butyl alcohol	49			ug/l	50.0		97.0	70-130		
sec-Butylbenzene	50			ug/l	50.0		101	70-130		
n-Butylbenzene	43			ug/l	50.0		85.1	70-130		
tert-Butylbenzene	53			ug/l	50.0		106	70-130		
Methyl t-butyl ether (MTBE)	49			ug/l	50.0		98.8	70-130		
Carbon Disulfide	41			ug/l	50.0		82.0	70-130		
Carbon Tetrachloride	63			ug/l	50.0		125	70-130		
Chlorobenzene	49			ug/l	50.0		98.6	70-130		
Chloroethane	43			ug/l	50.0		86.1	70-130		
Chloroform	49			ug/l	50.0		98.2	70-130		
Chloromethane	42			ug/l	50.0		83.1	70-130		
4-Chlorotoluene	46			ug/l	50.0		92.7	70-130		
2-Chlorotoluene	47			ug/l	50.0		93.4	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	48			ug/l	50.0		95.0	70-130		
Dibromochloromethane	53			ug/l	50.0		107	70-130		
1,2-Dibromoethane (EDB)	49			ug/l	50.0		97.7	70-130		
Dibromomethane	53			ug/l	50.0		106	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		95.4	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
1,3-Dichlorobenzene	53			ug/l	50.0		106	70-130		
1,4-Dichlorobenzene	48			ug/l	50.0		95.7	70-130		
1,1-Dichloroethane	40			ug/l	50.0		80.2	70-130		
1,2-Dichloroethane	58			ug/l	50.0		115	70-130		
trans-1,2-Dichloroethene	47			ug/l	50.0		93.3	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.2	70-130		
1,1-Dichloroethene	45			ug/l	50.0		90.9	70-130		
1,2-Dichloropropane	41			ug/l	50.0		81.0	70-130		
2,2-Dichloropropane	59			ug/l	50.0		119	70-130		
cis-1,3-Dichloropropene	48			ug/l	50.0		95.2	70-130		
trans-1,3-Dichloropropene	55			ug/l	50.0		110	70-130		
1,1-Dichloropropene	53			ug/l	50.0		107	70-130		
Diethyl ether	41			ug/l	50.0		81.4	70-130		
1,4-Dioxane	211			ug/l	250		84.6	70-130		
Ethylbenzene	45			ug/l	50.0		89.9	70-130		
Hexachlorobutadiene	52			ug/l	50.0		103	70-130		
2-Hexanone	35			ug/l	50.0		69.6	70-130		
Isopropylbenzene	49			ug/l	50.0		97.2	70-130		
p-Isopropyltoluene	52			ug/l	50.0		103	70-130		
Methylene Chloride	37			ug/l	50.0		73.8	70-130		
4-Methyl-2-pentanone	42			ug/l	50.0		83.6	70-130		
Naphthalene	47			ug/l	50.0		94.3	70-130		
n-Propylbenzene	47			ug/l	50.0		93.5	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	52			ug/l	50.0		105	70-130		
Tetrachloroethene	54			ug/l	50.0		108	70-130		
Tetrahydrofuran	49			ug/l	50.0		98.0	70-130		
Toluene	50			ug/l	50.0		99.2	70-130		
1,2,4-Trichlorobenzene	50			ug/l	50.0		100	70-130		
1,2,3-Trichlorobenzene	50			ug/l	50.0		99.3	70-130		
1,1,2-Trichloroethane	45			ug/l	50.0		90.0	70-130		
1,1,1-Trichloroethane	58			ug/l	50.0		115	70-130		
Trichloroethene	45			ug/l	50.0		89.1	70-130		
1,2,3-Trichloropropane	48			ug/l	50.0		95.5	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	36			ug/l	50.0		72.8	70-130		
o-Xylene	51			ug/l	50.0		101	70-130		
m&p-Xylene	100			ug/l	100		100	70-130		
1,1,2,2-Tetrachloroethane	46			ug/l	50.0		92.9	70-130		
tert-Amyl methyl ether	49			ug/l	50.0		98.5	70-130		
1,3-Dichloropropane	45			ug/l	50.0		89.7	70-130		
Ethyl tert-butyl ether	44			ug/l	50.0		87.1	70-130		
Diisopropyl ether	40			ug/l	50.0		80.8	70-130		
Trichlorofluoromethane	54			ug/l	50.0		108	70-130		
Dichlorodifluoromethane	42			ug/l	50.0		83.2	70-130		
Surrogate: 4-Bromofluorobenzene			*48.9*	ug/l	*50.0*		*97.9*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*40.7*	ug/l	*50.0*		*81.4*	*70-130*		
Surrogate: Toluene-d8			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

CHAIN OF CUSTODY RECORD

9D0 2067

PROJ. NO. 53291 | PROJECT NAME/LOCATION 53291 E. Providence

CLIENT STAGE Environmental

REPORT TO: sage@sage-enviro.com

INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOCs VIA 8260C	REMARKS
4/1/19	10:00		X	SE-101 (mw)	X		"	2-40 ml	HCl	X	
	9:25			SE-103 (mw)			"				
	14:35			SE-105 (mw)			"				
	14:25			SE-107 (mw)			"				
	13:20			SE-108 (mw)			"				
	11:35			SE-110 (mw)			"				
	11:40			SE-112 (mw)			"				
	10:35			SE-113 (mw)			"				
	10:25			SE-115 (mw)			"				

	Date/Time		Date/Time	
Sampled by: (Signature) BT Bacon	4-1-19 17:20	Received by: (Signature)		Laboratory Remarks: Temp. received: 4 Cooled ☐
Relinquished by: (Signature)	4/2 2:30	Received by: (Signature) Bernie Rosadini	4-2-19 1430	
Relinquished by: (Signature) Bernie Rosadini	4-2-19 1515	Received for Laboratory by: (Signature)	4/2/19 1515	

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM GA GW Obj.
Need results by mid day Friday 4/5 MG

Turnaround (Business Days) STD 3

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9D02068
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 04-April-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 04/02/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9D02068. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9D02068-01	PW-MW-1	Water	04/01/2019	04/02/2019
9D02068-02	PW-MW-2	Water	04/01/2019	04/02/2019
9D02068-03	PW-MW-3	Water	04/01/2019	04/02/2019
9D02068-04	PW-MW-4	Water	04/01/2019	04/02/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

PW-MW-1 (Lab Number: 9D02068-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

PW-MW-2 (Lab Number: 9D02068-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

PW-MW-3 (Lab Number: 9D02068-03)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

PW-MW-4 (Lab Number: 9D02068-04)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'PE MW-1' and 'PE MW-2' were reported with elevated detection limits due to the foaming nature of the samples.

In order to meet client specified reporting limits, the compounds '1,2-Dibromomethane (EDB),' '1,2-Dibromo-3-chloropropane,' and 'Vinyl Chloride' were estimated down to MDL limits as denoted by a 'J' on the report forms.

Results: Volatile Organic Compounds

Sample: PW-MW-1

Lab Number: 9D02068-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		50	ug/l	04/03/19	04/03/19
Benzene	ND		10	ug/l	04/03/19	04/03/19
Bromobenzene	ND		10	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromoform	ND		10	ug/l	04/03/19	04/03/19
Bromomethane	ND		10	ug/l	04/03/19	04/03/19
2-Butanone	ND		50	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		50	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		10	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		10	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		10	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		10	ug/l	04/03/19	04/03/19
Chloroethane	ND		10	ug/l	04/03/19	04/03/19
Chloroform	ND		10	ug/l	04/03/19	04/03/19
Chloromethane	ND		10	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromomethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		20	ug/l	04/03/19	04/03/19
Diethyl ether	ND		50	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		5000	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		10	ug/l	04/03/19	04/03/19
2-Hexanone	ND		50	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		10	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: PW-MW-1 (Continued)

Lab Number: 9D02068-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		10	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		50	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		50	ug/l	04/03/19	04/03/19
Naphthalene	ND		10	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		10	ug/l	04/03/19	04/03/19
Styrene	ND		10	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		10	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		50	ug/l	04/03/19	04/03/19
Toluene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
Trichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		10	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		10	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		20	ug/l	04/03/19	04/03/19
Total xylenes	ND		20	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		10	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		10	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		10	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		10	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*92.5%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*103%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*99.9%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: PW-MW-2

Lab Number: 9D02068-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	04/03/19	04/03/19
Benzene	ND		5	ug/l	04/03/19	04/03/19
Bromobenzene	ND		5	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromoform	ND		5	ug/l	04/03/19	04/03/19
Bromomethane	ND		5	ug/l	04/03/19	04/03/19
2-Butanone	ND		25	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		25	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		5	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		5	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		5	ug/l	04/03/19	04/03/19
Chloroethane	ND		5	ug/l	04/03/19	04/03/19
Chloroform	ND		5	ug/l	04/03/19	04/03/19
Chloromethane	ND		5	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromomethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	04/03/19	04/03/19
Diethyl ether	ND		25	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		2500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		5	ug/l	04/03/19	04/03/19
2-Hexanone	ND		25	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		5	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: PW-MW-2 (Continued)

Lab Number: 9D02068-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		25	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		25	ug/l	04/03/19	04/03/19
Naphthalene	ND		5	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		5	ug/l	04/03/19	04/03/19
Styrene	ND		5	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		5	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		25	ug/l	04/03/19	04/03/19
Toluene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
Trichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		5	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		5	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		10	ug/l	04/03/19	04/03/19
Total xylenes	ND		10	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		5	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		5	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		5	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		5	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*88.8%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*91.2%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*100%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: PW-MW-3

Lab Number: 9D02068-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: PW-MW-3 (Continued)

Lab Number: 9D02068-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*91.1%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*106%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*103%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: PW-MW-4

Lab Number: 9D02068-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19

Results: Volatile Organic Compounds (Continued)

Sample: PW-MW-4 (Continued)

Lab Number: 9D02068-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03/19
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*91.5%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*109%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*97.5%*	*70-130*	04/03/19	04/03/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*45.3*	ug/l	*50.0*		*90.6*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.1*	ug/l	*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8			*51.3*	ug/l	*50.0*		*103*	*70-130*		
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
Acetone	23			ug/l	50.0		45.1	70-130		
Benzene	46			ug/l	50.0		91.9	70-130		
Bromobenzene	55			ug/l	50.0		110	70-130		
Bromochloromethane	54			ug/l	50.0		108	70-130		
Bromodichloromethane	51			ug/l	50.0		103	70-130		
Bromoform	53			ug/l	50.0		106	70-130		
Bromomethane	35			ug/l	50.0		70.1	70-130		
2-Butanone	31			ug/l	50.0		62.8	70-130		
tert-Butyl alcohol	49			ug/l	50.0		97.0	70-130		
sec-Butylbenzene	50			ug/l	50.0		101	70-130		
n-Butylbenzene	43			ug/l	50.0		85.1	70-130		
tert-Butylbenzene	53			ug/l	50.0		106	70-130		
Methyl t-butyl ether (MTBE)	49			ug/l	50.0		98.8	70-130		
Carbon Disulfide	41			ug/l	50.0		82.0	70-130		
Carbon Tetrachloride	63			ug/l	50.0		125	70-130		
Chlorobenzene	49			ug/l	50.0		98.6	70-130		
Chloroethane	43			ug/l	50.0		86.1	70-130		
Chloroform	49			ug/l	50.0		98.2	70-130		
Chloromethane	42			ug/l	50.0		83.1	70-130		
4-Chlorotoluene	46			ug/l	50.0		92.7	70-130		
2-Chlorotoluene	47			ug/l	50.0		93.4	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	48			ug/l	50.0		95.0	70-130		
Dibromochloromethane	53			ug/l	50.0		107	70-130		
1,2-Dibromoethane (EDB)	49			ug/l	50.0		97.7	70-130		
Dibromomethane	53			ug/l	50.0		106	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		95.4	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
1,3-Dichlorobenzene	53			ug/l	50.0		106	70-130		
1,4-Dichlorobenzene	48			ug/l	50.0		95.7	70-130		
1,1-Dichloroethane	40			ug/l	50.0		80.2	70-130		
1,2-Dichloroethane	58			ug/l	50.0		115	70-130		
trans-1,2-Dichloroethene	47			ug/l	50.0		93.3	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.2	70-130		
1,1-Dichloroethene	45			ug/l	50.0		90.9	70-130		
1,2-Dichloropropane	41			ug/l	50.0		81.0	70-130		
2,2-Dichloropropane	59			ug/l	50.0		119	70-130		
cis-1,3-Dichloropropene	48			ug/l	50.0		95.2	70-130		
trans-1,3-Dichloropropene	55			ug/l	50.0		110	70-130		
1,1-Dichloropropene	53			ug/l	50.0		107	70-130		
Diethyl ether	41			ug/l	50.0		81.4	70-130		
1,4-Dioxane	211			ug/l	250		84.6	70-130		
Ethylbenzene	45			ug/l	50.0		89.9	70-130		
Hexachlorobutadiene	52			ug/l	50.0		103	70-130		
2-Hexanone	35			ug/l	50.0		69.6	70-130		
Isopropylbenzene	49			ug/l	50.0		97.2	70-130		
p-Isopropyltoluene	52			ug/l	50.0		103	70-130		
Methylene Chloride	37			ug/l	50.0		73.8	70-130		
4-Methyl-2-pentanone	42			ug/l	50.0		83.6	70-130		
Naphthalene	47			ug/l	50.0		94.3	70-130		
n-Propylbenzene	47			ug/l	50.0		93.5	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	52			ug/l	50.0		105	70-130		
Tetrachloroethene	54			ug/l	50.0		108	70-130		
Tetrahydrofuran	49			ug/l	50.0		98.0	70-130		
Toluene	50			ug/l	50.0		99.2	70-130		
1,2,4-Trichlorobenzene	50			ug/l	50.0		100	70-130		
1,2,3-Trichlorobenzene	50			ug/l	50.0		99.3	70-130		
1,1,2-Trichloroethane	45			ug/l	50.0		90.0	70-130		
1,1,1-Trichloroethane	58			ug/l	50.0		115	70-130		
Trichloroethene	45			ug/l	50.0		89.1	70-130		
1,2,3-Trichloropropane	48			ug/l	50.0		95.5	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	36			ug/l	50.0		72.8	70-130		
o-Xylene	51			ug/l	50.0		101	70-130		
m&p-Xylene	100			ug/l	100		100	70-130		
1,1,2,2-Tetrachloroethane	46			ug/l	50.0		92.9	70-130		
tert-Amyl methyl ether	49			ug/l	50.0		98.5	70-130		
1,3-Dichloropropane	45			ug/l	50.0		89.7	70-130		
Ethyl tert-butyl ether	44			ug/l	50.0		87.1	70-130		
Diisopropyl ether	40			ug/l	50.0		80.8	70-130		
Trichlorofluoromethane	54			ug/l	50.0		108	70-130		
Dichlorodifluoromethane	42			ug/l	50.0		83.2	70-130		
Surrogate: 4-Bromofluorobenzene			*48.9*	ug/l	*50.0*		*97.9*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*40.7*	ug/l	*50.0*		*81.4*	*70-130*		
Surrogate: Toluene-d8			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 D 0 20684

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME/LOCATION
S3291	S3291 E. Providence

CLIENT: SAGE Environmental
REPORT TO: sage@sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOCs VPH & EPH	REMARKS
4/1/19	13:35		X	PE-MW-1	X			2-40ml	HCl	X	
	13:00			PE-MW-2							
	12:00			PE-MW-3							
	10:35			PE-MW-4							

	Date/Time		Date/Time
Sampled by: (Signature) [signature]	4-1-19 17:15	Received by: (Signature)	
Relinquished by: (Signature) [signature]	4/2 9:30	Received by: (Signature) [signature]	4-2-19 1430
Relinquished by: (Signature) [signature]	4-2-19 1515	Received for Laboratory by: (Signature) [signature]	4/2/19 1515

Laboratory Remarks:
Temp. received: 4
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM GA GW Obj.
Need results by midday Friday 4/5 MG

Turnaround (Business Days) ~~Std~~ 3

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

BB

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9E29031
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 30-May-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 05/29/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9E29031. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9E29031-01	SE-201 (MW)	Water	05/28/2019	05/29/2019
9E29031-02	SE-204 (MW)	Water	05/24/2019	05/29/2019
9E29031-03	SE-207 (MW)	Water	05/28/2019	05/29/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-201 (MW) (Lab Number: 9E29031-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-204 (MW) (Lab Number: 9E29031-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-207 (MW) (Lab Number: 9E29031-03)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'SE-204,' 'SE-201,' and 'SE-207' were reported with elevated detection limits due to the foaming nature of the samples.

Results: Volatile Organic Compounds

Sample: SE-201 (MW)

Lab Number: 9E29031-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	05/30/19	05/30/19
Benzene	ND		5	ug/l	05/30/19	05/30/19
Bromobenzene	ND		5	ug/l	05/30/19	05/30/19
Bromochloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromodichloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromoform	ND		5	ug/l	05/30/19	05/30/19
Bromomethane	ND		5	ug/l	05/30/19	05/30/19
2-Butanone	ND		25	ug/l	05/30/19	05/30/19
tert-Butyl alcohol	ND		25	ug/l	05/30/19	05/30/19
sec-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
n-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
tert-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	05/30/19	05/30/19
Carbon Disulfide	ND		5	ug/l	05/30/19	05/30/19
Carbon Tetrachloride	ND		5	ug/l	05/30/19	05/30/19
Chlorobenzene	ND		5	ug/l	05/30/19	05/30/19
Chloroethane	ND		5	ug/l	05/30/19	05/30/19
Chloroform	ND		5	ug/l	05/30/19	05/30/19
Chloromethane	ND		5	ug/l	05/30/19	05/30/19
4-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
2-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	2	ug/l	05/30/19	05/30/19
Dibromochloromethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	05/30/19	05/30/19
Dibromomethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,4-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
trans-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
cis-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
2,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
cis-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
trans-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	05/30/19	05/30/19
Diethyl ether	ND		25	ug/l	05/30/19	05/30/19
1,4-Dioxane	ND		2500	ug/l	05/30/19	05/30/19
Ethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Hexachlorobutadiene	ND		5	ug/l	05/30/19	05/30/19
2-Hexanone	ND		25	ug/l	05/30/19	05/30/19
Isopropylbenzene	ND		5	ug/l	05/30/19	05/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-201 (MW) (Continued)

Lab Number: 9E29031-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	05/30/19	05/30/19
Methylene Chloride	ND		25	ug/l	05/30/19	05/30/19
4-Methyl-2-pentanone	ND		25	ug/l	05/30/19	05/30/19
Naphthalene	ND		5	ug/l	05/30/19	05/30/19
n-Propylbenzene	ND		5	ug/l	05/30/19	05/30/19
Styrene	ND		5	ug/l	05/30/19	05/30/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
Tetrachloroethene	ND		5	ug/l	05/30/19	05/30/19
Tetrahydrofuran	ND		25	ug/l	05/30/19	05/30/19
Toluene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1,2-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,1,1-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
Trichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichloropropane	ND		5	ug/l	05/30/19	05/30/19
1,3,5-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Vinyl Chloride	ND	J	2	ug/l	05/30/19	05/30/19
o-Xylene	ND		5	ug/l	05/30/19	05/30/19
m&p-Xylene	**11**		10	ug/l	05/30/19	05/30/19
Total xylenes	**11**		10	ug/l	05/30/19	05/30/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
tert-Amyl methyl ether	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
Ethyl tert-butyl ether	ND		5	ug/l	05/30/19	05/30/19
Diisopropyl ether	ND		5	ug/l	05/30/19	05/30/19
Trichlorofluoromethane	ND		5	ug/l	05/30/19	05/30/19
Dichlorodifluoromethane	ND		5	ug/l	05/30/19	05/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.4%*	*70-130*	05/30/19	05/30/19
1,2-Dichloroethane-d4	*98.2%*	*70-130*	05/30/19	05/30/19
Toluene-d8	*99.2%*	*70-130*	05/30/19	05/30/19

Results: Volatile Organic Compounds

Sample: SE-204 (MW)

Lab Number: 9E29031-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	05/30/19	05/30/19
Benzene	ND		5	ug/l	05/30/19	05/30/19
Bromobenzene	ND		5	ug/l	05/30/19	05/30/19
Bromochloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromodichloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromoform	ND		5	ug/l	05/30/19	05/30/19
Bromomethane	ND		5	ug/l	05/30/19	05/30/19
2-Butanone	ND		25	ug/l	05/30/19	05/30/19
tert-Butyl alcohol	ND		25	ug/l	05/30/19	05/30/19
sec-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
n-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
tert-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	05/30/19	05/30/19
Carbon Disulfide	ND		5	ug/l	05/30/19	05/30/19
Carbon Tetrachloride	ND		5	ug/l	05/30/19	05/30/19
Chlorobenzene	ND		5	ug/l	05/30/19	05/30/19
Chloroethane	ND		5	ug/l	05/30/19	05/30/19
Chloroform	ND		5	ug/l	05/30/19	05/30/19
Chloromethane	ND		5	ug/l	05/30/19	05/30/19
4-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
2-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	2	ug/l	05/30/19	05/30/19
Dibromochloromethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	05/30/19	05/30/19
Dibromomethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,4-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
trans-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
cis-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
2,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
cis-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
trans-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	05/30/19	05/30/19
Diethyl ether	ND		25	ug/l	05/30/19	05/30/19
1,4-Dioxane	ND		2500	ug/l	05/30/19	05/30/19
Ethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Hexachlorobutadiene	ND		5	ug/l	05/30/19	05/30/19
2-Hexanone	ND		25	ug/l	05/30/19	05/30/19
Isopropylbenzene	ND		5	ug/l	05/30/19	05/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-204 (MW) (Continued)

Lab Number: 9E29031-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	05/30/19	05/30/19
Methylene Chloride	ND		25	ug/l	05/30/19	05/30/19
4-Methyl-2-pentanone	ND		25	ug/l	05/30/19	05/30/19
Naphthalene	ND		5	ug/l	05/30/19	05/30/19
n-Propylbenzene	ND		5	ug/l	05/30/19	05/30/19
Styrene	ND		5	ug/l	05/30/19	05/30/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
Tetrachloroethene	ND		5	ug/l	05/30/19	05/30/19
Tetrahydrofuran	ND		25	ug/l	05/30/19	05/30/19
Toluene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1,2-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,1,1-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
Trichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichloropropane	ND		5	ug/l	05/30/19	05/30/19
1,3,5-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Vinyl Chloride	ND	J	2	ug/l	05/30/19	05/30/19
o-Xylene	ND		5	ug/l	05/30/19	05/30/19
m&p-Xylene	ND		10	ug/l	05/30/19	05/30/19
Total xylenes	ND		10	ug/l	05/30/19	05/30/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
tert-Amyl methyl ether	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
Ethyl tert-butyl ether	ND		5	ug/l	05/30/19	05/30/19
Diisopropyl ether	ND		5	ug/l	05/30/19	05/30/19
Trichlorofluoromethane	ND		5	ug/l	05/30/19	05/30/19
Dichlorodifluoromethane	ND		5	ug/l	05/30/19	05/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.5%*	*70-130*	05/30/19	05/30/19
1,2-Dichloroethane-d4	*105%*	*70-130*	05/30/19	05/30/19
Toluene-d8	*101%*	*70-130*	05/30/19	05/30/19

Results: Volatile Organic Compounds

Sample: SE-207 (MW)

Lab Number: 9E29031-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	05/30/19	05/30/19
Benzene	ND		5	ug/l	05/30/19	05/30/19
Bromobenzene	ND		5	ug/l	05/30/19	05/30/19
Bromochloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromodichloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromoform	ND		5	ug/l	05/30/19	05/30/19
Bromomethane	ND		5	ug/l	05/30/19	05/30/19
2-Butanone	ND		25	ug/l	05/30/19	05/30/19
tert-Butyl alcohol	ND		25	ug/l	05/30/19	05/30/19
sec-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
n-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
tert-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	05/30/19	05/30/19
Carbon Disulfide	ND		5	ug/l	05/30/19	05/30/19
Carbon Tetrachloride	ND		5	ug/l	05/30/19	05/30/19
Chlorobenzene	ND		5	ug/l	05/30/19	05/30/19
Chloroethane	ND		5	ug/l	05/30/19	05/30/19
Chloroform	ND		5	ug/l	05/30/19	05/30/19
Chloromethane	ND		5	ug/l	05/30/19	05/30/19
4-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
2-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	2	ug/l	05/30/19	05/30/19
Dibromochloromethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	05/30/19	05/30/19
Dibromomethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,4-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
trans-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
cis-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
2,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
cis-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
trans-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	05/30/19	05/30/19
Diethyl ether	ND		25	ug/l	05/30/19	05/30/19
1,4-Dioxane	ND		2500	ug/l	05/30/19	05/30/19
Ethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Hexachlorobutadiene	ND		5	ug/l	05/30/19	05/30/19
2-Hexanone	ND		25	ug/l	05/30/19	05/30/19
Isopropylbenzene	ND		5	ug/l	05/30/19	05/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-207 (MW) (Continued)

Lab Number: 9E29031-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	05/30/19	05/30/19
Methylene Chloride	ND		25	ug/l	05/30/19	05/30/19
4-Methyl-2-pentanone	ND		25	ug/l	05/30/19	05/30/19
Naphthalene	ND		5	ug/l	05/30/19	05/30/19
n-Propylbenzene	ND		5	ug/l	05/30/19	05/30/19
Styrene	ND		5	ug/l	05/30/19	05/30/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
Tetrachloroethene	ND		5	ug/l	05/30/19	05/30/19
Tetrahydrofuran	ND		25	ug/l	05/30/19	05/30/19
Toluene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1,2-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,1,1-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
Trichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichloropropane	ND		5	ug/l	05/30/19	05/30/19
1,3,5-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Vinyl Chloride	ND	J	2	ug/l	05/30/19	05/30/19
o-Xylene	ND		5	ug/l	05/30/19	05/30/19
m&p-Xylene	ND		10	ug/l	05/30/19	05/30/19
Total xylenes	ND		10	ug/l	05/30/19	05/30/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
tert-Amyl methyl ether	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
Ethyl tert-butyl ether	ND		5	ug/l	05/30/19	05/30/19
Diisopropyl ether	ND		5	ug/l	05/30/19	05/30/19
Trichlorofluoromethane	ND		5	ug/l	05/30/19	05/30/19
Dichlorodifluoromethane	ND		5	ug/l	05/30/19	05/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.1%*	*70-130*	05/30/19	05/30/19
1,2-Dichloroethane-d4	*95.9%*	*70-130*	05/30/19	05/30/19
Toluene-d8	*96.9%*	*70-130*	05/30/19	05/30/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E1233 - Purge-Trap										
Blank (B9E1233-BLK1)					Prepared & Analyzed: 05/30/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		5	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E1233 - Purge-Trap (Continued)										
Blank (B9E1233-BLK1)					Prepared & Analyzed: 05/30/19					
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*47.2*	ug/l	*50.0*		*94.4*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.0*	ug/l	*50.0*		*96.1*	*70-130*		
Surrogate: Toluene-d8			*48.6*	ug/l	*50.0*		*97.1*	*70-130*		
LCS (B9E1233-BS1)					Prepared & Analyzed: 05/30/19					
Acetone	63			ug/l	50.0		125	70-130		
Benzene	47			ug/l	50.0		93.2	70-130		
Bromobenzene	48			ug/l	50.0		96.7	70-130		
Bromochloromethane	47			ug/l	50.0		93.6	70-130		
Bromodichloromethane	46			ug/l	50.0		93.0	70-130		
Bromoform	44			ug/l	50.0		88.7	70-130		
Bromomethane	64			ug/l	50.0		129	70-130		
2-Butanone	53			ug/l	50.0		107	70-130		
tert-Butyl alcohol	50			ug/l	50.0		99.2	70-130		
sec-Butylbenzene	51			ug/l	50.0		103	70-130		
n-Butylbenzene	52			ug/l	50.0		105	70-130		
tert-Butylbenzene	52			ug/l	50.0		104	70-130		
Methyl t-butyl ether (MTBE)	43			ug/l	50.0		86.8	70-130		
Carbon Disulfide	44			ug/l	50.0		87.7	70-130		
Carbon Tetrachloride	44			ug/l	50.0		89.0	70-130		
Chlorobenzene	48			ug/l	50.0		95.9	70-130		
Chloroethane	51			ug/l	50.0		101	70-130		
Chloroform	45			ug/l	50.0		89.3	70-130		
Chloromethane	49			ug/l	50.0		97.8	70-130		
4-Chlorotoluene	50			ug/l	50.0		101	70-130		
2-Chlorotoluene	50			ug/l	50.0		99.4	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	44			ug/l	50.0		87.5	70-130		
Dibromochloromethane	47			ug/l	50.0		93.2	70-130		
1,2-Dibromoethane (EDB)	46			ug/l	50.0		91.5	70-130		
Dibromomethane	46			ug/l	50.0		92.6	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		95.3	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E1233 - Purge-Trap (Continued)										
LCS (B9E1233-BS1)					Prepared & Analyzed: 05/30/19					
1,3-Dichlorobenzene	50			ug/l	50.0		99.3	70-130		
1,4-Dichlorobenzene	47			ug/l	50.0		93.3	70-130		
1,1-Dichloroethane	44			ug/l	50.0		88.6	70-130		
1,2-Dichloroethane	43			ug/l	50.0		85.3	70-130		
trans-1,2-Dichloroethene	47			ug/l	50.0		94.7	70-130		
cis-1,2-Dichloroethene	46			ug/l	50.0		91.2	70-130		
1,1-Dichloroethene	45			ug/l	50.0		90.8	70-130		
1,2-Dichloropropane	49			ug/l	50.0		97.0	70-130		
2,2-Dichloropropane	47			ug/l	50.0		93.7	70-130		
cis-1,3-Dichloropropene	46			ug/l	50.0		92.8	70-130		
trans-1,3-Dichloropropene	48			ug/l	50.0		96.2	70-130		
1,1-Dichloropropene	51			ug/l	50.0		101	70-130		
Diethyl ether	44			ug/l	50.0		88.6	70-130		
1,4-Dioxane	286			ug/l	250		115	70-130		
Ethylbenzene	51			ug/l	50.0		101	70-130		
Hexachlorobutadiene	51			ug/l	50.0		101	70-130		
2-Hexanone	50			ug/l	50.0		101	70-130		
Isopropylbenzene	53			ug/l	50.0		106	70-130		
p-Isopropyltoluene	52			ug/l	50.0		105	70-130		
Methylene Chloride	46			ug/l	50.0		92.1	70-130		
4-Methyl-2-pentanone	47			ug/l	50.0		94.0	70-130		
Naphthalene	45			ug/l	50.0		89.7	70-130		
n-Propylbenzene	53			ug/l	50.0		105	70-130		
Styrene	52			ug/l	50.0		104	70-130		
1,1,1,2-Tetrachloroethane	48			ug/l	50.0		95.7	70-130		
Tetrachloroethene	48			ug/l	50.0		96.9	70-130		
Tetrahydrofuran	37			ug/l	50.0		74.8	70-130		
Toluene	47			ug/l	50.0		94.5	70-130		
1,2,4-Trichlorobenzene	45			ug/l	50.0		91.0	70-130		
1,2,3-Trichlorobenzene	43			ug/l	50.0		85.5	70-130		
1,1,2-Trichloroethane	48			ug/l	50.0		96.6	70-130		
1,1,1-Trichloroethane	44			ug/l	50.0		88.8	70-130		
Trichloroethene	47			ug/l	50.0		93.2	70-130		
1,2,3-Trichloropropane	45			ug/l	50.0		89.6	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	51			ug/l	50.0		102	70-130		
Vinyl Chloride	50			ug/l	50.0		100	70-130		
o-Xylene	52			ug/l	50.0		105	70-130		
m&p-Xylene	101			ug/l	100		101	70-130		
1,1,2,2-Tetrachloroethane	45			ug/l	50.0		90.5	70-130		
tert-Amyl methyl ether	47			ug/l	50.0		93.8	70-130		
1,3-Dichloropropane	46			ug/l	50.0		92.6	70-130		
Ethyl tert-butyl ether	45			ug/l	50.0		90.9	70-130		
Diisopropyl ether	49			ug/l	50.0		98.7	70-130		
Trichlorofluoromethane	49			ug/l	50.0		97.1	70-130		
Dichlorodifluoromethane	39			ug/l	50.0		78.8	70-130		
Surrogate: 4-Bromofluorobenzene			*49.5*	ug/l	*50.0*		*98.9*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*44.7*	ug/l	*50.0*		*89.4*	*70-130*		
Surrogate: Toluene-d8			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9E2 9031U

CHAIN OF CUSTODY RECOR

PROJ. NO.: S3291
PROJECT NAME/LOCATION: S3291 E. PROVIDENCE (SLIVER)
CLIENT: SAGE ENV.
REPORT TO: Sage@Sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOCs	REMARKS
5/28			X	SE-201 (MW)	X			2 40mL	HCl	X	
5/24			X	SE-204 (MW)	X			2 40mL	"	X	
5/28			X	SE-207 (MW)	X			2 40mL	"	X	

	Date/Time		Date/Time
Sampled by: (Signature)	5/24-5/28 1560	Received by: (Signature) B Pacheco	5/29/19 1132
Relinquished by: (Signature)	5/29 11:30	Received by: (Signature) B Pacheco	5/29/19 1
Relinquished by: (Signature) B Pacheco 5/29/19	1535	Received for Laboratory by: (Signature)	5/29/19 1535

Laboratory Remarks:
Temp. received: 3
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM GB GWO

Turnaround (Business Days): 48 HR

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMR5, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
235 Promenade Street, Providence, RI 02908-5767 TDD 401-222-4462

VOLUNTARY PROCEDURE LETTER June 18, 2019
File No. SR-10-1954
CERTIFIED MAIL

Melissa Martin, Manager
R.I. Waterfront Enterprises, LLC
c/o Mugar Enterprises, Inc.
222 Berkeley Street
Boston, Massachusetts 02116

RE: Providence and Worcester Railroad Company
(a.k.a. Genesee & Wyoming Rail Road Services, Inc.)
East Providence, Rhode Island
Lot 2 on the City of East Providence Assessor Map 105, Block 1-Henderson Bridge parcel
Lot 1 on the City of East Providence Assessor Map 6, Block 1
Lot 2 on the City of East Providence Assessor Map 17, Block 1
(3 parcels collectively South Key)
Lot 3 on the City of East Providence Assessor Map 7, Block 1

Dear Ms. Martin:

On January 8, 2019, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) re-codified 250-RICR-140-30-1, the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations) consistent with the RI Administrative Procedures Act. The purpose of these Regulations is to create an integrated program requiring reporting, investigation, and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. A Voluntary Procedure Letter (VPL) is a preliminary document used to define the relationship between the Department and a Performing Party under the Remediation Regulations. In the case of a Voluntary Procedure Letter, a Performing Party may be a Voluntary Party or a Bona Fide Prospective Purchaser.

Please be advised of the following facts:

1. The above referenced properties are located in East Providence, Rhode Island (the Site). The Sites are further identified by the City of East Providence Tax Assessor's Office as:

   Lot 2 on the City of East Providence Assessor Map 105, Block 1-Henderson Bridge parcel;
   Lot 1 on the City of East Providence Assessor Map 6, Block 1;
   Lot 2 on the City of East Providence Assessor Map 17, Block 1
   (3 parcels collectively South Key); and
   Lot 3 on the City of East Providence Assessor Map 7, Block 1.

2. The Department is in receipt of the following document:

   a. **Limited soil and groundwater data package**, received by the Department on June 17, 2019, and prepared by Sage Environmental, Inc.

3. The above referenced document identifies concentrations of Arsenic, Lead and Polycyclic Aromatic Hydrocarbons (PAHs) in Site soils that exceed the Department's Method 1 Direct Exposure Criteria, as referenced in the Remediation Regulations. The above referenced document also identifies low concentrations of Volatile Organic Compounds (VOCs i.e. 1,1-Dichlorethene (1,1, DCE)) in some Site groundwater that may exceed the Department's GB Groundwater Objectives.

4. Based on the presence and nature of these Hazardous Substances, the Department concurs that a Release of Hazardous Materials has occurred as defined by Sections 1.4(A)(33), 1.4(A)(34), and 1.4(A)(63) of the Remediation Regulations.

The Department requests that **R.I. Waterfront Enterprises, LLC**, as Performing Party, provide the Department with the requested information listed below in order to complete the requirements of Section 1.8 of the Remediation Regulations:

1. If necessary, prior to the implementation of any additional site investigation field activities and in accordance with Section 1.8.7(A)(1) of the Remediation Regulations, **R.I. Waterfront Enterprises, LLC** must notify all abutting property owners, tenants, easement holders, and the municipality that an investigation is about to occur. The notice should briefly indicate the purpose of the investigation, the work to be performed, and the approximate scheduled dates of activities. Please submit a draft notification to the Department via E-mail for review and approval prior to distribution. A boilerplate notification to be distributed can be found online at: http://www.dem.ri.gov/programs/wastemanagement/site-remediation/index.php.

   The Department will require a copy of the public notice letter and a list of all recipients. Failure to comply with the aforementioned items may result in enforcement actions as specified in Rhode Island General Laws 23-19.1-17 and 23-19.1-18.

2. Conduct further investigation of the Site soil and groundwater, if warranted, in accordance with Section 1.8 of the Remediation Regulations.

3. Upon completion of the additional site investigation submit a Site Investigation Report (SIR) in accordance with Section 1.8 of the Remediation Regulations within ninety (90) days from the date of this letter. Given that some limited environmental investigation has already been performed at the Site, you may incorporate portions of the information already gathered and work already performed to address the items covered in Section 1.8. The SIR should include at least two remedial alternatives other than no action/natural attenuation and include future plans for the re-use or redevelopment (if applicable) of the property.

4. Submit an SIR checklist in accordance with Section 1.8.8 of the Remediation Regulations. The SIR checklist was created as a supplemental tool to expedite the review and approval process by cross-referencing the specific sections and pages within the SIR that provide the detailed information that addresses each stated requirement within Section 1.8 of the Remediation Regulations.

5. Upon approval by the Department of the SIR, be prepared to bring the Site into compliance with the Remediation Regulations.

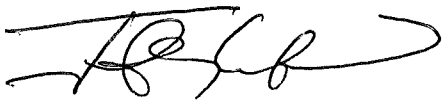
Please be advised that **R.I. Waterfront Enterprises, LLC** as the Performing Party, is responsible for the proper investigation and remediation of hazardous substances at this site. Also be advised that any remedial alternative that proposes to leave contaminated media on-site at levels which exceed the Department's Residential Direct Exposure Criteria, applicable Leachability Criteria, or applicable Groundwater Criteria will, at a minimum, necessitate the recording of an institutional control in the form of an Environmental Land Usage Restriction (ELUR) on the deed for the site, and will likely require implementation of additional engineered controls to restrict human exposure.

Please notify this office within seven days of the receipt of this letter of your plans to address these items. All correspondences should be sent to the attention of:

Jeffrey Crawford, Project Manager
RIDEM / Office of Waste Management
235 Promenade Street
Providence, RI 02908

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 7102, or by E-mail at jeff.crawford@dem.ri.gov.

Sincerely,



Jeffrey Crawford, Project Manager
Principal Environmental Scientist
Office of Waste Management

cc: Kelly Owens, Supervising Engineer

APPENDIX D

S3291

South Quay

East Providence, RI 02914

Inquiry Number: 5557890.5

February 08, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

02/08/19

Site Name:

S3291
South Quay
East Providence, RI 02914
EDR Inquiry # 5557890.5

Client Name:

Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860
Contact: Elaine Cardillo

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Sage Environmental, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # AD73-459B-ABA5

PO # NA

Project S3291

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results

Certification #: AD73-459B-ABA5

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- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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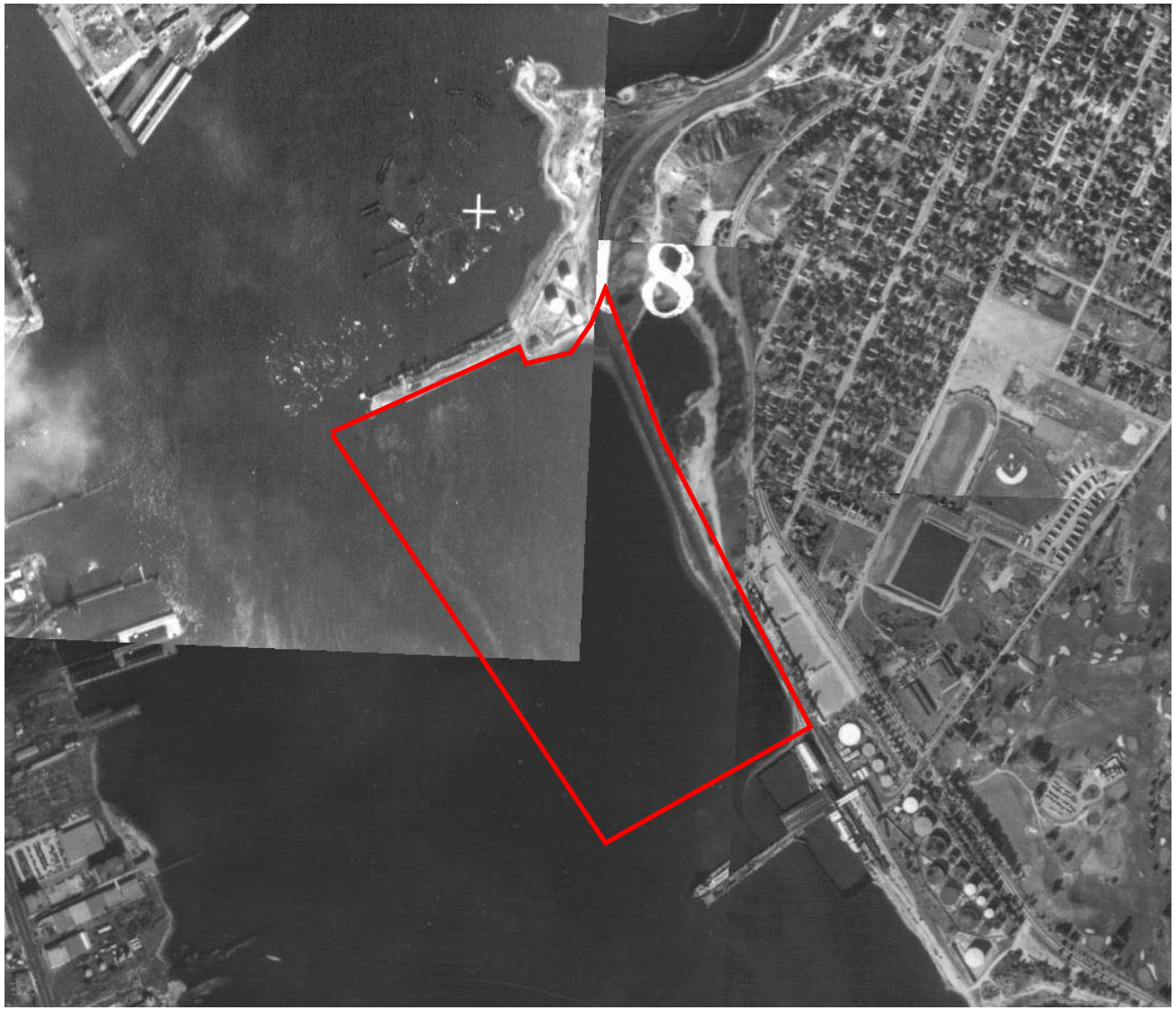
1939



1951-1952

1962

1972

1981

1985

2008

2011

2014

2018

APPENDIX E

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02154

REPLY TO
ATTENTION OF

NEDOD-R-11-74-043
RI-PROV-78-425

22 August 1978

Providence and Worcester Company
94 Dexter Road
East Providence, RI 02914

Gentlemen:

Inclosed is a Federal permit authorizing the work stated therein. Please acquaint yourself with all the terms and conditions of the permit and particularly to those conditions which are binding upon you as the permittee. Your particular attention is called to condition (n) which requires you to notify this office when the work is commenced and when it is completed.

If any material changes in the plans are found necessary, revised plans should be submitted to this office. These revised plans must receive the approval required by law before the work is begun.

Sincerely yours,

for MORGAN R. REES
Chief, Regulatory Branch
Operations Division

Incl
Permit

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

Application Number: 11-74-043 Permit Number: RI-PROV-78-425

Name of Applicant Providence and Worcester Company

Effective Date 22 August 1978

Expiration Date (if applicable)

DEPARTMENT OF THE ARMY

PERMIT

Referring to written request dated 28 January 1974 for a permit to:

(X) Perform work in or affecting navigable waters of the United States, upon the recommendation of the Chief of Engineers, pursuant to Section 10 of the River and Harbor Act of 3 March 1899 (33 U.S.C. 403);

(X) Discharge dredged or fill material into navigable waters of the United States upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (86 Stat. 816, P.L. 92-500);

( ) Transport dredged material for the purpose of dumping it into ocean waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (86 Stat. 1052; P.L. 92-532);

Providence & Worcester Co.
94 Dexter Road
East Providence, RI 02914

is hereby authorized by the Secretary of the Army to: construct a rail/ship cargo terminal consisting of: a hydraulically dredged berthing area adjacent to the Federal Channel, 1900' x 200' to a depth of -42.5' mean low water, a 1900' x 100' pile supported reinforced concrete breasting platform and a 45 acre fill. Dredged material, approx. 255,000 c.y. of river silts and organic muds will be contained in two permeable earth berm filter basins constructed of imported granular material for this purpose. These basins would extend from 250' shoreward of the breasting platform to shore. When completed, the facility will extend approx. 1200' beyond m.h.w. terminating approx. 100' shoreward of the Federal Channel. The basic purpose of this work is to provide a rail ship terminal for handling containerized and general cargo. The main purpose of the fill area is to dispose of the dredged material generated by the berthing facility. Once stabilized, however, it will be used for cargo storage & handling facilities. A railroad, buildings and storage areas used in dry bulk cargo facilities will be constructed on the fill.

in the Providence River

at East Providence, RI

in accordance with the plans and drawings attached hereto which are incorporated in and made a part of this permit, entitled, "Proposed Land Fill in Providence River at Wilkesbarre Pier, County of Providence, State of R.I." in five sheets, dated, "March 1977".

Subject to the following conditions:

I. General Conditions:

a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

b. That all activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), the Marine Protection, Research and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1052), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge during its construction or operation, of any pollutant (including dredged or fill material), into waters of the United States, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the Division Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species.

e. That the permittee agrees to make every reasonable effort to prosecute the construction or operation of the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife, and natural environmental values.

f. That the permittee agrees that it will prosecute the construction or work authorized herein in a manner so as to minimize any degradation of water quality.

g. That the permittee shall permit the Division Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

h. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

i. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State or local laws or regulations, nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the Division Engineer that immediate suspension of the activity authroized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventive measures to be taken by the permittee which are deemed necessary by the Division Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevant to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified, or revoked.

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct warranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension, or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the Division Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the Division Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein is not started on or before 31st day of AUGUST, 1979, and is not completed on or before 31st day of DECEMBER, 1984, this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

q. That if and when the permittee desires to abandon the activity authorized herein, unelss such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition "t" hereof, he must restore the area to a condition satisfactory to the Division Engineer.

r. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaning records of title to and interests in real property.

s. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

t. That this permit may not be transferred to a third party without prior written notice to the Division Engineer, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit in the space provide below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

II. SPECIAL CONDITIONS

a. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

b. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity by this permit.

c. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

d. That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permitteee.

e. That the discharge will be carried out in conformity with the goals and objectives of the EPA Guidelines established pursuant to Section 404(b) of the Federal Water Pollution Control Act Amendments and published in 40 CFR 230.

f. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities.

g. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution.

h. That the discharge will not occur in a component of the National Wild and Scenic River System or in a component of a State wild scenic river system.

This permit shall become effective on the date of the Division Engineer's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit

PROVIDENCE AND WORCESTER COMPANY

BY: Joseph R. Di Stefano, Secretary — AUGUST 22, 1978

PERMITTEE — DATE

JOSEPH R. DI STEFANO, SECRETARY

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

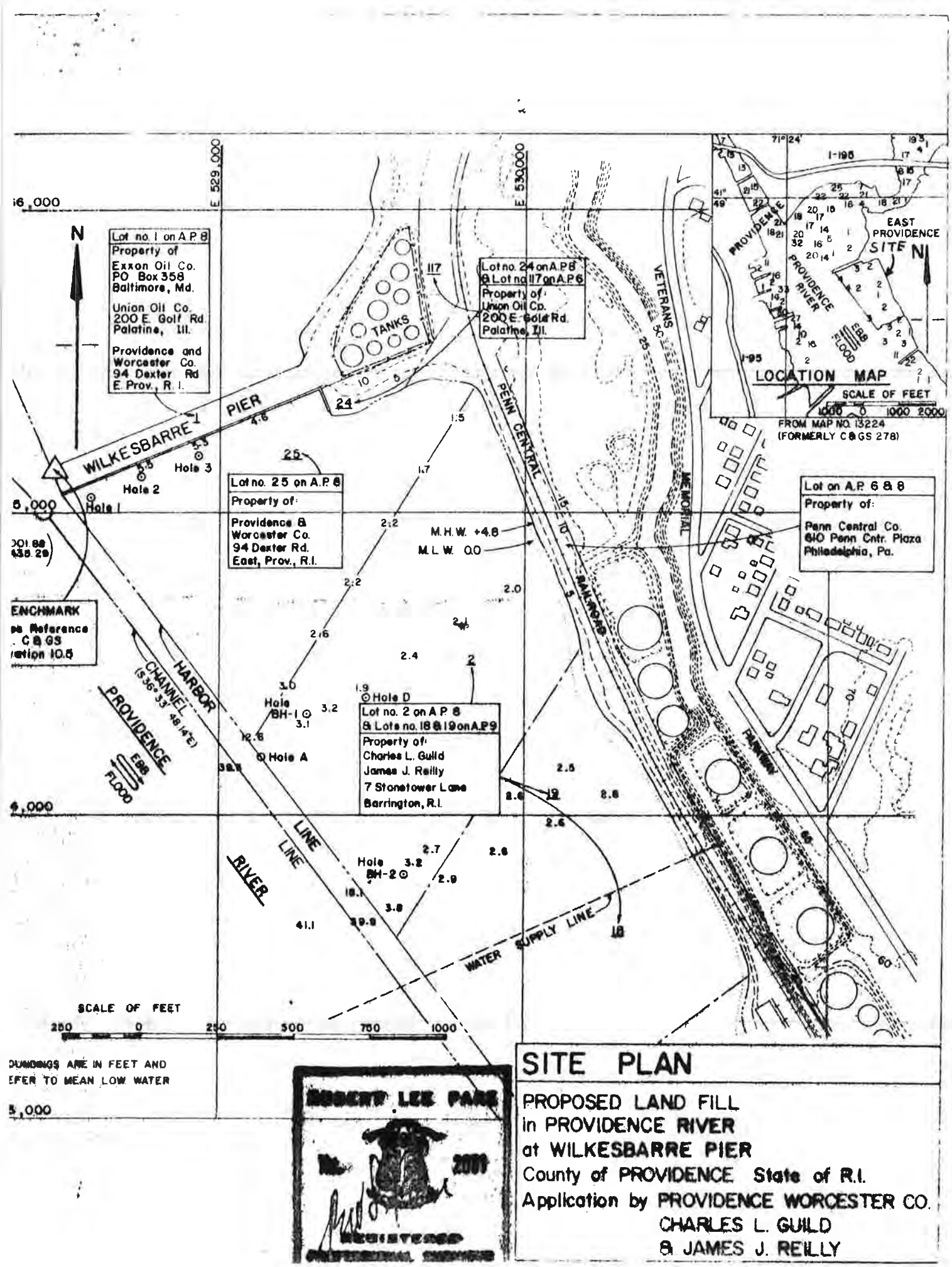
Jacob G. Bowin LtCol CE — 22 August 1978

DIVISION ENGINEER — DATE

for JOHN P. CHANDLER
Colonel, Corps of Engineers

Transferee hereby agrees to comply with the terms and conditions of this permit.

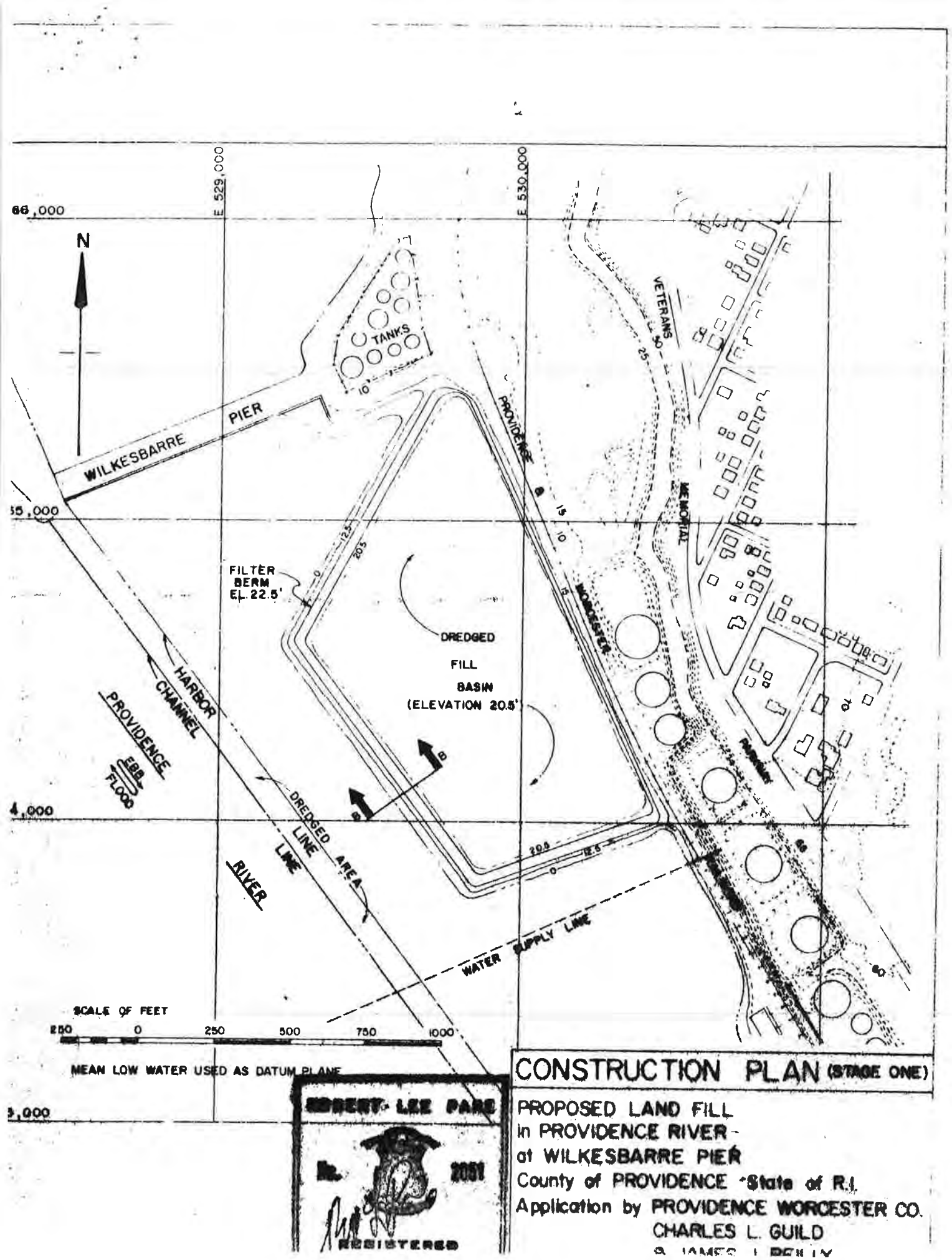
TRANSFEREE — DATE



ROBERT LEE PARE
No. 2001
REGISTERED
PROFESSIONAL ENGINEER

SITE PLAN

PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.
CHARLES L. GUILD
& JAMES J. REILLY

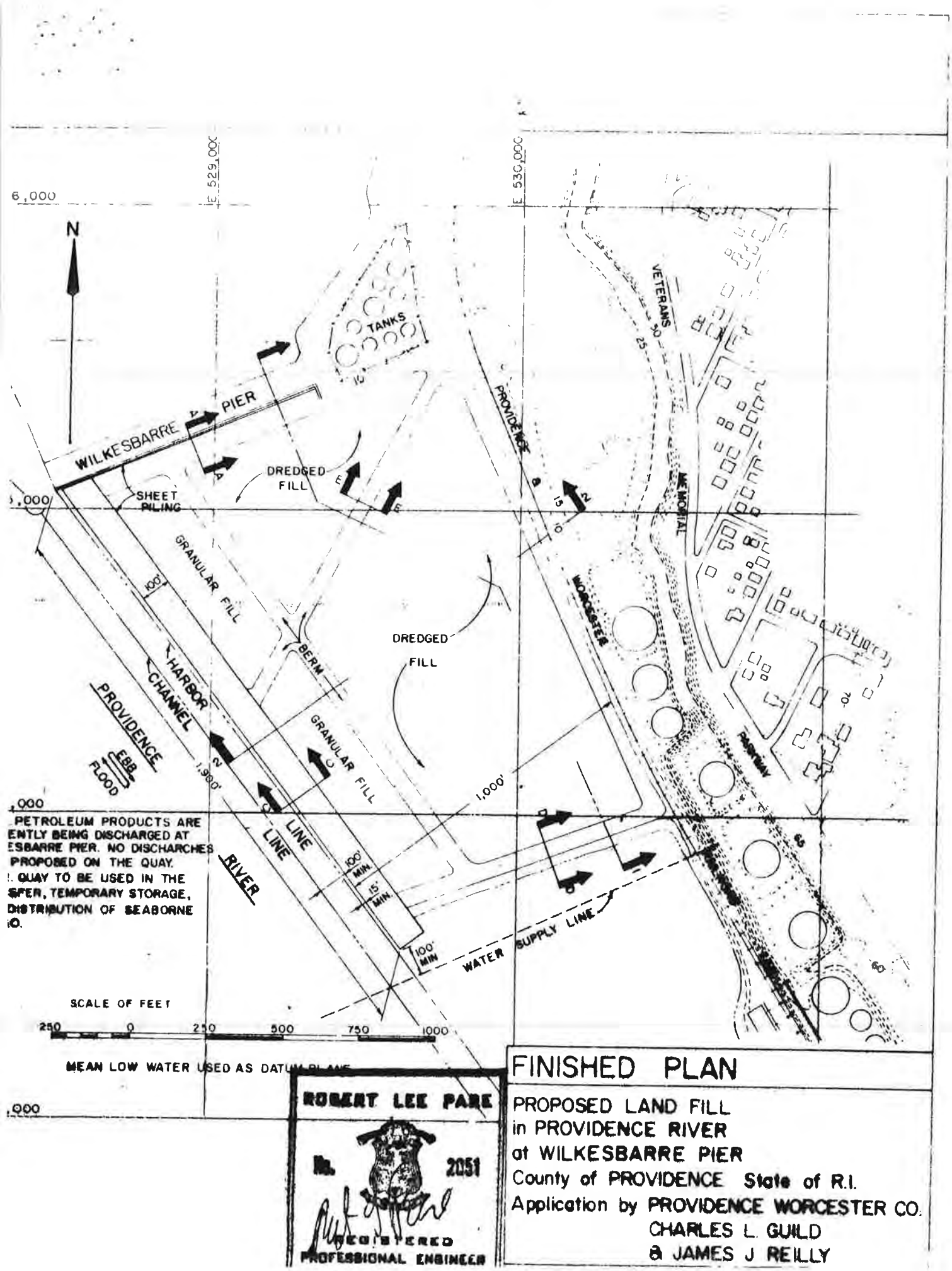


CONSTRUCTION PLAN (STAGE ONE)

PROPOSED LAND FILL
in PROVIDENCE RIVER -
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.

CHARLES L. GUILD
& JAMES J. REILLY

ROBERT LEE PARE
No. 2081
REGISTERED



PETROLEUM PRODUCTS ARE ENTLY BEING DISCHARGED AT ESBARRE PIER. NO DISCHARCHES PROPOSED ON THE QUAY. . QUAY TO BE USED IN THE SFER, TEMPORARY STORAGE, DISTRIBUTION OF SEABORNE IO.

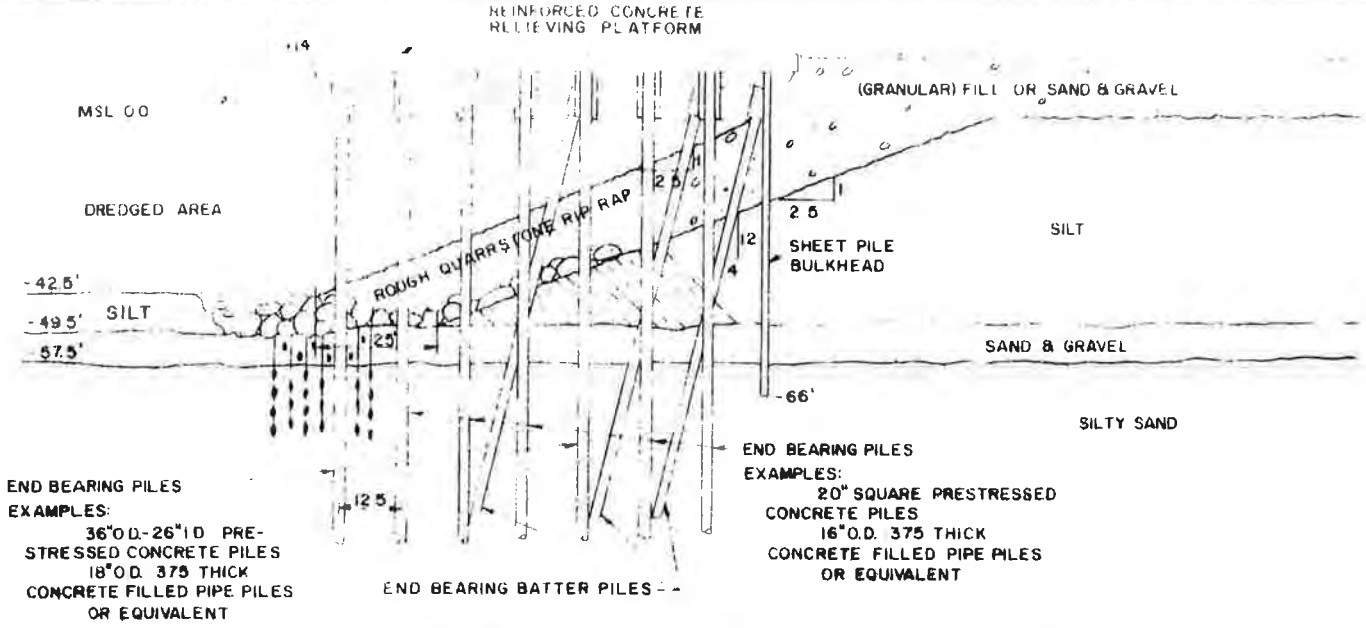
ROBERT LEE PARE

No. 2051

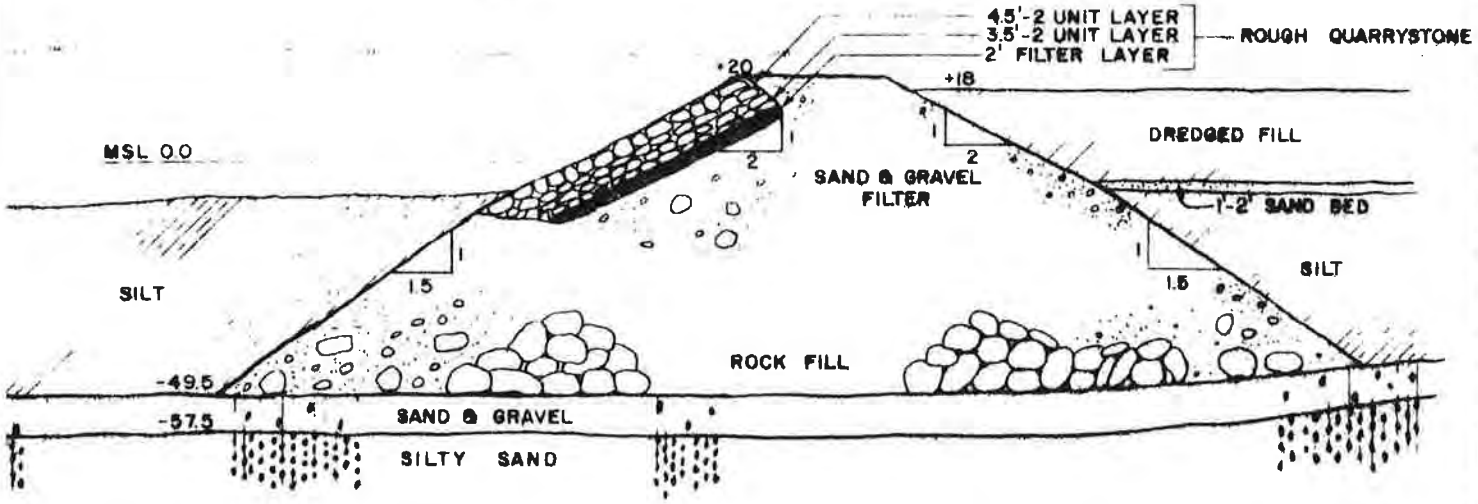
REGISTERED PROFESSIONAL ENGINEER

FINISHED PLAN

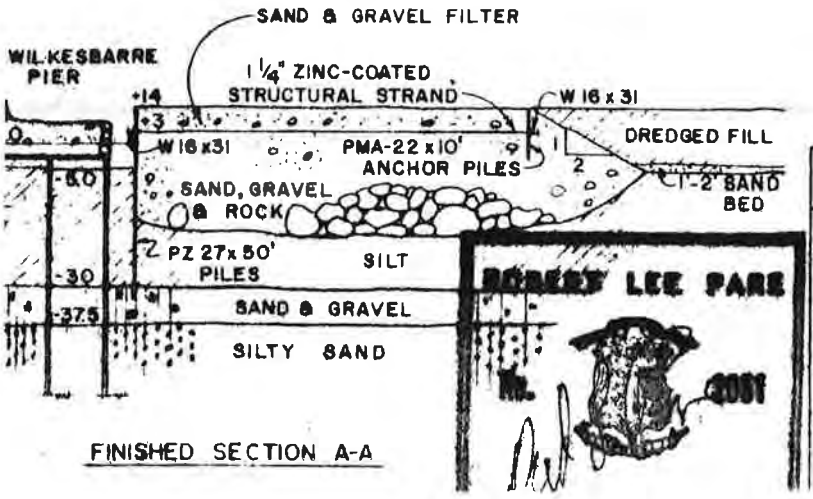
PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.
CHARLES L. GUILD
& JAMES J REILLY



FINISHED SECTION C-C



CONSTRUCTION SECTION B-B

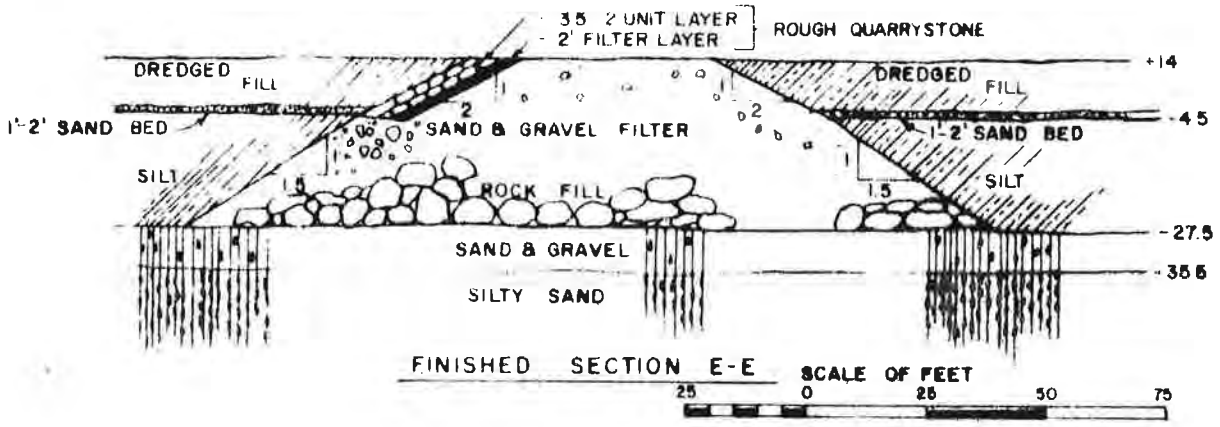


FINISHED SECTION A-A

SCALE OF FEET THIS SHEET
MEAN SEA LEVEL USED AS DATUM PLAN

SECTION DRAWINGS

PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.
CHARLES L. GUILD
& JAMES J. REILLY



FINISHED SECTION E-E SCALE OF FEET

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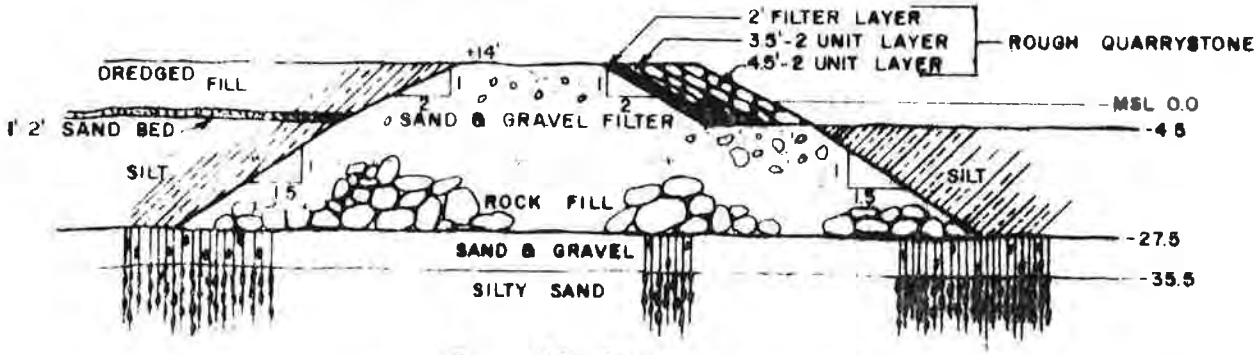

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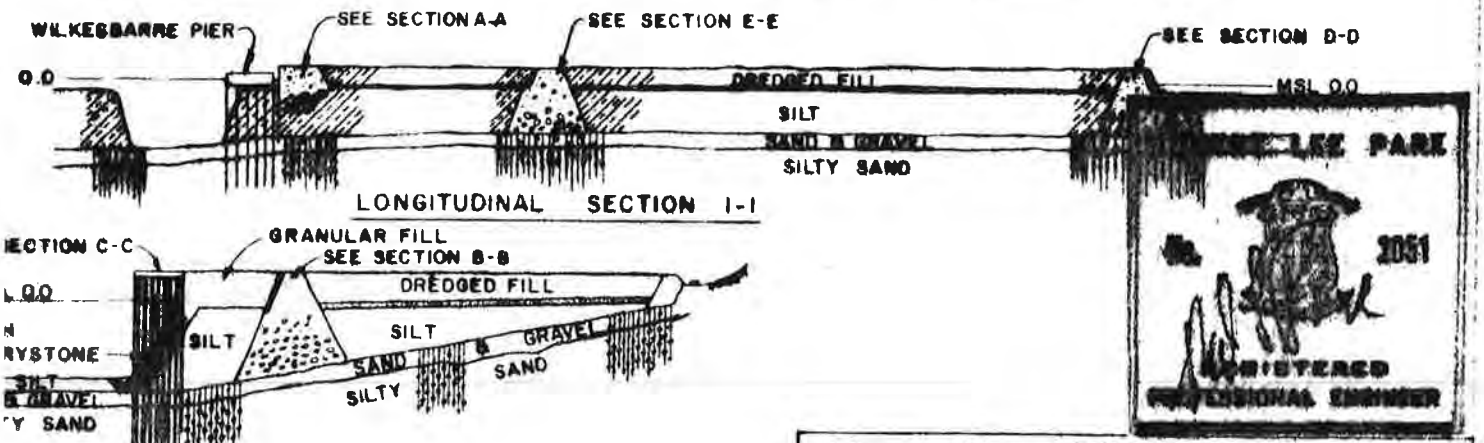
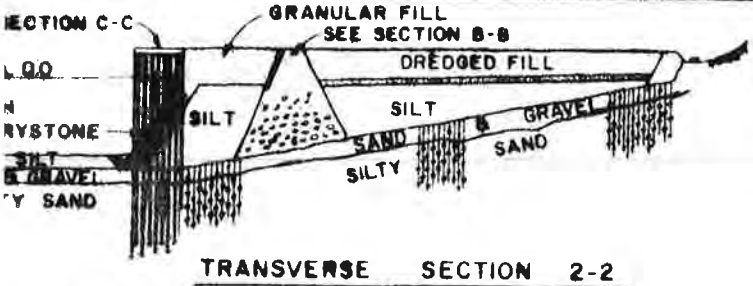


LONGITUDINAL SECTION 1-1



TRANSVERSE SECTION 2-2

SCALES FOR NUMBERED SECTIONS

HORIZONTAL SCALE OF FEET

0 300 300 750

VERTICAL SCALE OF FEET

0 50 100 150 200

MEAN SEA LEVEL USED AS DATUM PLAN

SECTION DRAWINGS

PROPOSED LAND FILL
in PROVIDENCE RIVER
at WILKESBARRE PIER
County of PROVIDENCE State of R.I.
Application by PROVIDENCE WORCESTER CO.

CHARLES L. GUILD
JAMES J REILLY

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Proactive by Design

DRAFT GEOTECHNICAL REPORT

Providence and Worcester Railroad
South Quay Evaluation
East Providence, Rhode Island

December 14, 2017
03.0034354.00

PREPARED FOR:
Genesee & Wyoming, Inc.
Darien, Connecticut

GZA GeoEnvironmental, Inc.
530 Broadway | Providence, RI 02909
401-421-4140

26 Offices Nationwide
www.gza.com

Proactive by Design

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

530 Broadway
Providence, RI 02909
T: 401.421.4140
F: 401.751.8613
www.gza.com

December 14, 2017
File No. 03.0034354.00

Mr. Mark Hastings
Genesee & Wyoming, Inc.
Corporate Development
20 West Avenue
Darien, Connecticut 06820

Re: Draft Geotechnical Report
Providence and Worcester Railroad
South Quay Evaluation
East Providence, Rhode Island

Dear Mr. Hastings:

We are pleased to provide Genesee & Wyoming, Inc. with this Geotechnical Report for the evaluation of the South Quay site and two sites landward of the former rail lines in East Providence, Rhode Island. This report presents a compilation of the boring data and the findings of the subsurface explorations and laboratory testing program performed as part of this study, and is intended to be used by Genesee & Wyoming, Inc. to evaluate the present site conditions for potential future site development options.

This study was undertaken by GZA GeoEnvironmental, Inc. (GZA) in accordance with our Proposal dated May 3, 2017, and Revised Proposal dated June 19, 2017, and is subject to the Limitations that are attached in ***Appendix A.***

BACKGROUND

This report presents geotechnical observations and recommendations to Genesee & Wyoming, Inc. for the evaluation of conceptual development options of the "South Quay" and two adjacent parcels in East Providence, Rhode Island. The project site includes the South Quay (East Providence tax parcel 7-1-3), Parcel 17-1-2 (East Providence tax parcel 17-1-2), and Parcel 6-1-1 (East Providence tax parcel 6-1-1). The location of the site is shown on the attached Figure 1***, Locus Plan***.

All elevations referenced in this report are based on the North American Vertical Datum 1988 (NAVD88). A project topographic survey had not been completed at the time this report was prepared, and the existing ground surface elevations have been estimated based on available plans and should be considered approximate.

The South Quay (parcel 7-1-3) is an approximately 32-acre area of filled land located along the eastern edge of the Providence River, approximately 1,000 feet south of Bold Point Park and 1,000 feet west of Veterans Memorial Parkway. The South Quay is bounded along the eastern edge by the former Providence & Worcester Railroad corridor, and which is now a Rhode Island Department of Transportation (RIDOT) right-of-way that is planned to be developed as an extension of Waterfront Drive from the north. Parcels 17-1-2 and 6-1-1 are located to the east and northeast of the South Quay, on the opposite side of the RIDOT right-of-way. The attached Figure 2***, Exploration Location Plan***, presents the parcel locations.

All three parcels are currently vacant, with grassy vegetation on the South Quay that is mowed seasonally, and heavier vegetation including brush and trees on the other two parcels. The ground surface of the parcels is generally level, with surface elevations ranging from approximately 6 to 14 feet, with the exception of the southeast corner of Parcel 17-1-2, which includes a portion of the steep slope along Veterans Memorial Parkway that extends up to approximately elevation 70 feet. The southerly and westerly sides of the South Quay are comprised of approximately 2-Horizontal to 1-Vertical slopes extending down to the Providence River. The southerly slope is protected from erosion by a layer of riprap armor, and the westerly slope is protected with an intermittent layer of concrete debris, riprap and vegetation.

The South Quay was constructed by Providence & Worcester Railroad in the 1980's by filling the shoreline of the Providence River with the intention of eventually building a marine terminal. A timeline of aerial photography that was provided by Genesee & Wyoming showing this construction is provided in ***Appendix F***. Construction of the South Quay is shown beginning between 1975 and 1981 with a berm of material around the perimeter, with organic silt below the berm reportedly excavated or displaced by the fill. Once the perimeter of the South Quay was constructed, it is believed that the remainder of the South Quay was constructed by dredging the river and placing the spoils within the Quay, and then topping the dredged material with a layer of sandy fill.

The 1939 aerial photograph shows a "pond" that was created in the vicinity of Parcels 17-1-2 and 6-1-1 when the former railroad tracks were constructed as a causeway along the shoreline. The former pond covered nearly all of Parcel 17-1-2, and portions of the southern half of Parcel 6-1-1. An aerial photograph from 1962 shows the pond was eventually completely filled with soil.

Genesee & Wyoming, Inc. is currently evaluating potential development options that may include 3- to 5-story wood framed residential buildings, commercial buildings, and light industrial buildings. The site development may also include site roadways, parking areas, utilities, a coastal greenway corridor along the waterfront, and possibly some wetland restoration areas.

GEOLOGIC SETTING

Available United States Geologic Survey (USGS) publications were reviewed to obtain an understanding of the area geology. These publications include the 1956 Surficial Geology Map and the 1959 Bedrock Geology Map for the Providence Quadrangle, Rhode Island. Copies of the referenced publications are contained in ***Appendix C***. A summary of the published geologic conditions is provided below.

Surficial Geology

Based on the map entitled "Surficial Geologic Map of the Providence Quadrangle, Rhode Island" dated 1956, the higher ground and hillside to the east of the site adjacent to Veterans Memorial Parkway and the surrounding areas are underlain by glacial kame deposits, which are glacial outwash deposits described as irregularly shaped mounds of sand and gravel. The lower lying areas at the base of the hillside and along the alignment of the former railroad tracks are mapped as man-made artificial fill.

Bedrock Geology

Based on the map entitled "Bedrock Geology Map of the Providence Quadrangle, Rhode Island" dated 1959, the bedrock underlying the site consists of sedimentary and meta-sedimentary rocks of Pennsylvanian age known as the Rhode Island Formation. This formation includes greenish gray, dark gray to black shale, sandstone, graywacke, conglomerate, and meta-anthracite.

SUBSURFACE EXPLORATIONS

Seven test borings and eleven geoprobes were drilled at the site as part of this investigation. Logs of the explorations are included in ***Appendix B***. The locations of the explorations are shown on the attached Figure 2, ***Exploration Location Plan***, which also shows the existing site conditions.

Five test borings, designated GZ-1 (OW), GZ-2 (OW), GZ-5 (OW), GZ-6 and GZ-7, were drilled in the South Quay. Test boring GZ-3 (OW) was drilled on Parcel 6-1-1 and boring GZ-4 (OW) was drilled on Parcel 17-1-2. The borings were drilled by New England Boring Contractors from June 26, 2017 to July 6, 2017. The borings were advanced to depths ranging from 47 to 71 feet below the ground surface using 4-inch (HW) casing. Casing was advanced using standard drive-and-wash techniques with rotary equipment. Five observation wells (borings designated (OW)), were installed to a depth of 15 feet below ground surface.

Split spoon soil samples were generally obtained at 5-foot intervals in conformance with ASTM D-1586, the Standard Penetration Test (SPT). The Standard Penetration Test consists of driving a 1-3/8 inch inside diameter standard split spoon sampler at least 18 inches with a 140-pound hammer dropping from a height of 30 inches. The standard penetration value is the number of blows required to drive the sampler from 6 to 18 inches of penetration, and is a commonly used indicator of soil density and consistency.

Eleven Geoprobes were drilled at the site between August 21 and 24, 2017 by Hoffman Environmental Services, Inc. to provide additional information on the thickness and extents of granular fill in the southeastern portion of the South Quay. The probes, designated P-01 through P-11, were drilled by Hoffman Environmental Services, Inc. between August 21 and 24, 2017 to depths ranging from 30 to 55 feet below ground surface. The probes were pushed in five-foot increments, with soil samples collected at selected intervals in an attempt to identify the thickness of the organic silt layer.

GENERALIZED SUBSURFACE CONDITIONS

The generalized soil conditions at all parcels typically consist of a surficial layer of artificial fill, underlain by deposits of organic silt, sand, and sand and gravel. Selected boring data are presented on Figures 3 and 4***, Subsurface Profiles***, which depict the interpreted generalized soil profile at various locations. Refer to the logs in Appendix B for additional information. GZ-3 (OW) and GZ-6 were observed to have unique strata as compared to the other borings.

Artificial Fill

Surficial artificial fill was encountered in all borings. The thickness of the artificial fill encountered in the borings ranged from 5 to 39 feet. The fill was generally comprised of sand with varying amounts of gravel and silt, with a relative density typically in the medium dense range.

Organic Silt

A layer of organic silt was observed in all borings except for Borings GZ-3 (OW) and GZ-6. The thickness of the organic silt layer ranged from 20 feet to 47.5 feet and terminated between 35 feet to 57 feet below ground surface. The relative density of the organic silt was typically very loose.

Sand, Silt and Gravel (Glacial Outwash)

The organic silt was underlain by naturally deposited sand, gravel, silty sand, and silty sand and gravel (glacial outwash), except for borings GZ-3 (OW) and GZ-6 where organic silt was not present and the glacial outwash was found below the artificial fill layer. Cobbles and boulders were frequently encountered within the glacial outwash. The relative density of this stratum ranged from very loose to very dense with a typical relative density of medium dense. All of the borings terminated in the glacial outwash layer.

Bedrock

Bedrock was not encountered or cored as part of this drilling program.

Groundwater

Stabilized groundwater depth readings were measured in the five observation wells at least 17 days after well installation. The depth to groundwater was observed to range from 1.3 feet to 7.6 feet below ground surface. Unstabilized groundwater depth readings were measured at time of drilling in Boreholes GZ-6 and GZ-7 at 13 feet and 4 feet respectively. It should be noted that groundwater level observations were made under the conditions at the time of the borings, and that groundwater levels may vary with temperature, rainfall, and other factors different than those at the time of the measurements.

Unique Strata

GZ-3 (OW) was performed in Parcel 6-1-1. The strata consisted of topsoil/subsoil, artificial fill, sand and gravel, and sand. No organic silt was observed in this boring.

GZ-6 was performed in the inferred “berm” around the perimeter of the South Quay. The strata consisted of sand and gravel fill underlain by glacial outwash. No organic silt was observed in this boring.

LABORATORY TESTING RESULTS

Current Soil Testing Program

Two ‘undisturbed’ soil samples were collected in the organic silt using a Shelby Tube Sampler and were submitted to Thielsch Engineering for laboratory analyses. Results of laboratory testing are summarized below, and the lab data reports are provided in ***Appendix D***. Laboratory testing was performed in general accordance with relevant ASTM standards.

Soil Characteristics:

BORING	SAMPLE	DEPTH	SOIL DESCRIPTION	WATER CONTENT	LIQUID LIMIT	PLASTIC LIMIT	ORGANIC CONTENT	DRY UNIT WEIGHT
--	--	ft	--	%	%	%	%	pcf
GZ-5	S-5	19-21	Organic Silt	49.3	50	34	2.8	72.4-78.6
GZ-7	S-9	39-41	Organic Silt	52.1	61	32	4.4	64.9-64.7

Soil Engineering Properties:

BORING	SAMPLE	DEPTH	UNDRAINED SHEAR STRENGTH, S_u	COMPRESSION RATIO, CR	TIME RATE OF CONSOLIDATION, c_v	SECONDARY COMPRESSION COEFFICIENT, c_α
--	--	ft	psf	%	cm^2/sec	--
GZ-5	S-5	19-21	1240	0.13	0.0042	0.006
GZ-7	S-9	39-41	1468	0.20	0.0036	0.009

Previous Soil Testing Programs

The following table shows soil engineering properties from existing lab testing data provided by Genesee & Wyoming, or publicly available information of organic silt from other projects in the vicinity of the South Quay.

PROGRAM	BORING/ SAMPLE	DEPTH	UNDRAINED SHEAR STRENGTH, S_u	COMPRESSION RATIO, CR	TIME RATE OF CONSOLIDATION, c_v	SECONDARY COMPRESSION COEFFICIENT, c_α
--	--	Ft	psf	%	cm^2/sec	--
PARE	B97-2/ U2	18-20	--	0.17	0.0025	0.006
PARE	B-97-3/ U4	28-30	1060-1979	0.19	0.0032	--
WASHINGTON BRIDGE	B01-W1	39-41	--	0.25	0.0053	0.010
I-195 BRIDGE	PRB-P18/ UP5	45	--	0.14	0.0053	--
I-195 BRIDGE	PRB-P18/ UP3	35	--	0.24	0.0044	0.013

IMPLICATIONS OF SUBSURFACE CONDITIONS

There is approximately 5 to 39 feet of artificial fill that is typically underlain by organic silt to depths between 35 and 57 feet below existing ground surface. The artificial fill is considered unsuitable for support of shallow foundations due to varying in situ density. The organic silt is also considered highly compressible and unsuitable for the support of shallow foundations as these soils are susceptible to long term consolidation settlement from the increased loading by placement of site fill and/or structures, and from long-term degradation of the organic material.

The proposed building and floor loads and any proposed increases in site grade will induce consolidation settlement of the organic silt layer. Excavation and replacement of the unsuitable soils would likely be cost prohibitive due to the required excavation depth below groundwater.

Construction of deep foundations with pile caps and structural slabs may be used for foundation support. Alternately, the use of "Rigid Inclusions" ground improvement methods with a reinforced soil load transfer platform and shallow spread footings could be used for building support, provided that the building site is raised above the flood elevation and the site is reclassified as not being within the flood plain velocity or "V" zone.

Raising site grades will induce settlement of the organic silt, which may also result in settlement of roadways, underground utilities and other site improvements.

The site is mapped as either a "VE Zone" or an "AE Zone" on the 2015 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps 44007C0317J and 44007C0309K. The South Quay and portions of Parcels 6-1-1 and 17-1-2 are shown as "VE Zones." "AE Zones" are shown as landward portions of Parcel's 6-1-1 and 17-1-2. A "VE Zone" and "AE Zone" is an area subject to inundation by a 1-percent-annual-chance flood event or 100-year flood. Velocity hazards or wave action are considered in VE Zones. The FEMA 100-year flood elevation is 14 feet (NAVD 88) for both zones.

Applicable building codes may include but are not limited to Rhode Island State Building Code, International Building Code (IBC), American Society of Civil Engineers (ASCE) 24, Federal Emergency Management Agency (FEMA) 499, National Flood Insurance Program (NFIP) and the East Providence Building Code. ASCE 24-05 prohibits the use of Fill Material for structural support but allows structures to be supported by pile foundations, and/or shallow spread footings with the top of footing at or below the eroded ground elevation.

Groundwater was observed in the boreholes between 1.3 and 13 feet below ground surface. Groundwater may be encountered during construction.

CONCLUSIONS AND RECOMMENDATIONS

The following sections present preliminary geotechnical recommendations for the conceptual site development, which is anticipated to include 3- to 5-story wood framed residential buildings, or single story commercial or light industrial buildings. It is also anticipated that other site development features will include raising the site grades above the flood plain elevation in some areas, and the construction of roadways, parking areas, and site utilities.

Primary/Secondary Settlement and Time Rate Considerations

GZA estimated the magnitude of primary and secondary consolidation settlement of the organic silt that may be caused by raising the existing site grades by the placement of five feet of site fill. The settlement was calculated assuming double-drainage, where fluid from the organic silt can drain through both the top and the bottom of the layer.

The magnitude of organic silt primary settlement for a 24-foot-thick layer is estimated to be 8.7 inches for the sample collected from this study, and ranges from 9.4 inches to 16.7 inches using the historic laboratory data. The estimated time required to achieve the end of primary settlement is 0.8 to 1.0 years. Secondary settlement, or creep, is estimated to be an additional 1 inch over ten years, and up to 3 inches over 30 years.

The magnitude of organic silt primary settlement for a 37-foot-thick organic silt layer is estimated to be approximately 15.6 inches, with a range of 10.9 to 19.5 inches when using the historic data. The time required to achieve the end of primary settlement is estimated to be approximately 2 years.

Our experience has typically been that the time rate of settlement calculation often overestimates the time it will take to reach the end of primary settlement, with the actual time to reach end of primary settlement typically about half of what is calculated. The time of consolidation can also be greatly reduced by the installation of drainage strips, or "wick drains", on a closely spaced pattern.

Building Foundations Over Fill & Organic Silt

Foundation support for new structures where deep fill and organic silt is present may be provided by driven piles with structural floor slab construction. Alternately, if the site flood zone is reclassified, "Rigid Inclusions" ground improvement and shallow spread footings could be utilized. Deep foundation and ground improvement alternatives are discussed in further detail in the following sections.

A deep foundation system consisting of driven piles could be used to support of the new buildings and slabs. Due to the potential for consolidation settlement of the site under new building loads, the ground level floor slab should be designed as a structural slab. The structural slab should be designed to span between pile caps or a network of grade beams spanning between pile caps. The piles will also need to be designed to resist downdrag forces in addition to building loads due to potential for settlement of surrounding soils.

Feasible pile types include precast concrete piles and concrete filled steel pipe piles. The piles will need to be driven through the artificial fill and organic silt, and will derive support in the glacial outwash layer below these materials. The depth to the bottom of the organic silt was approximately 50 to 55 feet across most of the site. The anticipated required pile lengths are therefore estimated to be approximately 70 to 90 feet, depending upon required loads, to allow sufficient penetration into the bearing layer to develop capacity. Timber piles are a typically lower cost pile type, but are limited in available lengths of approximately 50 to 60 feet, and may therefore be only suitable for the area of shallow organic silt in the extreme southeast corner of the South Quay.

Alternately, a "Rigid Inclusion" ground improvement system consisting of sand-cement drilled piers with a geogrid reinforced soil cap could be used to support spread footings for buildings that are not located in the flood "V" or velocity zone. This may require filling of the site above the flood plain, and obtaining a FEMA flood zone reclassification, or "Letter of Map Revision (LOMR)". Any new fill used to raise the site grades would also need to be armored along the shoreline to prevent erosion of the foundation soils.

GZA obtained preliminary pricing information from a local geotechnical specialty contractor for either driven precast concrete piles or the Rigid Inclusions options. The estimates were developed assuming typical building loads from a 3- to 5-story wood framed residential building with a 60-foot by 120-foot footprint, and from a 100-foot by 500-foot single story steel-framed light industrial building. A driven pile length of 90 feet was assumed. The estimated premium costs for the foundation construction using the preliminary pricing and assumed building loads are as follows:

<u>Estimated Foundation Premium for "typical" 60' by 120' Residential Building:</u>

<u>Three-Story Building on Piles:</u>
Assume 152, 90-foot precast concrete piles
Estimated Foundation Premium $1.28M to $1.54M total, or $59 to $71 per square foot by floor

<u>Five-Story Building on Piles:</u>
Assume 187, 90-foot precast concrete piles
Estimated Foundation Premium $1.51M to $1.82M total, or $42 to $50 per square foot by floor

Rigid Inclusions (Ground Improvement) Option
Total Estimate is $350K to $450K per 60'x120' building
$49 to $63 per square foot total/one-story
$16 to $21 per square foot for 3-story bldg
$10 to $13 per square foot for 5-story bldg
Note: Does not include cost of site fill to raise grade or riprap protection

Estimated Foundation Premium for "typical" 100' by 500' 1-Story Steel Industrial/Warehouse Bldg
Assume 441, 90-foot precast concrete piles
Estimated Pile Foundation Premium $3.98M to $4.78M total, or $80 to $96 per square foot

Rigid Inclusions were estimated for residential buildings at $49 to $63 for single story, and should be similar for relatively light building/floor loads. A Pile/Rigid inclusion hybrid may also be used for combination of light floor with heavy framing loads

Shallow Spread Footing Foundation Recommendations

Organic silt was not observed in boring GZ-3 (OW) drilled on Parcel 6-1-1). The soil conditions in this boring consisted of approximately five feet of artificial fill underlain by medium dense sands. Given the soil conditions observed at this location, structures may be supported by shallow spread footings if the top of footing is at or below the eroded ground elevation per ASCE-24. The footing would be founded on natural material below the artificial fill or at the calculated eroded ground elevation, whichever is deeper. The southern portion of the parcel was once a pond that has been reclaimed, therefore the fill depths may increase, and organic silt material may be present in this area. If the fill becomes too thick to excavate and organic materials are identified, piles or ground improvement would be required to support any buildings in these areas.

Groundwater depth in the Parcel 6-1-1 boring was observed to be 7.6 feet below ground surface. Groundwater may by encountered when excavating for shallow footings.

Seismic Considerations

For seismic analyses of any proposed structures, it is recommended that “Site Class F” be utilized in accordance with the Rhode Island State Building Code, the International Building Code (IBC), and American Society of Civil Engineers (ASCE) 7 Design Manual. Site Class F requires the following analyses according to the IBC:

- site-specific seismic study
- slope instability
- liquefaction
- total and differential settlement
- surface displacement due to faulting or seismically induced lateral spreading or lateral flow

Seismic liquefaction analyses are not anticipated to be required as the organic silt samples had a low liquidity index according to Boulanger and Idriss, 2005.

Utility and Site Improvement Recommendations

Utilities and site improvements such as paved roadways and parking areas locate over areas of organic silt may be susceptible to damage by consolidation settlement of the organic silt layer. This settlement may be minimized by locating utilities on a pile or ground improvement relieving platform.

If the utilities are constructed along the old railroad track causeway, the magnitude of settlement could be less due to the preloading from the railroad line fill and rail traffic. Additionally, the perimeter berm of granular soil along the outer edges of the South Quay is not believed to be underlain by significant thickness of organic silt. The settlement of utilities and site improvement located above the perimeter berm are anticipated to be minimal.

RIPRAP REVETMENT ASSESSMENT

A visual inspection of the existing South Quay revetment was performed from the northwest corner to the southeast corner of the site. The inspection of the revetment included estimates of slope, riprap size and type, presence of erosion, and displacement or slumping. Photographs were taken throughout the inspection and are provided in ***Appendix G***.

The revetment was separated into three sections: east face, swale, and south face. The following table summarizes observations made and photograph number.

Revetment Region	Photo Number	Area Description
East Face	1A, 1B	Top 8 feet of the revetment consists of concrete debris/blocks that have experienced minor displacement. Average size is 16"x10"x36". Bottom 14 feet of revetment consists of boulders varying in size (Large-2', Medium-1', Small-8"). Slope 4H:1.5V.
	2	Consistent with previous area. The concrete debris/blocks in this area have experienced less displacement.
	3	Concrete debris/block revetment 11' wide with consistent block size. Cobble sized slag. Slope 4H:2V.
	4	Concrete debris/blocks transitioning to concrete gravity slabs. Slab size average is 6"x24"x36". Slope 4H:1.8V.
	5	Concrete block/concrete slab transitioning to a 17' wide concrete block/slab/rip rap revetment. Rip rap size remains consistent along with slag. Slope 4H:1.8V.
	6A, 6B	Concrete debris portion of revetment has experienced displacement and soil loss at the top of the revetment. Rip rap remains consistent. Slope 4H:2.8V.
	7A, 7B	17' wide revetment area with soil loss occurring at the top. Materials remain consistent. Very little rock, mostly concrete blocks/slabs and slag. Slope 4H:2V.
	8	Potential soil loss behind revetment through open pocket.
	9A, 9B	15' wide revetment, primarily concrete debris/block w/ some slabs and slag. 10' of unprotected soil at top. Slope 4H:2V.
Swale	10	No revetment. Scattered Cobbles and boulders Lg-2' Md-1'. Area is 20' wide. Slope 4H:1V.
	11A, 11B	10' wide concrete block revetment landward. 20' wide flat area with boulder size Lg-2', Md-1', Sm-cobbles seaward. Slope 4H:2V.
	12	Seaward area transitions to eel grass with boulder surface behind (Lg-2' Md-1' Sm-Cobbles).

	13A, 13B	Boulder surface transitions to 20' wide flat area seaward. 10' wide concrete block revetment w/gravel fill landward. Slope 4H:2V.
South Face	14	Transition to a larger rip rap revetment. Rip rap size Lg-7' Md-3' Sm-1'. Slope 4H:1V at top portion, 1H:4V at lower portion.
	15	Slope transition to 4H:1.5V as well as smaller boulders Lg-4' Md-2' Sm-10". Some gaps between revetment, 1'-3' wide.
	16	Consistent rock size as previous. Toe of revetment is exposed to tidal zone and has experienced displacement. Slope 4H:1.3V.

The east face of the revetment extends from the southwest corner to the northwest corner of the quay minus the "swale" located one-third of the distance from the southwest corner. Riprap material in this area was highly variable in type and size. The material typically consisted of concrete curbs, concrete slabs, slag, and boulders. The material thickness was generally one layer thick. The width of the revetment ranged from 11 to 17 feet with a slope range of 2.6H:1V to 1.4H:1V. The upper ±10 feet of the slope was unprotected except for vegetation.

The "swale" area is an indentation in the slope located approximately one-third of the distance from the southwestern corner of the east face. Typically, the revetment at the swale transitions from concrete block with a 2H:1V slope that is 20 feet wide, to boulder riprap with a slope of 4H:1V about 20 feet wide. The riprap was typical one layer or less thick.

The south-facing revetment ranged in width from 30 to 40 feet, with rock riprap up to 7-feet in diameter. The southwest corner the revetment had two slopes: 4H:1V at the top and 1H:4V near the water. A slope of 3H:1V to 2.7H:1V was observed for the remainder of the south face. The riprap was typically observed to be two to three layers thick.

Revetment Recommendations

The east face and swale area were observed to be in a similar state of disrepair. The material type (concrete debris and slag), material thickness (one-layer thick), and material spacing should be addressed. We recommend either removing concrete and slag material and adding at least two layers of appropriately sized riprap with bedding to the area, or leaving the concrete and slag and adding at least two layers of appropriately sized riprap. The upper ten-feet of most the east face was not protected; we recommend this area be covered in the same manner as previously described.

The revetment on the south face of the quay was in generally good condition, and does not appear to require any repairs at the time of this report.

Any new slopes facing the water created as part of increasing the site grades should have a revetment constructed that consists of fabric, bedding stone, and at least two layers of appropriately sized riprap.

We appreciate the opportunity to have provided these services to Genesee & Wyoming, Inc. If you have any questions or need additional information, please do not hesitate to contact the undersigned at your convenience.

Sincerely,
GZA GEOENVIRONMENTAL, INC.

William L. Ladd, P.E.
Senior Consultant

Russell J. Morgan, P.E.
Reviewer

John J. Spirito, P.E.
Principal

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FIGURES

FIGURE 1 LOCUS PLAN
FIGURE 2 EXPLORATION LOCATION PLAN
FIGURE 3 SECTION A
FIGURE 4 SECTION B

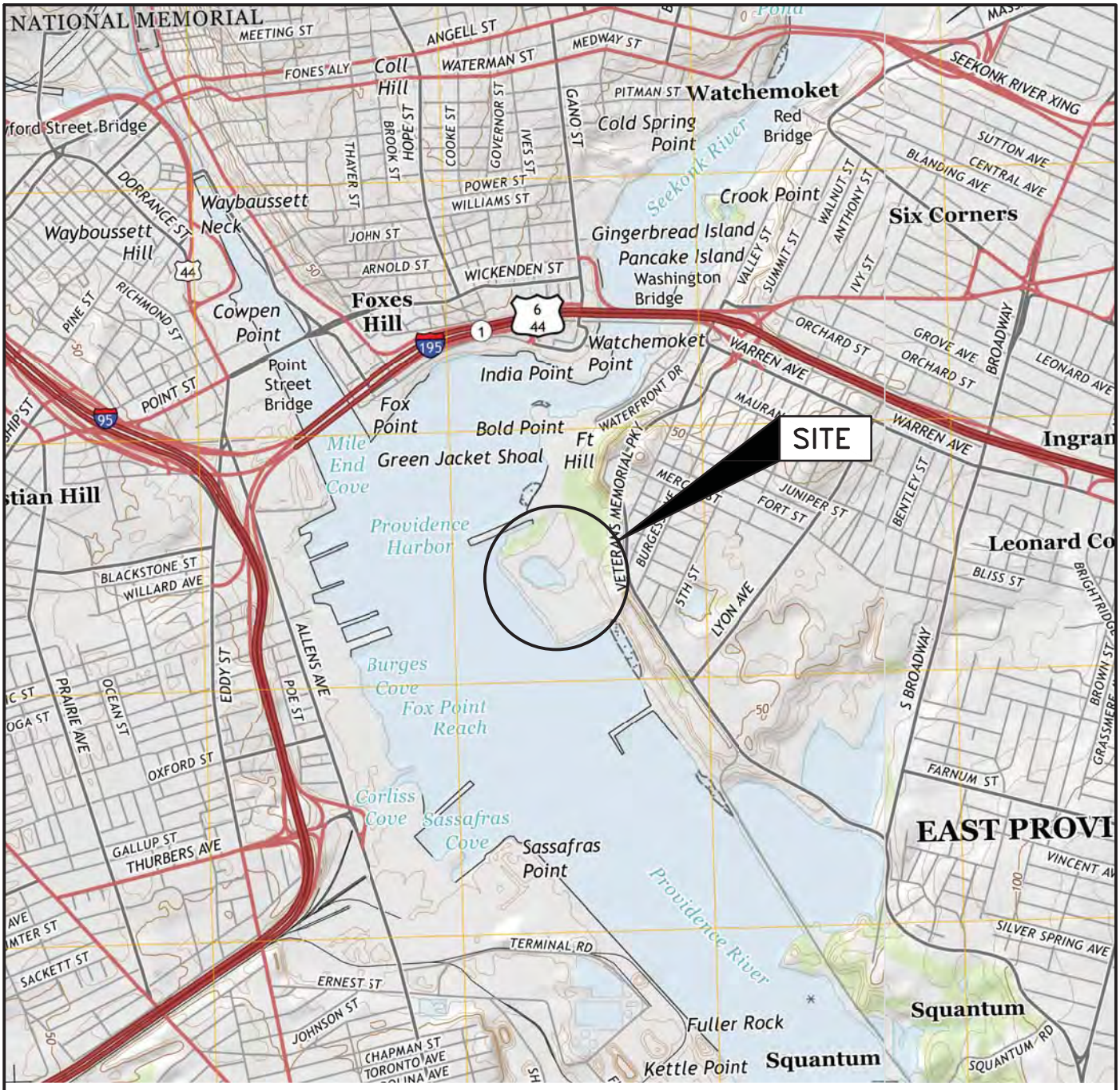
APPENDICES

APPENDIX A LIMITATIONS
APPENDIX B BORING LOGS
APPENDIX C FEMA FLOOD MAPS / USGS GEOLOGY
APPENDIX D LABORATORY DATA
APPENDIX E HISTORIC LABORATORY DATA
APPENDIX F AERIAL PHOTOGRAPH TIMELINE
APPENDIX G REVETMENT PHOTOGRAPHS

REFERENCES

1. SBC-1-2013 (2013) Rhode Island State Building Code
2. IBC (2012) International Building Code
3. ASCE 7 (2010) Minimum Design Loads and Associated Criteria for Buildings and Other Structures
4. ASCE 24 (2005) Flood Resistant Design and Construction
5. Journal of Geotechnical and Geoenvironmental Engineering (2006) “Liquefaction Susceptibility Criteria for Silts and Clays”, Boulanger and Idriss, 2006.

FIGURES



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SCALE IN FEET

RHODE ISLAND

QUADRANGLE LOCATION

SOURCE:

BASE MAP FROM THE FOLLOWING USGS QUADRANGLE MAP:
PROVIDENCE, RHODE ISLAND (2015)
EAST PROVIDENCE, RHODE ISLAND (2015)

DIGITAL TOPOGRAPHIC MAPS PROVIDED BY USGSSTORE.GOV.
CONTOUR ELEVATIONS REFERENCE NAVD 88,
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PROVIDENCE AND WORCESTER RAILROAD
SOUTH QUAY EVALUATION
EAST PROVIDENCE, RHODE ISLAND

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

PREPARED FOR:
GENESEE & WYOMING, INC.

LOCUS MAP

PROJ MGR: WLL	REVIEWED BY: WLL	CHECKED BY: MEA	FIGURE 1
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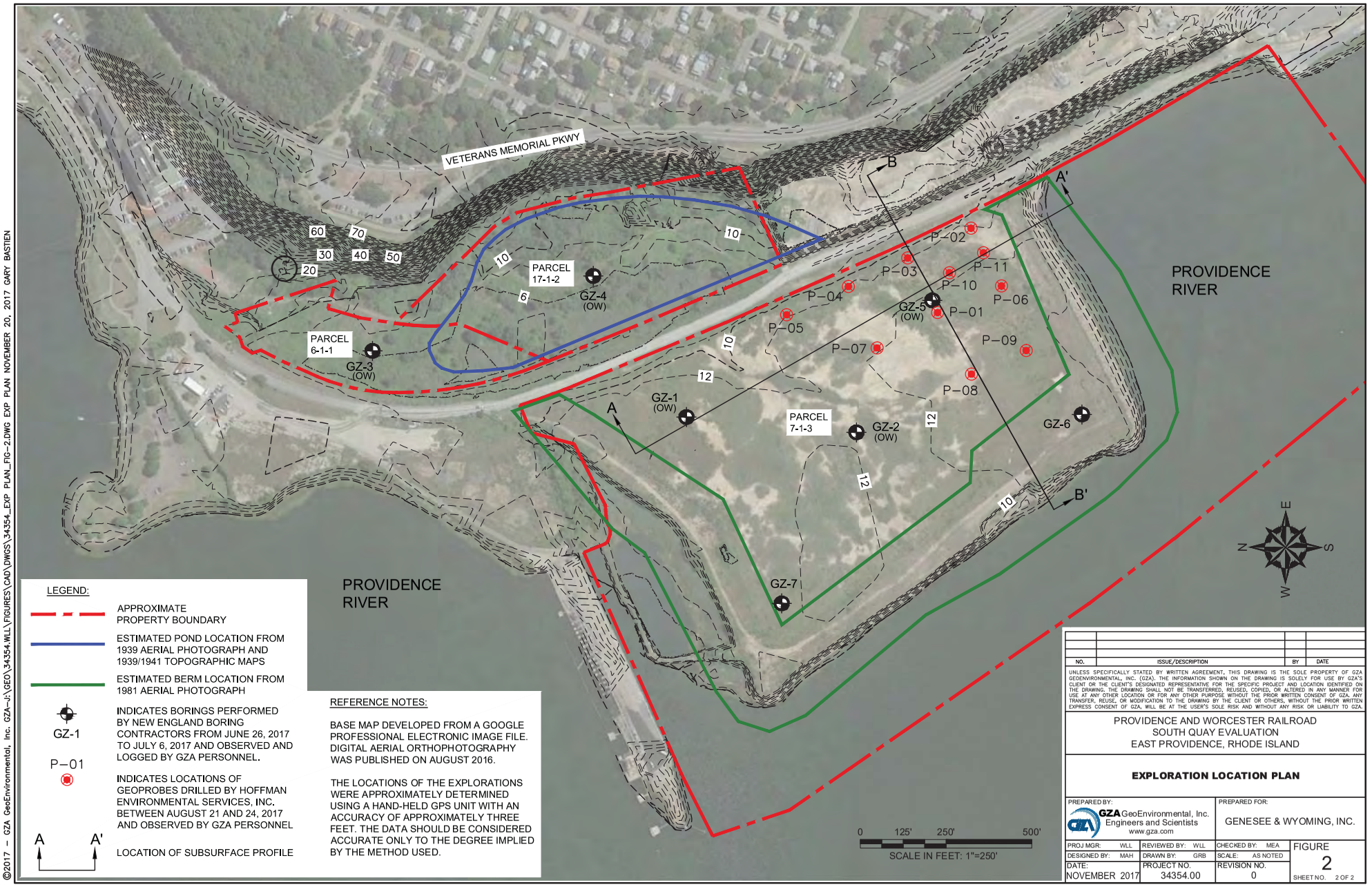
DATE: NOVEMBER, 2017	PROJECT NO. 34354.00	REVISION NO. 0	SHEET NO. 1 OF 2



LEGEND:

- APPROXIMATE PROPERTY BOUNDARY
- ESTIMATED POND LOCATION FROM 1939 AERIAL PHOTOGRAPH AND 1939/1941 TOPOGRAPHIC MAPS
- ESTIMATED BERM LOCATION FROM 1981 AERIAL PHOTOGRAPH
- GZ-1 — INDICATES BORINGS PERFORMED BY NEW ENGLAND BORING CONTRACTORS FROM JUNE 26, 2017 TO JULY 6, 2017 AND OBSERVED AND LOGGED BY GZA PERSONNEL.
- P-01 — INDICATES LOCATIONS OF GEOPROBES DRILLED BY HOFFMAN ENVIRONMENTAL SERVICES, INC. BETWEEN AUGUST 21 AND 24, 2017 AND OBSERVED BY GZA PERSONNEL
- A — A' — LOCATION OF SUBSURFACE PROFILE

REFERENCE NOTES:

BASE MAP DEVELOPED FROM A GOOGLE PROFESSIONAL ELECTRONIC IMAGE FILE. DIGITAL AERIAL ORTHOPHOTOGRAPHY WAS PUBLISHED ON AUGUST 2016.

THE LOCATIONS OF THE EXPLORATIONS WERE APPROXIMATELY DETERMINED USING A HAND-HELD GPS UNIT WITH AN ACCURACY OF APPROXIMATELY THREE FEET. THE DATA SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

NO.	ISSUE/DESCRIPTION	BY	DATE

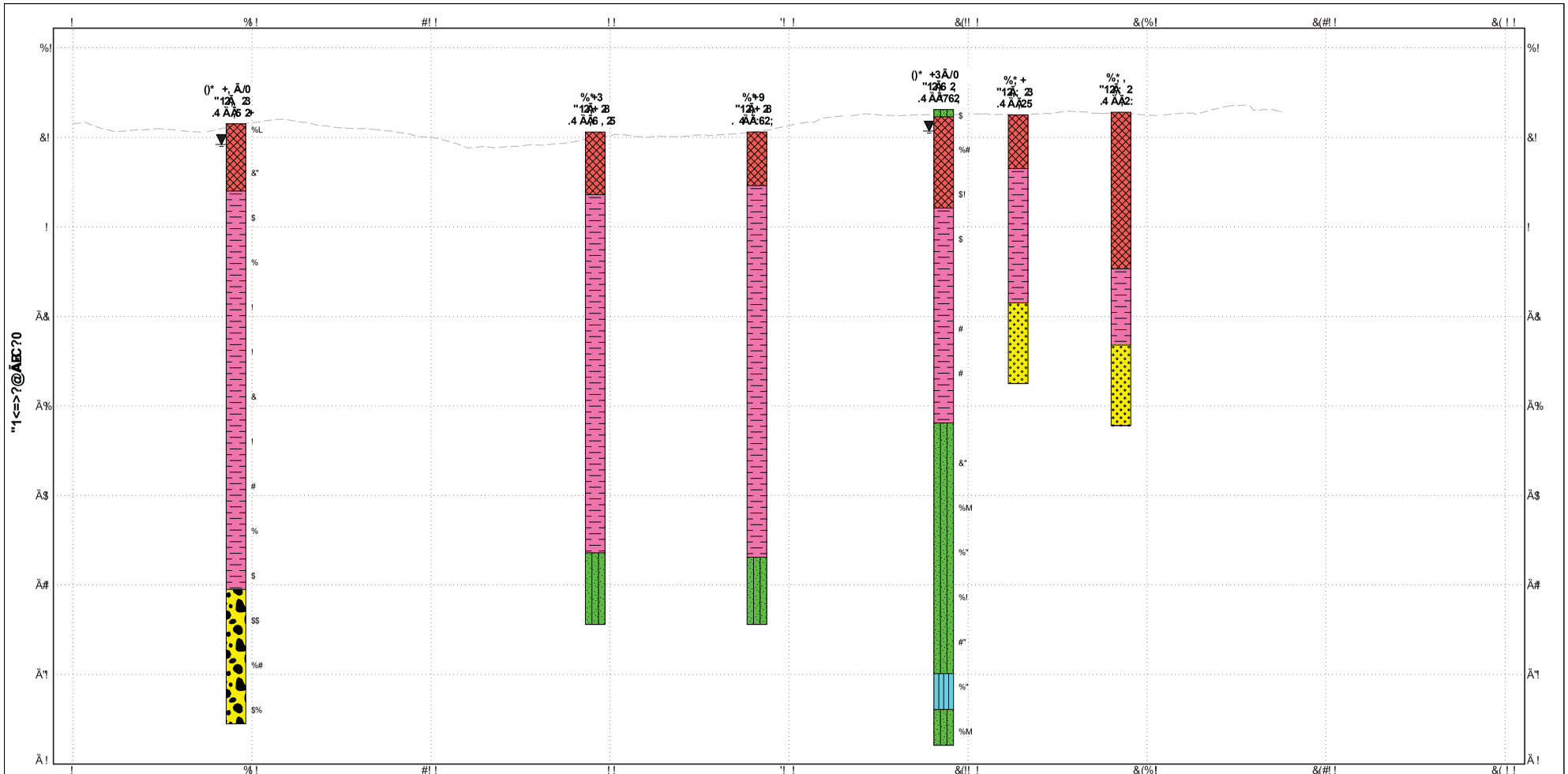
PROVIDENCE AND WORCESTER RAILROAD
SOUTH QUAY EVALUATION
EAST PROVIDENCE, RHODE ISLAND

EXPLORATION LOCATION PLAN

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

PREPARED FOR:
GENESEE & WYOMING, INC.

PROJ MGR: WLL	REVIEWED BY: WLL	CHECKED BY: MEA	FIGURE 2		
DESIGNED BY: MAH	DRAWN BY: GRB	SCALE: AS NOTED			
DATE: NOVEMBER 2017	PROJECT NO. 34354.00	REVISION NO. 0	SHEET NO. 2 OF 2		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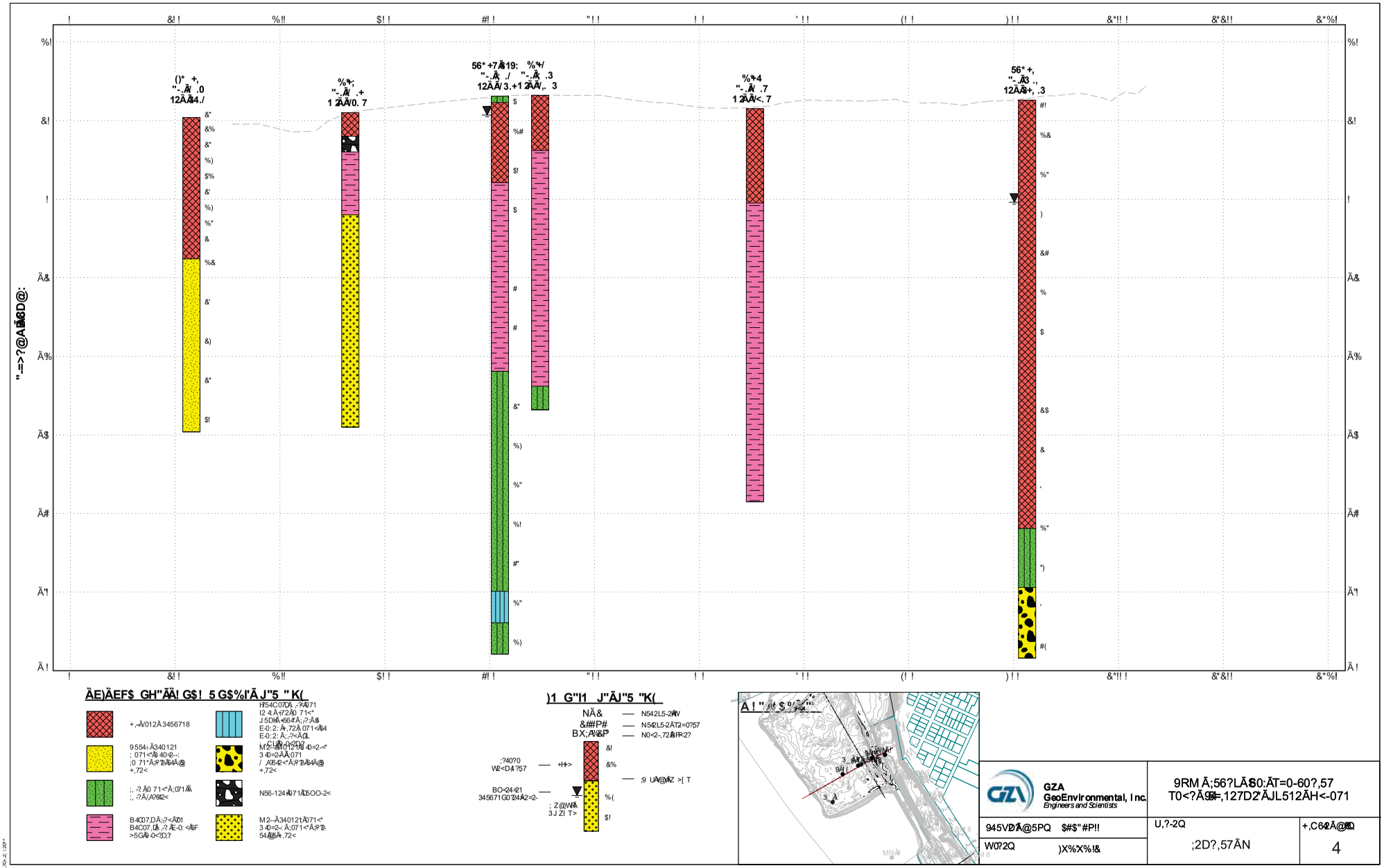

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NÄ& — N542L5-2ÄW
&##P# — N542L5-2ÄT2=0?57
BX;Ä/&P — N0<2-,72ÃFR-2?
:?40?0 W2<DÄ ?57 — +H>
BO<24-21 3456?1G0?24Ä2=2- — ; Z@VÄ 3J ZI T>
&! &% %($!
;9 UÄ@ÄZ >[T

GZA GeoEnvironmental, Inc. Engineers and Scientists

9RM Ä;56?LÃ80:ÃT=0-60?,57 T0<?Ä9F=,127D2'ÄJL512ÄH<-071

945VDÄ@5PQ $#$"#P!!
W0?2Q)X%X%!&
U,?-2Q ;2D?,57ÃN
+,C642Ä@ 4

APPENDIX A

LIMITATIONS

GEOTECHNICAL LIMITATIONS

Explorations

1. The analyses and recommendations submitted in this report are based in part upon the data obtained from subsurface explorations. The nature and extent of variations between these explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

2. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more erratic. For specific information, refer to the boring logs.

3. Water level readings have been made in the drill holes and monitoring wells at times and under conditions stated on the boring logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, temperature, and other factors occurring since the time measurements were made.

Review

4. In the event that any changes in the nature, design or location of the proposed building are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing by GZA GeoEnvironmental, Inc (GZA). It is recommended that this firm be provided the opportunity for a general review of final design and specifications in order that earthwork and foundation recommendations may be properly interpreted and implemented in the design and specifications.

Construction

5. It is recommended that this firm be retained to provide soil engineering services during construction of the excavation and foundation phases of the work. This is to observe compliance with the design concepts, specifications, and recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

Use of Report

6. This report has been prepared for the exclusive use Genesse & Wyoming, Inc. for specific application to the South Quay site located in East Providence, Rhode Island in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made.

7. This soil and foundation engineering report has been prepared for this project by GZA. This report is for design purposes only and is not sufficient to prepare an accurate bid. Contractors wishing a copy of the report may secure it with the understanding that its scope is limited to design considerations only.

8. This report may contain comparative cost estimates for the purpose of evaluating alternative foundation schemes. These estimates may also involve approximate quantity evaluations. It should be noted that quantity estimates may not be accurate enough for construction bids. Since GZA has no control over labor and materials cost and design, the estimates of construction costs have been made on the basis of experience. GZA does not guarantee the accuracy of cost estimates as compared to contractor's bids for construction costs.

APPENDIX B

BORING LOGS

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-01 (OW)
SHEET: 1 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5-16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method:
4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $$'"
Final Boring Depth (ft.): G#
Date Start - Finish: GZ!ÄZ!Ä$#Ā ĀGZZÄ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ!#Z$#	$&M&Ä	!'$		$Ā4)T
#Z$#Z$#	$&M&Ä	!'&		!Ä Ā4)T7

458:? R<:$	K) 760, (=. D7	>)9 8=5 P. '	458:? R<$	250' R60$	;5 *' R60$	(=.D 7 R$-ĀGĀ60$	>2V 8=/5	>)9 8=5Ā6 7*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	>:-):/9 458:? R<$	45 7*-68:6.6 Y=5C R<$	Y[/68 9 50:Ā07:)==51
		> $	Ä !	!%	$"	EĀĀ$$ $GĀ$#	!#	> $ĀMĀN16/9 Ā15075OĀ. D0O <605Ā:.Ā)* -75Ā>FP4OĀ=6Ā6=:O =6=5Ā<605ĀO5=ĀRL6==S	$	Ä'#			2-.:5*:6C5 K) 760, (50:.0 6:5 L6=:5-Ā>)01
"		> !	" #	!%	%	HĀĀE #ĀĀ"	$"	> !ĀMĀN16/9 Ā15075O=Ā6,?: B-.D 0OĀ6=5Ā:.Ā*.)-75Ā>FP4O 7.9 5Ā<605Ā:.Ā*75ĀQ-)C5=O :-)*5Ā>6=OĀ)*5Ā;. .:7ĀRL6==S	! & %	$'!		L3UU #'" %Ä	I 5==Ā>350
$Ä		> &	$Ä $!	!%	$E	ÄĀĀ$!ĀĀ!	&	> &ĀMĀ=>OĀ1)-+Ā-)TOĀ; QFP3K >3UVĀ6?Ā.-) 06*Ā1 .-		Ä'"			
$"		> %	$" $#	!%	!%	IA J Ā$ $ĀĀ$	!	> %ĀMĀ=>OĀ1)-+Ā-)TOĀ; QFP3K >3UVOĀ*5Ā>?5==7OĀ) 06*Ā.1.-	"	P4		A; QFP3K=3UV	
!Ä		> "	!Ä ! !	!%	!Ä	IA J IA J IA J Ā$	Ä	> "ĀMĀ6ĀTĀ7.<ĀO1)-+Ā-)TO A; QFP3K=3UVOĀ.*5Ā>?5==7O .- ,) 06*Ā.1.-		Ä'$			
!"		> G	!" ! #	!%	!%	IA ; IA J IA J Ā$	Ä	> GĀMĀ=TĀ7.<ĀO1)-+Ā-)TO A; QFP3K=3UVOĀ.*5Ā>?5==7O .- ,) 06*ĀĀ.-		Ä'$:. $'Ä			
&Ä													

REMARKS

$Ā Ā()*+,- ./ 01Ā2Ā-5 160,7Ā'ÄĀĀ889ĀĀĀ'"Ā889'
!Ā Ā;. *+Ā60Ā8Ā.<Ā=6:Ā7.0 Ā> !'
&Ā Ā6==5-7Ā0.Ā)Ā?) 0, 5Ā60Ā==60,Ā67)0*5Ā):Ā@#'"Ā<55:
%Ā ĀA},06Ā76=Ā.B75C5!Ā60ĀD7?Ā<-.9Ā@EĀ@$ĀĀ<55:'
"Ā ĀA85Ā?.=5Ā<-.9Ā@$"Ā:@'"Ā<55:'ĀĀ1Ā*)760,Ā)<:5-Ā7)8=5Ā:$! '

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69Ā57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-01 (OW)

QIFĀVYN2UFVYĀVY>VĀ(A:3PQĀIZĀ)Y32 '_ĀH2ZIĀ$#_Ā$MMSĀ2N

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-01 (OW)
SHEET: 2 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "Ā
Drilling Method: 4-6CĀ5ĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $$'"
Final Boring Depth (ft.): G#
Date Start - Finish: GZ!ĀZ!Ā$#Ā ĀGZZĀZĀ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ā
Hammer Fall (in.): &Ā
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ā
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ!#Z$#	$&M&Ā	!'$		$Ā4)T
#Z$#Z$#	$&M&Ā	!'&		!Ā Ā4)T7

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V 8=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	>:-):/9 458:? R<S 457*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
		> #	&Ā&!	!%	!%	IA J IA J $ĀĀ!	$	> #ĀMĀ-WTĀ7.<ĀC1)-+Ā-)TO A; QFP3KĀ-3UVOĀ).*5Ā>?5==7O .- ,) 06*ĀĀ.-		Ā'$		
&"		> E	&" &#	!%	!%	IA J IA J IA J ĀĀ	Ā	> EĀMĀ-WTĀ=.75OĀ) -+Ā,-)TO A; QFP3KĀ-3UVOĀ).*5Ā>?5==7O .- ,) 06*ĀĀ.-		Ā'!		
%Ā		> H	%Ā%!	!%	!%	IA J ĀĀ !ĀĀ!	%	> HĀMĀ-=OĀ1)-+Ā-)TOĀ; QFP3K >3UVOĀ).*5Ā>?5==7.OĀ) 06*Ā.1.-		Ā'&	A; QFP3KĀ-3UV	
%"		> $Ā	%" %#	!%	!%	IA J IA J !ĀĀ!	!	> $ĀĀĀW5-Ā7. <:ĀO1)-+Ā-)TO A; QFP3KĀ-3UVOĀ.-,)06*Ā.1.-		Ā'"		
"Ā		> $$	"Ā " !	!%	!%	IA J IA J &ĀĀ#	&	> $$ĀĀM>.<OĀ1)-+Ā-)T A; QFP3KĀ-3UV		Ā'$	"! _ _ _ _ _ _ %Ā"	
""		> $!	"" " #	!%	$Ā	$&ĀĀ$& !Ā ĀĀ$E	&&	> $! ĀĀ#50750Ā) -+ĀB-D0Z,-)TO <605Ā:.Ā)*-75Ā>FP4OĀ7.9Ā5Ā<605 :.Ā*.)- 75ĀQ-)C5=OĀ-6Ā6=:		Ā'"	>FP4ĀFP4 Q; FWYU	
GĀ												

REMARKS

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69Ā57Ā?5Ā9 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-01 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-01 (OW)
SHEET: 3 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $$'"
Final Boring Depth (ft.): G#
Date Start - Finish: GZ!GZ!Ä$#Ā ĀGZZGÄ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ!#Z$#	$&M&Ä	!'$		$Ā4)T
#Z$#Z$#	$&M&Ä	!'&		!Ä Ā4)T7

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R8-ĀGĀ60	>2V W8=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	458:? R<S	>:-):/9 457*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
G"		> $&	GĀG!	!%	H	GĀĀ# $#Ā&!	!%	> $&ĀĀN516/9 Ā15075OĀ,-TOĀ<605 :.Ā*.)- 75Ā>FP4 Ā01 Ā605Ā:. *.)- 75ĀQ;FWYUO-Ā*5Ā>6=:		P4		>FP4ĀFP4 Q; FWYU	
		> $%	G" G#	!%	$Ä	!HĀ$% $EĀ$Ä	&!	> $%ĀĀM4507 5OĀ.D 0Z,-)TO-Ā605 :.Ā*.)- 75Ā>FP4 Ā01 Ā605Ā:. *.)- 75ĀQ-)C5=OĀ*5Ā>6	G #	Ä'%	G#	"'"'"	
#Ä								Y01Ā.<Ā5=-) :6.0Ā):ĀG#Ā<55:'					
#"													
EÄ													
E"													
HÄ													

REMARKS

GĀ ĀAB76)-:6.0ĀĀ5==Ā607:)==51Ā:.Ā6@$%Ā<?ĀĀ==Ā750Ā< 9 Ā@%ĀĀ@$%Ā<55:'
#Ā ĀL65=1Ā5,7Ā57/=:7Ā58-5750:Ā.:)=Ā.-,) 06*ĀC)8 Ā=5G5Ā5<5-50*51Ā:.ĀB505605Ā60Ā)6-Ā7:)01,0Ā5) 7/-5 1Ā60Ā:?5Ā:78) *5Ā.<Ā5)=51Ā7.6=
7)9 8=5ĀX7)Ā760,Ā)ĀN606Ā;5Ā&ĀĀĀR234S6ĀDĀ$Ā'GĀ5+)Ā8ĀĀ5 7/=:7Ā60Ā8)-:7Ā85-Ā9=6.0ĀĀ5T=9 5'

QIFĀVYN2UFVYĀVY>VĀ(A:3PQĀIZĀY32 '_ĀH2ZIĀ$_ĀSMM$&2N

>55 U , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -65 7 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5G=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-5750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-01 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-02 (OW)
SHEET: 1 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method:
4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): H'E
Final Boring Depth (ft.): GC3&
Date Start - Finish: GZ!#Z!Ä$#Ā ĀGZZ#Ä$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z$#Z$#	$&M&Ä	$'"		!Ä Ā4)T7

458:? R<:$	K) 760, (=. D7	>)9 8=5 P. '	458:? R<$	250' R60$	;5 *' R60$	(=.D 7 R$-ĀGĀ60$	>2V 8=/5	>)9 8=5Ā6 7*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	458:? R<$	>:-):/9 45 7*-68:6.0	Y=5C R<$	Y[/68 9 50:Ā07:)==51
		> $	Ä !	!%	$E	$ĀĀ$&& !Ä ĀÄĀ	&&	> $ĀMĀ45075OĀBZ1)-+ĀB-D0O <605Ā:.Ā*-75Ā>FP4OĀ7.9Ā>6=: :-)*5Ā<605ĀQ5=OĀ*5ĀF78?) = RL6==S	$	Ä'#				2-.:5*:6C5 K) 760, (50:.0 6:5 L6=:5-Ā>)01
"		> !	" #	!%	$Ä	!%ĀĀ$H $HĀĀ$I	&E	> !ĀMĀ45075OĀ-67?ĀBĐ0OĀ85 :.Ā*.)- 75Ā>FP4 OĀ6=5Ā<605Ā:. *.)- 75ĀQ-)C5=OĀ-6Ā6-RĀ6==S		$'Ä		L3UU		
$Ä		> &	$Ä$!	!%	$G	&ĀĀ! $ĀĀ!	&	> &ĀMĀ>OĀ1)-+Ā-)TOĀ; QFP3K >3UVOĀ) 06*Ā.1.-		$'G	H'"	Ä'&		I 5==Ā>350
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!Ä		> "	!Ä ! !	!%	!%	IA J IA J !ĀĀ!	!	> "ĀMĀ=:OĀ1)-+Ā-)TOĀ; QFP3K >3UVOĀ*5ĀL6B57OĀ-) *5Ā>?5== L-) , 950:7OĀD5:?Ā@5Ā>)01Ā)01 >6-Ā=50757OĀ) 06*Ā.1.-		$'H		A; QFP3KĀ-3UV		
!"		> G	!" ! #	!%	$%	IA J IA J IA J ĀĀ	Ä	> GĀMĀ-TĀ7.<ĀC1)-+Ā-)TO A; QFP3KĀ-3UV		$'Ä				
&Ä														

REMARKS

$Ā Ā()*+,- ./ 01Ā2Ā-5 160,7Ā@ĀĀ:..Ā'@Ā889'
!Ā ĀA85ĀĀ?.=5Ā<-.Ā@$"Ā:@ĀĀ<55:DĀ7?ĀB)*+Ā-Ā*)760,Ā)<:5Ā> $&'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6=6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -65 7 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I .):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69Ā57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-02 (OW)

QIFĀVYN2UFVYĀVY>VĀ(A:3PQĀIZĀ)Y32 '_ĀH2ZZIĀ$+_ĀSMM$Ā2N

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-02 (OW)
SHEET: 2 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5-16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): H'E
Final Boring Depth (ft.): GC&
Date Start - Finish: GZ!#Z!À$#Ā ĀGZZ#À$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'À
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z$#Z$#	$&M&À	$'"		!À Ā4)T7

458:? R<:S	K) 76Ā0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ6Ā0	>2V V8=/5	>)9 8=5Ā6 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	>:-):/9 458:? R<S	457*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
		> #	&À&!	!%	!%	IA J IA J IA J ĀĀ&	À	> #ĀMĀ-WĀ7.<ĀC1)-+Ā-)TO A; QFP3KĀ-3UVĀD:?Ā?5= L-) , 950:7OĀ.-,)0 6*Ā1. -		$'!			
&"		> E	&" &#	!%	$E	IA J IA J IA J ĀĀ&	À	> EĀMĀ-WĀ7.<ĀC1)-+Ā-)TO A; QFP3KĀ-3UVĀD:?Ā?5= L-) , 950:7OĀ.-,)0 6*Ā1. -		$'!			
%À		> H	%À%1	!%	E	IA J IA J IA J IA J	À	> HĀMĀ-WĀ7.<ĀC1)-+Ā-)TO A; QFP3KĀ-3UVOĀD?Ā>?5== L-) , 950:7OĀ.-,)0 6*Ā1. -		$'!	A; QFP3KĀ-3UV		
%"		> $À	%" %#	!%	!%	IA J IA J !ĀĀ%	!	> $ÀĀĀM>.<ĀC1)-+Ā-)TO A; QFP3KĀ-3UVOĀ.*5ĀL6B5-7O >?5==ĀL-)950:7 ĀC-,) 06*Ā.1.-		$'H			
"À		> $$	"À " !	!%	!%	IA J IA J "ĀĀ&	"	> $$ĀĀMN516/9 Ā7:6<ĀC1)-+Ā-)TO A; QFP3KĀ-3UV		$'"			
""		> $!	"" " #	!%	!%	IA J IA J "ĀĀG	"	> $! ĀĀMN516/9 Ā7:6<ĀC1)-+Ā-)TO A; QFP3KĀ-3UV			"# _ _ _ _ _ _ _ %#'!		
GÀ											>FP4ĀFP4 Q; FWYU		

REMARKS

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā5Ā:69-57Ā?5Ā9 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-02 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-02 (OW)
SHEET: 3 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): H'E
Final Boring Depth (ft.): GC&
Date Start - Finish: GZ!#Z!Ä$#Ā ĀGZZ#Ä$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z$#Z$#	$&M&Ä	$'"		!Ä Ā4)T7

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V W6=/5	>)9 8=5Ā6 7*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	458:? R<S	>:-):/9 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
G"		> $&	GĀG!	!%	$!	$! Ā$Ā $ĀĀ$Ā	!!	> $&ĀĀWN516/9 Ā15075O B-.D 0Z,-)TO=605Ā:.Ā)*-75 >FP4OĀ=65Ā605ĀQC5=OĀ*5 >6=:				>FP4ĀFP4 Q; FWYU	G! _ _ _ _ _ _ _ "!'!
		> $%	G" GC&	$"	#	!HĀ$Ā" $ĀĀZ&d	;	> $%ĀĀW5-Ā15075OĀ) TOĀ605Ā:. *.)- 75ĀQ;FWYUOĀ9 5Ā<605Ā:. *.)- 75Ā>)01OĀ=6ĀC=: Y01Ā.<Ā5Ā=-) :6.0Ā):ĀGG'&Ā<55:'	& %			>FP4ĀFP4 Q; FWYU	GC& "G"

#Ä
#"
EÄ
E"
HÄ

REMARKS

&Ā ĀAB76):6.0Ā5==Ā607:)==51Ā:.Ā6C$Ā<?Ā5==Ā750Ā< 9 Ā@%ĀĀ@$%Ā<55:'
%Ā ĀL65=1Ā05Ā57/=:7Ā58-5750:Ā.:)=Ā.-,) 06*ĀC)8 Ā=5G5Ā<5-5 0*51Ā-ĀĀ)ĀB505Ā60Ā)6-Ā7:)01Ā5) 7/-5 1Ā60Ā:?5Ā:?8) *5Ā.<Ā5)=51Ā76= 7)9 8=5ĀX7)Ā760,Ā)ĀN606Ā;5Ā&ĀĀĀR234S&DĀ$Ā'GĀ5+)Ā8ĀĀ5 7/=:7Ā60Ā8)-:7Ā85-Ā9=6.0ĀĀT=9 5'

>55 U , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -65 7 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5G=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-02 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-03 (OW)
SHEET: 1 of 2
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā>9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): H
Final Boring Depth (ft.): %#
Date Start - Finish: GZ!ĀZ!Ä$#Ā ĀGZZĀÄ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ!ĀZ$#	$ÄM&Ä	#'"		$Ā4)T
#Z$#Z$#	$&M&Ä	#'G		$HĀ4)T7

458:? R<:$	K) 760, (=. D7	>)9 8=5 P. '	458:? R<$	250' R60$	;5 *' R60$	(=.D 7 R$-ĀGĀ60$	>2V 8=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	458:? R<$	>:-):/9 45 7*-68:6.0	Y=5C R<$	Y[/68 9 50:Ā07:)==51
		> $	Ä !	!%	H	"ĀĀG !! Ā$E	!E	> $ĀMĀRV.8Ā&dSĀ4. D0ZB=*)+O <605Ā>FP4Ā)0Ā>3UV.Q)75 ;. .:7ĀRV87.6=S R(.:::.9 ĀGdSĀU6Ā?-D 0OĀ65Ā:. 9 516/9 Ā>FP4 ĀÄ=65Ā>6ĀĀ)*5 <605ĀQ5=OĀ)*5Ā;. .:7OĀ:) *5 I . . 1ĀR>/B.6=S	$!	&'H	Ä'& $	VA2>A3U >^(>A3U	E'# E'Ä	2-.:5*:6C5 K) 760, (50:.0 6:5 L6=:5-Ā>)01
"		> !	" #	!%	$!	$" Ā$# $" Ā$#	&!	> !ĀMĀ45075OĀ0Ā<605Ā:. *.)- 75Ā>FP4 Ā)01 Ā605Ā:.Ā*.)-75 Q; FWYUĀ6=5Ā6=:	&	$'H	"	L3UU %Ä		>FP4ĀFP4 Q; FWYU
$Ä		> &	$Ä$!	!%	$!	GĀĀG #ĀĀ#	$&	> &ĀMĀN6/9 Ā15075OĀ. D0O <605Ā:.Ā)*-75Ā>FP4OĀ:-)*5Ā>6=		$'"	H	Ä'Ä		I 5==Ā>350
$"		> %	$" $#	!%	Ä	$$Ā$ $$Ā$	!"	> %ĀMĀPAĀ;YKAY;e	%					
!Ä		> "	!Ä ! !	!%	H	$$ĀĀ #ĀĀE	$"	> "ĀMĀN5/9 Ā15075OĀ. D0O <605Ā:.Ā)*-75Ā>FP4OĀ:-)*5Ā>6=		Ä'E		>FP4		
!"		> G	!" ! #	!%	$!	$$ĀĀ HĀĀ$$	$G	> GĀMĀN5/9 Ā15075OĀ. D0O <605Ā:.Ā)*-75Ā>FP4OĀ:-)*5Ā>6=		P4				
&Ä														

REMARKS

$Ā Ā()*+,- ./ 01Ā2Ā-5 160,7ĀÄ Ä'!" Ā889'
!Ā Ā;. *+Ā-) ,950:7Ā 60Ā:68ĀĀ8Ā67Ā..0 Ā> $'
&Ā Ā30*-5)75Ā-5767)0*5ĀD?6=5ĀB60 Ā@"Ā:.ĀĀ@<55:'
%Ā ĀAB75-:6.0ĀB==Ā607:)==51Ā:.Ā@$ĀĀ<?ĀB==Ā750Ā<9 Ā@%Ā@$%Ā<55:'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69Ā57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-03 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-03 (OW)
SHEET: 2 of 2
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā>9 6?

Type of Rig: FVW
Rig Model: 4 "À
Drilling Method: 4-6CĀ5ĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): H
Final Boring Depth (ft.): %#
Date Start - Finish: GZ!ĒZ!À$#Ā ĀGZZĒÀ$#

H. Datum: PF4 E&
V. Datum: PFW4ĒE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ!ĒZ$#	$ÀM&À	#'"		$Ā4)T
#Z$#Z$#	$&M&À	#'G		$HĀ4)T7

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R8S	>2V V8=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	458:? R<S	>:-):/9 457*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
		> #	&À&!	!%	$!	$&ĀĀ HĀĀ$!	$E	> #ĀMĀN16/9 Ā15075OĒĀ. D0O <605Ā:.Ā916/9 Ā>FP4 OĀ6=5Ā>6=: R>:-):6<651S		$'Ä			
&"		> E	&" &#	!%	$À	GĀĀE $$ĀĀ$N	$H	> EĀMĀN16/9 Ā15075OĒĀ. D0O <605Ā:.Ā916/9 Ā>FP4 OĀ6=5Ā>6=: R>:-):6<651S		P4			
%À		> H	%À%1	!%	$#	#ĀĀ$$ $#ĀĀ$"	!E	> HĀMĀN16/9 Ā15075OĀ6,?:ĀBD0 :.ĀB-.D0OĀ65Ā:.Ā916/9 Ā>FP4 O :-)*5Ā>6=ĀR>:-):6<651S		P4		>FP4	
%"		> $À	%"%#	!%	$#	HĀĀ$% !À ĀĀ$E	&%	> $ÀĀMN16/9 Ā15075OĀ=6,?: B-.D 0Ā:.ĀB-D0OĀ65Ā:.Ā916/9 >FP4OĀ:-)*5Ā>6=ĀR>) :6<651S	"	P4	%#	&EÀ	
								Y01Ā.<Ā5B=-) :6.0Ā):Ā%#Ā<55:'					
"Ä													
""													
GÄ													

REMARKS

"Ā ĀL65=1Ā:67Ā57/=:7Ā58-5750:Ā.:)=Ā.-,) 06*ĀC)8 Ā=5GĒĀ5<5-59 0*51Ā:.Ā)ĀB5C505Ā60Ā)6-Ā07t) -1Ā95) 7/-5 1OĀ6ĀĀ5) 178) *5Ā.<Ā5)=51Ā76= 7)9 8=5ĀXYĀ760,Ā)ĀN606Ā;5Ā&ÀÀĀR234SĀDĀ$A'GĀ5=YĀ8ĀĀ5 7/=:7Ā60Ā8)-:7Ā85-Ā9=6.0ĀĒT=9 5'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-5750:Ā):Ā?5Ā:69Ā57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-03 (OW)

QIFĀVYN2UFVYĀVY>VĀ(A:3PQAIZĀ)Y32 '_ĀH2ZIĀ$#_ĀĀMM$62N

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-04 (OW)
SHEET: 1 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā>9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): #
Final Boring Depth (ft.): GG"
Date Start - Finish: GZ!ĀZ!Ä$#Ā ĀGZZ!Ä$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z$#Z$#	$&M&Ä	$'&		$EĀ4)T7

458:? R<:$	K) 760, (=. D7	>)9 8=5 P. '	458:? R<$	250' R60$	;5 *' R60$	(=.D 7 R$-ĀGĀ60	>2V W=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	>:-):/9 458:? R$ 457*-68:6.6 Y=5 R$	Y[/68 9 50:Ā07:)==51
		> $	Ä !	!%	$!	!ĀĀE $! Ā$&	!Ä	> $ĀMĀRV.8Ā%deSB4 D0ZB=)+ >3UVĀ)01Ā<605Ā>FP4OĀ:-)*5 L6B57Z. .:7ĀRV87.6=S R(.:::.9 ĀEdSĀ(-.D0Z,-)TOĀ605Ā:. *.)- 75Ā>FP4 OĀ7.9 5Ā>6=ĀĀ)*5 <605ĀQ5=OĀ)*5Ā;. .:7OĀ:) *5 I . . 1ĀRL6==S	$	$'!	Ä'% VA2>A3U GG	2-.:5*:6C5 K) 760, (50:.0 6:5 L6=:5-Ā>)01
"		> !	" #	!%	$Ä	GĀĀ$Ä EĀĀ#	$E	> !ĀMĀN6/9 Ā15075OĀ. D0O <605Ā:.Ā)*-75Ā>FP4OĀ7.9 5Ā>6=: =6=5Ā<605Ā.)Ā75ĀQ-)C5=ĀRL6==S		$'E		
$Ä									!		L3UU	I 5==Ā>350
$"		> &	$%$G	!%	%	$! ĀĀ HĀĀH	$H	> &ĀMĀN6/9 Ā15075OĀ. D0Z=6,?: ,-)TOĀ605Ā:.Ā)*-75ĀQ;FWYUO 7.9 5Ā<605Ā:.Ā*75Ā>)01Ā=6=5 >6=ĀRL6==S	&	$'"		
!Ä		> %	$H! $	!%	E	HĀĀ# EĀĀ"	$"	> %ĀMĀN6/9 Ā15075OĀ. D0O <605Ā:.Ā)*-75Ā>FP4OĀ7.9 5Ā>6=: =6=5Ā<605ĀC5=ĀRL6==S		$'Ä		
!"		> "	!% ! G	!%	Ä	$! ĀĀ "ĀĀG	$$	> "ĀMĀN6/9 Ā15075O=6,?:Ā,-)TO <605Ā:.Ā)*-75ĀQ;FWYUOĀ)*5 >6=ĀR.9TĀ*5C5-TĀ6ĀĀ-.*+Ā60Ā:68 .<Ā8=6:Ā7.0 S		$'Ä	!% $#Ä >FP4ĀFP4 Q; FWYU	
&Ä		> G	!H &$	!%	E	GĀĀ$Ä	!!	> GĀMĀN5/9 Ā15075O		$'Ä		

REMARKS

$Ā Ā()*+,- ./ 01Ā2 Ā-5 160,7ĀÄ Ä'!" Ā889'
!Ā ĀPĀ7)9 8=5Ā:)+50Ā):Ā@$ĀĀ<55:Ā1/5Ā:5Ā=Ā)95-Ā0Ā6-,Ā)01Ā*)760,ĀD7Ā8606 0,Ā8.776B=TĀ5Ā:.Ā,-)C5='
&Ā Ā;.*+Ā60Ā8Ā.<Ā7.0 Ā> &'Ā7 6B=5Ā,50 Ā< Ā=.DĀ-5*.C5-T'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5<6=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā9 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-04 (OW)

QIFĀVYN2UFVYĀVY>VĀ(A:3PQĀIZĀ)Y32 '_ĀH2ZIĀ$#_ĀSMM$#42N

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-04 (OW)
SHEET: 2 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā>9 6?

Type of Rig: FVW
Rig Model: 4 "À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): #
Final Boring Depth (ft.): GG"
Date Start - Finish: GZ!ÈZ!À$#Ā ĀGZZ!À$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'À
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z$#Z$#	$&M&À	$'&		$EĀ4)T7

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V W5)=/5	>)9 8=5Ā6 7*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	458:? R<$	>:-):/9 45 7*-68:6.6 Y=5 R<	Y[/68 9 50:Ā07:)==51
						$! Ā$À		B-.D 0Z,-)TOĀ605Ā:.Ā)*-75 >FP4Ā)0 1Ā<605Ā:.Ā*75 Q; FWYUĀ96=5Ā6=:				>FP4ĀFP4 Q; FWYU	
&"		> #	&%&G	!%	#	"ĀĀ" "ĀĀ"	$À	> #ĀMĀ6<Ā-) TOĀA;QFP3K >3UVOĀ) 06*Ā.1.-	% "	$'$		&% _ _ _ _ _ _ ! #'À	
%À		> E	&H%$	!%	!%	IA J Ā !ĀĀ&	%	> EĀMĀN6/9 Ā7:6<Ā,-)TO A; QFP3KĀ>3UVOĀ?5==		Ä'!			
%"		> H	%%%G	!%	!À	!ĀĀ! !ĀĀ%	%	> HĀMĀN6/9 Ā7:6<Ā,-)TO A; QFP3KĀ>3UVOĀ?5==		Ä'$		A; QFP3KĀ>3UV	
"À		> $À	%H' $	!%	!%	!ĀĀ& %ĀĀ%	#	> $ÀĀM>6<Ā)TOĀ; QFP3K >3UVOĀ5Ā I . . 1		P4			
""		> $$	"% " G	!%	$!	EĀĀ# HĀĀ$$	$G	> $$ĀM516/9 Ā15075OĀ,-TOĀ<605 :.Ā*.)- 75Ā>FP4 Ā-)*5Ā>6<Ā :-)*5Ā<605ĀQ5=OĀ)*5 I . . 1ZA-,) 06?7		P4		"% _ _ _ _ _ _ %#'À >FP4	
GÀ		> $!	"H G$	!%	$À	$&Ā$%	!E	> $! ĀM516/9 Ā15075OĀBD0O		P4			

REMARKS

%Ā ĀA},06Ā76=Ā.B75C51Ā60ĀD7?Ā)- / 01Ā@&%Ā<25:'Ā=5/ 9Ā.1 .- Ā.B75C51'
"Ā ĀA85ĀĀ?.=5Ā<-.Ā@&"Ā<55Ā@"%Ā<5Ā?) 0, 5Ā60ĀBE0,Ā-5767)0*5Ā.B75C51Ā):Ā@"%Ā<55:'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -65 7 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5<6=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-04 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-04 (OW)
SHEET: 3 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5-16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: N) -+Ā-9 6?

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): #
Final Boring Depth (ft.): GG"
Date Start - Finish: GZ!ĒZ!Ä$#Ā ĀGZZ!Ä$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z$#Z$#	$&M&Ä	$'&		$EĀ4)T7

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V W5=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	>:-):/9 458:? R<S 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
G"		> $&	G%GG	!%	%	$%ĀĀ5% &&ĀĀ&! !GĀĀ	"E	<605Ā:.Ā)*-75Ā>FP4OĀ=6Ā6=:O :-)*5Ā<605Ā:.Ā)*-75ĀQ-)C5= > $&ĀĀW5-Ā15075OĀ. D0Z,-) TO <605Ā:.Ā)*-75ĀQ;FWYUOĀ95 *.)- 75Ā>)01OĀ).*5Ā76=:	G # E H $Ä	P4	>FP4 G! _ _ _ _ _ _ _ "'Ä >FP4ĀFP4 Q; FWYU GG" "H"	
#Ä								Y01Ā.<Ā5=-) :6.0Ā):ĀGG'"Ā<55:'				
#"												
EÄ												
E"												
HÄ												

REMARKS

GĀ Ā30*-5)75Ā-5767)0*5ĀD?6=5ĀB60 Ā@G!Ā:.Ā@G%Ā<55:'
#Ā Ā;.*+Ā-) ,950:7Ā60Ā78ĀĀ6. .0 Ā> $&'
EĀ ĀK760,Ā-5</7)=Ā):Ā@GGĀ<55:ĀB5=5DĀ,.==5B6:Ā5<7)=Ā60<5--5Ā):Ā@GG'"Ā<55:'
HĀ ĀAB76):6.0ĀD5==Ā607:)==51Ā:.ĀG@$DĀ<?ĀD5==Ā-750Ā< 9 Ā@%ĀĀ@$%Ā<55:'
$ĀĀ ĀL65=1Ā607Ā-7/=:7Ā58-5750:Ā:)=Ā.-,) 0ĀC)8. -Ā=5C=Ā-5<5-5*51Ā. Ā)ĀB5c505Ā60Ā)6-Ā7:)01Ā 5) 7/-5 1Ā60Ā:?5Ā178) *5Ā.<Ā5)=51Ā76= 7)9 8=5ĀX7)Ā760,Ā)ĀN606Ā;5Ā&ĀĀĀR234SĀDĀ$Ā'GĀ5+)ĀĀ,5 7/=:7Ā60Ā8)-:7Ā85-Ā9=6.0ĀĀT=9 5'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 6150668):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-04 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-05 (OW)
SHEET: 1 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: V-/ * +
Rig Model: 4 $! À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $&'$
Final Boring Depth (ft.): #$
Date Start - Finish: GZ&ZÀ$#Ā ĀGZ&ÀÀ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ā
Hammer Fall (in.): &Ā
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ā
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ&ZÀ$#	$%MÀÀ	$'"		GĀJ/- 7
#Z$#Z$#	$&M&À	!'%		$#Ā4)T7

458:? R<:$	K) 760, (=. D7	>)9 8=5 P. '	458:? R<$	250' R60$	;5 *' R60$	(=.D 7 R$-ĀGĀ60$	>2V $=/5	>)9 8=5Ā6*7*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	>:-):/9 458:? R<$ 45 7*-68:6.6 Y=5C R<$	Y[/68 9 50:Ā07:)==51
		> $	À !	!%	!%	&ĀĀ$E $EĀ$I	&G	> $ĀMĀRV.8ĀEd$ĀB6D0Ā<605 :.Ā9 516/9 Ā>)01OĀ7 9 5Ā>6Θ: :-)*5Ā;. .:7OĀ-) *5ĀL6B5-7 R>/B7.6=S R(.::.9 Ā$GdSĀ(-.DZ,-)TO>Ā605Ā:.	$	$'À	Ä'E >^(>A3U $!' &	2-.:5*:6C5 K) 760, (50:.0 6:5 L6=:5-Ā>)01
"		> !	%G	!%	$G	!$ Ā$% $ÀĀ$&	!%	9 516/9 Ā>FP4 Ā=6>5Ā>6ΘĀ)*5 <605ĀQ;5=ĀRL6==S > !ĀMĀN6/9 Ā15075OĀ) -+ B-.D 0OĀ605Ā:.Ā*.)-75Ā>FP4D 7.9 5Ā>6ΘĀ)*5Ā<605ĀQ;5=ĀRL6==S		$'G	L3UU	
$Ä		> &	H$$	!%	G	HĀĀ!À $ĀÀĀ	&Ä	> &ĀMĀ45075OĀBO-Ā605Ā:. *.)- 75Ā>FP4 Ā01 Ā605Ā:.Ā*.)-75 Q; FWYUĀ) *5Ā>6ΘĀL6==S	!	Ä'"	$$!' $	I 5==Ā>350
$"		> %	$%$G	!%	!À	IA J Ā$!ĀĀ$	&	> %ĀMĀ>Ā,-)TOĀA;ĀFP3KĀ>3UV D6?Ā605Ā>)01Ā>5)97 Ā>?5== L-) , 950:7OĀ.-,)0 6*Ā1. -	&	Ä'H		
!Ä		> "	$H! $	!%	!%	2^>J		> "ĀMĀ>YU(eĀV^(YĀ> FN2UY		P4	A; QFP3KĀ>3UV	
!"		> G	!% ! G	!%	!À	!ĀĀ! !ĀĀ&	%	> GĀMĀ>Ā,-)TOĀA;ĀFP3KĀ>3UV D6?Ā>?5==ĀL-),950:7Ā.-,)0 6* .1 .-		P4		
&Ä		> #	!H &$	!%	!%	$ĀĀ!	%	> #ĀMĀ>Ā,-)TOĀA;ĀFP3KĀ>3UV		P4		

REMARKS

$Ā Ā()*+,- ./ 01Ā2 Ā-5 160,7Ā $'ĀĀ8 '
!Ā ĀA-,) 06Ā1 .- Ā)01Ā*=.- Ā*?) 0, 5Ā60Ā7?Ā<-.9Ā@$$Ā:.$@5:'
&Ā ĀA85Ā?.=5Ā<-.Ā@$"Ā@GĀ<55:'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5<6=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-05 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-05 (OW)
SHEET: 2 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: V-/ * +
Rig Model: 4 $! À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $&'$
Final Boring Depth (ft.): #$
Date Start - Finish: GZ&ZÀ$#Ā ĀGZ&ZÀ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'À
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ&ZÀ$#	$%MÀÀ	$'"		GĀJ/- 7
#Z$#Z$#	$&M&À	!'%		$#Ā4)T7

458:? R<:S	K) 76, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R8-ĀGĀ60	>2V V8)=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	458:? R<S	>:-):/9 45 7*-68:6.0 Y=5 R<S	Y[/68 9 50:Ā07:)==51
						!ĀĀ$		D6?Ā>?5==ĀL-),950:7Ā.-,)0 6* .1 .-					
&"		> E	&%&G	$"	G	2^>J		> EĀMĀ¥U(eĀV^(YĀ> FN2UYM ;5 *.C5 -TĀD7Ā)ĀB=50Ā< A-,) 06> 6=D6:?Ā)>01Ā)01 Q-) C5=	% "	P4	A; QFP3KĀ>3UV &"_ _ _ _ _ _ _ ! $'H	
%Ā		> H	&H%$	!%	$%	EĀĀ# EĀĀH	$"	> HĀMĀN5/9 Ā15075OĀ6,?: B-.D 0Z=6,?:Ā,T)OĀ<605Ā>4FO 7.9 5Ā>6Ā>R>) :6<51S		Ā'"			
%"		> $À	%%%G	!%	$G	$! Ā$" $%Ā$"	!H	> $ÀĀMN516/9 Ā15075OĀ=6,?: B-.D 0OZBD0OĀ<605Ā:.Ā916/9 >FP4OĀ7.95Ā>6Ā>R>) :6<51S		$'À	>3UVeĀFP4		
"Ā		> $$	%H' $	!%	$G	$%Ā$& $! Ā$N	!"	> $$ĀMRV.ĀEdMSĀQĀ)TOVĀ)01 <605Ā>FP4 R(.::.9 ĀEdSĀU6ĀB-.D 0OĀ<5Ā:. 9 516/9 Ā>FP4 OZ7.9 5Ā>6Ā>R6? $Z!dĀ.-)0, 5Ā*.)- 75Ā)0 1Ā60Ā:.8 .<Ā)9 8=5S		P4			
""		> $!	"% " G	!%	$%	GĀĀ$$ HĀĀH	!À	> $! ĀM4507SQĀ)TOĀ605Ā>FP4)0 1Ā>3UV		P4	"% _ _ _ _ _ _ %À'H >3UVĀFP4 Ā>FP4		
GÀ		> $&	"H G$	!%	$!	$#ĀV%	%"	> $&ĀM4507SQĀ)TOĀ605Ā>FP4O		À'&			

REMARKS

%Ā ĀJ=1Ā:6ĀRÀM"Ā. Ā$$MSĀ!Ā960/:5'ĀĀ(::.9 Ā<Ā/B5ĀB5:Z1)9),51 ĀD750Ā607:)==51ĀB6B=Ā1/5Ā:Ā,-)0 /=)-Ā=)5-ĀB56) :?'ĀĀ;5</7)=Ā.<ĀB 5 @$"Ā60*?Ā607:)=='
"Ā ĀK?::5-Z60*-5)751Ā-767)0*5ĀD?6=5ĀE60 Ā<-.9Ā&%Ā:.Ā@&5ĀĀ<

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 6150668):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5<6=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - <)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69Ā57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-05 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-05 (OW)
SHEET: 3 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: V-/ * +
Rig Model: 4 $! À
Drilling Method: 4-6CĀ5ĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $&'$
Final Boring Depth (ft.): #$
Date Start - Finish: GZ&ZÀ$#Ā ĀGZZÀ$#

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
GZ&ZÀ$#	$%MÄÀ	$'"		GĀJ/- 7
#Z$#Z$#	$&M&Ä	!'%		$#Ā4)T7

458:? R<:S	K) 76, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V W=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	:59)-+ R22N$	234	>:-):/9 458:? R<S 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
						!$ ĀS$H		7.9 5Ā>6=:				
											>3UVĀP4 Ā>FP4 G& _ _ _ _ _ _ %H	
G"		> $%	G%GG	!%	$G	EĀĀ$! $&Ā$G	!"	> $%ĀMN516/9 Ā15075OĀ,-TO >3UVĀ)01ĀKeĀRSZEdĀ-.==51 :?-5)1 SĀRVC)51S		P4	>3UVĀP4 ĀKUFe G# _ _ _ _ _ _ "&H	
#Ä		> $"	GH#$	!%	$%	$&Ā$% $" Ā$H	!H	> $" ĀMN516/9 Ā15075OĀ,-TOĀ<605G >FP4OĀ7.95Ā>6=:	#		>3UVeĀFP4 #$ "#H	
#"								Y01Ā.<Ā5=-.-) :6.0Ā):Ā#$Ā<55:'				
EÄ												
E"												
HÄ												

REMARKS

GĀ Ā5==Ā6)7=5Ā@$ÀĀ<55:7Ā<ĀQ\ "'ĀI 5==Ā-7:50Ā@%ĀĀ@$Ā<55:'
#Ā ĀL65=1Ā5:7Ā57/=:7Ā58-5750:Ā.:)=Ā.-,) 06*ĀC)8 Ā=5GĀ5<5-5)*51Ā-Ā)ĀB50505Ā60Ā)6-)Ā7t) -1GĀ 5)7/- 51Ā607Ā5Ā?51 78)*5Ā.<Ā7) =51Ā76= 7)9 8=5ĀX7)Ā760,Ā)ĀN606Ā;5Ā&ÀĀR234SĀDĀ$Ā'GĀĀ)98'Ā5 7/=:7Ā60Ā8)-:7Ā85-Ā9=6.0ĀBT=9 5'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5G=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 * .01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā9 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-05 (OW)

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-06
SHEET: 1 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: V-/ *+
Rig Model: 4 $! À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $! 'G
Final Boring Depth (ft.): #$
Date Start - Finish: #Z"Z!À$#Ā Ā#Z"Z!À#$

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'À
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z"Z$#	$%M&À	$&		!Ā ĀN60:57

45 8:? R<:S	K) 70, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R8-ĀGĀ60	>2V V8=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	458:? R<S	>:-):/9 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
		> $	Ā !	!%	$$	EĀĀ!À !À ĀĀ$#	%Ā	> $ĀMĀ45075OĀ=6,?ĀOĀ65 >FP4Ā)0 1Ā>3UV-O)75Ā;. .:7O :-)*5ĀI . .1 ĀRL6==S	$	!'"			P. ĀY[/68950:Ā07:)==51
"		> !	%G	!%	!	$! ĀĀ $! ĀĀ	!$	> !ĀMĀN56/9 Ā15075OĀ. D0O <605Ā:.Ā)*-75ĀQ;FWYUOĀ):*5 <605Ā:.Ā)*-75Ā>)01ĀĀ-) *5Ā>6: RL6==S		%'À			
$À		> &	H$$	!%	À	!GĀĀG HĀĀ#	!"	> &ĀMĀPAĀ;YKWY;eOĀ516/9 15075OĀĀ0OĀ65Ā:.Ā*.)-75 Q; FWYUĀ) *5Ā605Ā:.Ā*.)-75 >)01 ĀQ) *5Ā>6ĀRL6==S	!	P4			
$"		> %	$%$G	!%	G	!! Ā'Ā %ĀĀ%	H	> %ĀMĀU..75OĀĀOĀ65Ā:. *.)- 75ĀQ;FWYUĀ)0Ā605Ā:. *.)- 75Ā>FP4 OĀ-)*5Ā>6ĀRL6==S	&	P4		L3UU	
!À		> "	$H! $	!%	À	$" ĀĀ GĀĀ&	$%	> "ĀMĀPAĀ;YKWY;eOĀ-.D 0O <605Ā:.Ā)*-75Ā>FP4OĀ:-)*5Ā605 :.Ā*.)- 75ĀQ-)C5=OĀ)*5Ā>6ĀRL6==S	%	$'E			
!"		> G	!% ! G	!%	À	!ĀĀ$ $ĀĀ$	!	> GĀMĀPAĀ;YKWY;eO (-.D 0Z,-)TOĀ605Ā:.Ā)*-75 >FP4OĀ=65Ā605Ā:.Ā*.)-75 Q-) C5=OĀ)*5Ā>6ĀRL6==S	"	'"À			
&À		> #	!H &$	!%	&	"ĀĀ!	&	> #ĀMĀWTĀ=.75OĀ. D0Z,-) TO		G'À			

REMARKS

$Ā Ā()*+,- ./ 01Ā2 Ā-5 160,7ĀÀ %'"Ā8 '
!Ā Ā>)9 8=5Ā.Ā6051Ā< 9 Ā&dĀ7. .0 Ā)<5-Ā.-6,60)=Ā78=6:Ā0 Ā?)1Ā0.Ā-5*.C5 -T'ĀĀ;.*+Ā<-), 9 50:7Ā60Ā7=6:Ā7.0 Ā7)9 8=5Ā> (Ā> %'>Ā'
&Ā Ā;.*+Ā60Ā8Ā.<Ā7.0 Ā> %'
%Ā ĀAB7Ā5 1Ā*?)0,5 Ā60Ā*.- Ā60Ā,D?Ā):Ā@$HĀ<5.3ĀĀ-. D0Ā:.Ā,) T'
"Ā Ā>)98=5Ā.Ā6051Ā< 9 Ā&dĀ7. .0 '

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. .*+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =5G=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-06

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-06
SHEET: 2 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: V-/ *+
Rig Model: 4 $! À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $! 'G
Final Boring Depth (ft.): #$
Date Start - Finish: #Z"Z!À$#Ā Ā#Z"Z!À#$

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'À
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z"Z$#	$%M&À	$&		!Ā ĀN6057

458:? R<:S	(=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V W5=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+ R22N$	234	>:-):/9 458:? R<S 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
						$ĀĀ&		<605Ā:.Ā*-75Ā>FP4OĀ7.9ĀĀ<605 :.Ā*.)- 75ĀQ-)C5=OĀ*5Ā>6ĀRL6==S				
&"		> E	&%&G	!%	!	EĀĀ% !ĀĀ$	G	> EĀMĀU..75OĀBZ,-) TOĀ605Ā:. *.)- 75ĀQ;FWYUOĀ9 5Ā<605Ā:. *.)- 75Ā>)01OĀ*5Ā>6ĀRL6==S	G	E'!		
%Ā		> H	&H%$	!%	%	%ĀĀ %ĀĀH	$&	> HĀMĀN5'9 Ā15075OĀ6,?: B-.D 0Z=6,?:Ā,T)OĀ<605Ā).Ā75 Q; FWYUĀ01Ā<605Ā:.Ā*75 >)01 OĀ*5Ā>6=:		!'H		
%"		> $À	%%%G	!%	!	%ĀĀ$ ĀĀĀÀ	$	> $ÀĀMW5ĀF..75OĀB-.DZ=6,?: ,-)TOĀ605Ā:.Ā*-75Ā>FP4Ā)01 <605Ā:.Ā*-75ĀQ;FWYUOĀ*5 >6=:		Ā'$		
"Ā		> $$	%H' $	!%	Ā	$ĀĀĀ %ĀĀE	#	> $$ĀMPAĀ;YKAWY;eOĀJ6,? B-.D 0OĀ605Ā:.Ā*.)-75Ā>FP4O =6=5Ā<605Ā:)-Ā75ĀQ-)C5=OĀ*5 >6=:		%'%		
""		> $!	"% " G	!%	!Ā	$#ĀĀ& $! ĀĀ&	!"	> $! ĀMRV.ĀGdSĀ(-.DZ=6,?: B-.D 0OĀ605Ā:.Ā*.)-75Ā>FP4Ā)01 <605Ā:.Ā*-75ĀQ;FWYUOĀ*5 >6=: R(.::.9 Ā$%dSĀ)01-OĀ3UVOĀ9Ā5 <605Ā>)01Ā*5Ā<605ĀQC5=O :-)*5Ā>?5==ĀL-9 50:7		"'%	"%'" _ _ _ _ _ _ %$'H >3UVĀFP4 Ā>FP4	
GÀ		> $&	"H G$	!%	!%	&"ĀĀ&	"H	> $&ĀMRV.Ā!dSĀ(-.D0OĀ605Ā:.		%'"	GÀ _ _ _ _ _ _ %#'%	

L3UU

REMARKS

GĀ Ā2.76B=5Ā=6[)*:6.0'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69Ā57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-06

QIFĀVYN2UFVYĀVY>VĀ(A:3PQĀIZĀY32 '_ĀH2ZIĀ$_ĀMMIĀA2N

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-06
SHEET: 3 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: V-/ *+
Rig Model: 4 $! À
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $! 'G
Final Boring Depth (ft.): #$
Date Start - Finish: #Z"Z!À$#Ā Ā#Z"Z!À#$

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%À
Hammer Fall (in.): &À
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'À
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#Z"Z$#	$%M&À	$&		!Ā ĀN6057

458:? R<:S	(=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V W5=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	458:? R<S	>:-):/9 45 7*-68:6.0 Y=5 R<S	Y[/68 9 50:Ā07:)==51
G"		> $%	G%GG	!%	$!	GĀ%" &$Ā%$	#G	*.)- 75Ā>FP4 ĀQ-)*5Ā<605ĀQ:5=O :-)*5Ā>6=: RN611=ĀGdSĀ(.DOĀ605Ā>FP4O 7.9 5Ā>6=Ā)*5Ā<605Ā:.Ā*-75 Q-) C5= > $%ĀW5-Ā15075OĀ) TĀ605Ā:. *.)- 75ĀQ;FWYUĀ)0Ā605Ā:. *.)- 75Ā>FP4 ĀQ-6=5Ā>6=:	#		>3UVeĀFP4 G! _ _ _ _ _ _ %H%	
#Ä		> $"	GH#$	!%	#	!# ĀĀ$!# ĀĀ%	%E	> $" ĀW5-Ā15075OĀ) TĀ605Ā:. *.)- 75Ā>FP4 Ā01 Ā605Ā:.Ā*.)-75 Q; FWYUĀ) *5Ā>6:			>FP4ĀFP4 Q; FWYU #$ "E%	
#"								Y01Ā.<ĀĀ5=-) :6.0Ā):Ā#$Ā<55:'					
EÄ													
E"													
HÄ													

REMARKS

#Ā Ā;6Ā*?) ::5-Z-5767)0*5ĀD?6=5Ā,D7?60Ā<-.9 Ā@GÀĀ:GĀ@55:'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-06

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-07
SHEET: 1 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $$'"
Final Boring Depth (ft.): "H'E
Date Start - Finish: #ZGZ!$#Ā Ā#ZGZ#Ä$

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#ZGZ$#	$%MÄÄ	%		&ÄĀN6057

458:? R<:S	K) 76 0, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ6	>2V W5=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	458:? R<S	>:-):/9 457*-68:6.6 Y=5C R<S	Y[/68 9 50:Ā07:)==51
		> $	Ä !	!%	$%	"ĀĀ!Ä &#Ā&Ä	"#	> $ĀMĀ VTĀ16 75OĀ=6,?:ĀB-D <605Ā:.Ā916/9 Ā+FP4 O7Ā=5Ā<605 :.Ā*.)- 75ĀQ-)C5=OĀ*5Ā>6O :-)*5Ā;. .:7ĀRL6==S	$	Ä'"			P. ĀY[/68950:Ā07:)==51
"		> !	%G	!%	%	%"Ā&Ä &ÄĀG	#&	> !ĀMĀ6ATĀ16 75OĀ=6,?:ĀB-D <605Ā:.Ā916/9 Ā+FP4 O7Ā=5Ā>6=: RL6==S		$'Ä		L3UU	
$Ä		> &	H$$	!%	Ä	GĀĀ# &ĀĀ!	$Ä	> &ĀMĀPAĀ;YKAY;eOĀ6,?: B-.D 0Z=6,?:Ā,T)OĀ<605Ā).Ā75 >FP4OĀĀ):*5Ā>6ĀO.Ā)*5Ā<605 Q-)C5=ĀRL6==S	!	!'E			
$"		> %	$%$G	!%	!%	IA J Ā$ $ĀĀ!	!	> %ĀMĀRV.8ĀMĀSĀQ-)T A; QFP3KĀ+3UVĀD:?Ā.-,)06* .1 .- R(.::.9 Ā%dMS+Ā/(+Z1) -+Ā,-)T A; QFP3KĀ+3UVOĀ).*5Ā605 >)01 QĀ,) 06*Ā.1.-		$$'!	$%	! '"
!Ä		> "	$H! $	!%	#	$ĀĀ$!ĀĀ$	&	> "ĀMĀ+:QĀ,-)TĀA;QFP3KĀ>3UV D6?Ā.-,) 06*Ā.1.-	&	$HÄ		A; QFP3KĀ+3UV	
!"		> G	!% ! G	!%	G	2^>J		> GĀMĀA+U(eĀV^(YĀ> FN2UY	%				
&Ä		> #	!H &$	!%	!%	$ĀĀ$	&	> #ĀMĀ+:QĀ,-)TOĀA;QFP3KĀ>3UV		!'!			

REMARKS

$Ā Ā()*+,- ./ 01Ā2 3Ā-5 160,7ĀÄ $'"Ā889 '
!Ā Ā&dĀ7)9=5Ā78=76:Ā0 Ā)<5-Ā0.Ā-5.C5 -TĀ60ĀTĀ6=67Ā..0 '
&Ā Ā>)9 8=5Ā)85)- 51Ā167÷B51Z0.:Ā 06<.-9 Ā)7Ā<Ā D. -+51Ā.-Ā151, 51Ā60Ā8)7:'
%Ā Ā>?5F Ā/B5Ā> GĀR@Ā!%Ā@!GĀ<55:ĀMĀ%ĒĀĀHM%ĒĀĀ60/:57'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-07

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-07
SHEET: 2 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T
Foreman: P. -9Ā>:/11) -1

Type of Rig: FVW
Rig Model: 4 "Ä
Drilling Method: 4-6CĀĀI) 7?

Boring Location: >55Ā2=)0
Ground Surface Elev. (ft.): $$'"
Final Boring Depth (ft.): "H'E
Date Start - Finish: #ZGZ!$#Ā Ā#ZGZ#Ä$

H. Datum: PF4 E&
V. Datum: PFW4EE

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#ZGZ$#	$%MÄÄ	%		&ĀĀN6057

458:? R<:S	K) 76, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ6	>2V W5)=/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	:59)-+ R22N$	234	458:? R<S	>:-):/9 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
						!ĀĀ!		D6?Ā>?5==ĀL-),950:7Ā.-,)0 6* .1 .-					
&"		> E	&%&G	!%	!%	$ĀĀ$!ĀĀ$	&	> EĀMĀ<ĀĀ,-)TOĀA;QFP3KĀ>3UV D6?Ā>?5==ĀL-),950:7Ā.-,)0 6* .1 .-		$'"			
%Ä		> H	&H%$	!%	!%			> HĀMĀY>U(eĀV^(YĀ> FN2UY	"			A; QFP3KĀ>3UV	
%"		> $Ä	%%%G	!%	!%	$ĀĀ$ $ĀĀ&	!	> $ÄĀĀM>.<ĀĀ,-)TOĀA;QFP3K >3UVOĀ,) 06*Ā.1.-		''''			
"Ä		> $$	%H' $	!%	!%	!ĀĀ! &ĀĀ#	"	> $$ĀĀMU..75QĀ)TOĀ; QFP3K >3UVOĀ,) 06*Ā.1.-ĀD6:?ĀĀ<605 :.Ā*.)- 75Ā>FP4Ā75)9Ā! Ād B5=.DĀ:8 Ā.<Ā)9 8=5		$'"		"$ _ _ _ _ _ _ &H"	
""		> $!	"% " G	!%	$E	"$ ĀĀ% %ĀĀ"	E%	> $! ĀĀW5-Ā15075OĀ,-+Ā,-)TO <605Ā:.Ā*-75ĀQ;FWYUOĀ95 <605Ā:.Ā*-75Ā>)01ĀĀ6=5Ā>6=:	G	Ä'!		>FP4ĀFP4 Q; FWYU	
GÄ		> $&	"H	H	H	$ÄÄZ&d	;	> $&ĀĀM4)-+Ā,-)TOĀ605Ā:.Ā*-75	#	!'"	"H'E	%E&	

REMARKS

"Ā Ā>?5=BĀ:/B5Ā> HĀR@Ā&ĀĀ@%$Ā<55ĀĀĀ$ĀM"%ĀS"Ā960/:57'
GĀ Ā;6Ā*?) ::5-ĀD?6=5ĀB60,Ā@"$Ā:.Ā@55:Ā@"GĀ:.ĀĀ@5:'
#Ā Ā;.*+Ā-) ,950:7Ā60Ā78ĀĀ8. .0 Ā> $!'

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 *.01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā5Ā:6957Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-07

TEST BORING LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: GZ-07
SHEET: 3 of 3
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: (50X)9 60ĀQ5–16	**Type of Rig:** FVW	**Boring Location:** >55Ā2=)0	**H. Datum:** PF4 E&
Drilling Co.: P5DĀY0,=)0 1Ā(.-60, ĀK.9 8) 0T	**Rig Model:** 4 "Ä	**Ground Surface Elev. (ft.):** $$'"	
Foreman: P. -9Ā>:/11) -1	**Drilling Method:** 4-6CĀĀI) 7?	**Final Boring Depth (ft.):** "H'E	**V. Datum:** PFW4EE
		Date Start - Finish: #ZGZ!$#Ā Ā#ZGZ#Ä$	

Hammer Type: >)<5:TĀJ)9 9 5-
Hammer Weight (lb.): $%Ä
Hammer Fall (in.): &Ä
Auger or Casing O.D./I.D Dia (in.): %

Sampler Type: >>
Sampler O.D. (in.): !'Ä
Sampler Length (in.): !%
Rock Core Size: PZF

Groundwater Depth (ft.)

Date	Time	Water Depth	Casing	Stab. Time
#ZGZ$#	$%MÄÄ	%		&ĀN6057

458:? R<:S	K) 76, (=. D7	>)9 8=5 P. '	458:? R<S	250' R60S	;5 *' R60S	(=.D 7 R5-ĀGĀ60	>2V =/5	>)9 8=5Ā67*-68:6.0 N. 16<651Ā(/-9675-	;59)-+	234 R22N$	>:-):/9 458:? R<S 45 7*-68:6.0 Y=5C R<S	Y[/68 9 50:Ā07:)==51
			"H'E					Q; FWYU)Ā01Ā<605Ā:.)Ā*75 >FP4OĀ:-)*5Ā>6=:				
								Y01Ā.<Ā5Ā=.-) :6.0Ā):Ā"H'EĀ<55:'				

G"
#Ä
#"
EÄ
E"
HÄ

REMARKS

>55 U. , a5T <- 5b8=)0):6.0 .< 7)9 8=5 157*-68:6.0)0 1 615068):6.0 8-.* 51/- 57' >:-):6<6*):6.0 =6057-58-5750:)8 8-.b 69):5 B. / 01) -657 B5:D550 7.6=)0 1 B51-. *+ :T857' F*: /) =:-)0 766 07 9) T B5 , -) 1/) ± I):5- =56=-5)1 60,7 ?) C5 B550 9) 15): :?5 :6957)0 1 / 015- :?5 * .01 6:6.077:):51' L=/*:/):6.07 .< ,- . / 01D):5- 9) T . **/- 1/ 5 :. .:?5 - -)*: . -7 :?)0 Ā?. 75Ā8-750:Ā):Ā?5Ā:69 57Ā?5Ā 5) 7/-5 9 50:7ĀD5-5Ā9) 15'

Exploration No.: GZ-07

GEOPROBE LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-01
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7G
Foreman: QCF:

Geoprobe Location: -::
Ground Surface Elev. (ft.): 5" 01
Final Geoprobe Depth (ft.): #
Date Start - Finish: 3Y15

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ä
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
6								$%&&	
5	-5	5 25	Ä	Ä	0O	-5BĀ)=>CDĀ)*+%,Ā-%&.DĀ ?<EĀF><@ĀH<7Ā; ĀG?;:Ā<7ĀA@: ->;I DĀ?F<ĀG?;:Ā<7ĀA@:Ā)=J: IDĀ7?@Ā;DĀ7I7=	5	Ä01 !	
56	-1	5621	Ä		+/	-1BĀ)=>CDĀ)*+%,Ā-%&.DĀ=>A:ĀG?;:Ā->;IDĀ?K@Ā@7;L 7=L>;?AĀ7I7=			
1								'( )*+%, Ā%&.	
16									
"									
"6	-"	"! 2#	"4		+/	-"BĀ)=>CDĀ?;:Ā<7ĀA@:Ā-*+/DĀF<ĀG?;:Ā<7ĀA7>=@:Ā)=FDĀF? -?FB@A: <		21'03 "! 21Ä03 -*+/	
#									#
#6						M;IĀ7GĀ9F7><?7;Ā><Ā# ĀG::<0			
6									
66									
Ä									

REMARKS

HH=J ?><?7;@BĀ+ _ 799F?A>H@Ā U _+ 7<ĀU>@Z=I DĀL@W:F78Ā)=7Z;I Ā-Z=G>A:
5Ā2Ā&Ā:; :<=><?7;Ā=:@?@<>;A:

$?:FJĀ-A=::: ?:LĀ9=G
&7LAQ:@ 9F:> <?7:A7G
H7Z: I> =?@ <8.: : Ā@7
>: |ĀZ: |: =Ā<E:ĀA?
<?K@ <@ : >@ :K:; <@8=:ĀK>I: 0

P-01

)T*Ā.MUV&*.M ĀJM'V (W MXĀOY1ĀYMXĀ5B1Ā5VU

GEOPROBE LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-02
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: ,=?H5B<>ĀP8:B<9
Drilling Co.: P5@J@9ĀN9I=;59J89:<BĀ.8;I=?8>
Foreman: QCB8ĀP@@<9

Geoprobe Location: .88ĀVB<9
Ground Surface Elev. (ft.): #23"
Final Geoprobe Depth (ft.): Ä"
Date Start - Finish: Z2#Z2"#[Ā1Ā Z2#Z2"#[

H. Datum: ,+0 4
V. Datum: ,+\0

Type of Rig: *85 7;5L8Ā+/\
Rig Model: [220/
Drilling Method: VA>H8E

Sampler Type: ,Z+
Sampler O.D. (in.): 23"
Sampler Length (in.): !"
Rock Core Size: ,Z+

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

087:H R@:S	.<J 7B8 ,5 3	087:H R@8:3	V893)8 ?3 R=9S	R=9S	V&0 R7JS	.<J 7B8Ā8>?;=7:=59 U5E=@=8EĀW8;	)8J<;M	NB8I3 R@8:3 .:;<:AJ 08>?;=7:=59	087:H R@8:3
$									
#"	.#	#" 1#$	!"	Ä	,0	.#FĀ'=GH:ĀC;Ā@=98Ā:5Ā?5<;>8Ā.+,0B8Ā@8Ā:5Ā?5<;>8Ā+,8BD :;<?8Ā.=BĀ5=>:ĀB=GH:Ā78A;5B8E5;3	#	%&"	
#$	.2	#$12'	!"	!"	,0	4KĀ5@ĀLB5;<H9=?Ā=B<:Ā8ĀL5::5JĀ@JĀ8A><JB8 .2FĀ0;<MĀC;BĀ@=98Ā8B5AJĀ.+, 0 DĀ;<?8Ā.=BĀ<?8Ā@=98 *;< I 8BDĀB=GH:Ā78:;5B5E5;	2	123" 143" () *+,&- Ā&'/	#Ä #$
2"									
2$							4		
4"								.+,0	
4$									
Ä"								123"	Ä"
Ä$						N9EĀ5@ĀBC<:=59Ā<:ĀÄ"Ā@88:3			
$"									
$$									
!"									

REMARKS

+LL;8I =<:=59>FĀ,+ ,5Ā77B=?<LBĀU _, 5:ĀU8<>A;8EĀG>_W8B5Ā*;5A9EĀ.A;@<?8
#Ā1Ā5Ā898:;<:=59Ā;8>=>:<9?8
2Ā1Ā0=@C<Ā=9Ā8:<:=59DĀE89Ā;<:<Ā=9@E;
4Ā1Ā&9?;8<>8Ā=9ĀB=@@Ā;89<:=59DĀE89Ā;<:<Ā=9@E;8

%=8BEĀ.?;89GĀ7@5;8EĀ6=HĀ&0Ā8IA77BEĀ6=HĀ<Ā#"3!Ā8\ĀBĀJ?<B=L8EĀ:5Ā<Ā#Ā"77JĀ>5LA:GB89Ā><9E<;E3.88
'5 GAQ8@Ā8O7B9<:=59A5@Ā7B8AE8;=7:=59<9EĀ=E89:=@=8@Ā75?8EA;8>3Ā.<:=@<:=59ĀB=98>Ā889:A77;5Q=J<:8
L5A9E<=8Ā8:6 889Ā>5=6ĀĀ6>3Ā?:A<BĀ::<9>=:=59>@L8Ā<EA<B3Ā<:8;ĀB8IE8<=9<>AH<8 ĀL8Ā9AJ<E8Ā<:Ā8A:=8>
<9EAE8:A:H8Ā?59E=59>Ā<8E3Ā%BA?=59>Ā5@A9E6<:8;Ā <Ā?Ā?:A;ĀEA8Ā5Ā5:H8A@:5;>Ā:<9A:H5>8A9;89:Ā:AH8
:=J8>A:8AJ 8<>A;8J 89:>Ā68;8AJ<E83

P-02

*T+Ā/NUV'+/N Ā*N(V)\W NXĀYZ2IZ2Ā#Ā#FĀĀVU

GEOPROBE LOG

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P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-03
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7G
Foreman: QCF:Ā

Geoprobe Location: -::ĀVF>;
Ground Surface Elev. (ft.): 550
Final Geoprobe Depth (ft.): #
Date Start - Finish: 3Y15

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H Ā*.[
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ā
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
6							5	30 $%&&	"
							1	Ā0 ,' WW&M-	6
5								'( )*+%, Ā%&.	
	-5	5 25	Ā	1#	153	-5BĀR.79Ā5$Ā)=ĀDĀ'() * +%,Ā-%&.ĀĀI : =><:Ā7E>;?AĀ7I7Ā K 7?@<	"		
56						RW7<<ĀĀ`SĀ/>=\ĀL=ĀĀ<7ĀHF>ĀĀĀ+/DĀF?<F:ĀĀ)=>JFD E: >JCĀ9<=7F:ĀĀI7=DĀ7?@<		210	5"
	-1	5621	Ā		+/	-1BĀ)=>DĀĀĀ* +/ DĀ?:Ā<?HĀ@F?LE<Ā9:<ĀĀ7 7=DĀ 7?@<			
1									
16								-*+/	
"							#		
"6									
#								210	#
						M;IĀ7GĀ9F7=><?7;Ā><Ā# ĀG::<0			
#6									
6									
66									
Ā									

REMARKS

HH=J ?><?7;@BĀ+ <Ā799F?A>HDĀU _+ 7<ĀU>@Z=I DĀL@W:F78Ā)=7Z;I Ā-Z=G>A:
5Ā2Ā'H@<=ZA<7HDĀ@Ā?;GI==
1Ā2Ā&Ā9:; :<=><?7;Ā=:@?@<>;A:Ā7HI@:=
"Ā2ĀV%/Ā=?;LĀ<>\:;ĀG=7KĀ<7K Ā51`Ā7@Ā>H0F:Ā-5
#Ā2Ā%;A=:>@:Ā?;Ā9><?7;Ā@?@A:

$?:FJĀ-A=::: ?:LĀ9=GK= J Ā ?<EĀ%/Ā:]Z?99I Ā8?<EĀ>Ā5 0ĀĀ:[ĀĀ>F?H+Ā<7Ā>Ā5Ā99KĀ@7HZEC: Ā@>:I >=0-::
&7LAQ:GĀ=ĀN9F>> <?7:A7GĀK@F:AI:@A?9<?Ā>;IĀ?I::<?G?=?Ā9=7A:I Z=@0Ā=><?Ā><?7;ĀF?::@Ā@9=<Ā99=7N?K><:
H7Z: I> =?@H <8.: : Ā@7@DĀ@0Ā<Z>FĀ<=>:@?<?7@ĀHĀL+Z>F0Ā><:ĀF:JĀ=:+?:L @ĀJ: ĀH::ĀK>I : Ā><Ā<?K@
>: [ĀZ:I: =Ā<E:ĀĀ7?K?7?:;@Ā@10Ā$FZĀ<7;@Ā7@Z;I 8><:+K >O7ĀĀZ=Z: ĀZĀ7<EĀĀ<7=@Ā+Ā<E7@:Ā@=, <Ā<Ā<
<?K@Ā<Ā<K : >@Z=:K :; <@8=:ĀK>I: 0

)T*Ā.MUV&*:M ĀJM'V (W MXĀOY1ĀY1ĀĀ5Ā5B1ĀVU

P-03

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East Providence, Rhode Island

EXPLORATION NO.: P-04
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7G
Foreman: QCF:
Geoprobe Location: -::
Ground Surface Elev. (ft.): 5 03
Final Geoprobe Depth (ft.): 66
Date Start - Finish: 3Y15
H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I
Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ä
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=?@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
6							5	$%&&	
5	-5	5 25 6	Ä	"	+/	-5BĀ)=>C7=ĀHF>A@ĀĀ<7ĀA=@:Ā-*+/DĀ<7ĀA=@:Ā-%&.DĀ=>A:Ā-;IDĀ7?@<)=> J: FDĀ=>A:Ā-?DĀ=>A:ĀW=DĀ?LE<Ā9:K=ZKĀI 7=DĀK 7@?<		250! 5106	
56	-1	5621	Ä	#3	+/	-1BĀ)=>CDĀ)*+%,Ā-%&.DĀ?<ĀGĀ>;I DĀ?<ĀGĀ=> J: FDĀ7?@<			
1									
16									
"	-"	" 2"6	Ä	Ä	+/	-"BĀ)=>CĀ'()*+ %Ā-%&.DĀ=>A:Ā@:FFĀ@DCĀF?LĀL>;?AĀ7I7=			
"6								'( )*+%, Ā%&.	
#	-#	# 2#6	Ä	Ä	+/	-#BĀa99:=Ā"`SĀ)=>CĀ-%&.DĀ=>A:Ā->;IDĀ7?@< W7<<7Ā`SĀ)=>CĀGĀ-* +/ DĀ=>A:ĀGĀ=> J: FDĀ?<Ā-?DĀ: <			
#6									
6	-6	6 26 6	Ä	#3	+/	-6BĀ)=>CDĀ)*+%,Ā-%&.DĀ=>A:ĀGĀ;I DĀ=>A:ĀGĀ=> J: FD K 7?@<0 .=>A:Ā@; I Ā>;I ĀL=J: FĀG7ZĀ<ĀE:ĀH7<<7ĀKGĀ:Ā@>ĀF:0			
66						M;IĀ7GĀ9F7=><?7;Ā><Ā66ĀG::<0		2##01 66	
Ä									

REMARKS

HH=J ?><?7;@BĀ+ _Ā799F?A>HDĀU _+ 7<ĀU>@Z=DĀL@W:F78Ā)=7Z;I Ā-Z=G>A:
5Ā2ĀĀ&Ā9:; :<=><?7;Ā=:@?@<>;A:

$?:FJĀ-A=::: ?:LĀ9=GK= J Ā ?<EĀ%/Ā:]Z?99I Ā8?<EĀ>Ā5 0ĀĀ:[ĀGĀA>F?H=ĀĀ<7Ā>Ā5Ā99KĀ@7HZEC: Ā@>:I >=0-::
&7LAQ:GZ=AN9F>> <?7:A7G=KG:AI:@A?9<?Ā>:IĀ?I::<?G?:Ā9=7A:I Z=@0Ā=><?G><?7;ĀF?::@Ā@9;=<Ā99=7N?K><:
HZ: I> =?@H <8.: : Ā@7ZDĀ@0ĀZ>FĀ<=>:@?<?7:@ĀHL=Z>F0Ā><:ĀF:JĀ=:H?:L @ĀA>J: ĀH::ĀK>I : Ā><ĀĀ<?K@
>: [ĀZ:I: =Ā<E:ĀĀ?K?7;@Ā@I0Ā$FZĀ<?7;@ĀTZĀI 8><:=K >ĀYĀĀZ=ĀZ: ĀZĀ7<EĀĀ<7=@ĀĀ<E7@:Ā@=, <Ā<Ā<
<?K@Ā<Ā: >@Z=:K:; <@8=:ĀK>I: 0

P-04

)T*Ā.MUV&*.M ĀJM'V (W MXĀOY1ĀYMXĀ5B6B1"ĀVU

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East Providence, Rhode Island

EXPLORATION NO.: P-05
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7G
Foreman: QCF:Ā

Geoprobe Location: -::ĀVF>;
Ground Surface Elev. (ft.): 5 0Ā
Final Geoprobe Depth (ft.): 66
Date Start - Finish: 3Y1

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H Ā*.[
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ā
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
6								$%&&	
							5	"0Ā _ _ _ _ _ _ _ _ _ _ _ _	!
5	-5	5 25	Ā	Ā	+/	-5BĀ/>=\ĀL=GĀ'( )*+%,Ā-%&.Ā>;I Ā,&*bDĀ=>A:Ā@E:FF@D K7I : =><:Ā7E=>;?AĀ7I7ĐK7?@<			
56									
1									
16									
"								'( )*+%, Ā%&.	
	-1	" 2"6	Ā	Ā	+/	-1BĀ)=>ŌĀ'()*+ %Ā-%&.DĀ=>A:Ā@E: FFĀ@DI : =><:Ā7E=>;?AĀ7I7Đ K7?@<			
"6									
#	-"	# 2#6	Ā	Ā	+/	-"BĀ)=>ŌDĀL >; ?AĀ%&.DĀ=>A:Ā@E: FFĀ@ĐCĀF?ŁĀL=>;?AĀ7I7Đ K7?@<			
#6								2"Ā0# _ _ _ _ _ _ _ _ _ _ _	#!
6	-#	6 26	Ā	Ā	+/	-#BĀ/>=\ĀL=GDĀ,F>CĀ-%&.DĀK7?@<	1	-%&.	
66								2##0#	66
Ā						M;IĀ7GĀ.1F7=><?7;Ā><Ā66ĀG::<0			

REMARKS

HH=J ?><?7;@BĀ+ _Ā799F?A>HDĀU _+7<ĀU>@Z=I DĀL@W:F78Ā)=7Z;I Ā-Z=G>A:
5Ā2Ā&7Ā:; :<=><?7;Ā=:@?<>;A:
1Ā2Ā%;A=:>@:Ā?;Ā9=><?7;Ā@?=@A:

$?:FJĀ-A=::: ?:LĀ9=GK=.I Ā &?<EĀ%/Ā:]Z?99I Ā8?<EĀ>Ā5 0ĀĀ:[ĀĀ>F?H=Ā<7Ā>Ā5Ā99KĀ@7HZ=C: Ā@>:I >=0-::
&7LAQ:GZ=AN9F>> <?7:A7G>K@F:AI:@A?9<?Ā>:IĀ?I::<?G>?A?9=7A:I Z=@0Ā=><?Ā><?7;ĀF?::@Ā@9=<Ā99=7N?K><:
H7Z: I> =?@H <8.: : Ā@7@Ā@0Ā<Z>FĀ<=>:@?<?7@ĀHL=Z>F0Ā><:ĀF:JĀ=:H?:L @ĀA>J: ĀH::ĀK>I : Ā><Ā>?K@
>: [ĀZ:.I: =Ā<E:ĀĀ?K?7;@Ā@I0Ā$FZĀ<?7;@ĀTZ7Z:I 8><:=K >O7ĀĀZ=Ā: ĀZĀ7<EĀ@Ā<7=@Ā:Ā<E7@:Ā@=; <Ā<Ā<
<?K@Ā<Ā: >@Z=:K:; <@8=:ĀK>I: 0

P-05

)T*Ā.MUV&*.M ĀJM'V (W MXĀOY1ĀYMXĀ5B6B1?ĀVU

GEOPROBE LOG

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East Providence, Rhode Island

EXPLORATION NO.: P-06
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7
Foreman: QCF:

Geoprobe Location: -::
Ground Surface Elev. (ft.): 5" 0#
Final Geoprobe Depth (ft.): 66
Date Start - Finish: 3Y1

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ä
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
6							5	$%&& 30#	6
5	-5	5 25	Ä		+/	-5BĀ+7Ā(:A7J:=C			
56	-1	561	Ä	Ä	+/	-1BĀ/>=\ĀL=Ā'( )*+%,Ā-%&.DĀ=>A:Ā@E:Ā@D=><:Ā7=>;?A 7I 7=			
1									
16	-"	162"	Ä	Ä	+/	-"BĀ/>=\ĀL=Ā'( )*+%,Ā-%&.DĀ 7I : =><:Ā7=>;?AĀ7I7DĀ7?@<		'( )*+%, Ā%&.	
"									
"6	-#	"6 2#	Ä	Ä	+/	-#BĀ/>=\ĀL=Ā'( )*+%,Ā-%&.DĀ 7I : =><:Ā7=>;?AĀ7I7DĀ7?@<			
#									
#6									
6	-6	6 26	Ä	Ä	+/	-6BĀ/>=\ĀL=ĀĀĀ + / DĀ ?<ĀĀ> J: DĀ=>A:ĀAF>Ā:?FĀD<	1	2"Ä0Ä -*+/	6
66						M;IĀ7GĀ =><?7;Ā><Ā66ĀG::<0		2#50Ä	66
Ä									

REMARKS

HH=J ?><?7;@BĀ+ _ 99F?A>H DĀU _+ 7<ĀU>@Z= DĀL@W:F78Ā)=7Z;I Ā-Z=G>A:
5Ā2Ā &Ā:; :<=><?7;Ā=:@?@<>;A:
1Ā2Ā%;A=:>@:Ā?;Ā9=><?7;Ā@?=@A:

$?:FJĀ-A=::: ?:LĀ9=G K= J Ā ?<ĒĀ%/Ā:]Z?99I Ā8?<EĀ>Ā5 0ĀĀ:[ĀĀ>F?H=ĀĀ<7Ā>Ā5Ā99KĀ@7HZ C: Ā@>:I >=0-::
&7LĀQ:Ā =ĀN9F=> <?7:A7G K F:AI:@A?9<?Ā>:IĀ?I::<?G?=A?9=7A:I Z=@0Ā=><?Ā><?7;ĀF?::@A=@9=<Ā99=7N?K><:
HZ: I> =?@H <8.: : : Ā@7 DĀ@0Ā<>FĀ<=>:@?<?7=@ĀHĀL=Z>F0Ā><:=ĀF:JĀ=:=?:L @ĀJ: ĀH::ĀK>I : Ā><Ā<?K@
>: [ĀZ:I: =Ā<E:ĀĀ?K?7;@Ā@I0Ā$FZĀ<?7;@ĀTZ I 8><:=K >OTĀĀZ=Ā: ĀTĀ7<EĀĀ<7=@Ā=Ā<E7@:Ā@=, <Ā<Ā<
<?K@Ē<Ā: >@Z=:K:; <@8=:ĀK>I: 0

P-06

GEOPROBE LOG

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P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-07
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7
Foreman: QCF:

Geoprobe Location: -::
Ground Surface Elev. (ft.): 5 0
Final Geoprobe Depth (ft.): 66
Date Start - Finish: 3Y1"Y1 5!

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.):
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

Depth	Sample No.	Recovery (in.)	Blow Counts	PID (ppm)	Soil Description	Strata
6	-5	5 25 6	"Ä	+/	-5BÃ)=>Ã'()*+ %Ã-%&.DÃK7I: =><Ã=7Ã@F; LÃ7=L>; ?AÃI 7=D K 7@?<	5
5 56						
1	-1	1 21 6	#3	+/	-1BÃ)=>ÃÃ)*+%,Ã-%&.DÃ=>A:ÃGÃY>; I DÃ=A:Ã@: FFÃ@D;7= 7=L>;?AÃ7I7ÃÃ7?@<	
16						
" "6	-"	" 2"6	#3	+/	-"BÃ)=>Ã'()*+ %Ã-%&.DÃ=>A:Ã@: FFÃ@D I : =><:2E: >JCÃ?=L ?A 7I 7=DÃ7?@<	
# #6	-#	# 2#6	Ä	+/	-#BÃ)=>Ã'()*+ %Ã-%&.DÃ=>A:Ã@: FFÃ@?LE=ÃK7I : =><: 7=L>;?AÃ7I7ÃÃ7?@<	
6 66	-6	6 26 6	Ä	+/	-6BÃ)=>Ã-%&.DÃ=>A:Ã77IÃG?H:=@ÃÃ@<	1
Ä					M;IÃ7GÃ.9F7=><?7;Ã><Ã66ÃG::<0	

$%&&
#0Ä _____ Ä
'( )*+%, Ã%&.
2"Ä0O _____ #! 06
-%&.
2##0# 66

REMARKS

HH=J ?><?7;@BÃ+ _Ã799F?A>HÃÃU _+ 7<ÃU>@Z=I ÃHL@W:F78Ã)=7Z;I Ã-Z=G>A:
5Ã2Ã&Ã:; :<=><?7;Ã=:@?@<>;A:
1Ã2Ã-F?LE<Ã?;A=:>@;Ã?;Ã<?Ã;=:@?<>;A:

$?:FJÃ-A=::: ?:LÃ9=GK= J Ã ?<EÃ%/Ã:]Z?99I Ã8?<EÃ>Ã5 0ÄÃ:[ÃÃ>F?H=Ã<7Ã>Ã5Ã99KÃ@7HZ=C: Ã@>:I >=0-::
&7LÃQ:GÃ=ÃN9F>> <?7:A7GÃK@F:AI:@A?9<?Ã>:IÃ?I::<?G>A?Ã9=7A:I Z=@0Ã=><?Ã><?7;ÃF?::@Ã@9=<Ã99=7N?K><:
H7Z: I> =?@H <8.: : Ã@7?ÃÃ@0Ã<Z>FÃ<=>:@?<?7@ÃHÃL=I Z>F0Ã><:=ÃF:JÃ=:H?:L @ÃÃ>J: ÃH::ÃK>I : Ã><Ã=Ã<?K@
>: [ÃZ:I: =Ã<E:ÃÃ?K?7;@Ã@I0Ã$FZÃ<?7;@ÃIZ=7Z:I 8><:=K >O7ÃÃZ=Ã: Ã=Ã7<EÃ=Ã<7=@Ã=Ã<E7@:Ã@=; <Ã<Ã=<
<?K@Ã<Ã: >@Z=:K:; <@8=:ÃK>I: 0

P-07

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Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-08
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7
Foreman: QCF:

Geoprobe Location: -::
Ground Surface Elev. (ft.): 5506
Final Geoprobe Depth (ft.): 66
Date Start - Finish: 3Y1"Y1 5!

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ä
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
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REMARKS

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P-08

GEOPROBE LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-09
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7
Foreman: QCF:

Geoprobe Location: -::
Ground Surface Elev. (ft.): 510"
Final Geoprobe Depth (ft.): 66
Date Start - Finish: 3Y1"Y1 5!

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ä
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0	-<=><ZK /: @A?9<?7;	/:9<E RG8<0
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REMARKS

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P-09

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GEOPROBE LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-10
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: +?AE
Drilling Co.: P7
Foreman: QCF:

Geoprobe Location: -::
Ground Surface Elev. (ft.): 5106
Final Geoprobe Depth (ft.): "
Date Start - Finish: 3Y1"Y1 5

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.):
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=@<	(:K>=\	MF:J0 RG8<0 -<=><ZK /: @A?9<?7;	/:9<E RG8<0
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REMARKS

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P-10

GEOPROBE LOG

GZA GeoEnvironmental, Inc.
Engineers and Scientists

Genesee & Wyoming, Inc.
P&W South Quay Evaluation
East Providence, Rhode Island

EXPLORATION NO.: P-11
SHEET: 1 of 1
PROJECT NO: 34354.00
REVIEWED BY: W. Ladd

Logged By: M=?VĀF7GG
Drilling Co.: P7GG>; ĀM;J?=7K:;<>FĀ-:=J ?A:@
Foreman: QCF:ĀPGG>K

Geoprobe Location: -::ĀVF>;
Ground Surface Elev. (ft.): 5103
Final Geoprobe Depth (ft.): "6
Date Start - Finish: 3Y1#Y1 5!Ā2Ā3YY# 5!

H. Datum: +*/ 3"
V. Datum: +*[/3 3

Type of Rig:):7 9=7H Ā*.[
Rig Model: !3 11/.
Drilling Method: VZ@E:I

Sampler Type: +Y*
Sampler O.D. (in.): 10
Sampler Length (in.): Ā
Rock Core Size: +Y*

Groundwater Depth (ft.)			
Date	Time	Water Depth	Stab. Time

/: 9<E RG<S	->K 9F: +70	/: 9<E RG8<0	V:;0 R?;$	(: A0 R?;$	V%/ R9KS	->K 9F:Ā/:@A=?9<?7; U7I ?G?:IĀWZ=?@<	(:K>=\	MF:J0 RG8<0	-<=><ZK /: @A?9<?7;	/:9<E RG8<0
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REMARKS

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P-11

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APPENDIX C

FEMA FLOOD MAPS

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

The A6 Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Rhode Island State Plane Zone (FIPS zone 3800). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from digital orthophotography. Base map files were provided in digital form by the USGS. Ortho Imagery was produced at a scale of 1"=2,400'. Aerial photography is dated April and May 2011.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at http://www.fema.gov/business/nfip/index.shtm.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, A1-A30, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary

Floodway boundary

Zone D boundary

CBRS and OPA boundary

Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.

Line of Moderate Wave Action

Limit of Moderate Wave Action coincident with Zone Break

Base Flood Elevation line and value; elevation in feet*

Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

Cross section line

Transect line

Coastal transect

Bridge

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere

1000-meter Universal Transverse Mercator grid values, zone 19

Direction mark (see explanation in Notes to Users section of this FIRM panel)

Index tick

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
MARCH 2, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For communities with multiple zones or base flood elevations, insurance purchase rates have been established.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

100 0 150 300 METERS

NFIP

PANEL 0309K

FIRM

FLOOD INSURANCE RATE MAP

Providence County, Rhode Island
(ALL JURISDICTIONS)

PANEL 309 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
EAST PROVIDENCE, CITY OF	445398	0309	K
PROVIDENCE, CITY OF	445406	0309	K

NATIONAL FLOOD INSURANCE PROGRAM

MAP NUMBER
44007C0309K
MAP REVISED
OCTOBER 2, 2015

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

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Coastal Base Flood Elevations shown on this map apply only landward of 0.0 North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

The *AE* Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA)**. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LiMWA (or between the shoreline and the LiMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

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The **projection** used in the preparation of this map was Rhode Island State Plane Zone (FIPS zone 3800). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

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NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242** or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from digital orthophotography provided by the Rhode Island Department of Environmental Management at a scale of 1:500 from photography dated 2011.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

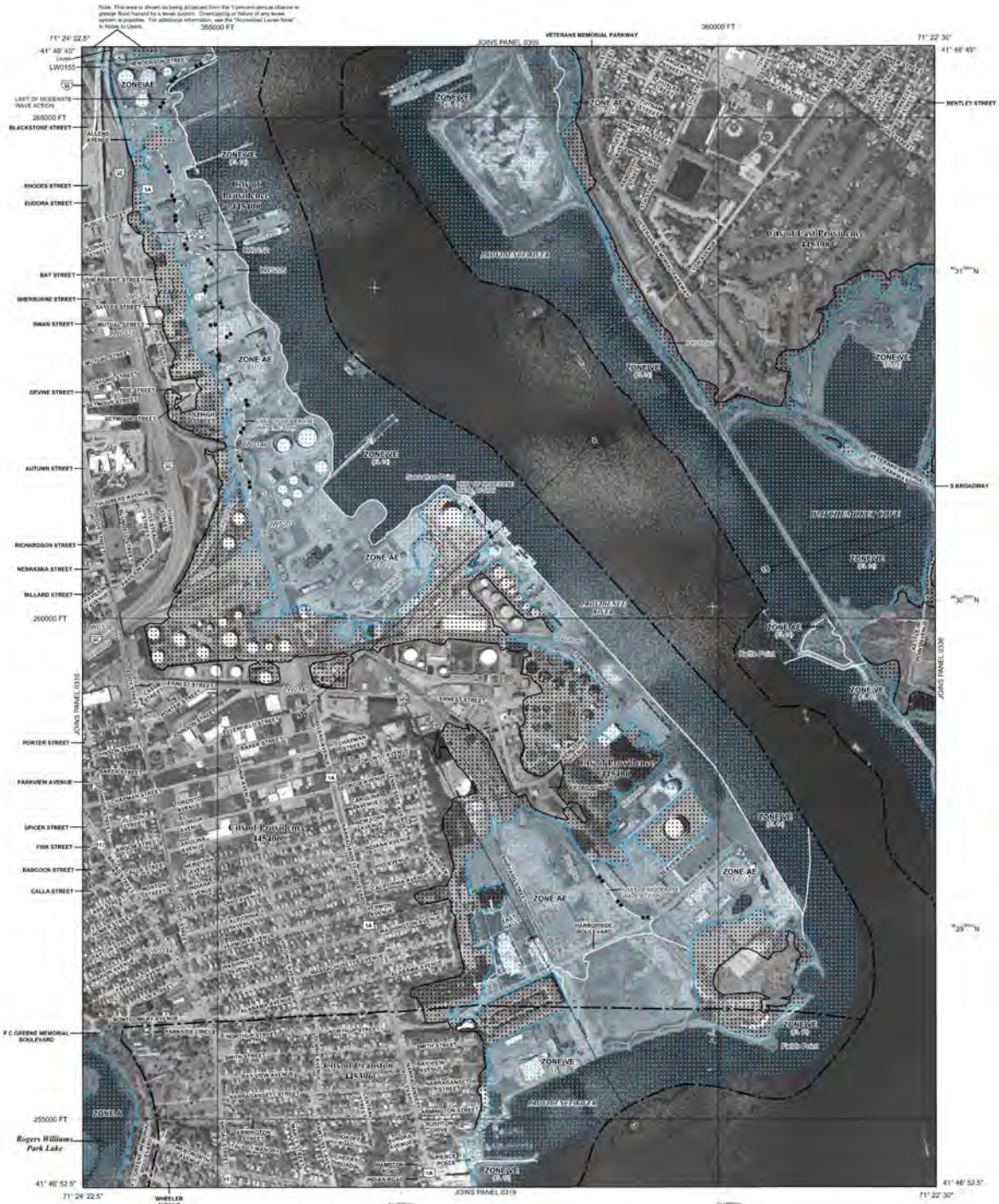
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

Only coastal structures that are certified to provide protection from the 1-percent-chance annual flood are shown on this panel. However, all structures taken into consideration for the purpose of coastal flood hazard analysis and mapping are present in the DFIRM database in: S_Gen_Struct.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway Boundary
- Zone D Boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- Limit of Moderate Wave Action
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

- A — A — Cross section line
- 23 — 23 — Transect line
- 97° 07' 30", 32° 22' 30" — Geographic coordinate referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 1000000 FT — 5000-foot ticks: Rhode Island State Plane Zone (FIPS Zone 3800), Transverse Mercator projection
- 4000000 N — 1000-meter Universal Transverse Mercator grid values, zone 19
- BM5519 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile

MAP REPOSITORY(IES)
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
March 2, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

April 15, 2011 - to change map name to reflect the accentuation of formerly provisionally accredited levees.

September 18, 2013 - to change Base Flood Elevations and Special Flood Hazard Areas; to change zone designations; to update the effects of levee action; to update corporate limits; to add roads and road names; to incorporate previously issued Letters of Map Revision and to modify Coastal Barrier Resources System units.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0317J

FIRM

FLOOD INSURANCE RATE MAP

PROVIDENCE COUNTY, RHODE ISLAND (ALL JURISDICTIONS)

PANEL 317 OF 451
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CRANSTON, CITY OF	445398	0317	G
EAST PROVIDENCE, CITY OF	445399	0317	J
PROVIDENCE, CITY OF	445400	0317	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
44007C0317J
MAP REVISED
SEPTEMBER 18, 2013

Federal Emergency Management Agency

APPENDIX D

LABORATORY DATA

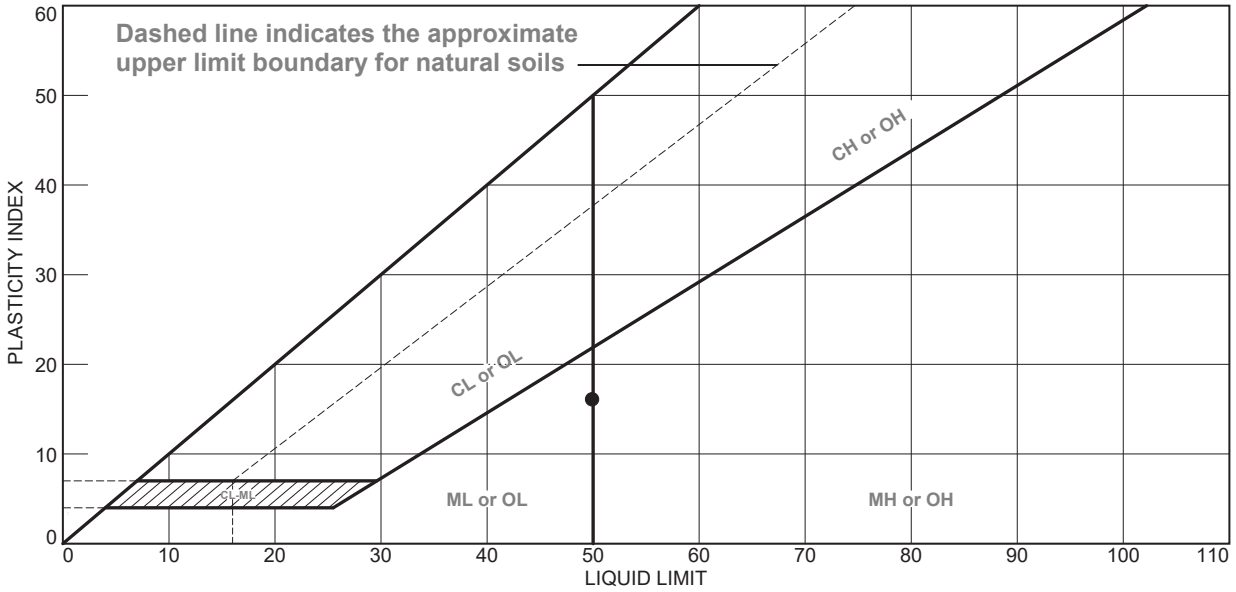
LABORATORY TESTING DATA SHEET

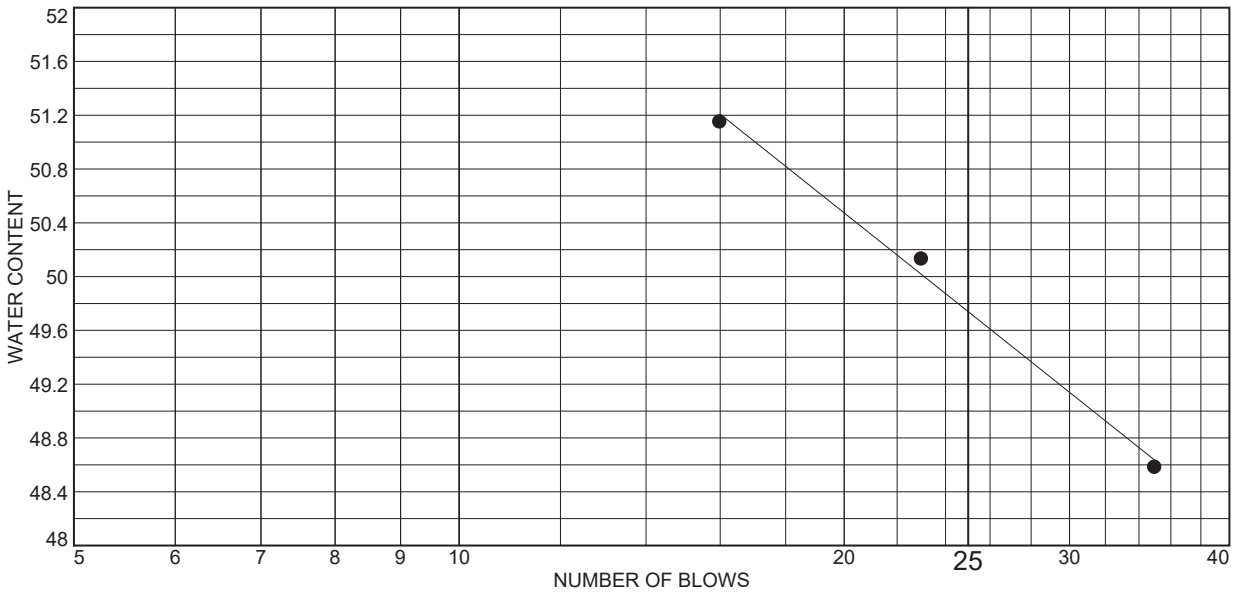
Project Name: P&W South Quay Evaluation
Project No.: 03.0034354.00
Project Manager: Bill Ladd
Project Location: East Providence, RI
Assigned By: Mark Hagerdorn
Date: 08.04.17
Reviewed By: [signature]
Date Reviewed: 08.08.17
Client: GZA GeoEnvironmental

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	Org %	Specif Gravity	Dry unit wt. pcf	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. CR	Laboratory Log and Soil Description
GZ-5	S-5	19-21'	1		Average Total Unit Weight (19.0-21.0') = 120.7 pcf													
																		Disturbed Very Dark Grey Organic SILT with Quaghog fragments
		19.4		53.3								Tv = 0.125 tsf						Very Dark Grey Organic SILT
		19.4-19.6		48.8							72.4	Consol.					0.13	Very Dark Grey Organic SILT
		19.6-19.8		49.3	50	34												Very Dark Grey Organic SILT
		19.8-20.4																Sample Saved
		20.4-20.5		43.3					2.8									Very Dark Grey Organic SILT & fine SAND - SAND content increases with depth
		20.5-20.9		42.3							78.6	UU	760	σ_1-σ_3 Max	1240	14.8		Very Dark Grey Organic SILT & fine SAND
		21.0		41.0								Tv = 0.15 tsf						

THIELSCH ENGINEERING
195 Frances Avenue
Cranston, RI 02910
401-467-6454

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very Dark Grey Organic SILT	50	34	16			

Project No. 03.0034354.00 **Client:** GZA GeoEnvironmental

Project: P&W South Quay Evaluation

East Providence, RI

Source of Sample: Shelby Tube Samples **Depth:** 19-21'

Sample Number: GZ-5 / S-5

Thielsch Engineering Inc.

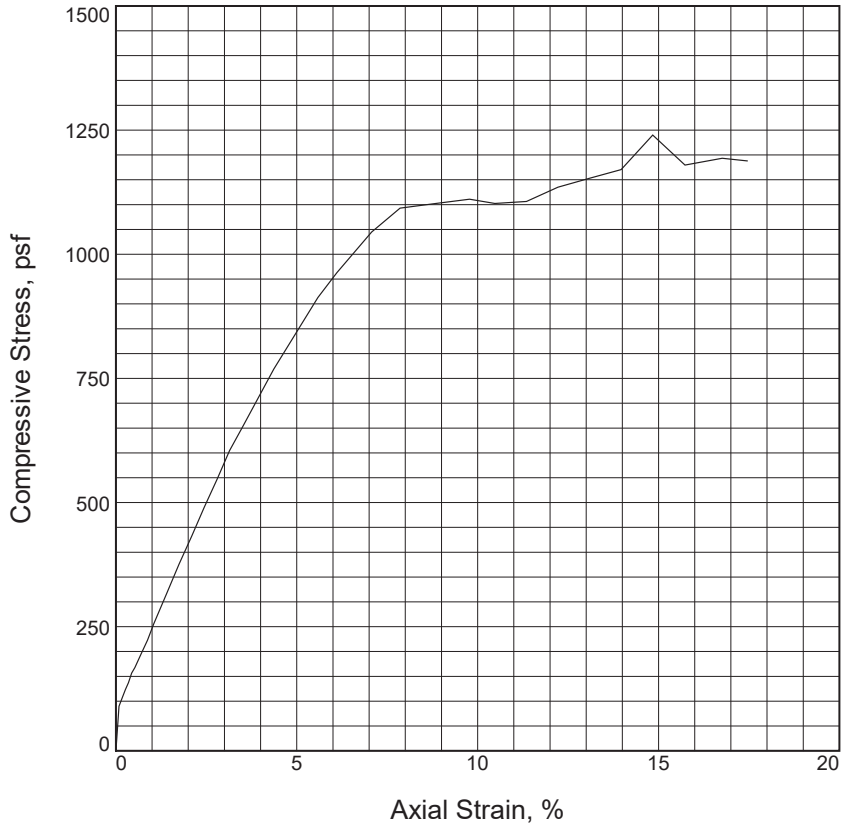
Cranston, RI

Remarks:

Figure L-1

Tested By: RR **Checked By:** MJC

UNCONSOLIDATED UNDRAINED TEST



Sample No.	1			
Fail. Stress, psf	1240			
Ult. Stress, psf				
Cell pressure, psf	760			
Strain rate, in./min.	0.03			
Water content, %	42.3			
Wet density, pcf	111.9			
Dry density, pcf	78.6			
Saturation, %	101.6			
Void ratio	1.1035			
Specimen diameter, in.	2.84			
Specimen height, in.	5.73			
Height/diameter ratio	2.01			

Description: Very Dark Grey Organic SILT & fine SAND

LL = 50	**PL =** 34	**PI =** 16	**Assumed GS=** 2.65	**Type:** Tube Sample

Project No.: 03.0034354.00

Date Sampled: 07.14.17

Remarks:
UU Test Depth @ 20.5 to 20.9'.

Figure U-1

Client: GZA GeoEnvironmental

Project: P&W South Quay Evaluation
East Providence, RI

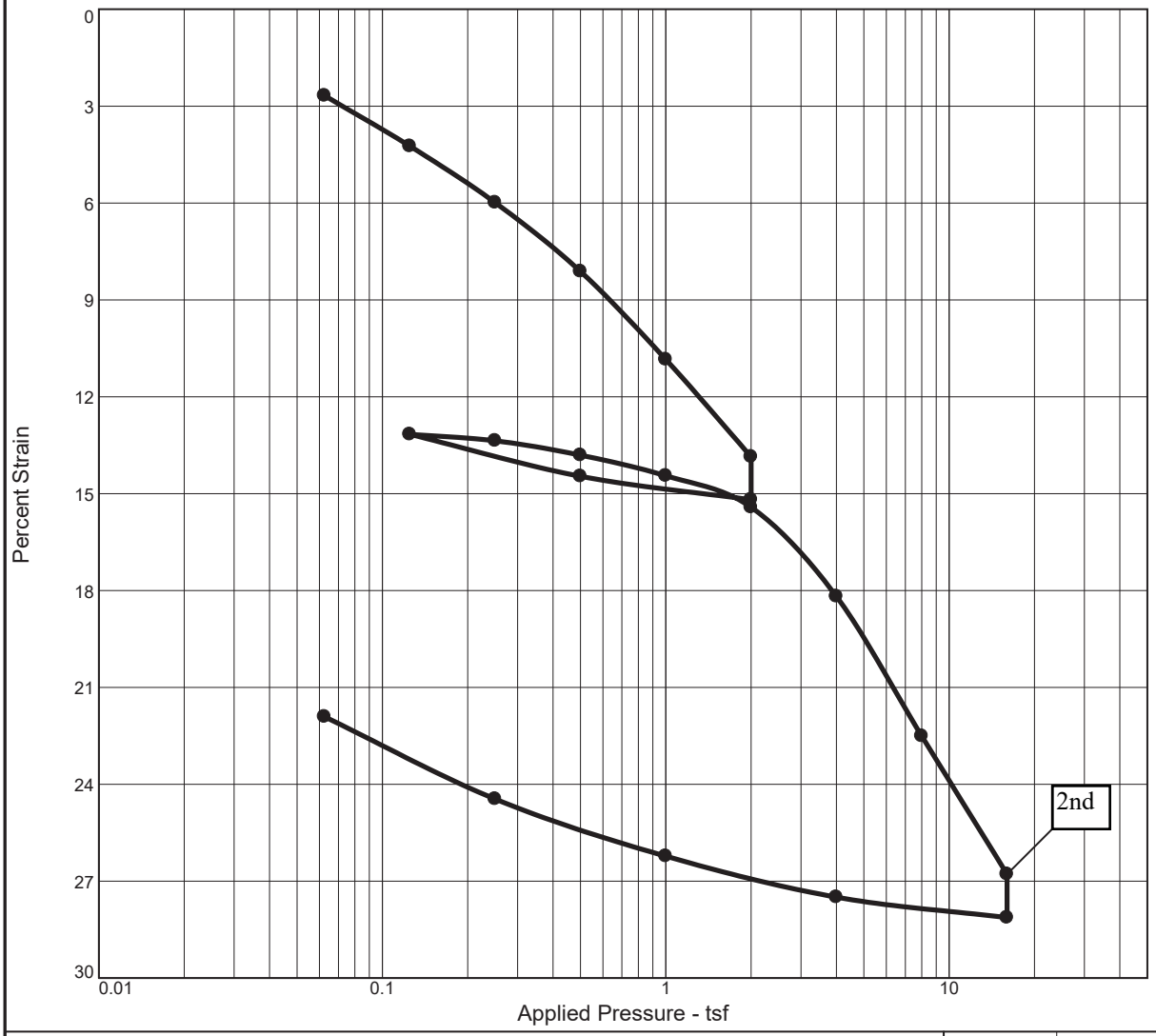
Source of Sample: Shelby Tube Samples **Depth:** 19-21'

Sample Number: GZ-5 / S-5

UNCONSOLIDATED UNDRAINED TEST
Thielsch Engineering Inc.
Cranston, RI

Tested By: RR **Checked By:** MJC

CONSOLIDATION TEST REPORT



MATERIAL DESCRIPTION	USCS	AASHTO
Very Dark Grey Organic SILT		

LL	PI	Sp. Gr.	Overburden (tsf)	Dry Dens. (pcf)		Moisture		Saturation		Void Ratio		P_c (tsf)	CR
				Init.	Final	Init.	Final	Init.	Final	Init.	Final		
50	16	2.65	0	72.4	92.8	48.8 %	35.6 %	100.8 %	100.0 %	1.284	0.784		0.13

Preparation Process: Trimmed using a trimming turntable

Condition of Test: Saturated at 1 tsf

D2435 Method	C_r	Swell Press. (tsf)	
B	0.06		

Project No. 03.0034354.00 **Client:** GZA GeoEnvironmental

Project: P&W South Quay Evaluation
East Providence, RI

Source: Shelby Tube Samples **Depth:** 19-21' **Sample No.:** GZ-5 / S-5

Thielsch Engineering Inc.

Cranston, RI

Remarks:
End of Primary
Consolidation Test Depth @ 19.4 to 19.6'

Checked By: MJC

Title: Laboratory Manager

Figure C-1-1

Tested By: RR

CONSOLIDATION TEST DATA

8/8/2017

Client: GZA GeoEnvironmental
Project: P&W South Quay Evaluation
East Providence, RI
Project Number: 03.0034354.00
Location: Shelby Tube Samples
Depth: 19-21' **Sample Number:** GZ-5 / S-5
Material Description: Very Dark Grey Organic SILT
Sample Date: 07.14.17 **Liquid Limit:** 50 **Plasticity Index:** 16
Preparation Process: Trimmed using a trimming turntable
Condition of Test: Saturated at 1 tsf
Test Method: B **Final Density:** 92.8 **Figure No.:** C-1-1
Testing Remarks: End of Primary - Assumed specific gravity of 2.6 Consolidation Test Depth @ 19.4 to 19.6'
Tested By: RR **Checked by:** MJC **Title:** Laboratory Manager

Test Specimen Data

NATURAL MOISTURE		VOID RATIO		AFTER TEST	
Wet w+t =	624.62 g.	Spec. Gr. =	2.65	Wet w+t =	614.78 g.
Dry w+t =	588.17 g.	Est. Ht. Solids =	0.350 in.	Dry w+t =	588.17 g.
Tare Wt. =	513.50 g.	Init. V.R. =	1.284	Tare Wt. =	513.50 g.
Moisture =	48.8 %	Init. Sat. =	100.8 %	Moisture =	35.6 %
UNIT WEIGHT		TEST START		Dry Wt. =	74.67* g.
Height =	0.800 in.	Height =	0.800 in.		
Diameter =	2.500 in.	Diameter =	2.500 in.		
Weight =	111.12 g.				
Dry Dens. =	72.4 pcf				

End-Of-Load Summary

Pressure (tsf)	Final Dial (in.)	Deformation (in.)	C_v (cm.^{2}/sec.)	C_α	Void Ratio	% Strain
start	0.02000	0.00000			1.284	
0.06	0.04140	0.02140			1.223	2.7 Comprs.
0.13	0.05390	0.03390	0.0030		1.187	4.2 Comprs.
0.25	0.06790	0.04790	0.0045		1.147	6.0 Comprs.
0.50	0.08495	0.06495	0.0037		1.098	8.1 Comprs.
1.00	0.10675	0.08675	0.0042		1.036	10.8 Comprs.
2.00	0.14150	0.12150	0.0037	C_α = 0.006	0.937	15.2 Comprs.
0.50	0.13570	0.11570			0.954	14.5 Comprs.
0.13	0.12530	0.10530			0.983	13.2 Comprs.
0.25	0.12690	0.10690	0.0211		0.979	13.4 Comprs.
0.50	0.13047	0.11047	0.0103		0.968	13.8 Comprs.
1.00	0.13557	0.11557	0.0080		0.954	14.4 Comprs.
2.00	0.14335	0.12335	0.0135		0.932	15.4 Comprs.
4.00	0.16545	0.14545	0.0061		0.869	18.2 Comprs.
8.00	0.20005	0.18005	0.0064		0.770	22.5 Comprs.
16.00	0.24650	0.22650	0.0043	C_α = 0.006	0.637	28.3 Comprs.
4.00	0.23995	0.21995			0.656	27.5 Comprs.
1.00	0.22980	0.20980			0.685	26.2 Comprs.

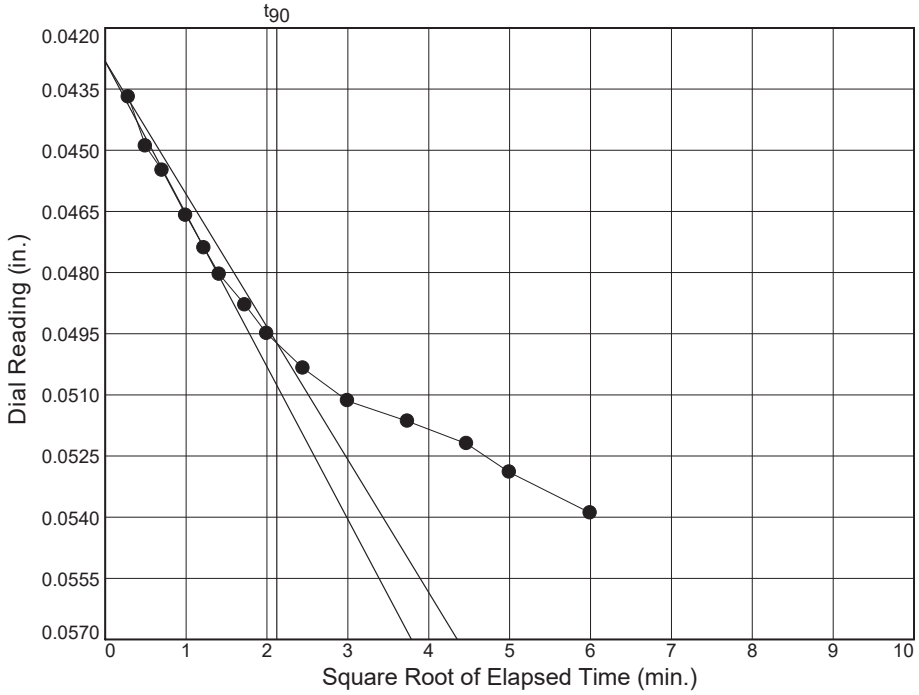
Cae = Ca/(1+e0)
=0.0026

Thielsch Engineering Inc.

Dial Reading vs. Time

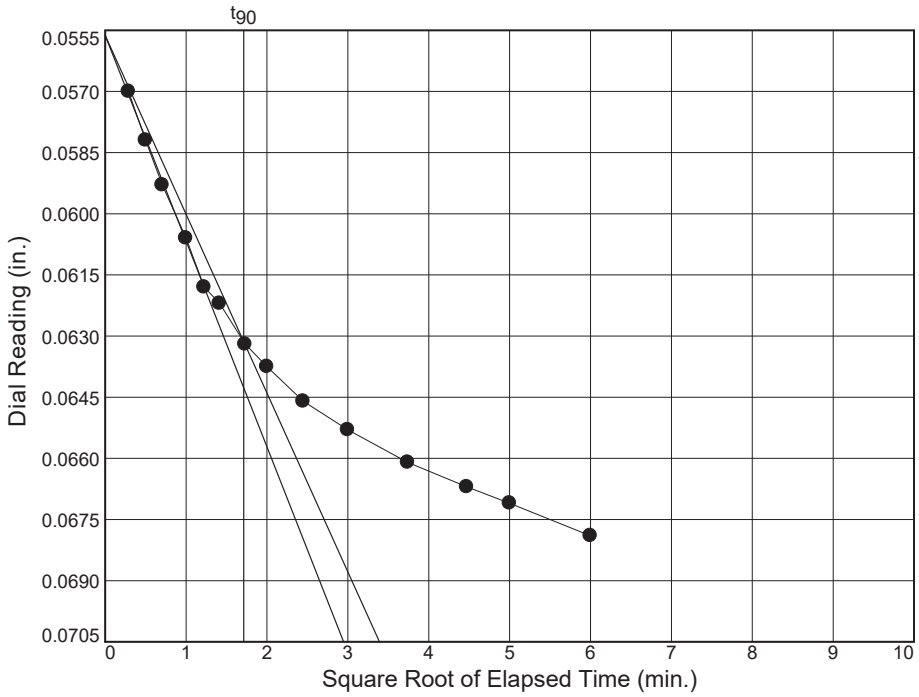
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 2
Load= 0.13 tsf
D_0 = 0.0428
D_{90} = 0.0497
D_{100} = 0.0505
T_{90} = 4.50 min.

C_v @ T_{90}
0.0030 cm.^{2}/sec.



Load No.= 3
Load= 0.25 tsf
D_0 = 0.0556
D_{90} = 0.0631
D_{100} = 0.0640
T_{90} = 2.93 min.

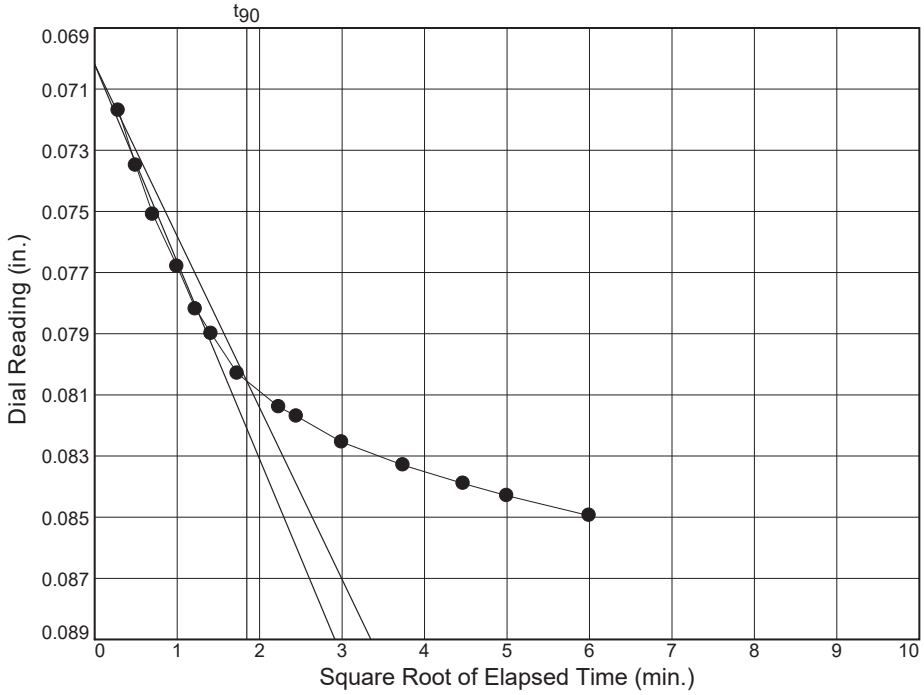
C_v @ T_{90}
0.0045 cm.^{2}/sec.

Figure C-1-2

Dial Reading vs. Time

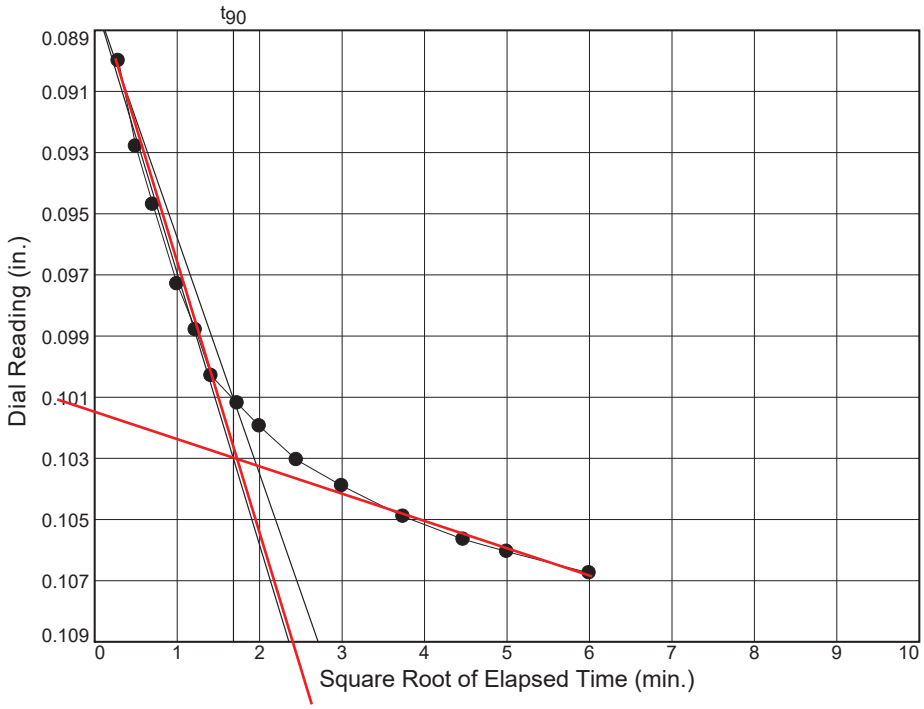
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 4
Load= 0.50 tsf
D_0 = 0.0702
D_{90} = 0.0805
D_{100} = 0.0817
T_{90} = 3.40 min.

C_v @ T_{90}
0.0037 cm.^{2}/sec.



Load No.= 5
Load= 1.00 tsf
D_0 = 0.0880
D_{90} = 0.1011
D_{100} = 0.1025
T_{90} = 2.83 min.

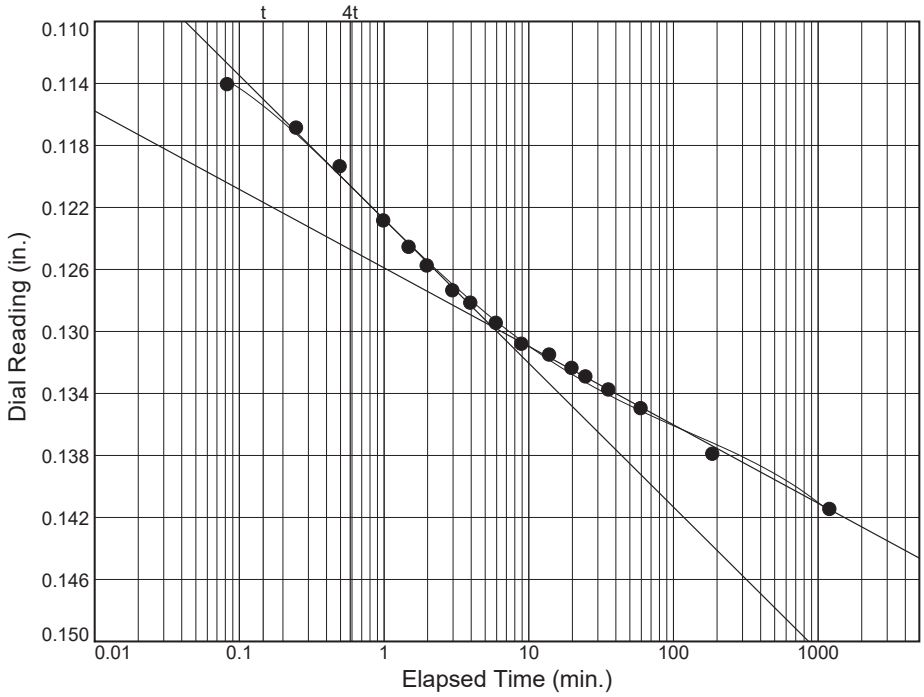
C_v @ T_{90}
0.0042 cm.^{2}/sec.

Figure C-1-3

Dial Reading vs. Time

Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

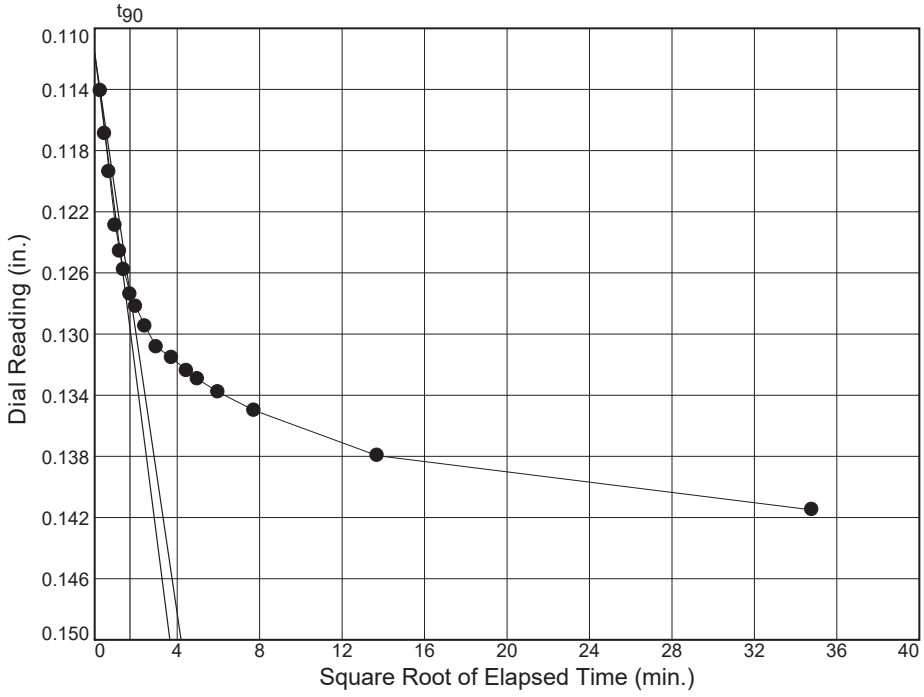
Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 6
Load= 2.00 tsf
D_0 = 0.1103
D_{50} = 0.1200
D_{100} = 0.1296
T_{50} = 0.50 min.

C_v @ T_{50}
0.0052 cm.^{2}/sec.

C_α = 0.006



Load No.= 6
Load= 2.00 tsf
D_0 = 0.1116
D_{90} = 0.1273
D_{100} = 0.1291
T_{90} = 2.94 min.

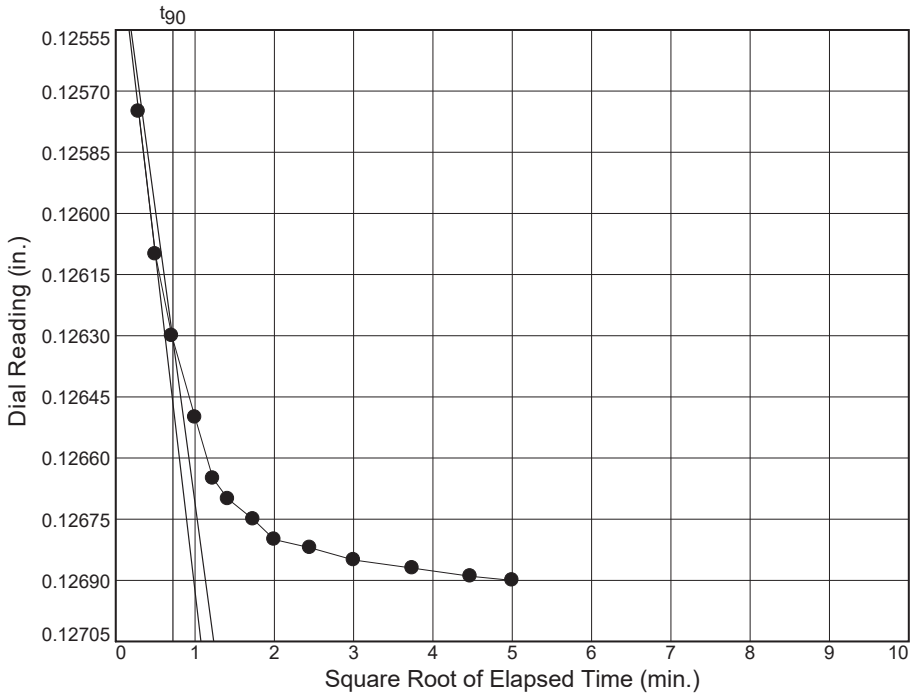
C_v @ T_{90}
0.0037 cm.^{2}/sec.

Figure C-1-4

Dial Reading vs. Time

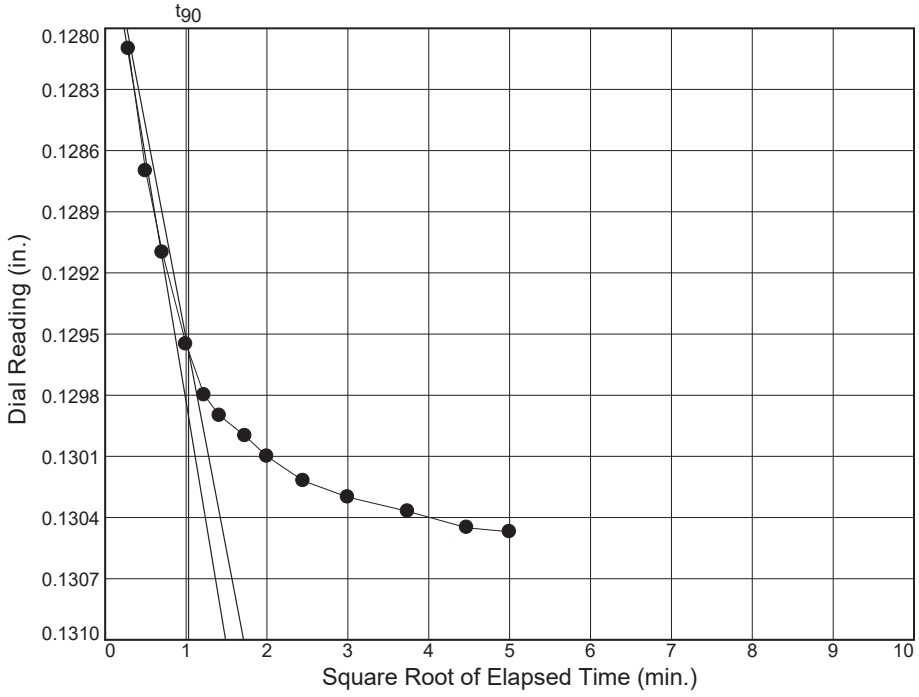
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 9
Load= 0.25 tsf
D_0 = 0.1253
D_{90} = 0.1263
D_{100} = 0.1264
T_{90} = 0.52 min.

C_v @ T_{90}
0.0211 cm.^{2}/sec.



Load No.= 10
Load= 0.50 tsf
D_0 = 0.1274
D_{90} = 0.1296
D_{100} = 0.1298
T_{90} = 1.06 min.

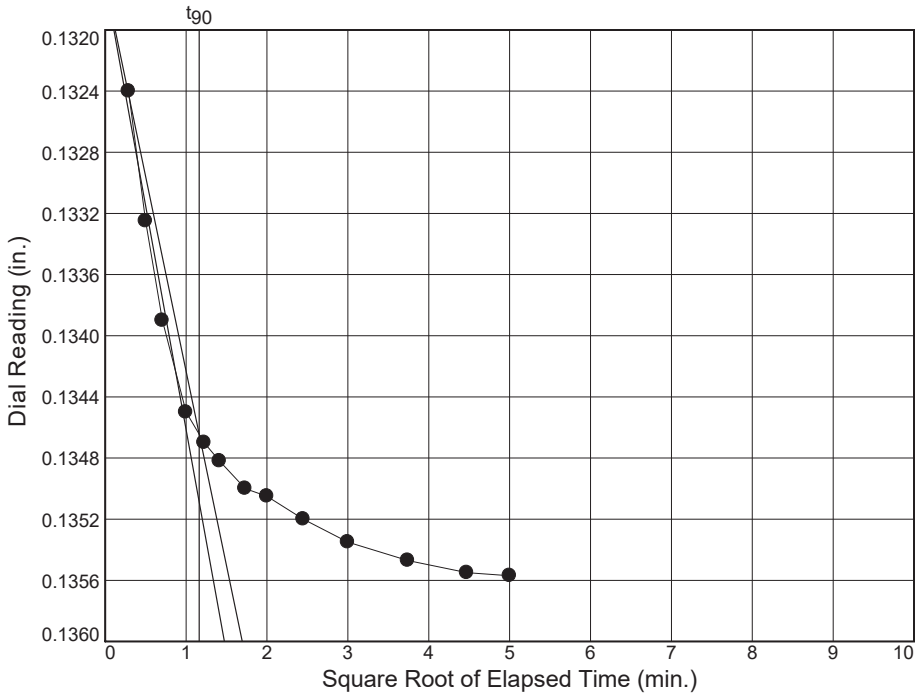
C_v @ T_{90}
0.0103 cm.^{2}/sec.

Figure C-1-5

Dial Reading vs. Time

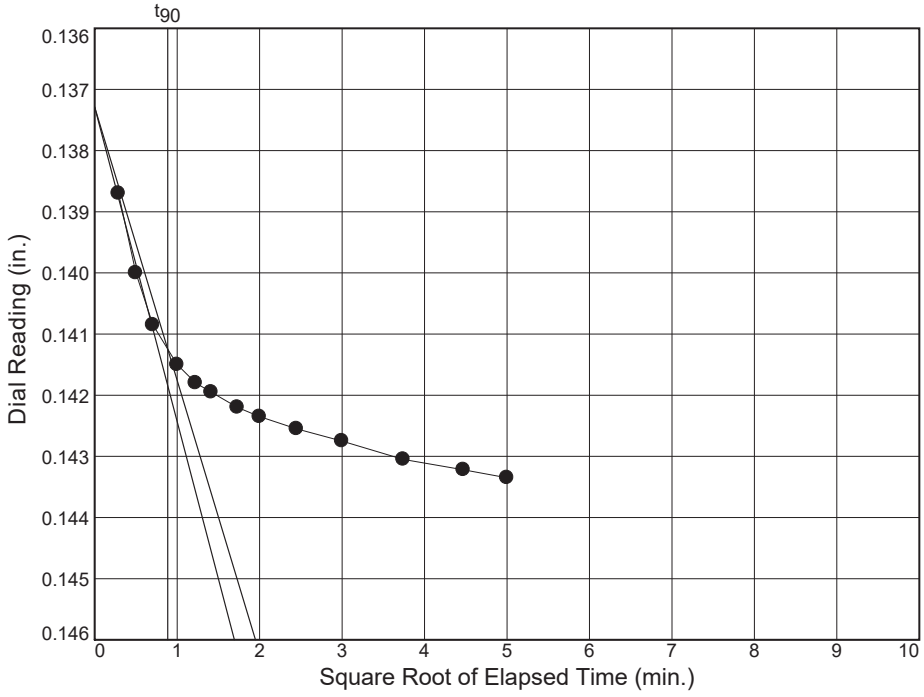
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 11
Load= 1.00 tsf
D_0 = 0.1317
D_{90} = 0.1346
D_{100} = 0.1350
T_{90} = 1.35 min.

C_v @ T_{90}
0.0080 cm.^{2}/sec.



Load No.= 12
Load= 2.00 tsf
D_0 = 0.1373
D_{90} = 0.1412
D_{100} = 0.1417
T_{90} = 0.78 min.

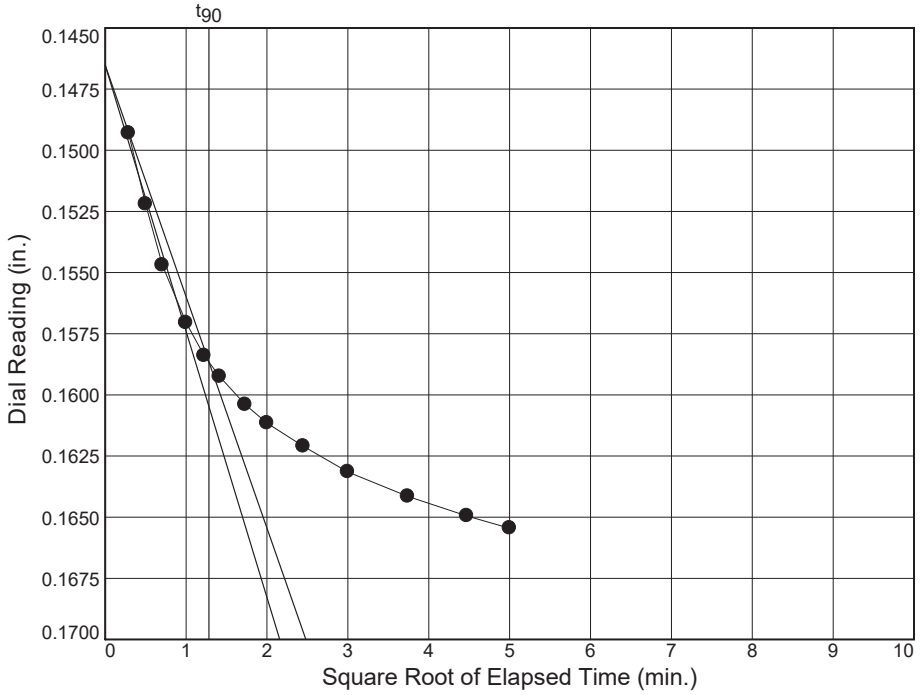
C_v @ T_{90}
0.0135 cm.^{2}/sec.

Figure C-1-6

Dial Reading vs. Time

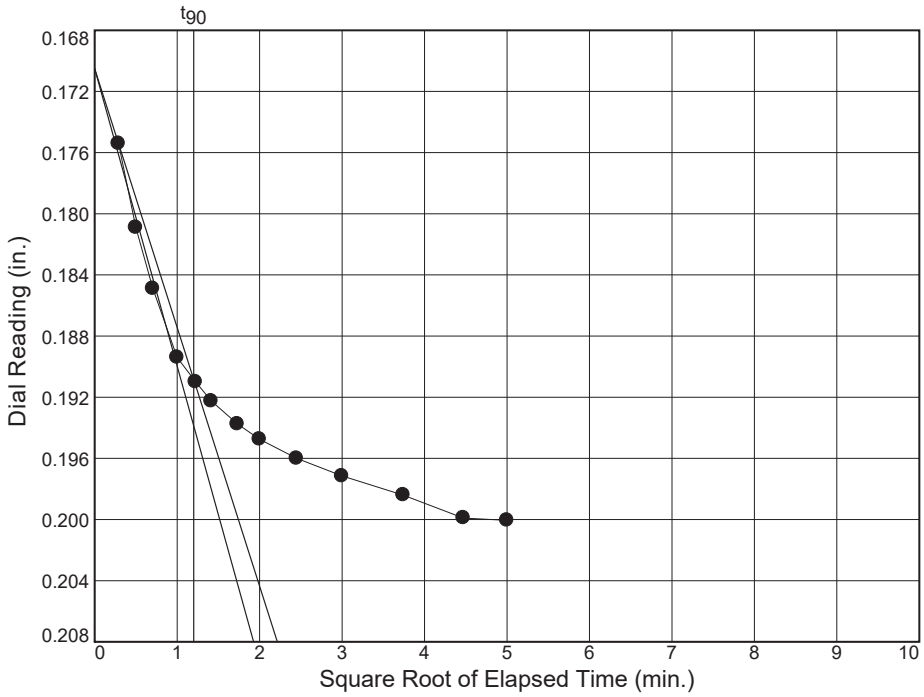
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 13
Load= 4.00 tsf
D_0 = 0.1465
D_{90} = 0.1587
D_{100} = 0.1600
T_{90} = 1.65 min.

C_v @ T_{90}
0.0061 cm.2/sec.



Load No.= 14
Load= 8.00 tsf
D_0 = 0.1705
D_{90} = 0.1908
D_{100} = 0.1931
T_{90} = 1.44 min.

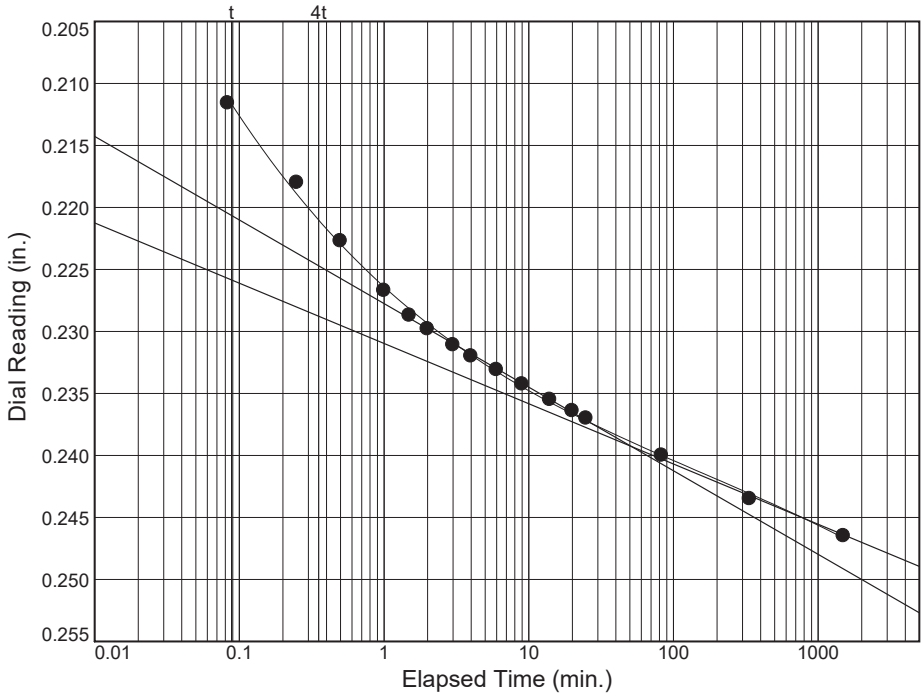
C_v @ T_{90}
0.0064 cm.2/sec.

Figure C-1-7

Dial Reading vs. Time

Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

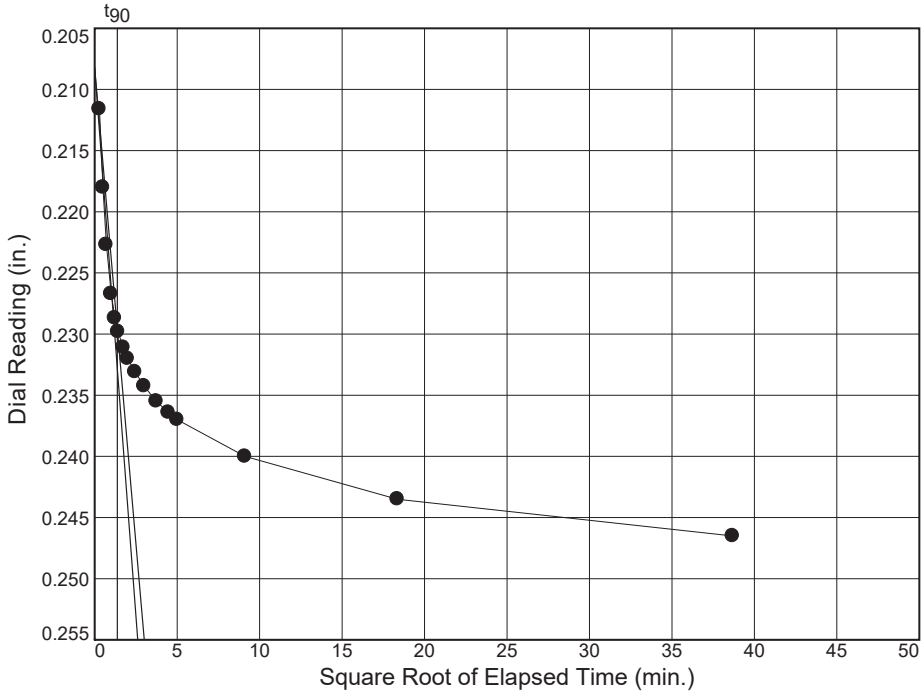
Source of Sample: Shelby Tube Samples Depth: 19-21' Sample Number: GZ-5 / S-5



Load No.= 15
Load= 16.00 tsf
D_0 = 0.2023
D_{50} = 0.2208
D_{100} = 0.2393
T_{50} = 0.34 min.

C_v @ T_{50}
0.0055 cm.^{2}/sec.

C_α = 0.006



Load No.= 15
Load= 16.00 tsf
D_0 = 0.2082
D_{90} = 0.2295
D_{100} = 0.2319
T_{90} = 1.88 min.

C_v @ T_{90}
0.0043 cm.^{2}/sec.

Figure C-1-8

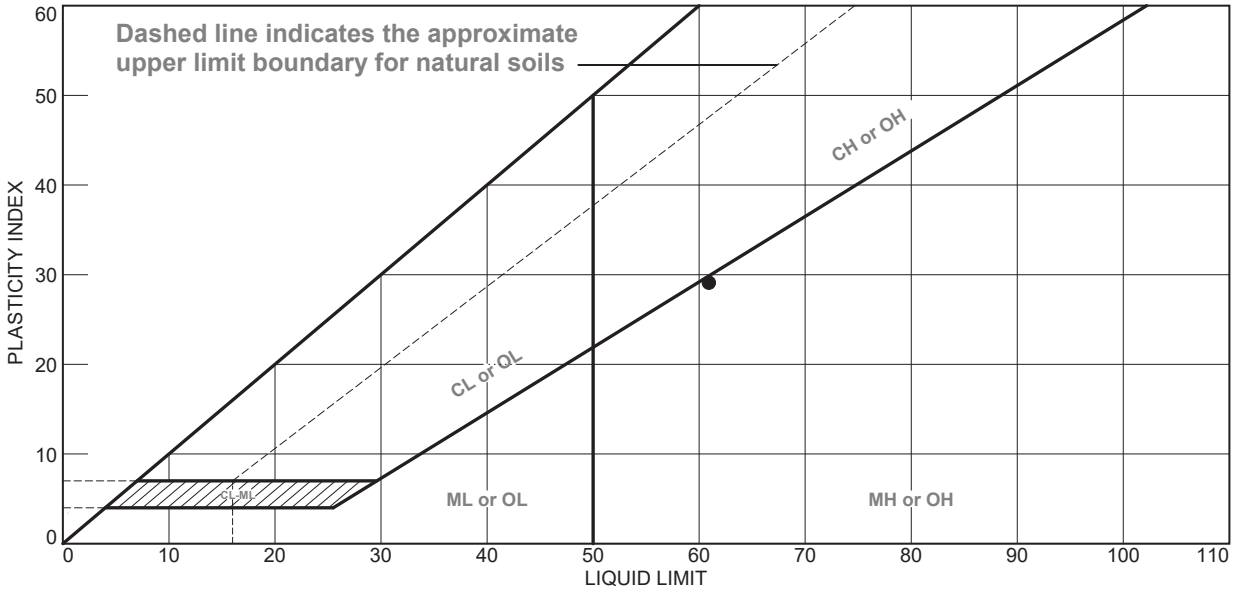
LABORATORY TESTING DATA SHEET

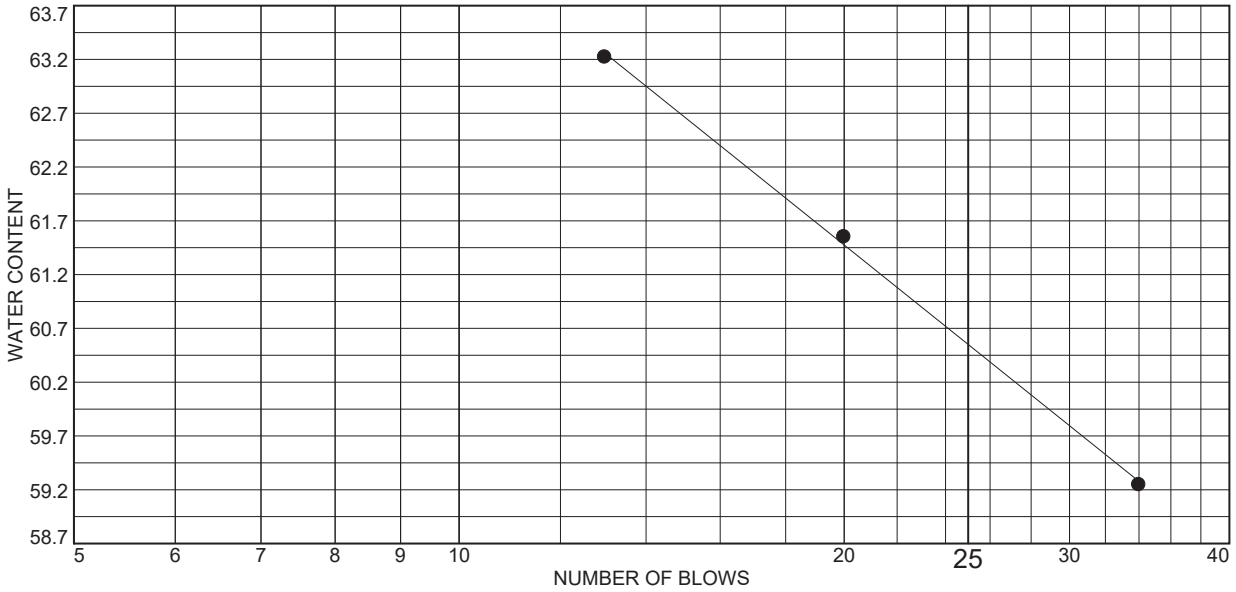
Project Name: P&W South Quay Evaluation
Project No.: 03.0034354.00
Project Manager: Bill Ladd
Project Location: East Providence, RI
Assigned By: Mark Hagerdorn
Date: 08.04.17
Reviewed By: [signature]
Date Reviewed: 08.08.17
Client: GZA GeoEnvironmental

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	Org %	Specif Gravity	Dry unit wt. pcf	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. CR	Laboratory Log and Soil Description
GZ-7	S-9	39-41'	2		Average Total Unit Weight (39.0-41.0') = 106.3 pcf													
																		Very Dark Grey Organic SILT
		39.2		57.0								Tv = 0.375 tsf						Continuous throughout sample
		39.3-39.4		56.1							64.9	Consol.					0.20	
		39.4-39.6		52.1	61	32												Very Dark Grey Organic SILT
		39.6-40.1		56.5							64.7	UU	1160	σ_1-σ_3 Max	1468	7.0		
		40.1-40.2		54.8					4.4									
		40.2-40.7																Sample Saved
		40.8		55.9								Tv = 0.275 tsf						

THIELSCH ENGINEERING
195 Frances Avenue
Cranston, RI 02910
401-467-6454

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very Dark Grey Organic SILT	61	32	29			

Project No. 03.0034354.00 **Client:** GZA GeoEnvironmental

Project: P&W South Quay Evaluation

East Providence, RI

Source of Sample: Shelby Tube Samples **Depth:** 39-41'

Sample Number: GZ-7 / S-9

Thielsch Engineering Inc.

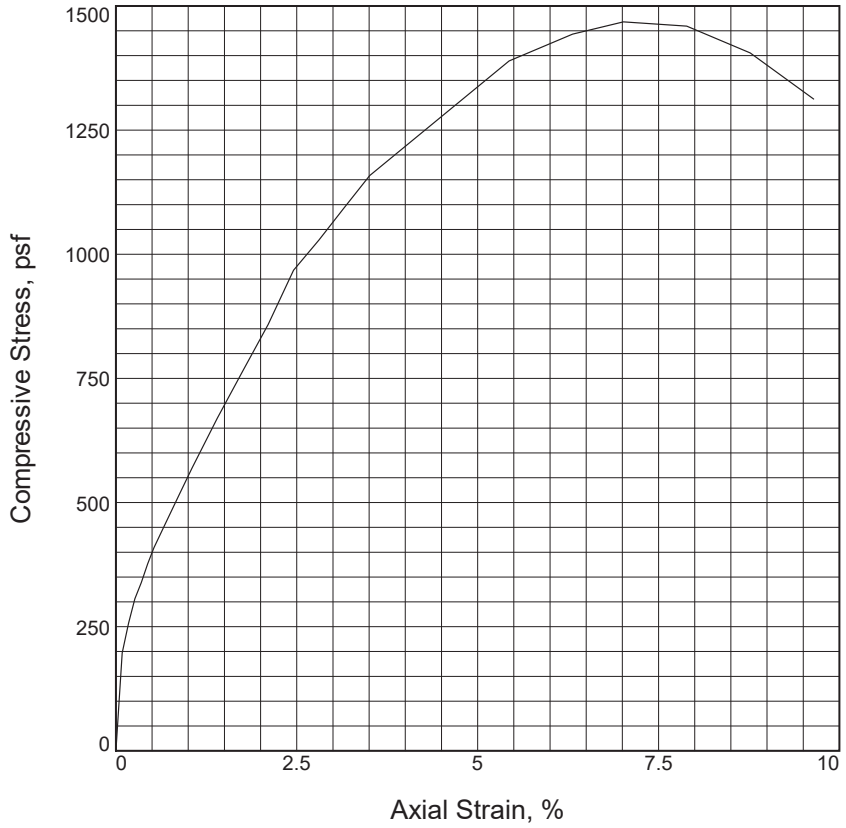
Cranston, RI

Remarks:

Figure L-2

Tested By: RR **Checked By:** MJC

UNCONSOLIDATED UNDRAINED TEST



Sample No.	1			
Fail. Stress, psf	1468			
Ult. Stress, psf				
Cell pressure, psf	1160			
Strain rate, in./min.	0.03			
Water content, %	56.5			
Wet density, pcf	101.3			
Dry density, pcf	64.7			
Saturation, %	97.5			
Void ratio	1.5074			
Specimen diameter, in.	2.88			
Specimen height, in.	5.70			
Height/diameter ratio	1.98			

Description: Very Dark Grey Organic SILT

LL = 61	**PL =** 32	**PI =** 29	**Assumed GS=** 2.6	**Type:** Undisturbed tube sample

Project No.: 03.0034354.00

Date Sampled: 07.14.17

Remarks:
UU Test Depth at 39.6 to 40.1'

Figure U-2

Client: GZA GeoEnvironmental

Project: P&W South Quay Evaluation
East Providence, RI

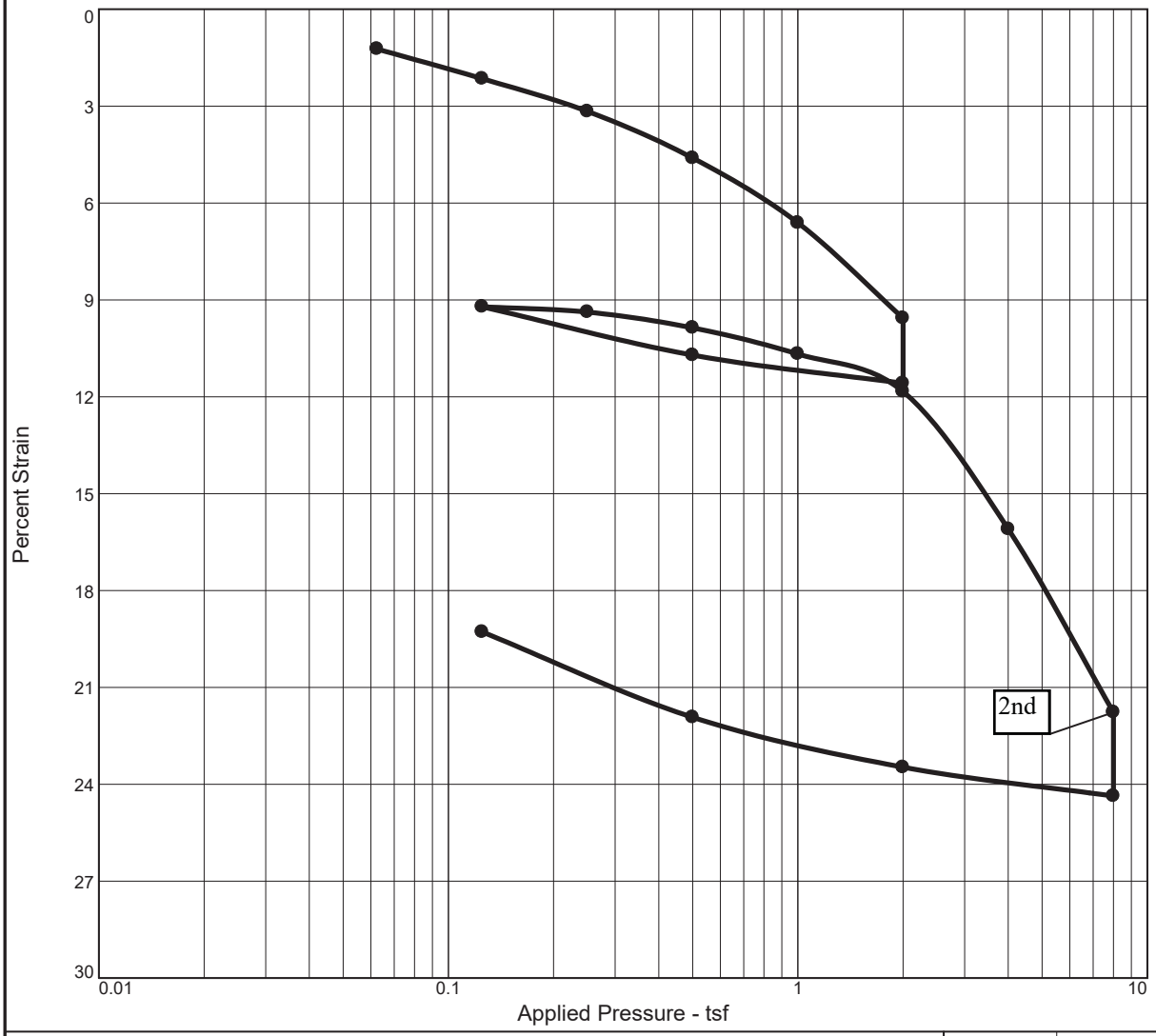
Source of Sample: Shelby Tube Samples **Depth:** 39-41'

Sample Number: GZ-7 / S-9

UNCONSOLIDATED UNDRAINED TEST
Thielsch Engineering Inc.
Cranston, RI

Tested By: RR **Checked By:** MJC

CONSOLIDATION TEST REPORT



MATERIAL DESCRIPTION	USCS	AASHTO
Very Dark Grey Organic SILT		

LL	PI	Sp. Gr.	Overburden (tsf)	Dry Dens. (pcf)		Moisture		Saturation		Void Ratio		P_c (tsf)	CR
				Init.	Final	Init.	Final	Init.	Final	Init.	Final		
61	29	2.6	0	64.9	82.6	56.1 %	42.5 %	102.3 %	100.0 %	1.425	0.957		0.20

Preparation Process: Trimmed using a trimming turntable

Condition of Test: Saturated at 1 tsf

D2435 Method	C_r	Swell Press. (tsf)	
B	0.09		

Project No. 03.0034354.00 **Client:** GZA GeoEnvironmental

Project: P&W South Quay Evaluation
East Providence, RI

Source: Shelby Tube Samples **Depth:** 39-41' **Sample No.:** GZ-7 / S-9

Thielsch Engineering Inc.

Cranston, RI

Remarks:
End of Primary
Consolidation Test Depth @ 39.3-39.4'

Checked By: MJC

Title: Laboratory Manager

Figure C-2-1

Tested By: RR

CONSOLIDATION TEST DATA

8/8/2017

Client: GZA GeoEnvironmental
Project: P&W South Quay Evaluation
East Providence, RI
Project Number: 03.0034354.00
Location: Shelby Tube Samples
Depth: 39-41' **Sample Number:** GZ-7 / S-9
Material Description: Very Dark Grey Organic SILT
Sample Date: 07.14.17 **Liquid Limit:** 61 **Plasticity Index:** 29
Preparation Process: Trimmed using a trimming turntable
Condition of Test: Saturated at 1 tsf
Test Method: B **Final Density:** 82.6 **Figure No.:** C-2-1
Testing Remarks: End of Primary
Consolidation Test Depth @ 39.3-39.4'
Tested By: RR **Checked by:** MJC **Title:** Laboratory Manager

Test Specimen Data

NATURAL MOISTURE		VOID RATIO		AFTER TEST	
Wet w+t =	618.94 g.	Spec. Gr. =	2.6	Wet w+t =	609.58 g.
Dry w+t =	580.24 g.	Est. Ht. Solids =	0.330 in.	Dry w+t =	580.24 g.
Tare Wt. =	511.24 g.	Init. V.R. =	1.425	Tare Wt. =	511.24 g.
Moisture =	56.1 %	Init. Sat. =	102.3 %	Moisture =	42.5 %
UNIT WEIGHT		TEST START		Dry Wt. =	69.00* g.
Height =	0.800 in.	Height =	0.800 in.		
Diameter =	2.500 in.	Diameter =	2.500 in.		
Weight =	104.49 g.				
Dry Dens. =	64.9 pcf				

End-Of-Load Summary

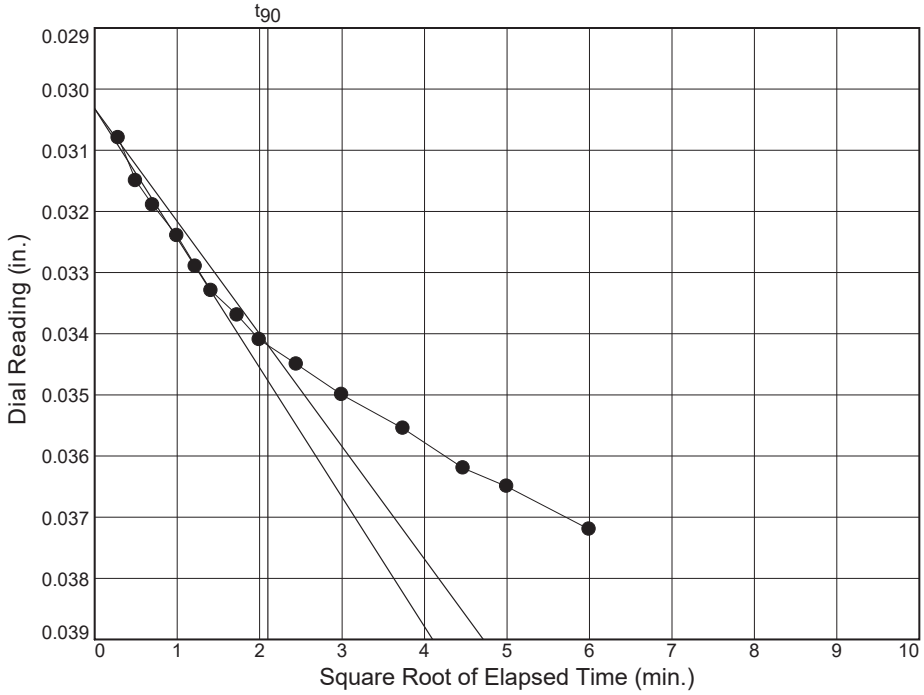
Pressure (tsf)	Final Dial (in.)	Deformation (in.)	C_v (cm.^{2}/sec.)	C_α	Void Ratio	% Strain
start	0.02000	0.00000			1.425	
0.06	0.02985	0.00985			1.395	1.2 Comprs.
0.13	0.03720	0.01720	0.0032		1.373	2.1 Comprs.
0.25	0.04530	0.02530	0.0167		1.348	3.2 Comprs.
0.50	0.05685	0.03685	0.0041		1.313	4.6 Comprs.
1.00	0.07290	0.05290	0.0036		1.265	6.6 Comprs.
2.00	0.11265	0.09265	0.0020	C_α = 0.009	1.144	11.6 Comprs.
0.50	0.10567	0.08567			1.165	10.7 Comprs.
0.13	0.09370	0.07370			1.201	9.2 Comprs.
0.25	0.09502	0.07502	0.0058		1.197	9.4 Comprs.
0.50	0.09892	0.07892	0.0039		1.186	9.9 Comprs.
1.00	0.10540	0.08540	0.0039		1.166	10.7 Comprs.
2.00	0.11470	0.09470	0.0066		1.138	11.8 Comprs.
4.00	0.14875	0.12875	0.0019		1.035	16.1 Comprs.
8.00	0.21490	0.19490	0.0017	C_α = 0.009	0.834	24.4 Comprs.
2.00	0.20775	0.18775			0.856	23.5 Comprs.
0.50	0.19540	0.17540			0.893	21.9 Comprs.

Cae = Ca/(1+e0)
=0.0026

Dial Reading vs. Time

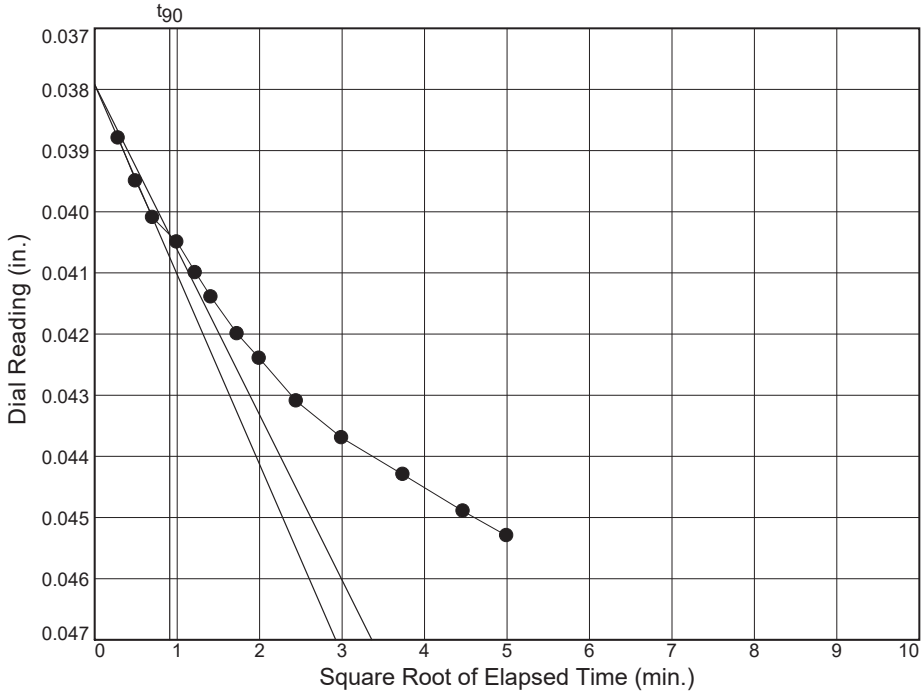
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 2
Load= 0.13 tsf
D_0 = 0.0303
D_{90} = 0.0342
D_{100} = 0.0346
T_{90} = 4.41 min.

C_v @ T_{90}
0.0032 cm.^{2}/sec.



Load No.= 3
Load= 0.25 tsf
D_0 = 0.0379
D_{90} = 0.0404
D_{100} = 0.0407
T_{90} = 0.83 min.

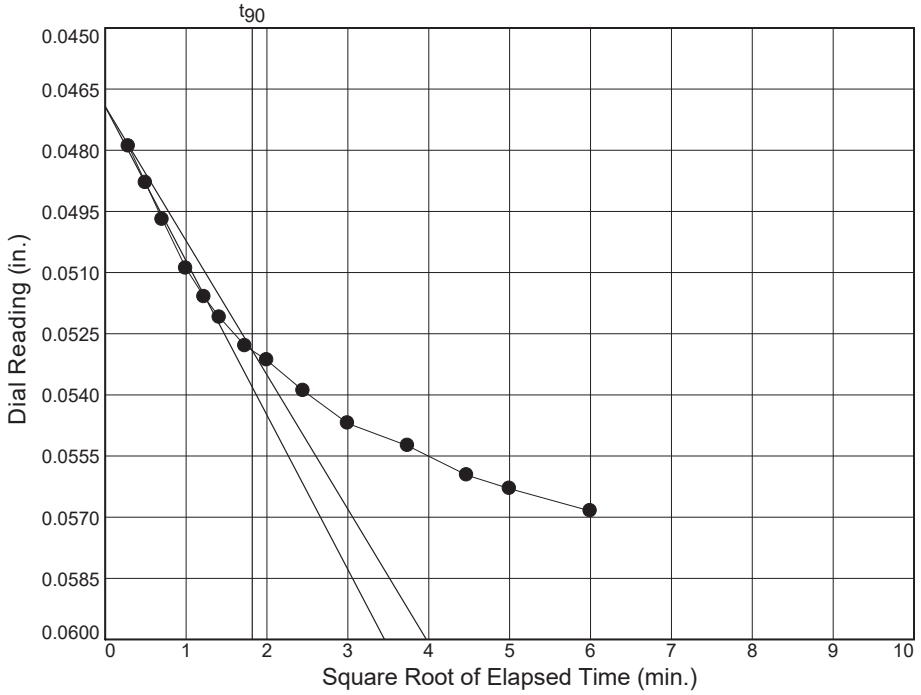
C_v @ T_{90}
0.0167 cm.^{2}/sec.

Figure C-2-2

Dial Reading vs. Time

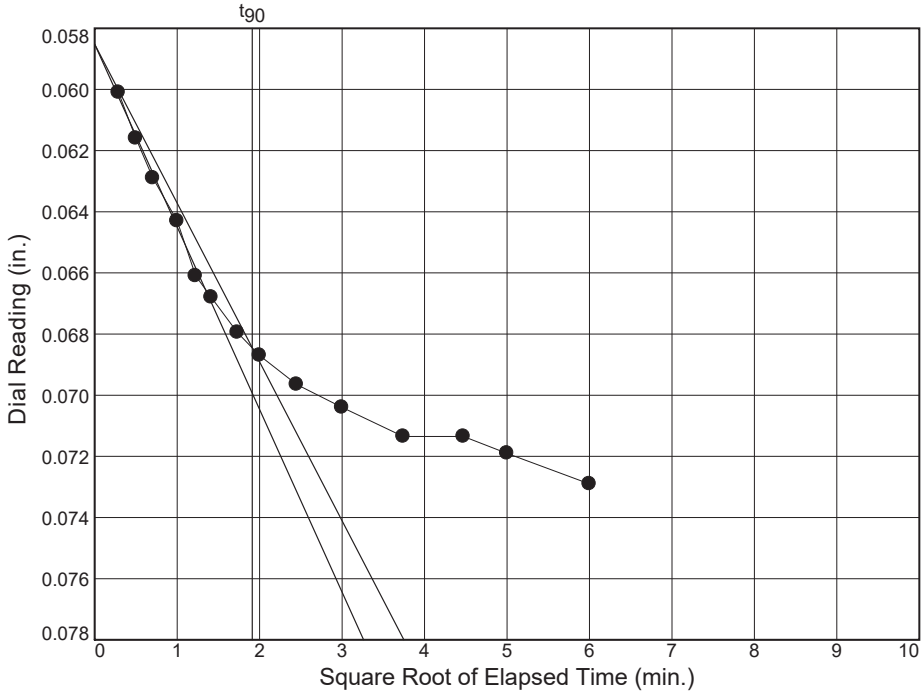
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 4
Load= 0.50 tsf
D_0 = 0.0469
D_{90} = 0.0529
D_{100} = 0.0536
T_{90} = 3.31 min.

C_v @ T_{90}
0.0041 cm.^{2}/sec.



Load No.= 5
Load= 1.00 tsf
D_0 = 0.0585
D_{90} = 0.0685
D_{100} = 0.0696
T_{90} = 3.65 min.

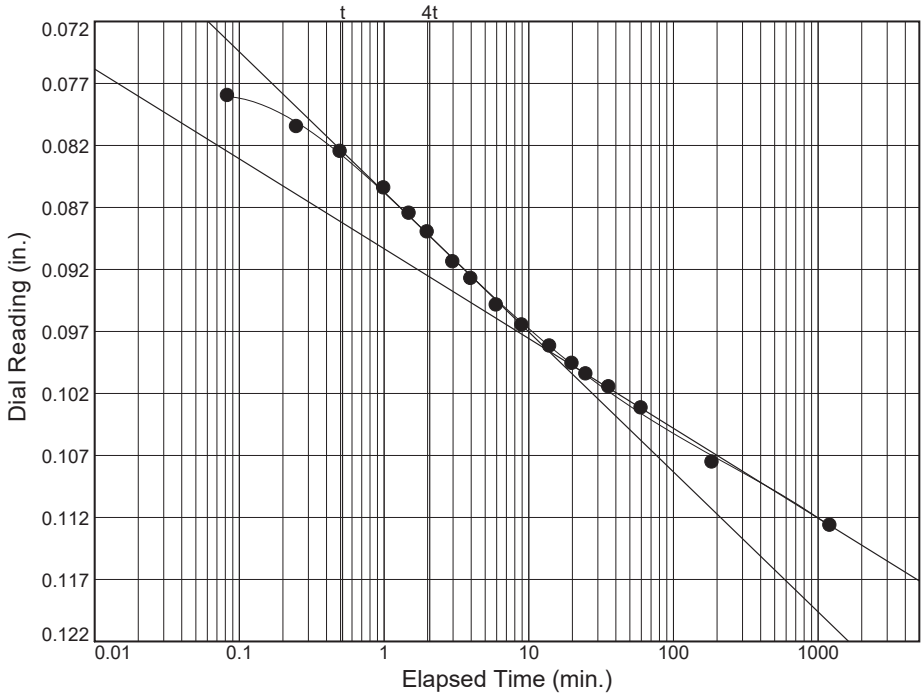
C_v @ T_{90}
0.0036 cm.^{2}/sec.

Figure C-2-3

Dial Reading vs. Time

Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

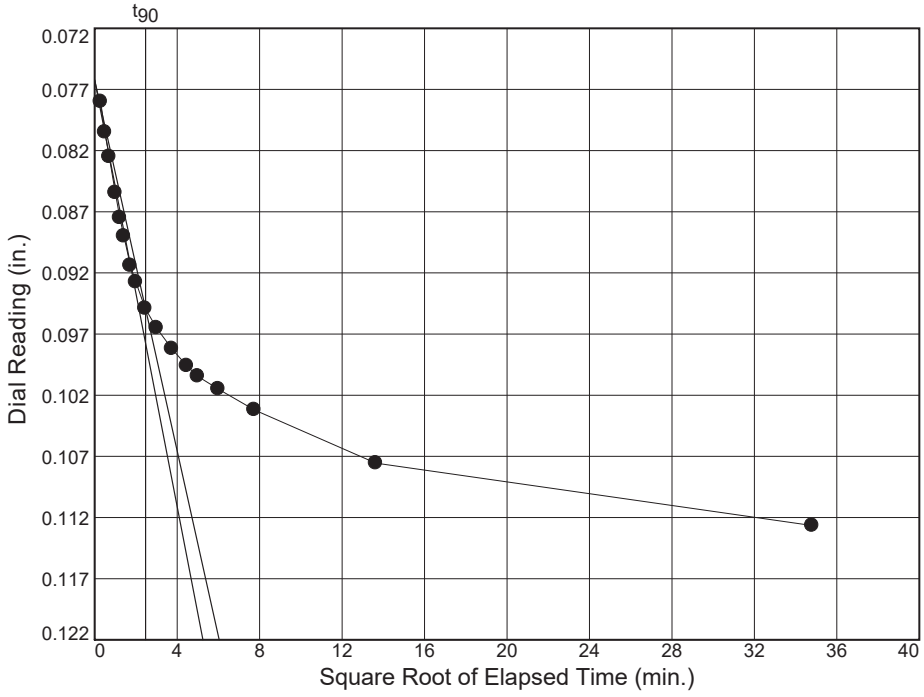
Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 6
Load= 2.00 tsf
D_0 = 0.0764
D_{50} = 0.0874
D_{100} = 0.0985
T_{50} = 1.41 min.

C_v @ T_{50}
0.0020 cm.^{2}/sec.

C_α = 0.009



Load No.= 6
Load= 2.00 tsf
D_0 = 0.0762
D_{90} = 0.0950
D_{100} = 0.0970
T_{90} = 6.11 min.

C_v @ T_{90}
0.0020 cm.^{2}/sec.

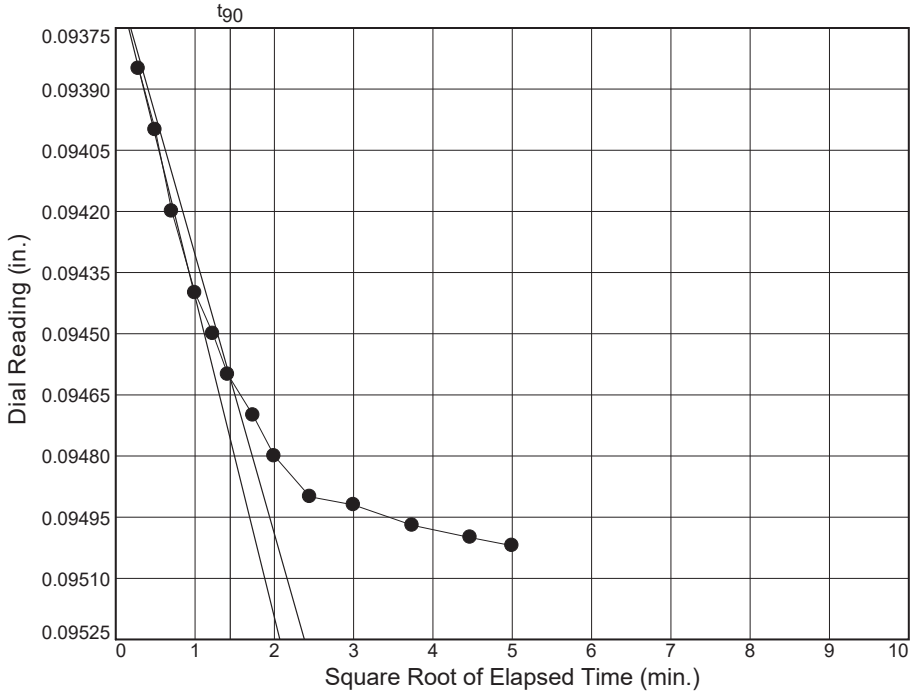
Figure C-2-4

Thielsch Engineering Inc.

Dial Reading vs. Time

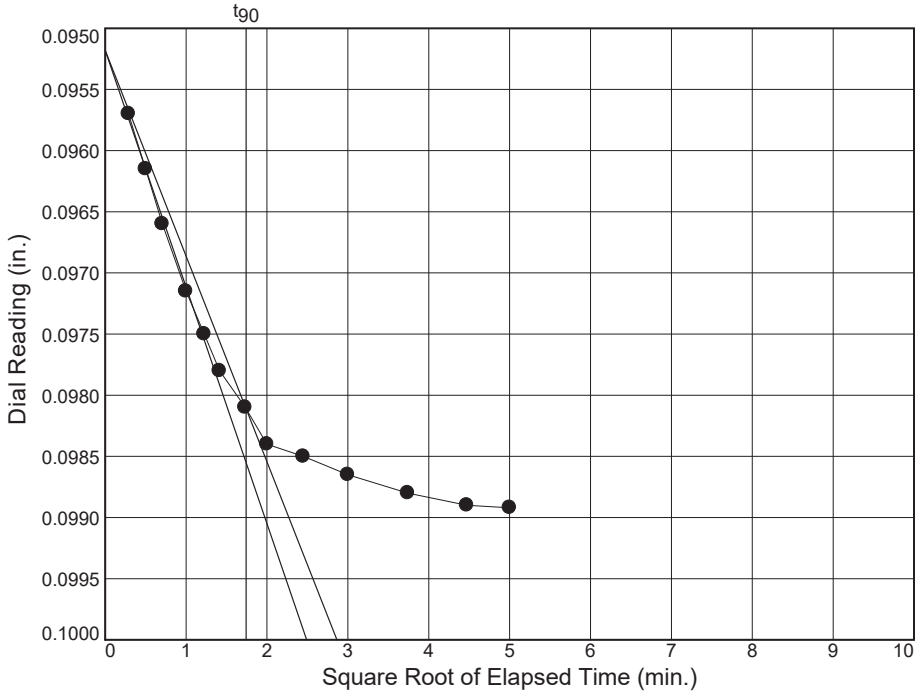
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 9
Load= 0.25 tsf
D_0 = 0.0936
D_{90} = 0.0946
D_{100} = 0.0947
T_{90} = 2.08 min.

C_v @ T_{90}
0.0058 cm.^{2}/sec.



Load No.= 10
Load= 0.50 tsf
D_0 = 0.0952
D_{90} = 0.0981
D_{100} = 0.0984
T_{90} = 3.04 min.

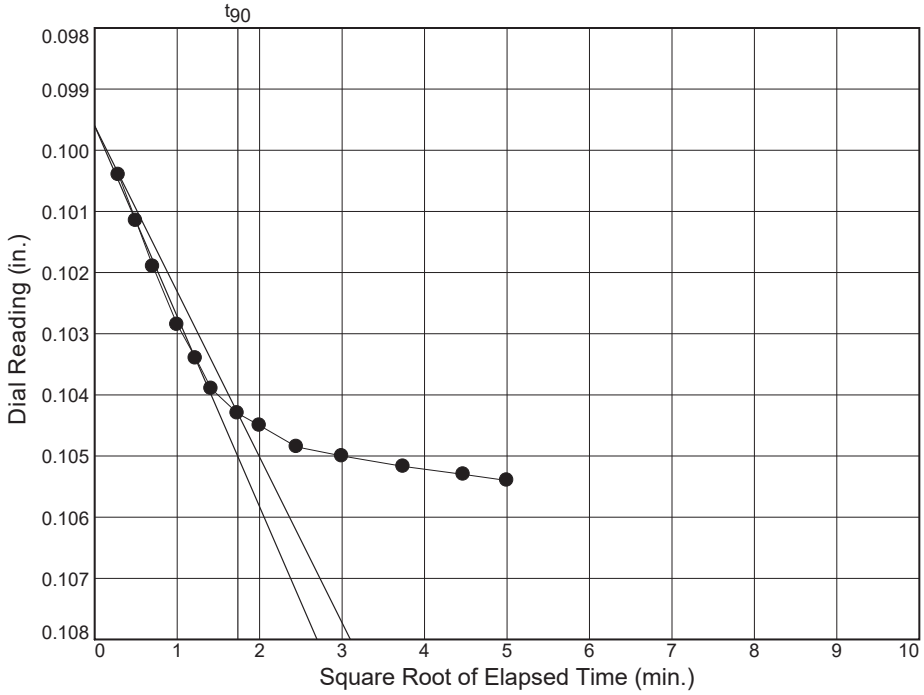
C_v @ T_{90}
0.0039 cm.^{2}/sec.

Figure C-2-5

Dial Reading vs. Time

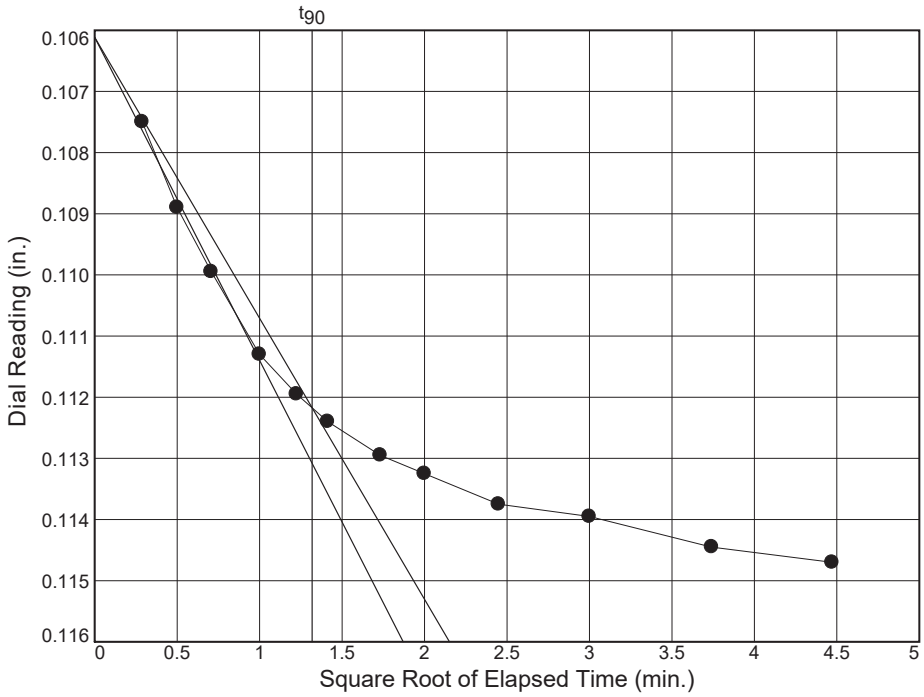
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 11
Load= 1.00 tsf
D_0 = 0.0996
D_{90} = 0.1043
D_{100} = 0.1048
T_{90} = 3.01 min.

C_v @ T_{90}
0.0039 cm.2/sec.



Load No.= 12
Load= 2.00 tsf
D_0 = 0.1061
D_{90} = 0.1122
D_{100} = 0.1128
T_{90} = 1.74 min.

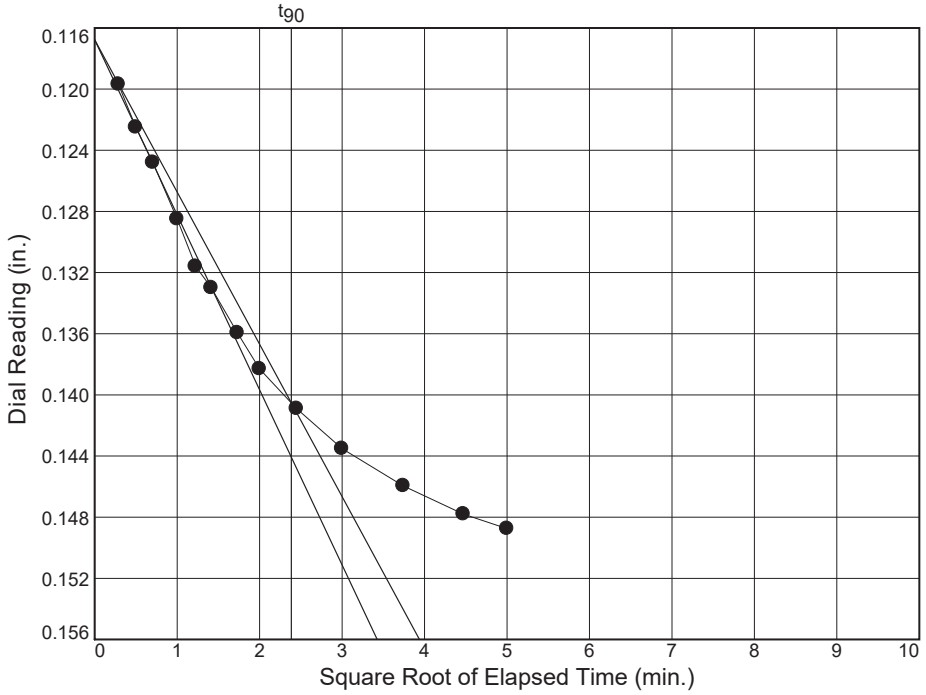
C_v @ T_{90}
0.0066 cm.2/sec.

Figure C-2-6

Dial Reading vs. Time

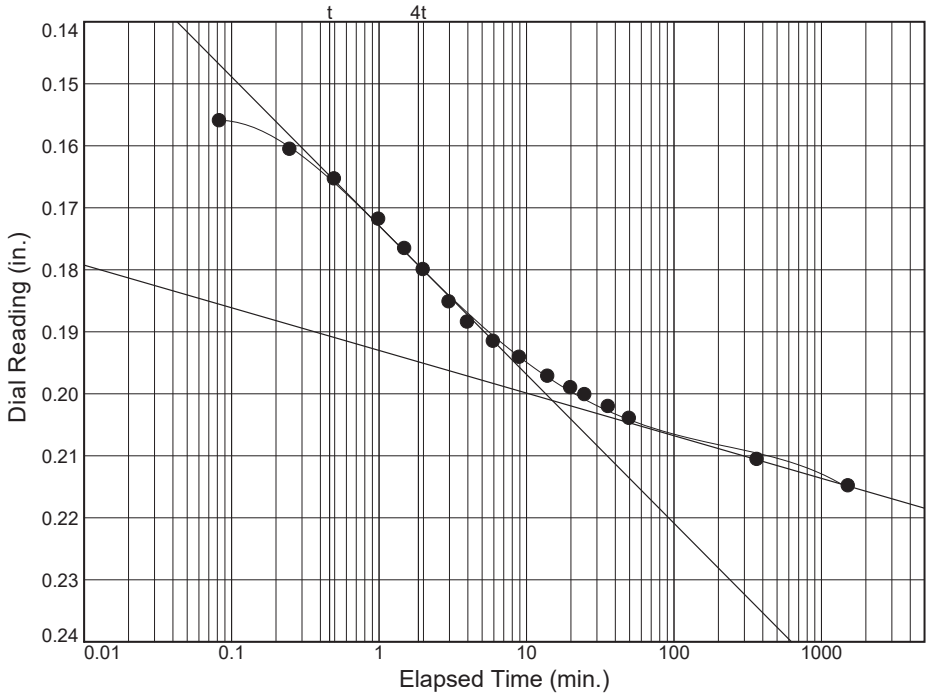
Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 13
Load= 4.00 tsf
D_0 = 0.1168
D_{90} = 0.1405
D_{100} = 0.1432
T_{90} = 5.69 min.

C_v @ T_{90}
0.0019 cm.^{2}/sec.



Load No.= 14
Load= 8.00 tsf
D_0 = 0.1513
D_{50} = 0.1762
D_{100} = 0.2011
T_{50} = 1.37 min.

C_v @ T_{50}
0.0016 cm.^{2}/sec.

C_α = 0.009

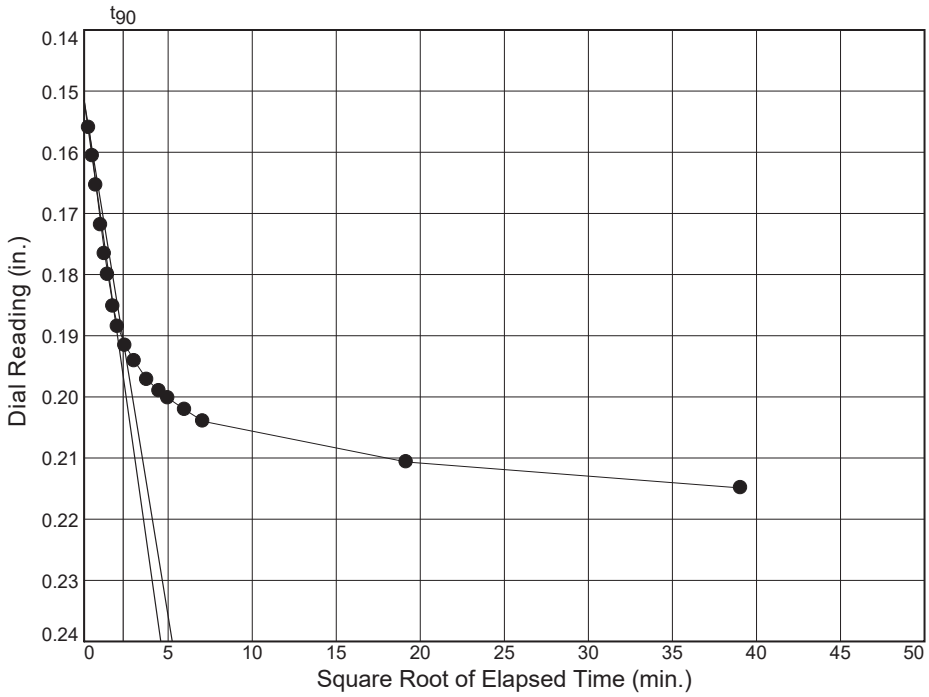
Figure C-2-7

Thielsch Engineering Inc.

Dial Reading vs. Time

Project No.: 03.0034354.00
Project: P&W South Quay Evaluation

Source of Sample: Shelby Tube Samples Depth: 39-41' Sample Number: GZ-7 / S-9



Load No.= 14
Load= 8.00 tsf
D_0 = 0.1515
D_{90} = 0.1907
D_{100} = 0.1951
T_{90} = 5.40 min.

C_v @ T_{90}
0.0017 $cm.^2/sec.$

Figure C-2-8

APPENDIX E

HISTORIC LABORATORY DATA

LABORATORY TESTING DATA SHEET

Project Name: SOUTH QUAY
EAST PROVIDENCE, RI.
Project No.: L14991 Assigned By: B. FAIRBANKS Reviewed By:
Project Engineer: D. SCHULZE Date: SEPT. 97 Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth Ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
B97-2	U-2	18-20	2	Average Total Unit Weight (18.0-20.0') = 94.5 Pcf																
		18.4		67.3										Tv= 0.15 tsf						
		18.8		62.9										Tv=0.20 tsf						Grey Organic SILT of high plasticity, little fine Sand
		18.9-19.1		59.2	66	35														
		19.1-19.2		61.0							63.5								0.17	
		19.3		53.3										Tv= 0.20 tsf						
		19.3-19.7		Save																
		19.8		67.2										Tv= 0.20 tsf						

Job Number L14991
Project Name ..... SOUTH QUAY
Test Number C2.1
Sample Description .. Grey Organic SILT
Boring Number B97-2
Sample Number U-2
Depth 19.1-19.2

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.5490E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 7.5200E-01
Initial Water Content .... 6.1000E+01
Final Water Content ..... 3.8200E+01
Liquid Limit ..... 6.6000E+01
Plastic Limit ..... 3.5000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (Cm²/sec)	Ck
1	0.000	0.0	0.00	1.573			
2	0.125	141.0	1.76	1.528			
3	0.250	320.0	4.00	1.470	2.9	47.45	0.006
4	0.500	587.0	7.34	1.384	5.8	22.38	
5	1.000	976.0	12.20	1.259	4.8	24.75	
6	2.000	1395.0	17.44	1.125	4.8	22.05	
7	4.000	1819.0	22.74	0.988	4.0	23.29	
8	8.000	2232.0	27.90	0.855	2.3	35.38	
9	2.000	2160.0	27.00	0.879			
10	0.500	2042.0	25.52	0.916			
11	0.125	1878.0	23.47	0.969			

LABORATORY TESTING DATA SHEET

Project Name: SOUTH QUAY
EAST PROVIDENCE, RI.
Project No.: L14991 Assigned By: B. FAIRBANKS Reviewed By:
Project Engineer: D. SCHULZE Date: SEPT. 97 Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth Ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_o}$	Laboratory Log and Soil Description
B97-3	U-4	28-30	4	Average Total Unit Weight (28.0-30.0') = 102.9 Pcf																
		28.1-28.6		58.1							65.9			CIU	864	σ1/σ3 MAX	1060	9.6		Grey Organic SILT of high plasticity, trace Shells
		28.6		59.9										Tv= 0.25 tsf						
		28.6-29.1		58.4							66.5			CIU	1440	σ1/σ3 MAX	1494	10.5		
		29.1-29.2		61.8	65	34					63.1								0.19	
		29.3		57.3										Tv=0.20 tsf						
		29.3-29.8		53.1							69.3			CIU	2016	σ1/σ3 MAX	1979	9.3		

Job Number L14991
Project Name ..... SOUTH QUAY
Test Number C4.1
Sample Description .. Grey Organic SILT
Boring Number B97-3
Sample Number U-4
Depth ..... 29.1-29.2'

Technician ..... MST
Reviewer ..... DAS

NOTES: .

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.5000E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 5.8900E-01
Initial Water Content .... 6.1800E+01
Final Water Content ..... 3.6200E+01
Liquid Limit ..... 6.5000E+01
Plastic Limit ..... 3.4000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)
1	0.000	0.0	0.00	1.593		(Coarse)
2	0.125	96.0	1.20	1.562		
3	0.250	215.0	2.69	1.523	4.0	35.07
4	0.500	382.0	4.77	1.469	4.0	33.80
5	1.000	669.0	8.36	1.376	4.0	31.84
6	2.000	1081.0	13.51	1.242	6.0	19.29
7	0.500	1008.0	12.60	1.266		.0030
8	0.250	958.0	11.97	1.282		
9	0.500	979.0	12.24	1.275	2.0	56.35
10	1.000	1027.0	12.84	1.260	1.4	79.72
11	2.000	1142.0	14.27	1.223	1.7	64.13
12	4.000	1539.0	19.24	1.094	3.6	28.08
13	8.000	2000.0	25.00	0.945	2.6	34.03
14	16.000	2454.0	30.67	0.797	2.3	33.03
15	4.000	2380.0	29.75	0.821		0.0049
16	1.000	2272.0	28.40	0.856		
17	0.250	2113.0	26.41	0.908		

LABORATORY TESTING DATA SHEET

Project Name: NEW WASHINGTON STREET BRIDGE
PROVIDENCE RI.
Project No.: 31531.07
Project Engineer: W.LADD
Assigned By: W. LADD
Date: FEB.02
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
B01-W1	U-3	34-36	18	Average Total Unit Weight (34.0-36.0') = 105.4 Pcf																
		36.4		59.7										Tv= 0.38 tsf						Grey Organic SILT, trace Shell, trace fine Sand
		36.4-36.9		Save																
		36.9		54.3										Tv= 0.45 tsf						
		36.9-37.4		Save																
		37.4		56.3										Tv= 0.46 tsf						
		37.5-37.6		62.1							62.8								0.25	

GZA GeoEnvironmental, Inc.
Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

Job Number 31531.07
Project Name ..... NEW WASHINGTON STREET BRIDGE
Test Number C18.1
Sample Description .. Grey Organic SILT
Boring Number B01-W1
Sample Number U-3
Depth ..... 37.5-37.6'

Technician ..... MST
Reviewer ..... DAS

NOTES:

Specific Gravity ..... 2.6200E+00
Sample Dry Weight ..... 6.4780E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.0900E-01
Initial Water Content .... 6.2100E+01
Final Water Content ..... 4.1200E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) (cm^2/sec)	Cα
1	0.000	0.0	0.00	1.602			
2	0.125	33.0	0.41	1.591			
3	0.250	83.0	1.04	1.575	2.6	55.30	
4	0.500	171.0	2.14	1.546	2.9	48.72	
5	1.000	325.0	4.06	1.496	2.6	52.69	
6	2.000	708.0	8.85	1.371	5.8	22.01	
7	4.000	1140.0	14.25	1.231	6.3	18.12	
8	1.000	1043.0	13.04	1.262			
9	0.500	975.0	12.19	1.284			
10	1.000	1013.0	12.66	1.272	1.2	93.24	
11	2.000	1092.0	13.65	1.246	1.4	78.59	
12	4.000	1277.0	15.96	1.186	2.6	40.73	
13	8.000	1786.0	22.32	1.021	4.8	19.87	
14	16.000	2335.0	29.19	0.842	4.0	20.10	0.010
15	4.000	2245.0	28.06	0.871			
16	1.000	2096.0	26.20	0.920			
17	0.250	1910.0	23.87	0.980			

LABORATORY TEST DATA SUMMARY – ORGANIC SOILS

PROJ.	BORING	SAMP	DEPTH (FT)	TOT UNIT (PCF)	DRY UNIT (PCF)	EFF. STR. (PSF)	AVG. Wn	LL	PL	PI	STRENGTH DATA (PSF) TOR– VANES	U Qu	UU deviat. stress	Pc	p'	CIU q	u	A	CONSOLIDATION DATA MPP (PSF)	OCR	Cr/ 1+eo	Cc/ 1+eo	Cv sq.cm/ sec	Secondary Ca
13647	HB 230	UF 1	30	124.6	91	2434	33	25	23	2	633			1195	2991	1751	−45	0	4000	1.6	0.015	0.16	0.0075	
13647	HB 240	UF 1	35.5											4997	3566	2113	3544	0.84						
13647	HB 240	UF 1	35	110.8	74.6	2771	45	54	34	20	700	1886		2506	2683	1784	1606	0.45						
13647	HB 245	UF 2	40	108.1	68.1	2680	54	59	31	28	925													
13647	HB 245	UF 1	13	73.2	64.4	1245	66	48	31	17		1673							1520	1.2	0.020	0.17	0.001	
13647	HB 250	UF 1	30	115.0	73.7	2196	43	50	28	22	867	1140												
13647	SB 370A	UP 2	4	108.5		160	50	52	28	24	400													
13647	SB 380	US 3	5	101.8	69.95	200	51	49	31	18	300	312							526	2.6	0.020	0.16	0.003	
13647	SB 380	US 2	3	105.5	73.8	120	48	48	25	23	340	270												
13647	SB 380	US 1	1	102.2		40	70	24	23	1	350													
13647	SB 395	US 2	6	108.0	86.2	240	40	40	27	13	667			720	1331	836	225	0.13						
13647	SB 400	US 1	2	102.4		80	117																	
13647	SB 405	US 3	5	103.2	59.6	200	62	67	37	30	360								710	3.5	0.020	0.20	0.003	
13647	SB 405	US 2	3	114.6		120	39	39	27	12	475													
13647	SB 405	US 1	1	118.7		40	29	41	28	13	270													
13637	IPR–P29	T–1	25	113.1	78.2	1718	41.	47	31	16	760	1570												
13637	IPR–P29	T–2	30	118.3	92.3	1848	27.	20	18	2	700	709												
13637	PRB–P13	UP–6	53	113.6	73	2151	35.	26	22	4	700	959	2064	2203									.0062	
13637	PRB–P13	UP–1	23	101	65.5	1371	57.	59	34	25	775	1296	1158	1397									.0062	
13637	PRB–P13	UP–2	28	104.2	70	1501	53	54	31	23	625	1216	1336	1498					1960	1.3	0.015	0.19	N 0.00062	N 0.01
13637	PRB–P13	UP–4	44	103.6	66	1891	54	60	37	23	600								2244	1.2	0.02	0.2	N 0.00062	0.008
13637	PRB–P13	UP–3	39	98.7	61	1761	60	68	37	31	600								2761	1.6	0.03	0.25	N 0.00063	N.008
13637	PRB–P13	UP–5	48	92	56.4	2021	63.	83	54	29	767												.0063	
13637	PRB–P14	UP–3	10.5	97.4	59.85	286	67	71	39	32	353			403	626	369.5	147.4	0.19					N .008	
13637	PRB–P14	UP–4	20	95.1	57.4	520	69	71	43	28	460		1098	504					2600	5	0.025	0.23	0.00124	V0.001
13637	PRB–P14	UP–3	11.3	97.4	59.85	286	67	71	39	32	353			806	775	450	481.9	0.53						
13637	PRB–P14	UP–1	3	79.6	32.2	78	125	112	51	61	40								110	1.4	0.04	0.22	N 0.001	N0.015
13637	PRB–P14	UP–2	7	87.9	63.9	182	62	67	33	34	196			202	372	260	89	0.17						
13637	PRB–P15	UP–1	12	104.1	72.5	312	48.	54	36	18	600		1014	346										
13637	PRB–P16	UP–1	3	73		27	207	120	66	54	60													
13637	PRB–P16	UP–2	7	98.4	58	152	67	51	29	22	150	134	337	202										
13637	PRB–P18	UP–2	29.8	105.4	71.3	1573	49.	53	29	24	653			1584	1617	1018	985.9	0.48					N 0.0053	
13637	PRB–P18	UP–5	45	116.2	87.6	1963	38	45	28	17	680								4600	2.3	0.016	0.14	0.00053	
13637	PRB–P18	UP–2	30.2	105.4	71.3	1573	49.	53	29	24	653			3197	2397	1480.	2282.9	0.77					.0055	
13637	PRB–P18	UP–4	40	105	69.9	1833	51	65	34	31	800		2103	2002					3000	1.6	0.024	0.2	N 0.00055	N 0.009
13637	PRB–P18	UP–3	35	100	62.65	1703	57	71	35	36	860			5501	3239.	2088.	4350.7	1.04	3200	1.9	0.06	0.24	0.00044	0.013
13637	PRB–P18	UP–1	27	106.9	73.85	1495	46	52	28	24	767		1794	1512					2800	1.9	0.015	0.17	N 0.0005	N 0.007
13637	WSS–P11	T–5	33	92.5	66.7	1730	55	65	35	30	600	985											.005	
13637	WSS–P11	T–6	38	103.5	67	1860	55	61	32	29	600	1003												
13637	WSS–P11	T–7	43	107.9	66.7	1990	55	57	33	24	566	1085											.0055	
13637	WSS–P11	T–4	28	104.7	67.9	1600	53.	61	35	26	600	1234	893	1598					2800	1.6	0.02	0.2	0.00065	
13637	WSS–P12	UP–3	33	103	65	1690	56	57	31	26	673	1168							2600	1.5	0.02	0.22	N 0.00045	N 0.01
13637	WSS–P12	UP–5	43	103.8	66.8	1950	55.	62	34	28	700												.0045	
13637	WSS–P12	UP–2	28	102.1	66	1560	55	55	35	20	650	1400	1888	1598					2500	1.6	0.02	0.21	0.00057	0.01
13637	WSS–P12	UP–1	23	102	63.9	1430	58.	70	40	30	833	1506											.0054	
13637	WSS–P12	UP–6	48	111.2	57.7	2080	56	86	50	36	880	2074												
13637	WSS–P12	UP–4	38	102.3	67.1	1794	55.	62	33	29	713	1122												
3952	C2–21	U–6	19.8	103.1	66.9	1486	54	71	36	35	850			1500	1580	992	940	0.46						
3952	C2–21	U–6	20.5	103.1	66.9	1486	54	71	36	35	850			2995	2089	1270	2150	0.85						
3952	C2–21	U–6	19.4	103.1	66.9	1486	54	71	36	35	850			750	1229	839	350	0.2						
3952	C2–22	U–2	22	104	57.8	1735	61	97	52	45	1075	2370		2560					3800	2.2	0.032	0.28	0.005	0.015
3952	C2–12A	UP–1	24	105	71	1921	50	66	45	21		TEST DATA AVAILABLE – SEE GEI REPT.							3500	1.8	0.05	0.37	0.007	0.02
NEC100S	PS9U	8U	25			2420	62	89	63	26									5400	2.2	0.036	0.26		

NOTES: 1. PROJECT REFERENCES:

13647 – WATERFRONT DRIVE, E. PROVIDENCE, 1995
13637 – I–195 REPLACEMENT, PROVIDENCE, 1996
3952 – CAPITOL CENTER PROJECT, PROVIDENCE, 1983
NEC100S – NORTHEAST CORRIDOR RAILROAD IMPROVEMENTS, 1978

Cv = .013 OCR = 2
Cα = .0007 OCR = 2

Cα = .0075 NC
Cα = .00056 OCR = 2
Cv = .017 OCR = 2

Cα = .0007 OCR = 4
Cv = .018 OCR = 2

Cv = .0024 OCR = 2
Cα = .0014 OCR = 2

Cv = .0078 OCR = 2
Cα = .0007 OCR = 2
Cv = .0044 OCR = 1

Cv = .0078 OCR = 1
Cα = .001 OCR = 1

Cv = .013 OCR = 2-4
Cα = .0002 OCR = 4

Cv = .010 OCR = 2
Cα = .007 OCR = 2

most Cv taken at first load after pass MPP

~~NC~~ N = N.C.

APPENDIX F

AERIAL PHOTOGRAPH TIMELINE

INQUIRY #: 4694964.9

YEAR: 2012

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 2010

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 2008

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 2006

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 2005

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1995

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1992

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1985

= 500'

N

EDR

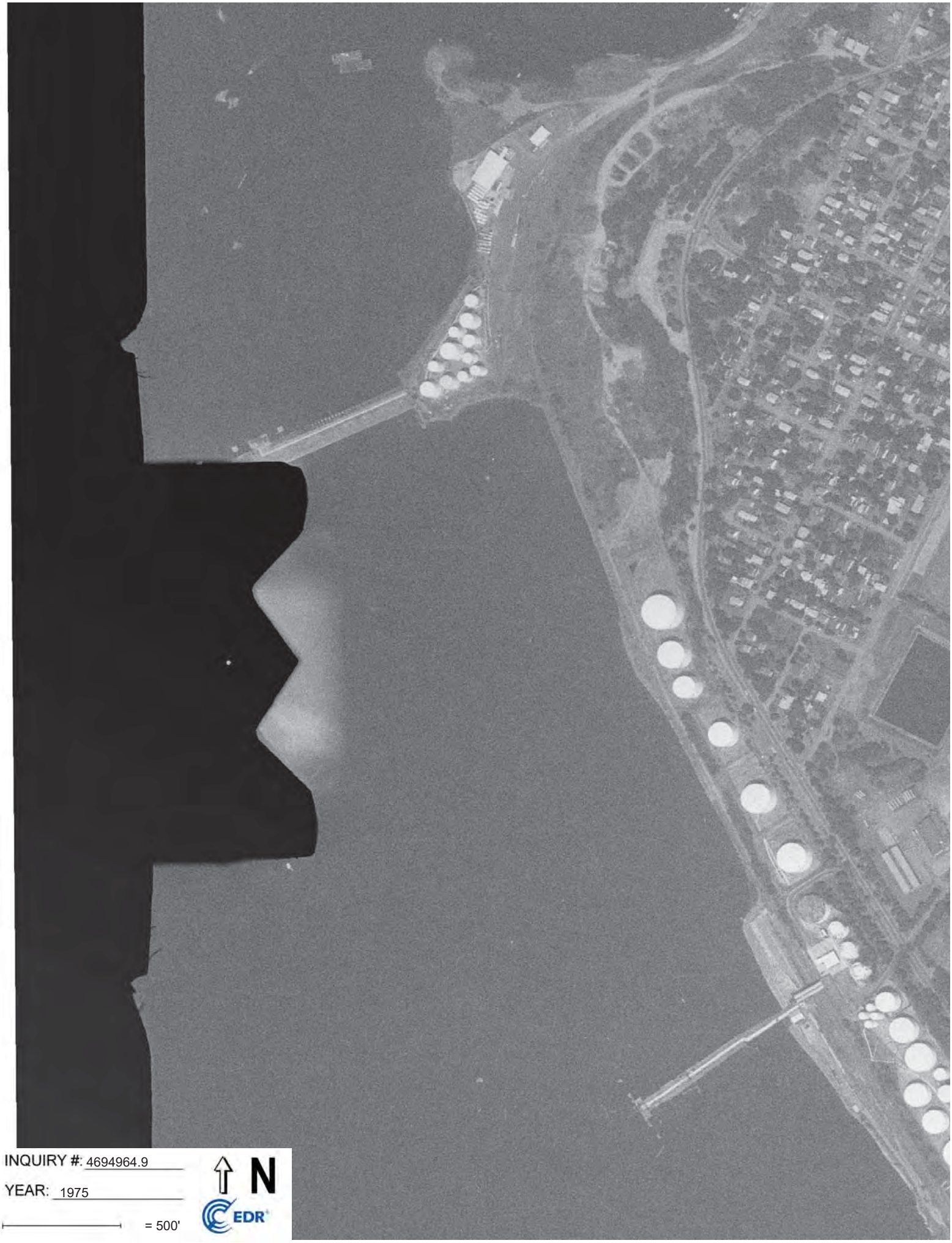
INQUIRY #: 4694964.9

YEAR: 1981

= 500'

N

EDR



INQUIRY #: 4694964.9

YEAR: 1975

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1970

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1962

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1955

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1951

= 500'

N

EDR

INQUIRY #: 4694964.9

YEAR: 1939

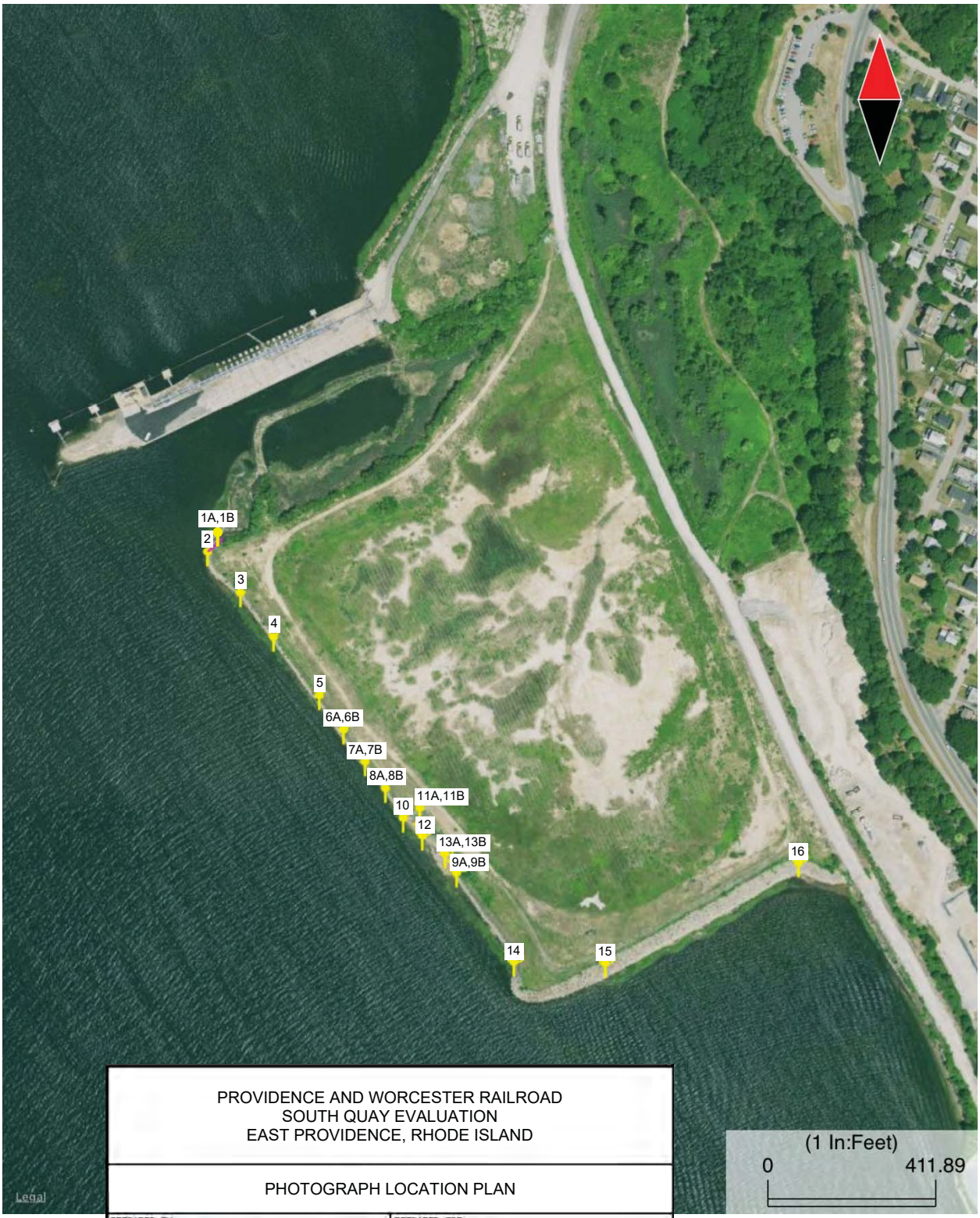
= 500'

N

EDR

APPENDIX G

REVETMENT PHOTOGRAPHS



PROVIDENCE AND WORCESTER RAILROAD
SOUTH QUAY EVALUATION
EAST PROVIDENCE, RHODE ISLAND

PHOTOGRAPH LOCATION PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists 530 BROADWAY PROVIDENCE, RHODE ISLAND 02909 (401) 421-4140			PREPARED FOR: GENESEE & WYOMING, INC.	
PROJ MGR: WLL	REVIEWED BY: MAH		CHECKED BY: WLL	FIGURE --
FIELD ENGINEER: MAH	DRAWN BY: MAH		SCALE: AS SHOWN	
DATE JULY 2017	PROJECT NO. 34354.00		REPORT NO. --	

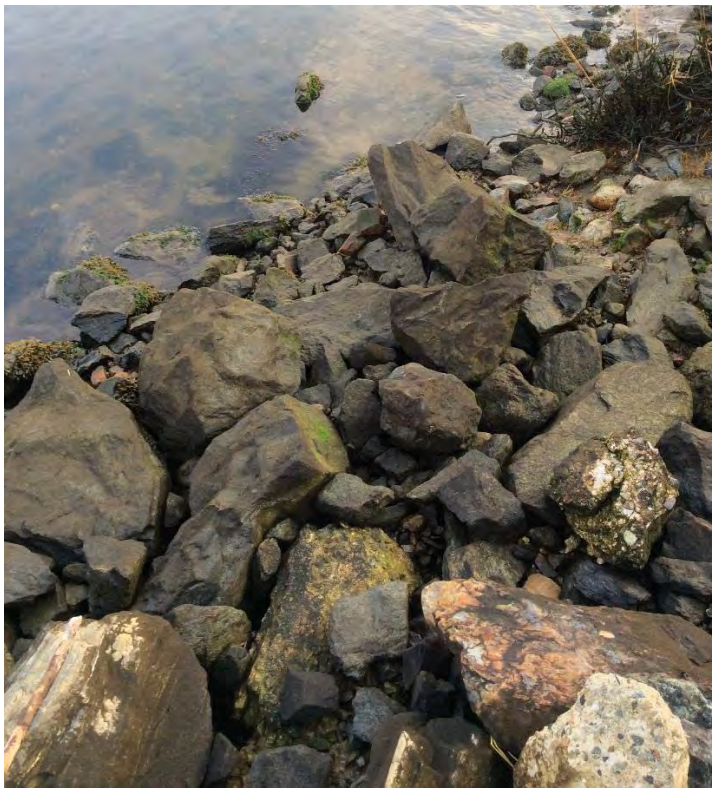


Photo 1A: East face riprap (looking north).

Photo 1B: East face concrete curbs (looking east).

Photo 2: East face (looking southeast).

Photo 3: East face (looking southeast).

Photo 4: East face, beginning of concrete slabs (looking southeast).

Photo 5: East face (looking southeast).

Photo 6A: East face, exposed upper section (looking east).

Photo 6B: East face (looking northwest).

Photo 7A: East face (looking east).

Photo 7B: East face (looking southeast).

Photo 8: East face (looking northwest).

Photo 9A: East face (looking southeast).

Photo 9B: East face (looking east-southeast).

Photo 10: Swale (looking southeast).

Photo 11A: Swale (looking east).

Photo 11B: Swale (looking south).

Photo 12: Swale (looking southeast).

Photo 13A: Swale (looking east-southeast).

Photo 13B: Swale (looking southeast).

Photo 14: South face (looking south).

Photo 15: South face (looking east).

Photo 16: South face (looking east).

GZA GeoEnvironmental, Inc.

APPENDIX F

SOIL BORING/MONITORING WELL LOG: SE-101(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 2'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	100	ND	Dark brown to grey SAND with small gravel transitioning to brown SAND with larger gravel to grey-blue SAND with little to no gravel.				Filter Pack
1								Bentonite
2								
3								
4								
5	5-10	100	ND	Grey to blue SAND with little to no gravel transitioning to silty, black, river dredgings with a high organic content at 13' bgs.				Filter Pack
6								
7								
8								
9								
10	10-15	100	ND	Silty clay river dredging material.				
11								
12								
13								
14								
15								

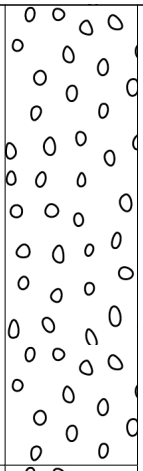
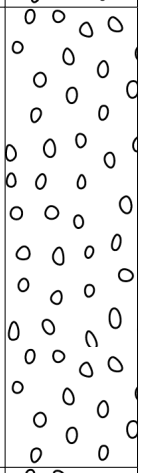
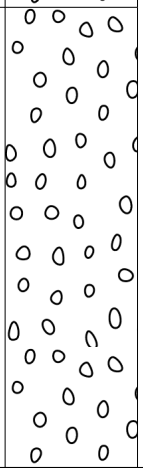
COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-102

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	70	ND	Brown, fine SAND with small angular gravel transitioning to tan to orange, fine SAND with small gravel, rock and cobbles at 1' bgs.			No Well	No Well
5	5-10	80	ND	Tan to orange, fine SAND with small gravel transitioning to grey to brown SAND with some gravel at 9' bgs.				
10	10-15	100	ND	Grey to brown SAND with gravel transitioning to silty clay river dredging material at 12' bgs.				
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

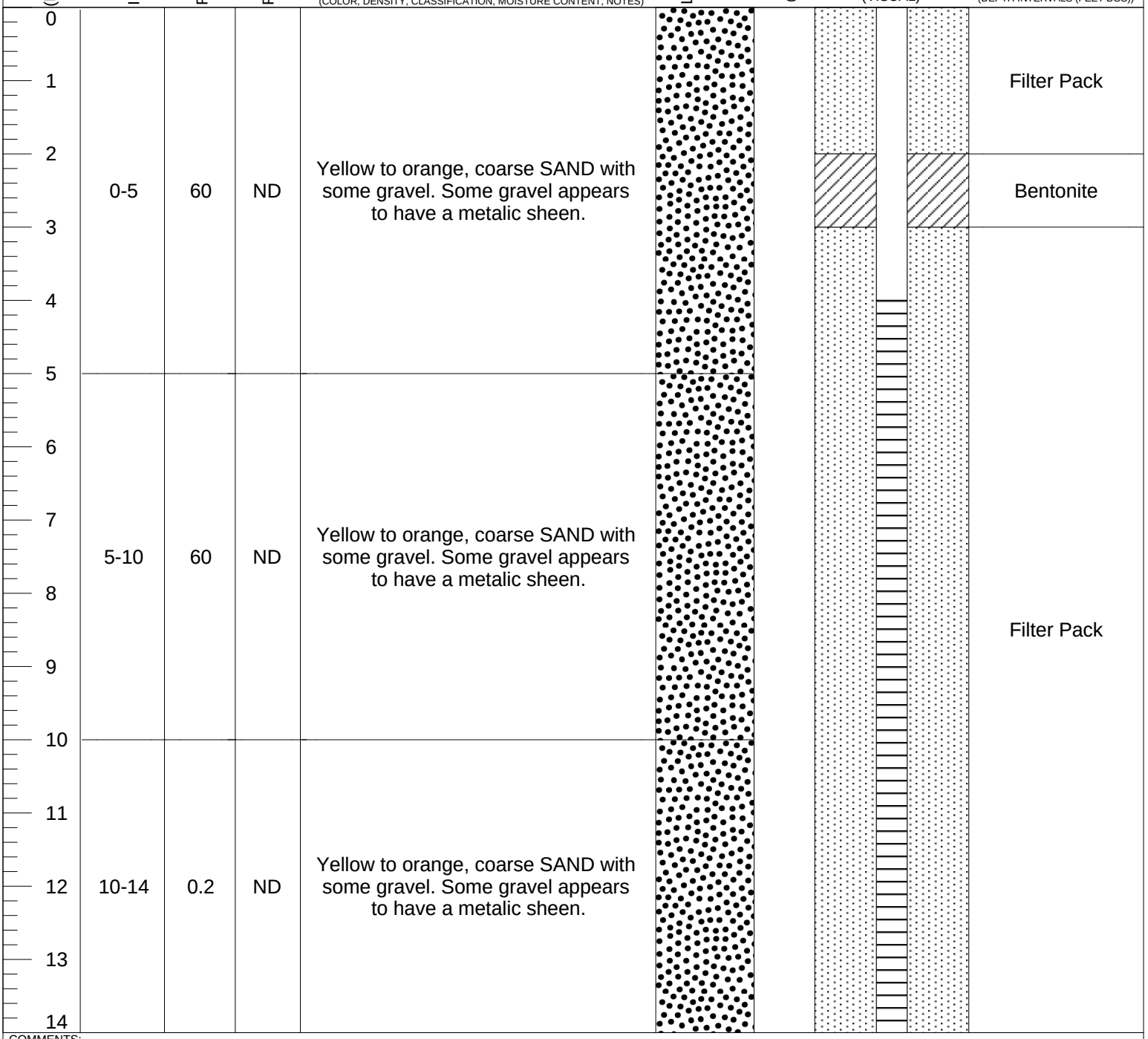
SOIL BORING/MONITORING WELL LOG: SE-103(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 14'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 4'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	60	ND	Yellow to orange, coarse SAND with some gravel. Some gravel appears to have a metalic sheen.				Filter Pack
5	5-10	60	ND	Yellow to orange, coarse SAND with some gravel. Some gravel appears to have a metalic sheen.				Bentonite
10	10-14	0.2	ND	Yellow to orange, coarse SAND with some gravel. Some gravel appears to have a metalic sheen.				Filter Pack
14								



COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-104

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 20'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	100	ND	Yellow, fine SAND with small amounts of angular gravel.			No Well	No Well
5	5-10	100	ND	Yellow, fine SAND with small amounts of angular gravel.				
10	10-15	20	ND	Yellow, fine SAND with small amounts of angular gravel.		15 ▼		
15	15-20	20	ND	Yellow, fine SAND with small amounts of angular gravel, transitioning to brown to orange, coarse SAND, saturated.				
20								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-105(MW)

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 5'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	50	ND	Brown coarse SAND with sub-angular gravel throughout.				Filter Pack
5	5-10	NR	NR	No recovery.		10 ▼		Bentonite
10	10-15	0.5	ND	Yellow to brown, coarse SAND and gravel, saturated.				Filter Pack
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-106

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 10'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 5	0-5	100	ND	Yellow, fine SAND with some coarse gravel, and brown mottling observed.			No Well	No Well
5 – 10	5-10	100	ND	Yellow, fine SAND with some coarse gravel, and brown mottling observed.				

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

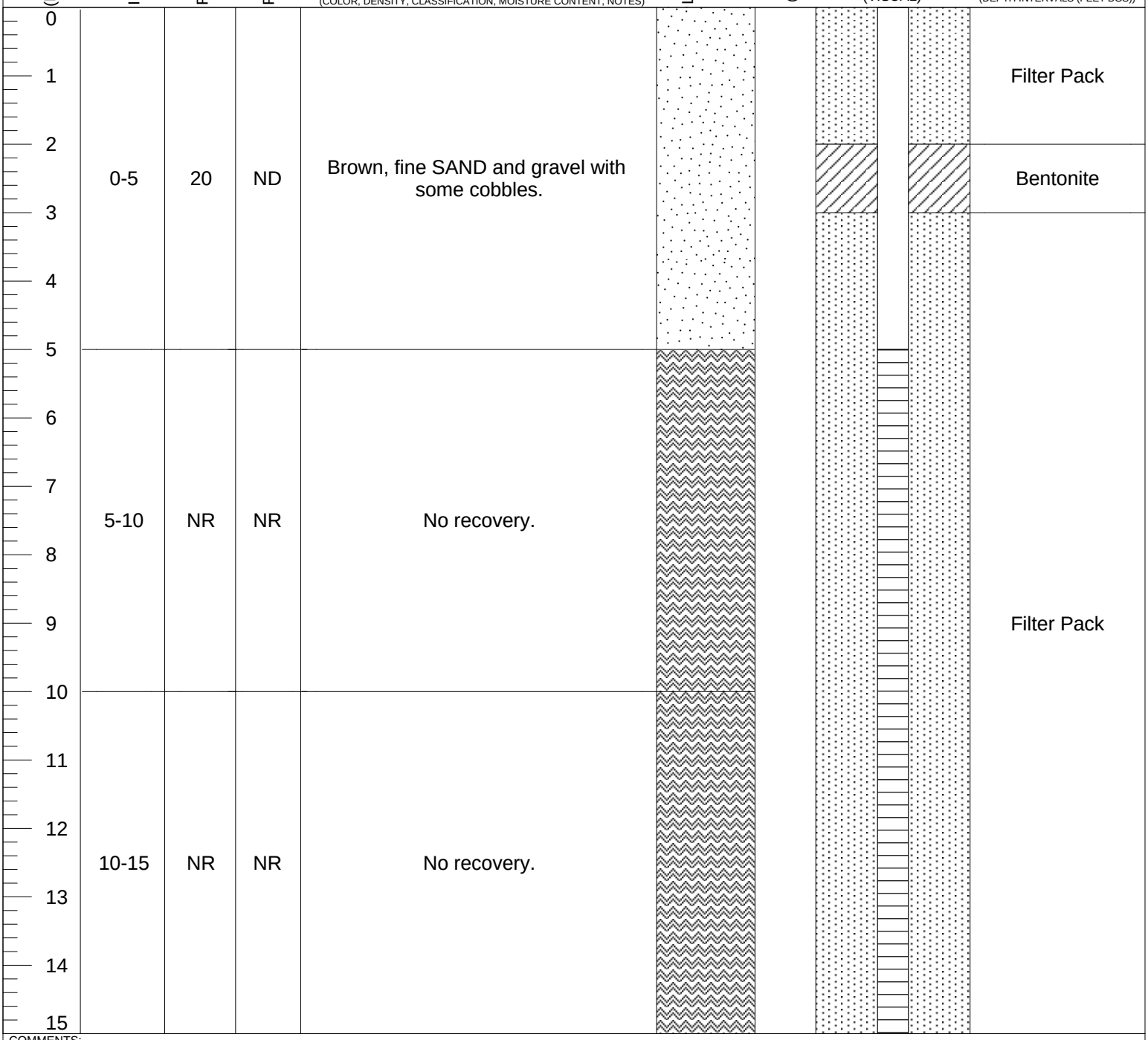
SOIL BORING/MONITORING WELL LOG: SE-107(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 5'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	20	ND	Brown, fine SAND and gravel with some cobbles.				Filter Pack
5	5-10	NR	NR	No recovery.				Bentonite
10	10-15	NR	NR	No recovery.				Filter Pack
15								



COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-108(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 5'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	100	ND	Brown, fine SAND with gravel and some cobbles transitioning to grey, coarse SAND, with coarse gravel. Iron staining observed.				Filter Pack
5	5-10	100	ND	Dark grey SAND with coarse gravel. Iron staining observed.				Bentonite
10	10-15	100	ND	Dark grey SAND with coarse gravel. Iron staining observed.				Filter Pack
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-109

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 3/21/2019
LOGGED BY: MGo
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 10'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 5	0-5	100	ND	Dark brown, fine SAND and gravel transitioning to silty clay river dredging material at 2' bgs.			No Well	No Well
5 – 10	5-10	100	ND	Silty clay river dredging material.				

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-201(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 3'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	50	ND	Brown, fine to medium SAND with trace silt, dry.				Filter Pack
1								Bentonite
2								
3								
4								
5	5-10	50	5.5	(0-1') Fine to medium SAND with some silt and trace, fine gravel. (1'-1.5') Silty clay. (1.5'-20.5') Fine to medium SAND, with trace silt and some fine gravel. Wet at 8' bgs.		8 ▼		
6								
7								
8								Filter Pack
9								
10	10-15	80	43.5	(0-3') Fine to coarse SAND with trace fine gravel and silt, wet. (3'-4') Clay.				
11								
12								
13								
14								
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-202(MW)

SAGE ENVIRONMENTAL

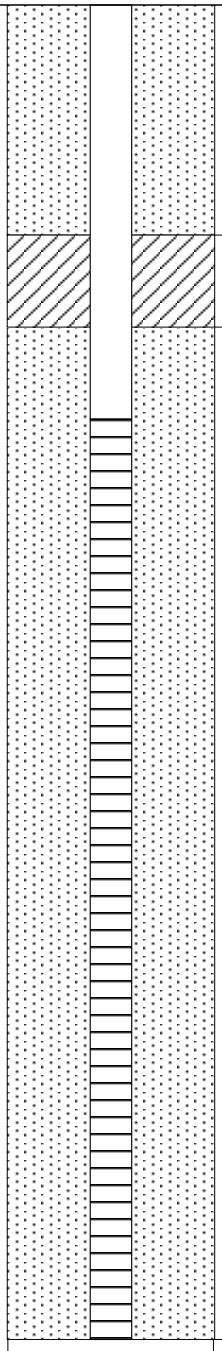
PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 14.5'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 4.5'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)
0 - 5	0-5	80	54.6	Light brown, silty SAND with trace fine gravel, moist.
5 - 10	5-10	80	83.4	(0-3.5') Silty, fine SAND with trace clay. (3.5'-4') Silty, fine to medium SAND with trace clay. Wet at 9' bgs.
10 - 15	10-15	90	792	(0-2.5') Silty, fine to medium SAND with trace clay, wet. (2.5'-4.5') Clay.

LITHOLOGY GRAPHIC LOG

DTW (FEET BGS): 9 ▼



WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
Filter Pack
Bentonite
Filter Pack

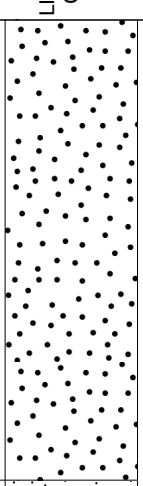
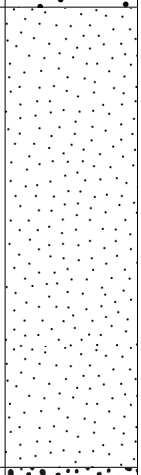
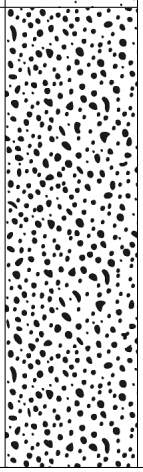
COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-203

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	60	3.0	Fine to medium SAND and silt with fine to medium gravel.			No Well	No Well
5	5-10	30	13.6	(0-1') Silty, fine SAND. (1'-1.5') Medium SAND with trace silt. Wet at 8' bgs.		8 ▼		
10	10-15	70	1,339	(0-1') Fine to medium SAND, non-aqueous phase liquid observed. (1'-3.5') Very fine SAND and silt with trace clay.				
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-204(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 14'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 4'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	60	ND	Fine to medium SAND with fine gravel and rock fragments				Filter Pack
5	5-10	20	ND	(0-0.5') Black, medium SAND. (0.5'-1') Fine to medium SAND with some silt. Wet at 8' bgs.		8 ▼		Bentonite
10	10-15	100	548	(0-1.5') Black, fine to medium SAND with trace silt, wet. (1.5'-5') Light brown, very fine SAND and silt with trace clay, wet.				Filter Pack
14								

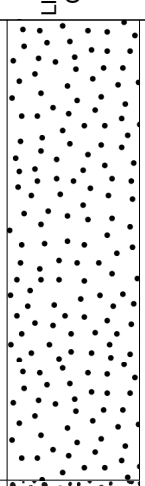
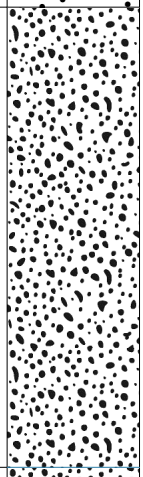
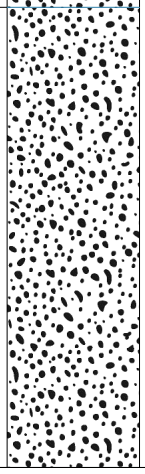
COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-205

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	60	ND	Red to dark brown, fine to medium SAND. Fill material observed: coal.			No Well	No Well
5	5-10	80	ND	(0-0.5') Fine to medium SAND. (0.5'-3.5') Fine to very fine, silty SAND with trace clay.				
10	10-15	60	ND	Fine to very fine, silty SAND with trace clay.				
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-206

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	50	ND	Brown, fine to coarse SAND and fine to medium gravel. Fill material observed: coal and glass.			No Well	No Well
5	5-10	50	10	Red to brown fine to medium SAND with rock fragments. Fill material observed: coal and glass.				
10	10-15	70	45	(0-1') Black, fine to medium SAND. (1'-3.5') Fine to very fine, silty SAND with trace clay.				
15								

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

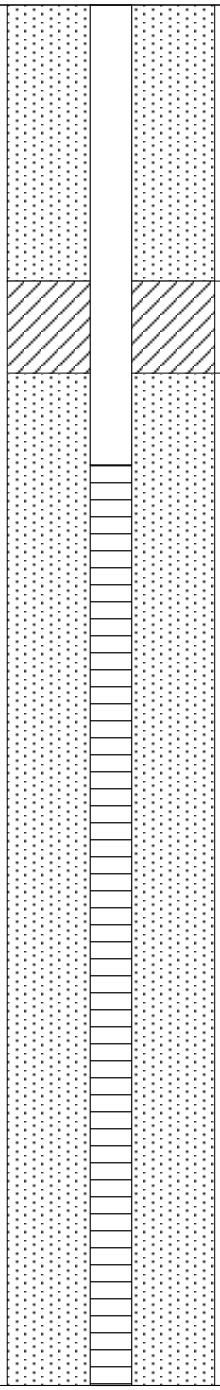
SOIL BORING/MONITORING WELL LOG: SE-207(MW)

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/20/2019
LOGGED BY: DB
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Direct-Push
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 15'
BORING/MW DIAMETER: 1"
LENGTH OF RISER: 5'
LENGTH OF SCREEN: 10'

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0	0-5	50	3.0	Brown, fine to coarse SAND and fine to medium gravel. Fill material observed: coal and glass.				Filter Pack
5	5-10	50	ND	Red to brown fine to medium SAND with rock fragments. Fill material observed: coal and glass.				Bentonite
10	10-15	70	ND	(0-1') Black, fine to medium SAND. (1'-3.5') Fine to very fine, silty SAND with trace clay.				Filter Pack
15								



COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-208

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	ND	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-209

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	ND	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-210

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	ND	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-211

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	4.0	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-212

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	ND	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-213

SAGE ENVIRONMENTAL

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	ND	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

SOIL BORING/MONITORING WELL LOG: SE-214

PROJECT NUMBER: S3291
PROJECT ADDRESS: South Quay, East Providence, RI
DRILLING DATE: 5/28/2019
LOGGED BY: TP
DRILLED BY: SAGE EnviroTech Drilling Services, Inc.
SCREENING EQUIPMENT: PID, 10.6 eV

DRILL METHOD: Hand Auger / Tools
SAMPLE METHOD: 5' Macrocore
BORING TOTAL DEPTH: 4'
BORING/MW DIAMETER: Not Applicable
LENGTH OF RISER: Not Applicable
LENGTH OF SCREEN: Not Applicable

DEPTH (FEET BGS)	SAMPLE INTERVAL	% RECOVERY	PID (PPMV)	MATERIAL DESCRIPTION (COLOR, DENSITY, CLASSIFICATION, MOISTURE CONTENT, NOTES)	LITHOLOGY GRAPHIC LOG	DTW (FEET BGS)	WELL CONSTRUCTION (VISUAL)	WELL CONSTRUCTION (DEPTH INTERVALS (FEET BGS))
0 – 3.8	0-4	100	ND	(0-3.5') Light brown, fine to medium SAND with trace silt and fine gravel. (3.5'-4') Dark brown, fine to medium SAND and silt.			No Well	No Well

COMMENTS:
THIS BORE LOG IS INTENDED FOR ENVIRONMENTAL NOT GEOTECHNICAL PURPOSES.
ND (Non-Detect) = <1 ppmV; bgs = Below Ground Surface; NR = No Recovery

APPENDIX G

ARCADIS Design & Consultancy for natural and built assets

Chevron Environmental Management Company and
Chevron Land and Development Company

WATERFRONT LIMITED REMEDIAL ACTION WORK PLAN

Former Gulf Fuel Terminal
(Chevron Facility #6517863)
431 Veterans Memorial Parkway
East Providence, Rhode Island
RIDEM Case #SR-10-0248

August 2016

WATERFRONT LIMITED REMEDIAL ACTION WORK PLAN

Former Gulf Fuel Terminal (Chevron Facility #6517863)

431 Veterans Memorial Parkway

East Providence, Rhode Island

RIDEM Case #SR-10-0248

Donna Pallister, P.E.
Principal Engineer

Leanne Miner
Project Managers

Prepared for:

Chevron Environmental Management Company and Chevron Land and Development Company

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Our Ref.:

B0047715.MC10

Date:

August 2016

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FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

Arcadis	Arcadis U.S., Inc.
Chevron	Chevron Environmental Management Company and Chevron Land and Development Company
CGP	Construction General Permit
CRMC	Rhode Island Coastal Resource Management Council
CY	Cubic Yards
GPS	Global Positioning System
LRAWP	Limited Remedial Action Work Plan
mg/kg	Milligram per Kilogram
MHHW	Mean Higher High Water
MLLW	Mean Lower Low Water
OBB	Oleophilic Biobarrier
RA	Remedial Agreement (Signed by RIDEM 5/21/2013)
RAWP	Remedial Action Work Plan (ARCADIS, 12/2011)
RCM	Reactive Core Mat
RDEC	Residential Direct Exposure Criteria from RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases (11/9/11)
RIDEM	Rhode Island Department of Environmental Management
RIPDES	Rhode Island Pollutant Discharge Elimination System
RO	Remedial Objective
Site	Former Gulf Fuel Terminal (Chevron Facility #6517863) located at 431 Veterans Memorial Parkway in East Providence, Rhode Island
SMP	Soil Management Plan
SWPPP	Stormwater Pollution Prevention Plan

1 INTRODUCTION

On behalf of Chevron Environmental Management Company and Chevron Land and Development Company (collectively referred to as Chevron), Arcadis U.S., Inc. (Arcadis) prepared this Waterfront Limited Remedial Action Work Plan (LRAWP; "work plan") for a portion of the Former Gulf Fuel Terminal (Chevron Facility #6517863) located at 431 Veterans Memorial Parkway in East Providence, Rhode Island (site). The site is identified by Rhode Island Department of Environmental Management (RIDEM) as Site SR-10-0248. This work plan was prepared for the remedial activities in the Waterfront area adjacent to the Lower Tier Center (LTC) (Figure 2).

This work plan was prepared in accordance with the Revised Remedial Decision Letter (Revised RDL; RIDEM 2010), the Site Remedial Action Work Plan (RAWP; ARCADIS 2011a), and Rules 8.00 and 9.00 of the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations; RIDEM 2011).

This work plan is being submitted under Rule 9.00 of the Remediation Regulations (RIDEM 2011). This work plan will be consistent with the remedial objectives (ROs) established in the RAWP (ARCADIS 2011a).

This report describes remediation work to be performed in East Providence Assessor Plat A.P. 18, Block 2, Lot 1, Lower Tier Center, Lower Tier South, and Waterfront area, owned by Chevron, as shown on Figure 2. The scope of work for this project will include:

- Installation of a portable dam, and dewatering controls (Figure 3)
- Limited pier piling removal
- Removal of existing oil/water separator
- Removal of existing rip rap feature
- Excavation of petroleum-impacted soil (Figure 4)
- Placement of a sheen barrier consisting of a Reactive Core Mat™ (RCM), oleophilic biobarrier (OBB), and armoring in the intertidal zone; replacement of rip rap feature (Figure 5)

2 PURPOSE

The purpose of the remedial actions described in this plan is to mitigate potential breakout of petroleum sheens to the Providence River proximate to the site. This remedial action is being conducted in conjunction with upland remediation of this former brownfields site to remove petroleum impacted soil. Petroleum impacted soil in the upland portion of the site has been excavated and treated to prevent future migration of petroleum to groundwater or surface water. In addition, the upland portion of the site will be capped in accordance with RIDEM requirements to prevent human contact with soil containing contaminants at concentrations above residential direct exposure criteria (RDEC).

The upland area adjacent to the proposed sheen barrier and armoring is within the location of a planned Urban Coastal Greenway (UCG), which will enhance access to the water in this area. A kayak launching

ramp and pier are also proposed by the developer to be located in the area. Based on these proposed future uses, Chevron has decided to voluntarily take actions to mitigate the potential breakout of petroleum sheens to the Providence River proximate to the site. Along with the planned demolition of the old pier timbers and remnant building pilings in the tidal flat, this action will enhance the usability and aesthetics of the area for future public access.

Arcadis examined available alternatives for meeting the project objectives. The remedy proposed here was determined to be most appropriate for meeting the objectives of mitigating any potential breakout of petroleum sheens to the Providence River proximate to the site and improving the condition of the area for future recreational users.

3 REMEDIAL OBJECTIVE

In accordance with Remedial Agreement (RA; RIDEM 2013), Chevron's obligation is to mitigate potential breakout of petroleum sheen to the Providence River proximate to the property. Therefore, the RO is to mitigate the potential for breakout of petroleum sheen via source removal and barrier installation along the waterfront wedge and intertidal sediment adjacent to the property.

4 CONSTRUCTION ACTIVITIES

This section describes an overview of the construction activities anticipated for this work plan. The following general construction sequence is anticipated:

- Site preparation, including job area setup, installation of security controls, installation of soil erosion and sediment controls, and utility protection
- Construction dewatering, including installation of a portable dam to isolate the work area and facilitate dewatering of the excavation and intertidal zone. River water removed from within the portable dam will be discharged back to the river.
- Removal of the pier pilings in construction area
- Removal of remnant sheet pile associated with the oil/water separator above the mud line
- Removal of the riprap feature
- Limited excavation of soils containing visible residual product
- Placement of the sheen barrier, including preparation of subgrade and anchor trenches, installation of RCM, OBB, and armoring in the intertidal zone, and replacement of rip rap feature
- Re-introduction of water into the completed work area
- Upland restoration.

Due to the length of the shoreline, the barrier will be constructed in at least two sections that repeat the construction sequence above. The following sections describe the construction in more detail.

4.1 Site Preparation

4.1.1 Job Site Setup and Layout

Temporary access roads will be constructed and maintained as necessary to allow equipment and vehicles to safely traverse the work site and to implement construction and remediation activities. At a minimum, the temporary construction road along the DOT Right of Way from the north end of the site will be utilized to access the work area.

Staging areas for equipment and construction materials will be established at the beginning of the project. Soil stockpile areas will be constructed and protected from erosion in accordance with the Construction General Permit (CGP) issued by RIDEM and other applicable requirements (CRMC, Army Corps).

Access to the work area will be completed from the upland, or utilizing low-ground-pressure equipment within the intertidal zone. Temporary construction pads may also be constructed below mean higher high water (MHHW) line. Alternatively, crane mats will be placed within the intertidal zone to provide a stable working platform for heavy equipment.

4.1.2 Site Security

During remedial activities, “no trespassing” signs will be posted and site access will be restricted by existing perimeter fencing and security measures.

4.1.3 Erosion and Sediment Controls and Stormwater Management

To control migration of soils to off-site areas (including surface water) via stormwater runoff and/or wind erosion, erosion and sediment control measures will be installed in accordance with the requirements of the CGP, Water Quality Certificate and Coastal Resources Management Council Assent. Stockpiles will be located at least 50 feet away from the coastal feature and will be protected from erosion per the CGP, site Erosion and Sediment Control Plan and the RI Soil Erosion and Sediment Control Handbook.

During construction, stormwater upgradient of the planned excavation areas will be diverted around the excavation areas via diversion swales. Silt fencing and/or hay bales or straw waddles will be placed where necessary around the work area and staging areas during the removal and restoration activities. Site erosion controls will be modified, cleaned, reinforced, replaced, and maintained as necessary to provide appropriate erosion and sediment control in accordance with the Stormwater Pollution Prevention Plan (SWPPP; Arcadis 2011c) and the CGP.

4.1.4 Protection of Utilities

Prior to conducting subsurface work, a utility clearance will be completed. No known active utilities are within the area of the excavation; however, there are active utilities elsewhere on the property including a sanitary sewer, an active storm water line, and the high pressure natural gas pipeline. If active utilities are identified in the limits of excavation, then the excavation plan may need to be modified to protect the utility.

4.1.5 Abandonment of Utilities

Abandoned subsurface product piping and inactive utility lines and structures encountered during excavation activities will be removed or abandoned in place if there is no cause to remove them for remediation or to support site redevelopment.

4.2 Dewatering

4.2.1 Work Area Isolation

The work area will be protected by a temporary isolation measure (i.e., portable dam) which will sit directly on top of the existing sediment surface. The portable dam segments will be placed through the water column in the intertidal zone to the required location. Impermeable liner and sandbags will be deployed to seal the liner. A cross section view of the portable dam is shown on Figure 9. To the extent possible, the isolation will be completed during the lowest tide available. It is assumed that any construction activities (i.e., excavation, barrier placement) will occur within the portable dam in an effort to limit mobilization of sediment downstream to the extent practicable.

4.2.2 Construction Dewatering

The portable dam will be installed to provide an isolated working area for barrier installation and to facilitate dewatering for excavation and backfill. Water initially within and entering the portable dam area during barrier construction will be pumped back to the Providence River. Temporary sumps and trenches will be installed in the work areas as needed to allow excavation, backfilling with compaction, and to maintain an isolated area for barrier installation. Best management practices will be utilized to minimize sediment and sheen in the water pumped from the work area. Sumps and trenches will also be constructed with piping surrounded by stone to reduce the amount of sediment extracted by the sump. Groundwater from excavation of the petroleum-impacted sediment will be collected and containerized for offsite disposal or for discharge on-site if appropriate.

4.3 Limited Removal of Pier Pilings

Pier pilings within the footprint of the sheen barrier area will be cut off within 3 inches of the existing sediment surface. Pier piling and timber removal is anticipated to be completed prior to LRAWP implementation. Upon removal, pilings will be removed and disposed offsite in accordance with site waste handling protocols.

4.4 Oil Water Separator

The oil/water separator located adjacent to the existing pier structure was decommissioned previously by filling it in with a sand/organoclay mix, recycled concrete, and stone fill, as shown on Figure 6. As part of this work, the remnant water side sheet pile wall will be cut at or below the mudline and the stone fill will be regraded to approximate the surrounding grade. The debris and any unused stone materials will be managed in accordance with site waste handling protocols. Please note that the majority of the oil/water separator work occurs above the MHHW line.

4.5 Excavation

4.5.1 Embankment Riprap

The embankment riprap will be removed using an excavator. During excavation, riprap will be stockpiled on site and will be visually inspected for residual petroleum impacts as defined in the Soil Management Plan (SMP; Arcadis 2011b). Riprap deemed inappropriate for on-site reuse will be managed in accordance with site waste handling protocols. In addition, concrete, metal debris, and other wastes will be segregated and stockpiled for on-site crushing and reuse, recycling, or offsite disposal.

4.5.2 Source Area Removal in the Waterfront Wedge

After riprap removal, embankment sediment within the vicinity of the active embankment seep will be observed for petroleum staining. Sediments from the north end of the waterfront wedge source area (see figure 4) that are impacted with visible residual product will be excavated to the extent practicable to remove source material. Sediment will be excavated until excavation is no longer feasible, until visible impacts are no longer observed, or until the water table is reached. The area of this limited excavation below the MHHW line is approximately 2,200 square feet, as shown on Figure 4. The anticipated excavation depth is shown in cross section on Figure 7. The actual depth and extent of the excavation will vary based on visual observations of petroleum impacts and constructability constraints, such as dewatering capacity and safety considerations.

4.5.3 Sediment Management

Excavated sediment will be treated in accordance with the Ex-Situ Soil Stabilization/ Solidification Remedial Technology-Limited Remedial Action Work Plan (LRAWP; ARCADIS 2013, ARCADIS 2015) or disposed off-site. If sediment is treated and shown to meet the treatment goals, it may be reused in accordance with the LRAWP and RIDEM approval. After excavation, the area will be backfilled in accordance with the Site Soil Management Plan (ARCADIS 2011d). If conditions indicate that residual petroleum impacts are present, a remedial agent such as Aquagate™, an organoclay-coated gravel, may be placed in the base of the excavation prior to backfilling. Riprap will be placed to the pre-construction elevation and to a size meeting the design specifications.

4.6 Sheen Barrier Design and Placement

The remedy selected for the waterfront wedge and intertidal sediment area includes a sheen barrier designed to isolate sediments from the overlying surface water, while simultaneously enhancing biodegradation and/or sequestration of constituents. Several types of sheen barrier technologies were considered for the site. The technology selected for the site is a RCM with an overlying OBB. Further information about these materials is provided in Appendix A. To facilitate the future installation of the kayak pier, Aquagate™ will be placed in the vicinity of the planned structure (instead of the RCM/OBB).

Placement of the sheen barrier will occur along the shoreline extending into the Providence River from an anchor trench located approximately 5 feet behind the Coastal Feature line down to the mean lower low

water (MLLW) line on the south end of the barrier (Figure 5), and to elevation -4ft NAVD88 on the north end of the barrier. There will be three discrete sheen barrier profile designs:

- under the existing rip rap, from the anchor trench to the toe of the existing rip rap slope;
- in the intertidal zone, extending from the toe of the rip rap slope out to the -4ft NAVD88 elevation contour in the northern portion of the waterfront area, and to the MLLW line in the southern portion of the waterfront area (a continuation of the barrier extending under the rip rap slope, but with the addition of a bedding layer and armoring);
- within the vicinity of the existing pier structure, within the intertidal zone, designed to facilitate the future installation of a recreational pier and kayak launch. Each type of barrier is described further below.

The work will be performed using heavy equipment. Temporary access ramps and/or crane mats will be used to access portions of the work area.

Two new outfalls associated with the site development will terminate within the footprint of the barrier located under the existing rip rap, above the MHHW line. The final barrier design will include outfall penetrations.

4.6.1 Rip Rap Area Barrier

The rip rap area barrier will be constructed of the following layers, from the existing sediment surface upwards:

- A layer of RCM consisting of organoclay between two geotextiles, which will be placed in 15-foot wide panels, as shown on Figure 5. The RCM, developed by CETCO, is a thin layer of organoclay within a geotextile envelope that is readily transported and deployable. Organoclay is a sorbent material that consists of clay that has been organically-modified to improve its oleophilic sorption capacity as a means of sorbing oils and/or sheen-bearing residuals, thereby eliminating or greatly reducing their transport from sediments to the water column (Reible and Lampert 2008, Reible et al. 2011, Alther 2008). An RCM product sheet is included in Appendix A.
- An OBB layer, which will consist of a geotextile or geogrid material. This is a hydraulically transmissive layer that promotes the biological degradation of petroleum hydrocarbons. An OBB product sheet is included in Appendix A (GSE FabriNet Geocomposite).
- Rip rap cover, which will be consistent with existing material. This is expected to be onsite rip rap, reused with an approximate D50 of 20 inches, placed 30 inches thick.

The cross section of this sheen barrier is shown on Figure 7. The barrier and protective armoring will be placed to match pre-construction slopes in order to effectively tie into existing surrounding grades. Native sediments will not be removed to facilitate construction of the barrier. The barrier will be constructed directly on top of the existing sediment surface.

4.6.2 Intertidal Area Barrier

The intertidal area barrier will be constructed of the following layers, from the sediment surface upwards:

- 3 inches of sand bedding material placed on existing sediment surface

- A layer of RCM consisting of organoclay between two geotextiles, placed in 15-foot wide panels, as shown on Figure 5
- An OBB layer, consisting of a geotextile or geogrid material
- 12 inches of armoring stone; the recommended armoring layer should be R3 rip rap, generally consisting of stone between 3 and 6 inches.

The total fill thickness in the intertidal zone is expected to be approximately 15 inches above the existing sediment surface. The cross section of this sheen barrier is shown on Figure 7.

4.6.3 Granular Barrier and Armoring

Within the vicinity of the existing pier structure in the intertidal zone, a granular reactive barrier will be used to facilitate the future installation of a recreational pier and kayak launch. The granular barrier material will allow for pile driving through the barrier into the underlying material in the future. The kayak pier barrier layer will be constructed as follows, from the sediment surface upwards:

- 3 inches of Aquagate+ORGANOCLAY™, a granular organoclay composite capping material, or material with similar properties
- 12 inches of armoring stone; the recommended armoring layer should be R3 rip rap, generally consisting of stone between 3 and 6 inches.

The total fill thickness in the kayak pier area is expected to be 15 inches above the existing sediment surface. The cross section of this barrier is shown on Figure 8. The barrier and protective armoring will be sloped at the natural angle of repose in order to effectively tie into existing grades. Native sediments will not be removed to facilitate construction of the barrier. The barrier will be constructed directly on top of the existing sediment surface.

4.7 Removal of Temporary Isolation

After the sheen barrier and armoring layer are installed, river water will be pumped into the work area. The portable dams will then be removed when the water levels are at similar elevations on either side of the structures.

4.8 Upland Restoration

After completion of the Waterfront remedial work, the area will be sloped for future drainage, and covered with grass, stone, or another appropriate material to prevent soil erosion and manage storm water.

5 POINT OF COMPLIANCE

The purpose of the actions described in this LRAWP is to mitigate potential breakout of petroleum sheen to the Providence River proximate to the property. .

5.1 Confirmation of Construction

Construction quality assurance (CQA) monitoring will be conducted to document that the barrier is constructed in accordance with the design, and this work plan. The CQA monitoring will include key activities such as:

- Visual observation that excavation depths and areas remove visible residual product
- Sampling of imported backfills to confirm suitability for use; only soils meeting RDEC specifications will be imported
- Visual observation of OBB and RCM construction, including required overlaps
- GPS location of limits of barrier and depths of excavation.

5.2 Post Remediation Survey

The LRAWP work area boundary will be surveyed at the completion of the project.

6 PERMITTING AND REPORTING

6.1 Required Permits

Permits relevant to activities associated with this report are listed below:

- US Army Corps of Engineers General Permit for State of Rhode Island
- Rhode Island Pollutant Discharge Elimination System (RIPDES) CGP; storm water management for the site falls under the jurisdiction of the RIDEM Office of Water Resources RIPDES Program
- RIDEM Water Quality Certificate
- Rhode Island Coastal Resource Management Council (CRMC) Assent.

6.2 Operating Log

An operating log will be maintained on site during remediation activities as described in the RAWP (Arcadis 2011a). The operating log will clearly and completely document the implementation and progress of remedial actions and use supporting photo documentation where appropriate. Regular reports will be provided to RIDEM during the site remediation activities.

7 CONTRACTORS AND/OR CONSULTANTS

Arcadis will oversee the remedial work to be performed. Global Remediation has been selected to perform construction activities. Additional specialty contractors may be retained as needed for specific tasks, such as in-water work area isolation and pier piling and timber removal.

8 CONTINGENCY

A contingency plan is provided in the RAWP (Arcadis 2011a). Prior to construction, the site-specific Health and Safety Plan (HASP) will be modified to include the activities and any chemicals that will be associated with the activities proposed in this report. A copy of the HASP can be provided upon request.

9 PROPOSED SCHEDULE FOR REMEDIATION

Implementation of this LRAWP is anticipated to begin during the summer of 2016, pending obtaining permits from agencies. RIDEM will be contacted once a firm mobilization date is established. This schedule is contingent upon weather, site conditions, and other unforeseen conditions. The activities described in this LRAWP are estimated to be completed within one year, six months following initiation.

10 CERTIFICATION REQUIREMENTS

Arcadis certifies, to the best of its knowledge, that this Waterfront Limited Remedial Action Work Plan is complete and accurate.

_____

Donna H. Pallister, P.E.
Arcadis U.S., Inc.

Chevron Environmental Management Company certifies, to the best of its knowledge, that this Waterfront Limited Remedial Action Work Plan is a complete and accurate representation of the site and the release, and contains the known facts surrounding the release.

_____

John R. Frary
Chevron Environmental Management Company

11 REFERENCES

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ARCADIS U.S., Inc. 2011d. Soil Management Plan. Prepared for Chevron Environmental Management Company and Chevron Land and Development Company. Bellaire, Texas. June.

ARCADIS U.S., Inc. 2013. Ex-Situ Soil Stabilization/ Solidification Remedial Technology-Limited Remedial Action Work Plan. Prepared for Chevron Environmental Management Company and Chevron Land and Development Company. Bellaire, Texas. September.

ARCADIS U.S., Inc. 2015. Ex-Situ Soil Stabilization/ Solidification Remedial Technology-Limited Remedial Action Work Plan Addendum. Prepared for Chevron Environmental Management Company and Chevron Land and Development Company. Bellaire, Texas. September.

Reible, D and Lampert, D. 2008. Effectively Managing Risks of Contaminated Sediments. Waste Management Conference. Phoenix, Arizona. February 24 to 28. Available at: www.wmsym.org/archives/2008/pdfs/8309.pdf

Reible, D.; Lu, X.; Galjour, J.; and Qi, Y. 2011. The use of organoclay in managing dissolved contaminants relevant to contaminated sediments. *Technical Note*.

Rhode Island Department of Environmental Management. 2010. Remedial Decision Letter (Revised). Case No. #97-017. April.

Rhode Island Department of Environmental Management. 2011. Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases. November.

Rhode Island Department of Environmental Management. 2013. Remedial Agreement. Property at AP 17 Block 1 Lot 1, AP 18 Block 1 Lot 1, AP 17 Block 1 Lot 3, AP 18 Block 1 Lot 2 and AP 18 Block 2 Lot 1. 431 Veterans Memorial Parkway, East Providence, Rhode Island. Case N: 97-017. Signed May 13.

FIGURES

CONTRACT DRAWINGS

EAST PROVIDENCE WATERFRONT REMEDIATION

FORMER GULF FUEL TERMINAL
(CHEVRON FACILITY #6517863)
431 VETERANS MEMORIAL PARKWAY
EAST PROVIDENCE, RHODE ISLAND

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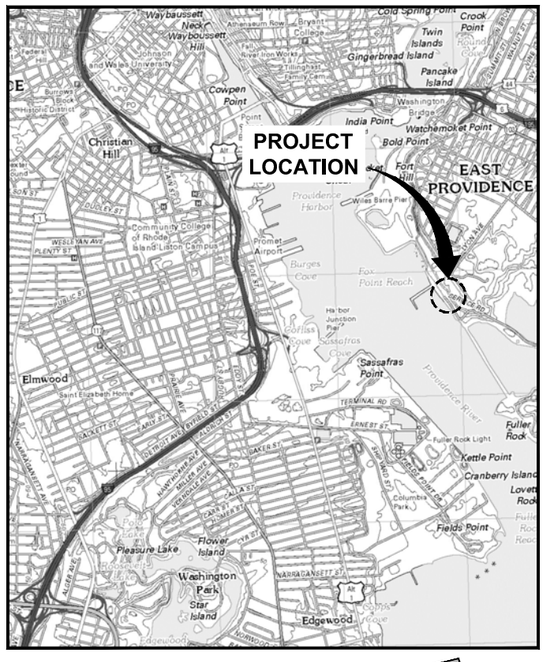

REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE, PROVIDENCE, RHODE ISLAND, 2012

LOCATION MAP

0 2000' 4000'
GRAPHIC SCALE

REBECCA D. LINDEMAN
No. 11661
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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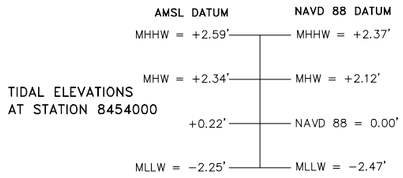
INDEX TO DRAWINGS

GENERAL NOTES:

1. BASE MAP COMPILED FROM SURVEYING AND MAPPING PROVIDED BY DIPRETE ENGINEERING ASSOCIATES ON JUNE 15, 2015.
2. COORDINATES, IN U.S. SURVEY FEET, ARE IN THE RHODE ISLAND STATE PLANE COORDINATE SYSTEM, REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD 83).
3. ELEVATIONS SHOWN ARE BASED UPON NAVD 88 DATUM. TO CONVERT TO AMSL, ADD 0.22 FEET.



4. SUBSURFACE UTILITY LINES AND FEATURES, AS SHOWN HEREIN, WERE COMPILED FROM FIELD EVIDENCE AND/OR AVAILABLE RECORD INFORMATION, AND THEIR LOCATIONS ARE ONLY APPROXIMATE. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD.
5. BATHYMETRY CONTOURS WERE COMPILED FROM SURVEY PERFORMED BY ARCADIS IN FEBRUARY 2016.
6. COASTAL FEATURE LINE, IN GENERAL, FOLLOWS THE TOP OF RIP RAP.
7. APPROXIMATE AS−BUILT EXCAVATION LIMITS DIGITIZED FROM A DRAWING ENTITLED "OVERALL RECORD PLAN, THE VILLAGE ON THE WATERFRONT", SHEET 3 OF 4, PREPARED BY DIPRETE ENGINEERING, DATED 5/27/2015 AT A SCALE OF 1" = 40'.

EXCAVATION NOTES:

1. THE LIMITS OF THE EXCAVATIONS SHOWN ARE PRELIMINARY.
2. REMOVAL DEPTHS ARE PRELIMINARY AND MAY BE ADJUSTED PENDING FURTHER ANALYSIS.

REMOVAL AREA	REMOVAL DEPTH
SEDIMENT REMOVAL	3 FEET

3. THE CONTRACTOR SHALL ESTABLISH SIDE SLOPES THAT PERMIT SAFE ACCESS TO THE EXCAVATIONS. SIDE SLOPES ARE ASSUMED TO BE 2:1 (HORIZONTAL:VERTICAL). SHALLOWER SIDE SLOPES MAY BE REQUIRED BELOW THE GROUNDWATER TABLE.
4. DEBRIS ENCOUNTERED DURING EXCAVATION ACTIVITIES SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
5. THE SEDIMENT REMOVAL SHALL BE BACKFILLED WITH SAND BLENDED WITH ORGANOCLAY™ OR WITH RIP RAP.

FORMER OIL WATER SEPARATOR REMOVAL NOTES:

1. THE OIL WATER SEPARATOR SHALL BE REMOVED TO MATCH SURROUNDING GRADE.
2. SHEET PILE SHALL BE CUT APPROXIMATELY 1 FOOT BELOW EXISTING GRADE.
3. STONE FILL WITHIN THE OIL WATER SEPARATOR SHALL BE REMOVED TO MATCH THE SURROUNDING GRADE.

REACTIVE CAP NOTES:

1. THE REACTIVE CAP SHALL CONSIST OF ONE OR MULTIPLE LAYERS OF REACTIVE CORE MAT (RCM) CONTAINING ORGANOCLAY™, OVERLAIN BY ONE LAYER OF OLEOPHILIC BIO BARRIER (OBB), EXCEPT WHERE NOTED AS THE "KAYAK PIER REACTIVE CAP".
2. PRIOR TO CONSTRUCTION OF THE REACTIVE CAP, RIP RAP ALONG THE SHORELINE SHALL BE REMOVED.
3. A BEDDING LAYER CONSISTING OF 3 INCHES OF CLEAN SAND SHALL BE INSTALLED UNDER THE CAP SURFACE PRIOR TO INSTALLATION OF THE CAP. THE BEDDING LAYER SHALL BE INSTALLED IN A MANNER THAT COVERS PILINGS PRESENT WITHIN THE CAP FOOTPRINT.
4. PANELS OF RCM AND OBB SHALL BE INSTALLED WITH A MINIMUM 1 FOOT OVERLAP WITH ADJACENT PANELS.
5. RCM AND OBB SHALL BE ANCHORED WITHIN AN ANCHOR TRENCH. THE ANCHOR TRENCH SHALL BE INSTALLED 5 FT UPLAND OF THE COASTAL FEATURE.
6. RIP RAP SHALL BE PLACED OVER THE EXISTING RIP RAP FOOTPRINT EXCEPT WHERE NOTED.
7. WHERE RIP RAP IS NOT PLACED, 6 TO 12 INCHES OF ARMOR STONE SHALL BE PLACED OVER THE REACTIVE CAP.

WORK AREA ISOLATION NOTES:

1. A PORTADAM SHALL BE INSTALLED TO PROVIDE WORK AREA ISOLATION PRIOR TO EXCAVATION ACTIVITIES OR INSTALLATION OF THE REACTIVE CAP.
2. THE PORTADAM MAY BE INSTALLED OVER A SHORTER SECTION OF THE WATERFRONT AND MOVED, AS NEEDED. TO BE INCLUSIVE OF THE WORK AREA.

ABBREVIATIONS:

BOW	BOTTOM OF WALL
ELEV	ELEVATION
MHHW	MEAN HIGHER HIGH WATER ELEVATION
MLLW	MEAN LOW LOW WATER ELEVATION
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
OBB	OLEOPHILIC BIO BARRIER
RCM	REACTIVE CORE MAT
TOW	TOP OF WALL
TYP	TYPICAL

LEGEND:

- PROPERTY BOUNDARY
- EDGE OF COASTAL FEATURE
- MEAN HIGHER HIGH WATER ELEVATION
- MEAN LOW LOW WATER ELEVATION
- −20− EXISTING INDEX CONTOUR
- −4 EXISTING INTERMEDIATE CONTOUR
- WOOD RETAINING WALL
- APPROXIMATE AS−BUILT EXCAVATION LIMITS
- RIP RAP

SCALE(S) AS INDICATED

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No.	Date	Revisions	By	Ckd

Professional Engineer's Name: REBECCA LINDEMAN
Professional Engineer's No.: 0011661

State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by	Drawn by	Checked by
WT	KMD/JLH	BRB

REBECCA D. LINDEMAN No. 11661 REGISTERED PROFESSIONAL ENGINEER CIVIL

ARCADIS Design & Consultancy for natural and built assets

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EAST PROVIDENCE WATERFRONT REMEDIATION
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GENERAL NOTES, ABBREVIATIONS AND LEGEND

ARCADIS Project No. B0047715.PMWM.00003
Date JUNE 2016
ARCADIS
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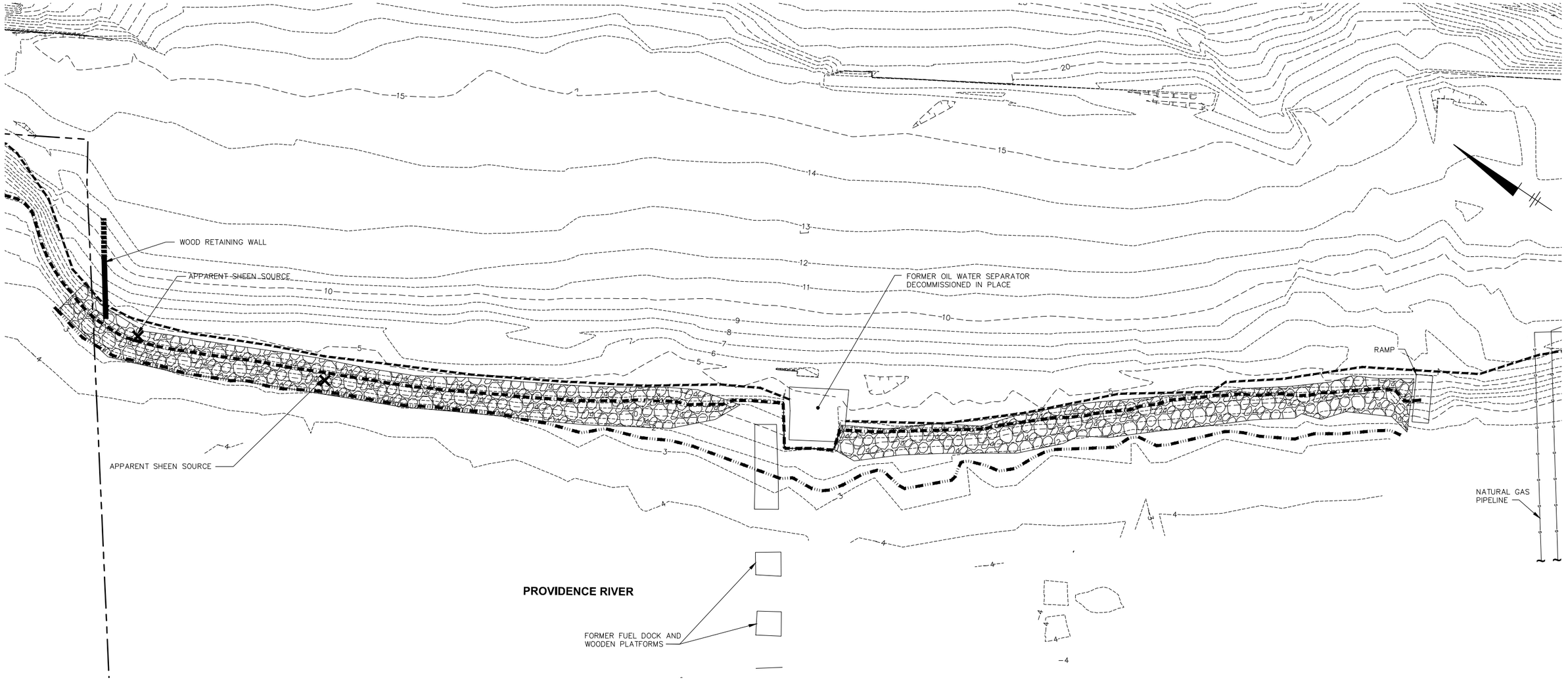
SUITE 250
WARWICK, RI 02886
TEL. 401.738.3887

1



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1"=30'

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Professional Engineer's Name: **REBECCA LINDEMAN**
Professional Engineer's No.: 0011661

State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by: WT	Drawn by: KMD/JLH	Checked by: BRB

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EXISTING SITE PLAN

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JUNE 2016

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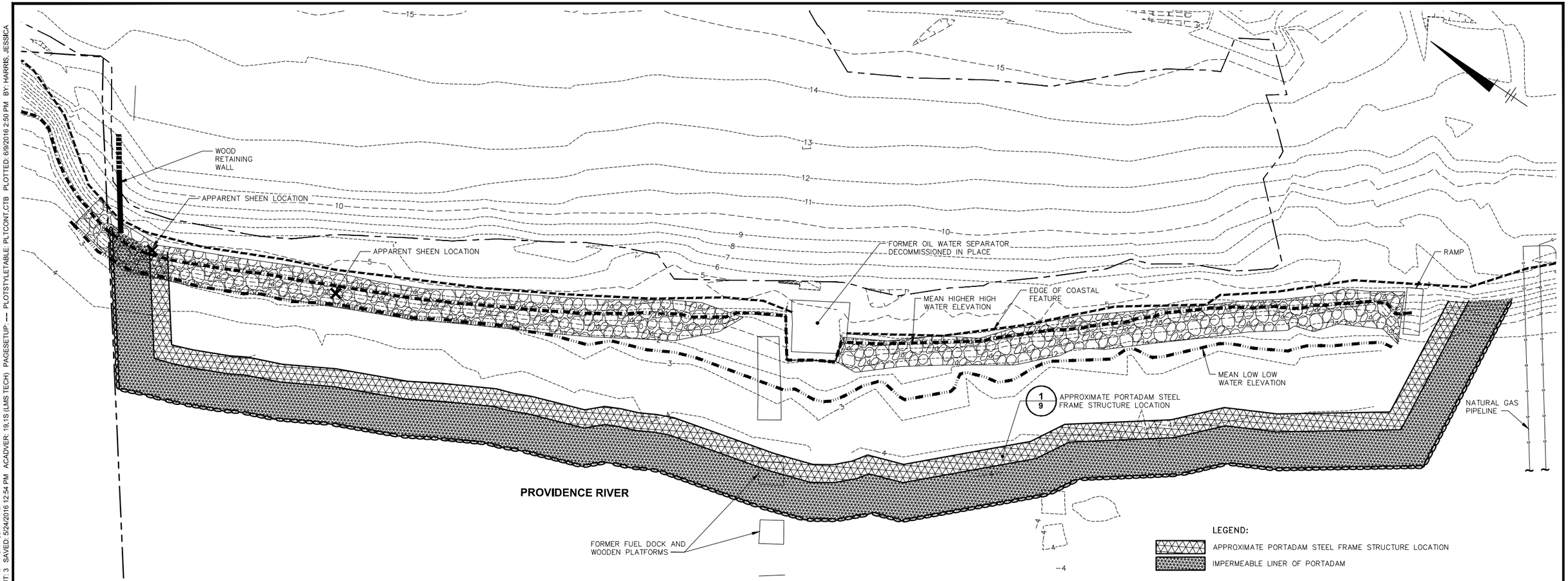
2



NOTES:

1. EXACT LOCATION AND FEASIBILITY OF THE PORTADAM STRUCTURE IS TO BE DETERMINED AFTER ADDITIONAL BATHYMETRY IS COLLECTED.
2. PORTADAM ALIGNMENT SHOWN WITHIN SITE BOUNDARIES. IF ACCESS IS NOT GRANTED FOR INSTALLATION OF PORTADAM ON ADJACENT NORTHERN PROPERTY, A PORTION OF THE WORK ON THE BANK WILL BE COMPLETED WITH ALTERNATE TEMPORARY WORK AREA ISOLATION PRIOR TO PLACEMENT OF PORTADAM STRUCTURE.

30' 0 30' 60'
1"=30'

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Professional Engineer's No.: 0011661

State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by: WT	Drawn by: KMD/JLH	Checked by: BRB

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WORK AREA ISOLATION

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JUNE 2016

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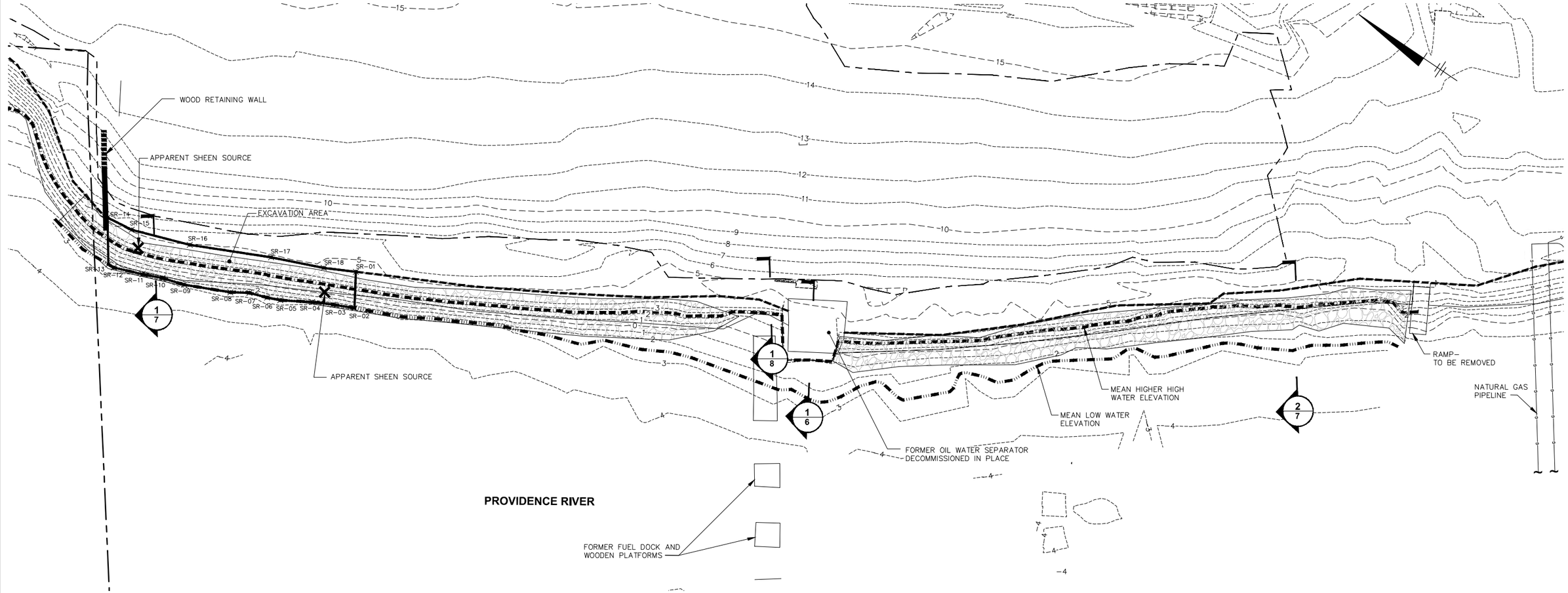

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SR–05	263279.061	358967.7277
SR–06	263286.5206	358964.5963
SR–07	263296.9883	358960.9832
SR–08	263306.6932	358954.8274
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PROJECTNAME: ---

30' 0 30' 60'
1"=30'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name
REBECCA LINDEMAN
Professional Engineer's No.
0011661

State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by	Drawn by	Checked by
WT	KMD/JLH	BRB

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EXCAVATION PLAN

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B0047715.PMWM.00003

Date
JUNE 2016

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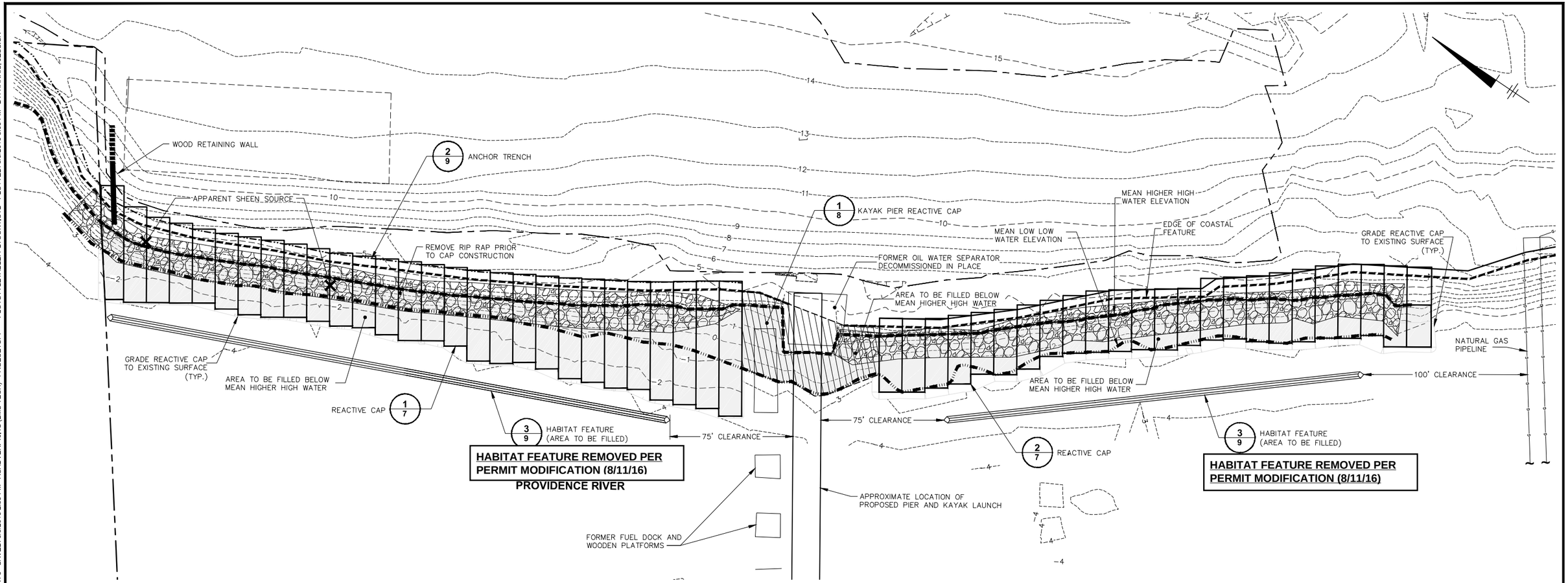

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EPROVX01
EPROVX07
EPROVX44
47715X00
GRID
EPROVX64
ARMOR GRADING

30' 0 30' 60'
1"=30'

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State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by	Drawn by	Checked by
WT	KMD/JLH	BRB

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SEDIMENT BARRIER PLAN

ARCADIS Project No. B0047715.PMWM.00003
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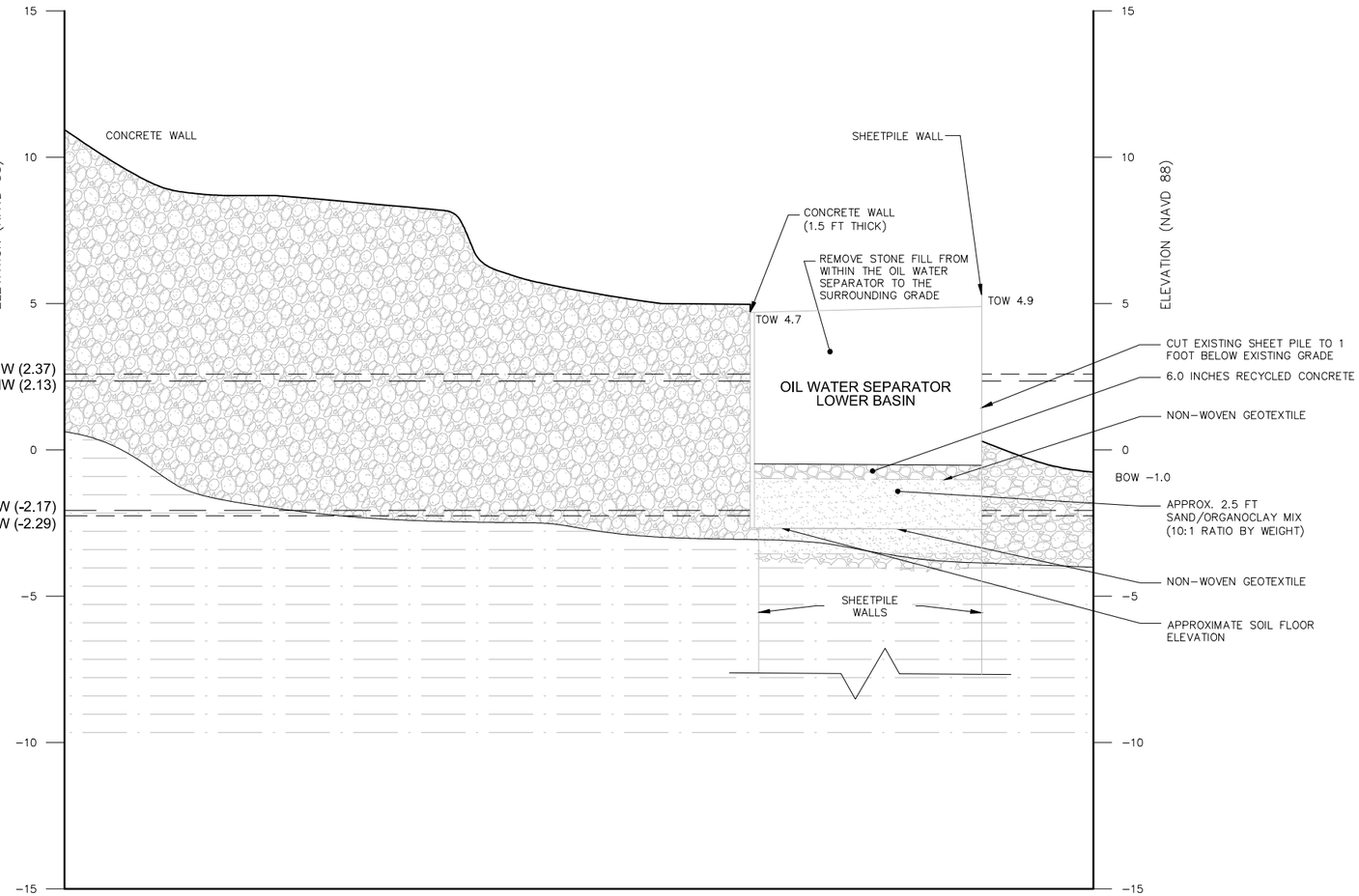

OIL WATER SEPARATOR SECTION

0 10' 20'

HORIZONTAL SCALE: 1"=10'
VERTICAL EXAGGERATION 1X

LEGEND:

- OIL/WATER SEPARATOR
- GRAVELLY SAND FILL
- GLACIAL OUTWASH DEPOSITS (SILTY SAND/SAND)
- NON−WOVEN GEOTEXTILE
- TIDAL ELEVATION

NOTES:

1. FEATURES OF THE OIL WATER SEPARATOR WERE SURVEYED BY DIPRETE ENGINEERING ASSOCIATES, INC. IN MARCH 2011.
2. MHHW = MEAN HIGHER HIGH WATER
   MHW = MEAN HIGH WATER
   MLW = MEAN LOW WATER
   MLLW = MEAN LOWER LOW WATER
   TOW = TOP OF WALL
   BOW = BOTTOM OF WALL
3. ALL OIL/WATER SEPARATOR ELEMENTS ARE EXISTING. WORK TO BE COMPLETED INCLUDES CUTTING WATERSIDE SHEET PILE WALL TO 1 FOOT BELOW EXISTING GRADE, AND GRADING WITH STONE TO MATCH EXISTING SURROUNDING GRADE.

CITY: SYRACUSE, NY DIV/GROUP: IMDV DB: K.DAVIS LD: A.SCHILLING PIC: K.ABBOTT PM: L.MINER TM: W. THOMAS LYR: ON=*;OFF=*REF*
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SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: REBECCA LINDEMAN
Professional Engineer's No.: 0011661

State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by: WT	Drawn by: KMD/JLH	Checked by: BRB

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OIL WATER SEPARATOR REMOVAL SECTION

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Date: JUNE 2016

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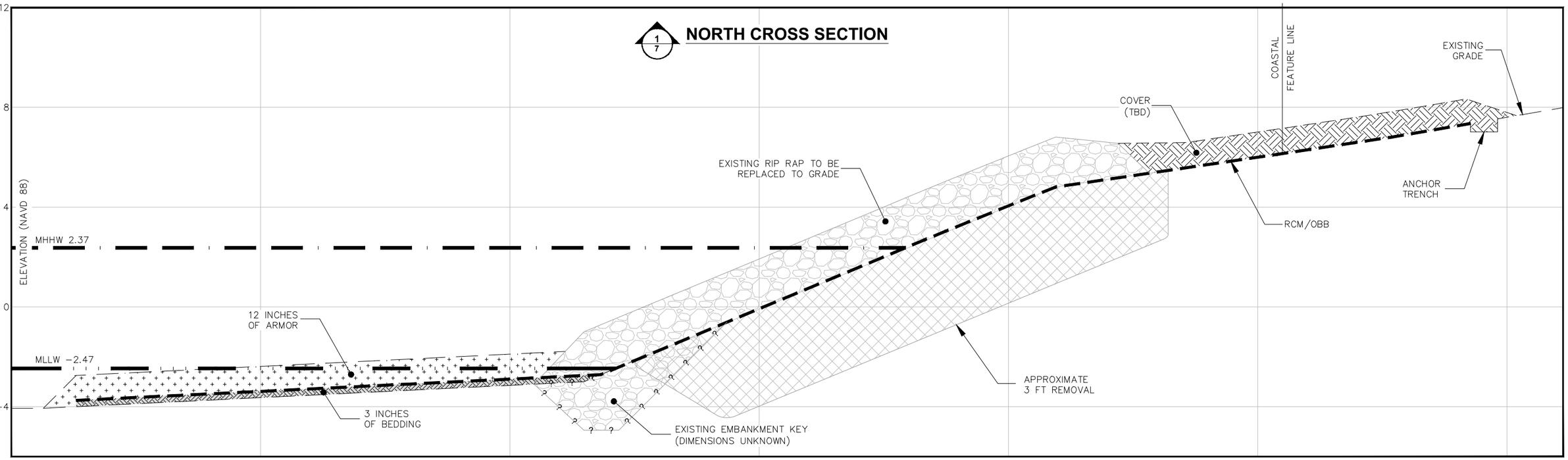
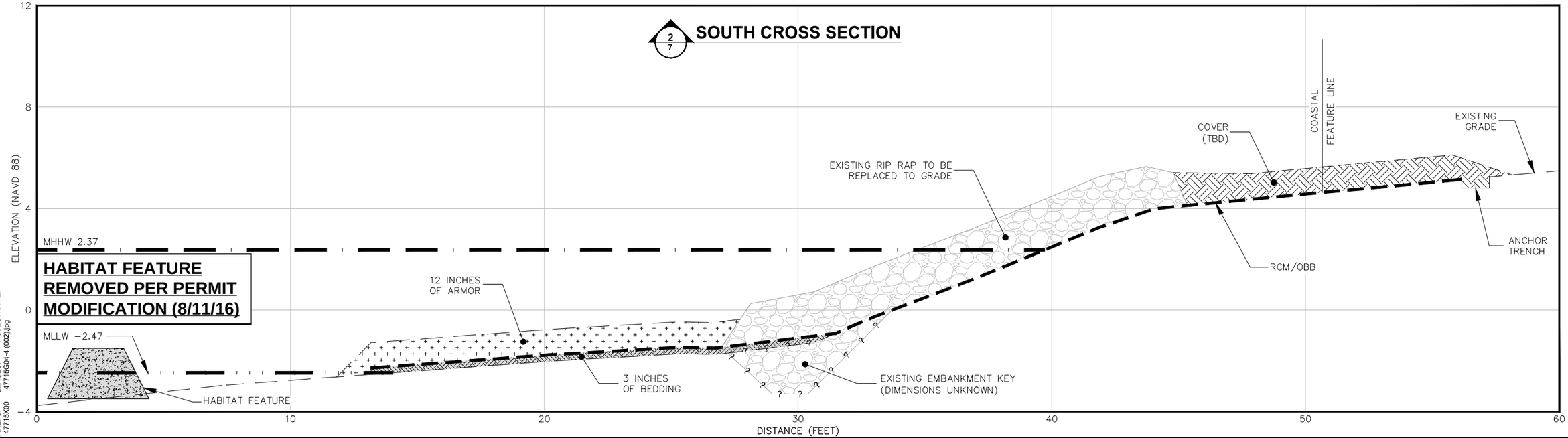
6

1/7 NORTH CROSS SECTION



2/7 SOUTH CROSS SECTION



0 2' 4'
HORIZONTAL SCALE: 1"=2'
VERTICAL EXAGGERATION 1X

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No.	Date	Revisions	By	Ckd

Professional Engineer's Name: REBECCA LINDEMAN			
Professional Engineer's No.: 0011661			
State: RI	Date Signed: 6/24/16	Project Mgr.: LM	
Designed by: WT	Drawn by: KMD/JLH	Checked by: BRB	

REBECCA D. LINDEMAN No. 11661 REGISTERED PROFESSIONAL ENGINEER CIVIL

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BARRIER CROSS SECTIONS

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Date: JUNE 2016

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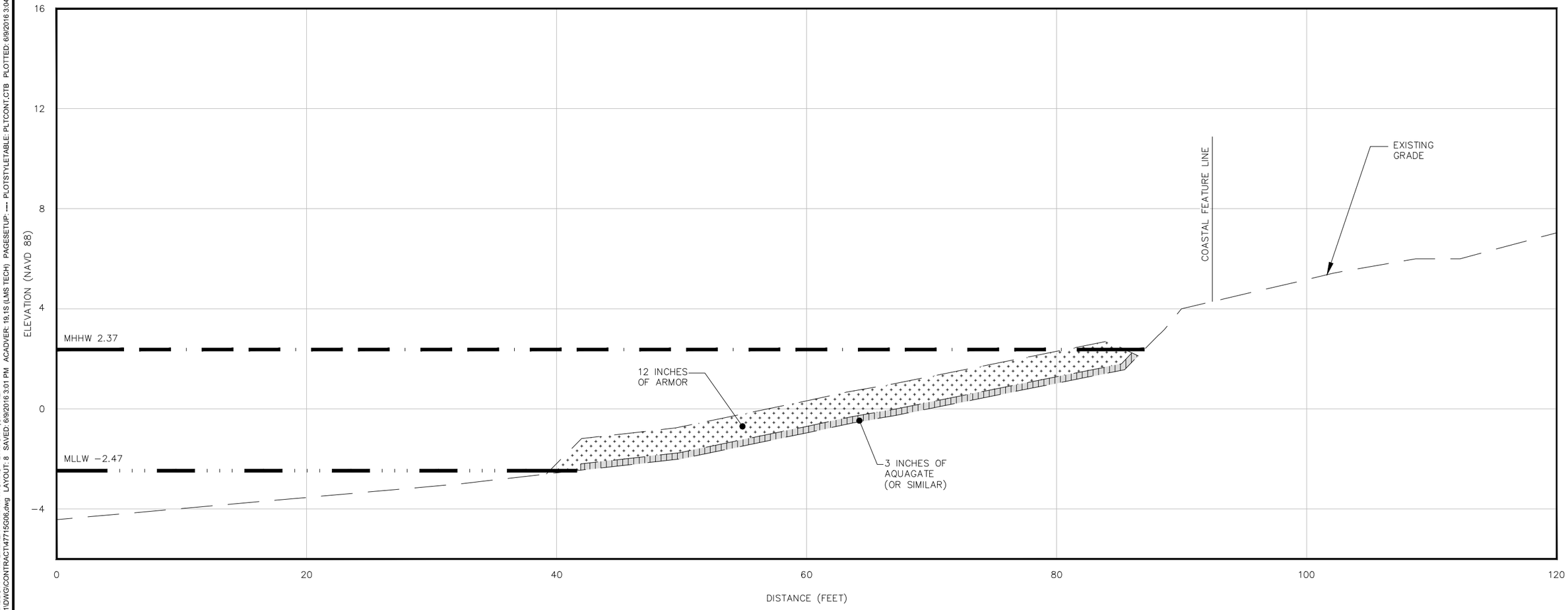

1
8

KAYAK PIER CROSS SECTION

0 4' 8'
HORIZONTAL SCALE: 1"=4'
VERTICAL EXAGGERATION 2X

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: REBECCA LINDEMAN		
Professional Engineer's No.: 0011661		
State: RI	Date Signed: 6/24/16	Project Mgr.: LM
Designed by: WT	Drawn by: KMD/JLH	Checked by: BRB

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EAST PROVIDENCE WATERFRONT REMEDIATION
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EXCAVATION CROSS SECTIONS

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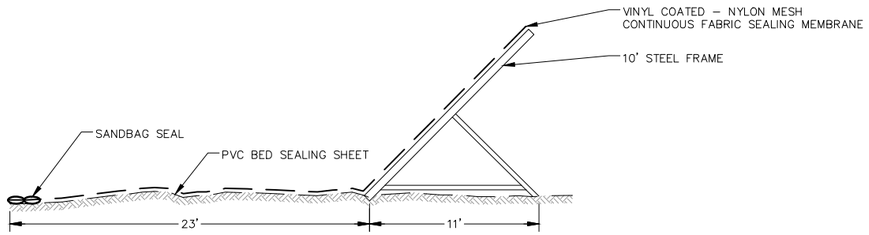
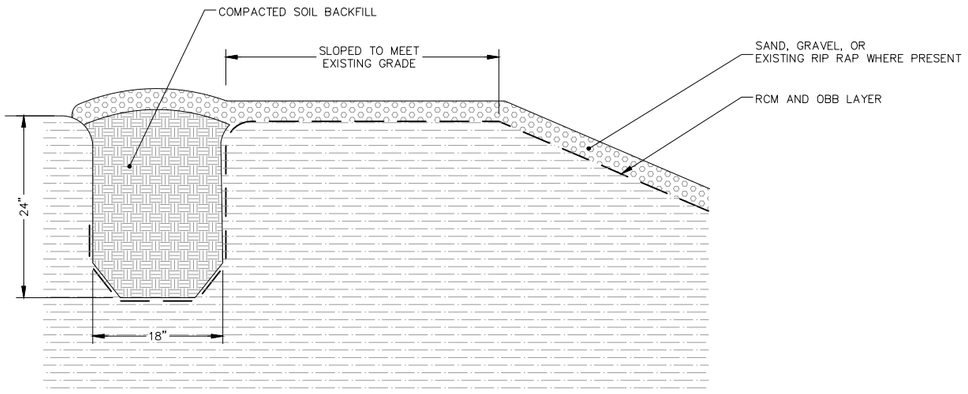


PORTADAM DETAIL 1

NOT TO SCALE



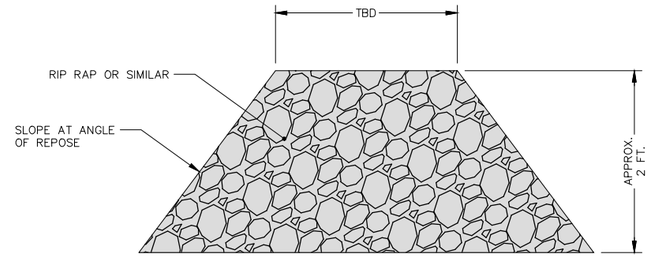
ANCHOR TRENCH DETAIL 2

NOT TO SCALE

NOTES:

1. BREAKWATER PLACEMENT HAS BEEN PROPOSED BETWEEN –3 AND –4 FEET NAVD88, AS SHOWN IN THE SEDIMENT CAP PLAN ON DRAWING 5.
2. PLACEMENT METHOD WILL BE DETERMINED DURING THE FINAL DESIGN BASED ON THE SELECTED CONSTRUCTION MATERIAL.
3. FINAL CONSTRUCTED DIMENSIONS WILL BE DETERMINED BASED ON THE SELECTED PLACEMENT METHOD AND MATERIALS.

HABITAT FEATURE REMOVED PER PERMIT MODIFICATION (8/11/16)



HABITAT FEATURE DETAIL 3

NOT TO SCALE

CITY: SYRACUSE, NY DIV/GROUP: IM/DV DB: K.DAVIS LD: A.SCHILLING PIC: K.ABBOTT PM: L.MINNER TM: W. THOMAS LYR: ON=*;OFF=*REF*
C:\Users\jharris\Desktop\ENVCAD\RETURN-TO\SYRACUSE, NY\B0047715\CQAE000011\DWG\CONTRACT\47715G08.dwg LAYOUT: 9 SAVED: 5/24/2016 9:07 AM
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47715X00

SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: REBECCA LINDEMAN
Professional Engineer's No.: 0011661

State	Date Signed	Project Mgr.
RI	6/24/16	LM
Designed by	Drawn by	Checked by
WT	KMD/JLH	BRB

REBECCA D. LINDEMAN No. 11661 REGISTERED PROFESSIONAL ENGINEER CIVIL

ARCADIS Design & Consultancy for natural and built assets

ARCADIS U.S., INC.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY • FORMER GULF FUEL TERMINAL (CHEVRON FACILITY #6517863)
EAST PROVIDENCE WATERFRONT REMEDIATION
FOR PERMITTING ONLY-NOT ISSUED FOR CONSTRUCTION

DETAILS

ARCADIS Project No. B0047715.PMWM.00003
Date JUNE 2016

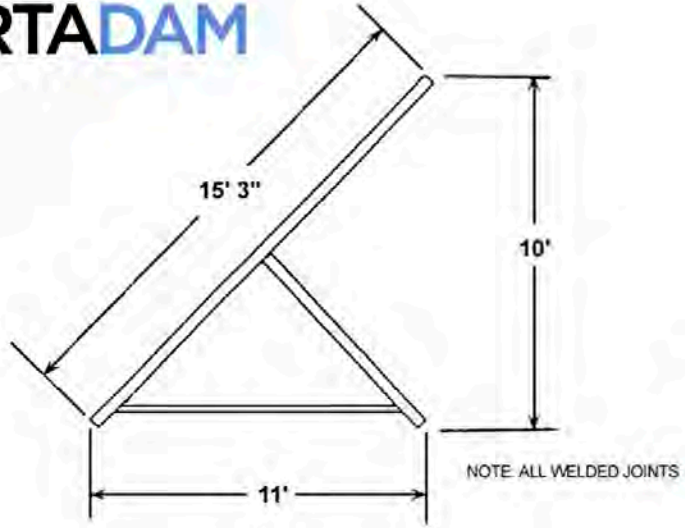
ARCADIS
300 METRO CENTER BLVD.
SUITE 250
WARWICK, RI 02886
TEL. 401.738.3887

9

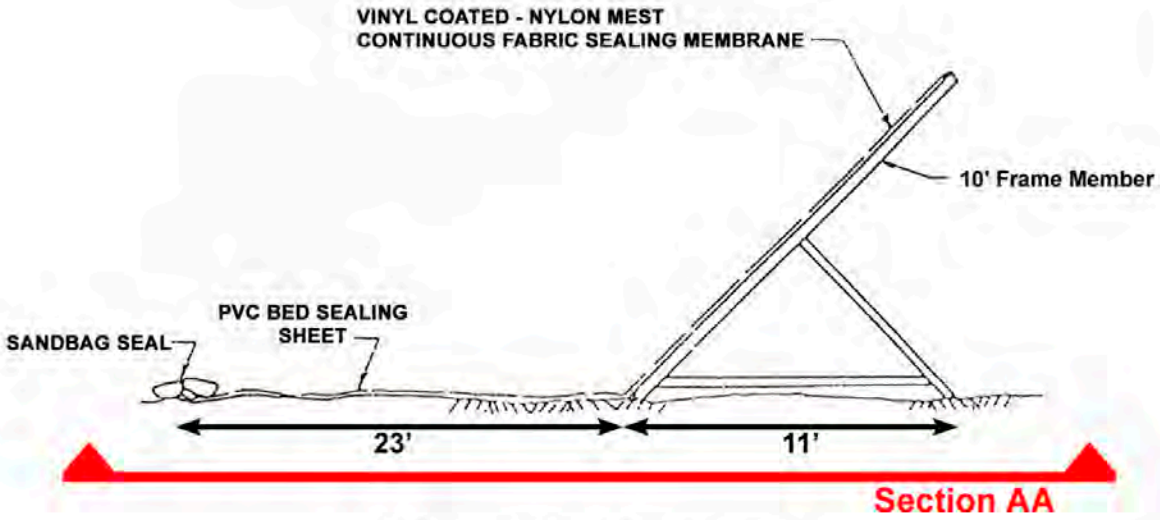
APPENDIX A

Product Cut Sheets

PORTADAM



10' HIGH FRAME DETAIL

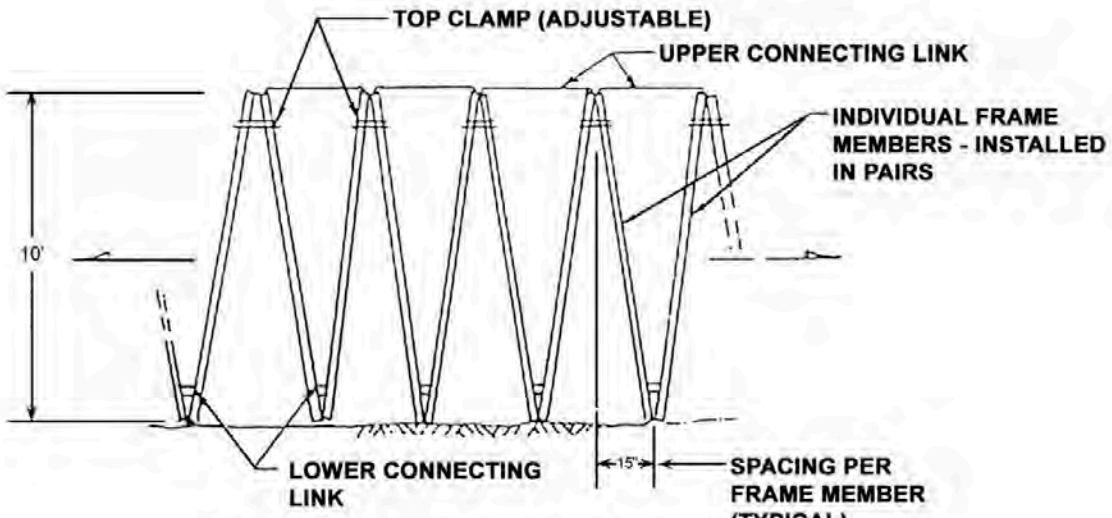


SEALING MEMBRANE DETAIL
CROSS-SECTION
N.T.S.

NOTES:

1. OPTIONAL ATTACHMENTS
   - BACK BRACE POLE
   - HORIZONTAL ADDITIONAL BRACING
   - SINGLE FRAME ATTACHMENTS FOR IRREGULAR CONTOURS & TURNS

2. ANCHOR BOLTS MAY BE REQUIRED ON HARD ROCK, FLAT OR CONCRETE SURFACES.



FRAME ASSEMBLY PROFILE

10' HIGH FRAMEWORK & FABRIC SEALING MEMBRANE DETAILS
STANDARD PORTADAM SYSTEM ASSEMBLY

Portadam, Inc. Williamstown, NJ

AquaGate+ORGANOCLAY™

Aquagate+ organoclay

Background

AquaGate+ORGANOCLAY is a patented, composite-aggregate technology resembling small stones that is typically comprised of a dense aggregate core. In this application of the technology, a powdered organoclay coating is utilized (Figure 1) with varying percentages of additive layer by percent of total weight.

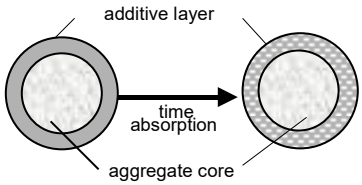


Figure 1. Configuration of ORGANOCLAY-coated particle.

AquaGate+ORGANOCLAY serves as a delivery mechanism to reliably place reactive capping materials into aquatic environments.

Product Specifications

Aggregate:	Nominal AASHTO #8 (1/4-3/8") or custom-sized to meet project-specific need * Limestone or non-calcareous substitute, as deemed project-appropriate
Organoclay:	Powdered – Approximate 200 Mesh ⊙ Modified Bentonite Clay; Modified Natural Mineral (Montmorillonite) ⊙ Light Brown Powder; Odorless Manufacturers – Product Designation ⊙ Aqua Technologies of Wyoming – ET-1 Activated Clay ® ⊙ CETCO – PM200 Organoclay® ⊙ Biomin - OilSorb ** Formulations Range from 15 –30% by weight*
Oil Adsorption Capacity:	From 50-100% of the Organoclay quantity by weight
Binder:	Cellulosic polymer
Permeability:	1 x 10^{-2} to 1 x 10^{-5} cm/sec
Dry Bulk Density:	75 – 85 lbs/ft^3
Moisture:	10 – 20% (maximum)

AquaBlok® Composite Particle System

For more information, contact AquaBlok, Ltd. at:

Phone: (419) 825-1325
Email: services@aquablok.com
Web: www.aquablok.com

Last Revised: February 1, 2016

PRODUCT DATA SHEET

GSE FabriNet Geocomposite

GSE FabriNet geocomposite consists of a 200 mil thick GSE HyperNet geonet heat-laminated on one or both sides with a GSE nonwoven needle-punched geotextile. The geotextile is available in mass per unit area range of 6 oz/yd² to 16 oz/yd². The geocomposite is designed and formulated to perform drainage function under a range of anticipated site loads, gradients and boundary conditions.

AT THE CORE:

A 200 mil thick HyperNet geonet heat-laminated on one or both sides with a nonwoven needlepunched geotextile.

Product Specifications

Tested Property	Test Method	Frequency	Minimum Average Roll Value		
Geocomposite			6 oz/yd²	8 oz/yd²	10 oz/yd²
Transmissivity[2], gal/min/ft, (m²/sec) Double-Sided Composite Single-Sided Composite	ASTM D 4716	1/540,000 ft²	 0.5 (1x10⁻⁴) 4.8 (1x10⁻³)	 0.5 (1x10⁻⁴) 4.8 (1x10⁻³)	 0.4 (9x10⁻⁵) 4.3 (9x10⁻⁴)
Ply Adhesion, lb/in	ASTM D 7005	1/50,000 ft²	1.0	1.0	1.0
Geonet Core[3] – GSE HyperNet					
Transmissivity[2], gal/min/ft (m²/sec)	ASTM D 4716		9.6 (2 x 10⁻³)	9.6 (2 x 10⁻³)	9.6 (2 x 10⁻³)
Density, g/cm³	ASTM D 1505	1/50,000 ft²	0.94	0.94	0.94
Tensile Strength (MD), lb/in	ASTM D 5035/7179	1/50,000 ft²	45	45	45
Carbon Black Content, %	ASTM D 1603[6]/4218	1/50,000 ft²	2.0	2.0	2.0
Geotextile[3,4]					
Mass per Unit Area, oz/yd²	ASTM D 5261	1/90,000 ft²	6	8	10
Grab Tensile, lb	ASTM D 4632	1/90,000 ft²	160	220	260
Puncture Strength, lb	ASTM D 4833	1/90,000 ft²	90	120	165
AOS, US sieve[1], (mm)	ASTM D 4751	1/540,000 ft²	70 (0.212)	80 (0.180)	100 (0.150)
Permittivity, sec⁻¹	ASTM D 4491	1/540,000 ft²	1.5	1.3	1.0
Flow Rate, gpm/ft²	ASTM D 4491	1/540,000 ft²	110	95	75
UV Resistance, % retained	ASTM D 4355 (after 500 hours)	per formulation	70	70	70
NOMINAL ROLL DIMENSIONS					
Geonet Core Thickness, mil	ASTM D 5199	1/50,000 ft²	200	200	200
Roll Width[5], ft			14.75	14.75	14.75
Roll Length[5], ft	Double-Sided Composite Single-Sided Composite		270 300	260 300	230 290
Roll Area, ft²	Double-Sided Composite Single-Sided Composite		3,982 4,425	3,835 4,425	3,392 4,277

NOTES:

- [1]AOS in mm is a maximum average roll value.
- [2]Gradient of 0.1, normal load of 10,000 psf, water at 70˚F between steel plates for 15 minutes. Contact GSE for performance transmissivity value for use in design.
- [3]Component properties prior to lamination.
- [4]Refer to geotextile product data sheet for additional specifications.
- [5]Roll widths and lengths have a tolerance of ±1%.
- [6]Modified.

GSE is a leading manufacturer and marketer of geosynthetic lining products and services. We've built a reputation of reliability through our dedication to providing consistency of product, price and protection to our global customers.

Our commitment to innovation, our focus on quality and our industry expertise allow us the flexibility to collaborate with our clients to develop a custom, purpose-fit solution.

GSE ENVIRONMENTAL™

DURABILITY RUNS DEEP

For more information on this product and others, please visit us at GSEworld.com, call 800.435.2008 or contact your local sales office.

REACTIVE CORE MAT™

WITH ORGANOCLAY®

DESCRIPTION

ORGANOCLAY® REACTIVE CORE MAT™ is a permeable composite of geotextiles and granular ORGANOCLAY that reliably adsorbs NAPL and low solubility organics from water. Batch isotherm testing by a university determined the following partition coefficients:

- Naphthalene, Kd = 3280 L/kg
- Phenanthrene, Kd = 117,000 L/kg
- Pyrene, Kd - 286,000 L/kg

REACTIVE CORE MAT™ is designed to provide a simple method of placing active materials into subaqueous sediment caps.

APPLICATION

ORGANOCLAY® REACTIVE CORE MAT™ is designed for use in the following applications:

- In situ subaqueous cap for contaminated sediments or post-dredge residual sediments
- Embankment seepage control
- Groundwater remediation

BENEFITS

- ORGANOCLAY® REACTIVE CORE MAT™ provides a reactive material that treats contaminants carried by advective/diffusive flow
- Reactive cap allows for thinner cap thickness than a traditional sand cap
- Geotextiles provide stability and physical isolation of contaminants

PACKAGING

15' by 100' rolls, packaged on 4" PVC core tubes wrapped with polyethylene plastic packaging.

AVAILABILITY

ORGANOCLAY® REACTIVE CORE MAT™ is available from the following CETCO plant locations:

- 92 Highway 37, Lovell, WY

TESTING DATA

PHYSICAL PROPERTIES		
PROPERTY	**TEST METHOD**	**RESULT**
ORGANOCLAY[1]		
Bulk Density Range	ASTM D 7481	44 – 56 lbs/ft^3
Oil Adsorption Capacity	CETCO Test Method	0.5 lb of oil per lb of ORGANOCLAY, min
Quaternary Amine Content	ASTM D 7626	25 – 33% quaternary amine loading
FINISHED RCM PRODUCT		
ORGANOCLAY Mass per Area	CETCO Test Method	0.8 lb/ft^2
Mat Grab Strength[2]	ASTM D4632	90 lbs. MARV
Hydraulic Conductivity[3]	ASTM D4491	1 x 10^{-3} cm/sec minimum

NOTES:
[1] ORGANOCLAY properties performed periodically on material prior to incorporation into the RCM
[2] All tensile testing is performed in the machine direction
[3] Permittivity at constant head of 2 inches and converted to hydraulic conductivity using Darcy's Law and RCM thickness per ASTM D5199 for geotextiles

North America: 847.851.1800 | 800.527.9948 | www.CETCO.com

UPDATED: NOVEMBER 2013

TDS_RCM-ORGANOCLAY_AM_EN_201311_v1

CETCO®
OUR STANDARDS. YOUR PEACE OF MIND.
A Minerals Technologies Company

Arcadis U.S., Inc.

300 Metro Center Boulevard

Suite 250

Warwick, Rhode Island 02886

Tel 401 738 3887

Fax 401 732 1686

www.arcadis.com

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Mr. Jeffrey Crawford
Principal Environmental Scientist
RIDEM Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908-5767

Arcadis U.S., Inc.
300 Metro Center Boulevard
Suite 250
Warwick
Rhode Island 02886
Tel 401 738 3887
Fax 401 732 1686
www.arcadis.com

ENVIRONMENT

Subject:
Limited Remedial Action Work Plan – Chevron EPRI Waterfront
Former Fuel Terminal (Chevron Facility #6517863) – RIDEM Site# SR-10-0248
431 Veterans Memorial Parkway, East Providence, Rhode Island 02914

Date:
August 1, 2018

Contact:
Donna Pallister

Phone:
401-285-2235

Email:
Donna.Pallister@arcadis.com

Our ref:
B0047715

Dear Mr. Crawford:

On behalf of Chevron Environmental Management Company and Chevron Land and Development Company (Chevron), Arcadis U.S., Inc. (Arcadis) is submitting this letter to request approval of a modification of the above reference Limited Remedial Action Work Plan (LRAWP). The LRAWP was submitted in August 2016 and was approved in a Remedial Approval Letter dated September 15, 2016.

We are submitting this letter to request approval of changes to the remedy as described below.

EXTENSION OF REMEDY TO ADJACENT PROPERTY TO THE SOUTH

Chevron is negotiating with the Providence and Worcester Railroad Company (P&W), which is now owned by Genesee and Wyoming, Inc., to obtain access to a portion property identified as Map 7, Block 1, Lot 3 on the East Providence assessor's maps (see Figure 1, attached). This portion of the P&W property abuts the southern end of the Chevron waterfront area. Based on available information, extension of the remedy to the south is expected to provide additional protection again release of petroleum sheens to the river. Chevron has not previously had access to this property, so final design of the remedy in this area may be modified after access is obtained and site conditions are evaluated.

Pending finalization of an access agreement and receipt of permit modifications from the RI Coastal Resource Management Council (CRMC), US Army Corps of Engineers, and RIDEM Office of Water Resources, Chevron proposes to modify the LRAWP to include the P&W land identified in Figure 1. The modification will include the following:

- removal of potentially sheen producing soil in the P&W parcel, if encountered;
- increasing the area of the RCM/OBB cap area to include approximately 2200 square feet in the intertidal zone south of the originally planned cap area (see Figure 2 for approximate location, final location of cap is subject to change based on further design review, field conditions and comments from other agencies);
- extending the direct contact cap to include the P&W land, with appropriate grading and surface cover to manage stormwater in accordance with RIDEM and CRMC requirements, and;
- preparing an Environmental Land Usage Restriction (ELUR) for the portion of the P&W property included in the remedy.

SCHEDULE

The LRAWP activities completed to date include removal of the oil-water separator and removal of pilings and other debris in the intertidal zone that would interfere with execution of the remedy. The placement of the reactive core mat (RCM) and oleophilic biobarrier (OBB) in the intertidal zone has been delayed and is now scheduled to be completed in 2019. The remedial activities are expected to be completed by December 31, 2019.

Please contact me if you have any questions or comments.

Sincerely,

Arcadis U.S., Inc.

Donna Pallister, PE, LSP
Principal Engineer

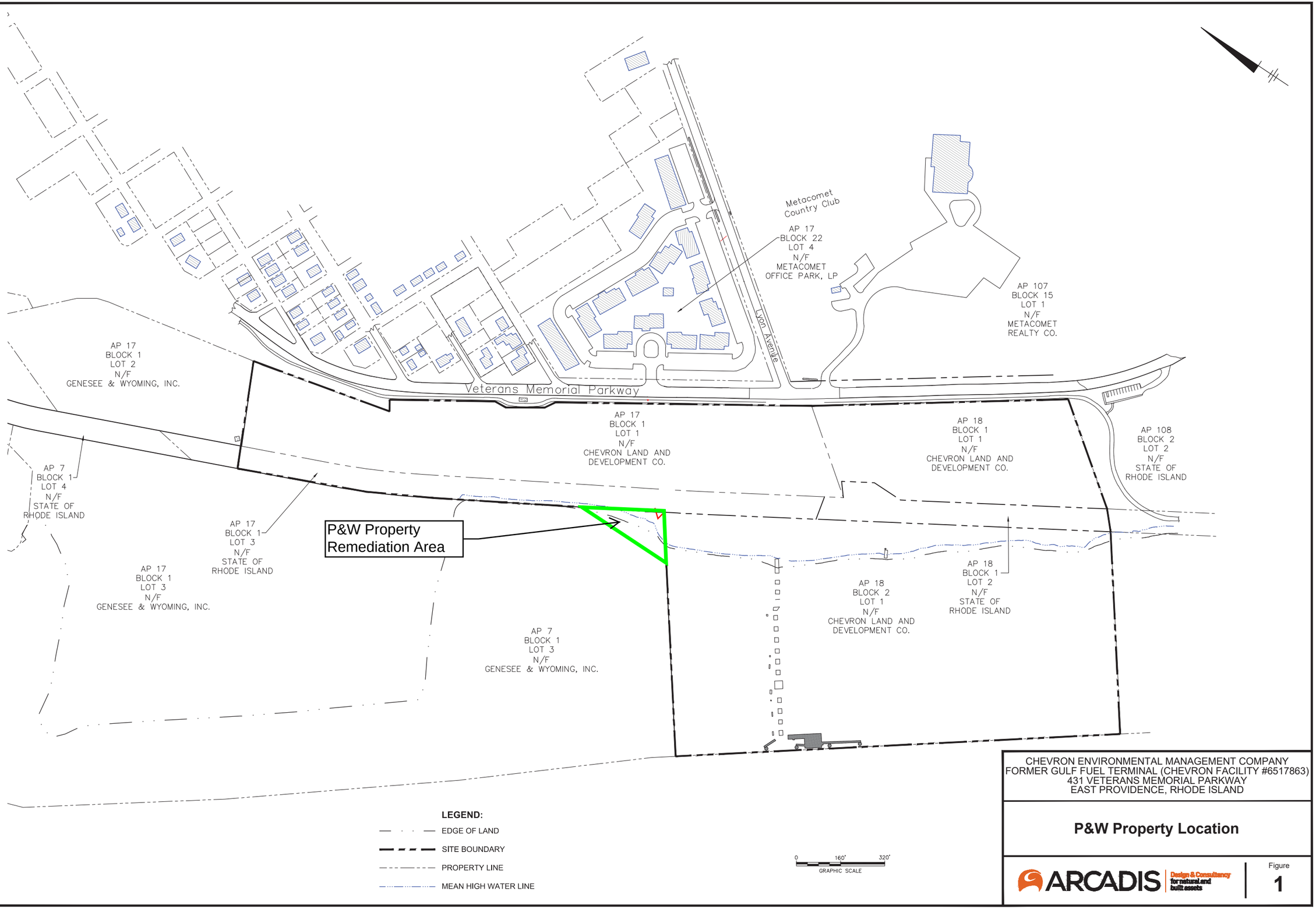
Copies:
C. Hall, Chevron Land and Development Company
P. Cagnetta, Chevron Environmental Management Company

Enclosures:

Attachments
1 – Figure 1 – P&W Property Location
2 – Figure 2 – Proposed Additional LRAWP Area

ATTACHMENT 1

Figure 1 – P&W Property Location



CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY
FORMER GULF FUEL TERMINAL (CHEVRON FACILITY #6517863)
431 VETERANS MEMORIAL PARKWAY
EAST PROVIDENCE, RHODE ISLAND

P&W Property Location

ARCADIS Design & Consultancy for natural and built assets

Figure
1

ATTACHMENT 2

Figure 2 – Proposed Additional LRAWP Area

Proposed additional LRAWP remediation area

EXISTING SLURRY WALL

SANITARY SEWER

PROPOSED STORM SEWER (SEE SEPARATE DESIGN BY DIPRETE ENGINEERING)

EXISTING SLURRY WALL

EXCAVATION AREA

WOOD RETAINING WALL

WOOD RET WALL1

WOOD RET WALL2

APPARENT SHEEN SOURCE

OUTFALL-A

APPARENT SHEEN SOURCE

POSSIBLE ABANDONED CITY STORM SEWER

PROVIDENCE RIVER

FORMER OIL WATER SEPARATOR DECOMMISSIONED IN PLACE

KAYAK LAUNCH

OUTFALL-D

PROPOSED STORM SEWER (SEE SEPARATE DESIGN BY DIPRETE ENGINEERING)

STORM SEWER

OUTFALL-B

EXISTING OF-3

RAMP

PROVIDENCE RIVER

FORMER FUEL DOCK AND WOODEN PLATFORMS

LEGEND:

- PROPERTY BOUNDARY
- EDGE OF COASTAL FEATURE
- MEAN HIGHER HIGH WATER ELEVATION
- MEAN LOW LOW WATER ELEVATION
- SOURCE AREA REMOVAL BOUNDARY
- ELEVATION CONTOUR
- WOOD RETAINING WALL
- EXISTING SLURRY WALL
- RIP RAP
- PROPOSED STORM SEWER
- SS — CITY STORM SEWER
- S — SANITARY SEWER
- ANCHOR TRENCH
- S19 / 2 — PANEL ID / NUMBER OF RCM LAYERS

- NAPL OBSERVED
- NAPL GLOBULES OBSERVED
- SHEEN OBSERVED
- MW-5 — MONITORING WELL
- TP-119 — TEST PIT (JUNE 2009)
- PR-01 — SEDIMENT CORE (JUNE 2009)
- WB-1 — GZA SEDIMENT BORING (JULY 2009)
- SB-100 — SOIL BORING (SEPT 2010)
- T1-A — SHEEN INVESTIGATION LOCATION (JULY 2014)
- PW-SED-07 — SEDIMENT CORE (OCTOBER 2016)
- LTC-CS-67 — CONFIRMATION SAMPLE LOCATIONS
- NAPL — NON-AQUEOUS PHASE LIQUID
- RCM — REACTIVE CORE MAT

1"=30' (30' 0 30' 60')

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
2	4/6/2017	SEDIMENT CAP REVISIONS	JLH	XX
1	2/8/2017	FINAL DESIGN	JLH	XX

Professional Engineer's Name: REBECCA LINDEMAN
Professional Engineer's No.: 0011661
State: RI | Date Signed: | Project Mgr.: LM
Designed by: WT | Drawn by: KMD/JLH | Checked by: BRB

ARCADIS U.S., INC.

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY • FORMER GULF FUEL TERMINAL (CHEVRON FACILITY #6517863)
EAST PROVIDENCE WATERFRONT REMEDIATION
DRAFT - NOT ISSUED FOR CONSTRUCTION

PROPOSED ADDITIONAL LRAWP AREA

ARCADIS Project No. B0047715.MC10.00001
Date: JUNE 2017

ARCADIS
300 METRO CENTER BLVD.
SUITE 250
WARWICK, RI 02886
TEL. 401.738.3887

2

CITY: SAN RAFAEL, CA DIV/GROUP: ENVCAD DB: K. DAVIS, A. SCHILLING, J. HARRIS
C:\Users\kdavis\OneDrive - ARCADIS\BIM 360 Docs\CHEVRON CORPORATION\6517863-WATERFRONT REM\GW BARRIER\01-DWG\47715 ADD PANELS.dwg LAYOUT: 2 SAVED: 3/30/2018 3:03 PM ACADVER: 21.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 3/30/2018 3:04 PM
BY: DAVIS, KATHI

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RHODE ISLAND
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WASTE MANAGEMENT
235 Promenade Street
Providence, Rhode Island 02908

REMEDIAL APPROVAL LETTER August 6, 2018
File No. SR-10-0248
(Formerly CASE NO. #97-017)

Ms. Constance L. Hall, Project Manager
Chevron Land & Development Company
1600 Smith Street, Room 24070B
Houston, Texas 77002-7363

RE: Modification to the 2016- Limited Remedial Action Work Plan- Chevron EPRI Waterfront
Dated August 12, 2016 and received August 15, 2016

Former Chevron Facility property
413 Veterans Memorial Parkway
East Providence, Rhode Island
A.P. 17-Block 1, Lot 1 Upper Tier Center and North owned by Chevron
A.P. 17(portion)-Block 1, Lot 3 State Highway Right of Way owned by RIDOT
A.P. 18(portion)-Block 1, Lot 2 State Highway Right of Way owned by RIDOT
A.P. 18-Block 1, Lot 1, Upper Tier South owned by Chevron
A.P. 18-Block 2, Lot 1, Lower Tier Center, South and Waterfront Area owned by Chevron

Dear Ms. Hall:

On November 9, 2011, the Rhode Island Department of Environmental Management's (the Department) Office of Waste Management (OWM) amended the Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations). The purpose of these regulations is to create an integrated program requiring reporting, investigation and remediation of contaminated sites in order to eliminate and/or control threats to human health and the environment in a timely and cost-effective manner. A Remedial Approval Letter (RAL) is a document used by the Department to approve remedial actions at contaminated sites that do not involve the use of complex engineered systems or techniques (e.g. groundwater pump and treat systems, soil vapor extraction systems, etc.).

In the matter of the above-referenced property (the Site), the Department's OWM is in receipt of the following documentation submitted pursuant to the Remediation Regulations in response to the reported release at the Site:

1. **Chevron EPRI Waterfront-Limited Remedial Action Work Plan**, received by the Department on August 15, 2016, and prepared by Arcadis for Chevron Land Management Company (Chevron);

2. **ARCADIS Letter to CRMC: Modification for CRMC Assent Application 2016-06-081** dated August 18, 2016 and received August 22, 2016; and

3. **Modification to the Limited Remedial Action Work Plan** (dated August 2016) received at RIDEM on August 1, 2018.

Together these documents fulfill the requirements of Section 8.00 (Risk Management) and Section 9.00 (Remedial Action Work Plan (RAWP)) of the Remediation Regulations.

The 2016 remedial alternative involved the following remedial action work in the Waterfront Area: Installation of a portable dam and dewatering controls; Limited pier removal; Removal of existing oil/water separator; Removal of existing rip rap feature; Excavation of petroleum impacted soil; Placement of a sheen barrier consisting of a Reactive Core Mat (RCM), oleophilic biobarrier (OBB) and armoring in the intertidal zone (minus the habitat feature). Chevron has now requested to extend the remedy to the Genesee & Wyoming property (Map 7, Block 1, Lot 3) (formerly Providence & Worcester) to the south. Chevron has indicated that the final design of the remedy may be modified after access has been granted and site conditions are evaluated.

As previously stated in the 2016 approval, upon completion of the proposed work and submission of a Remedial Action Closure report, Chevron shall submit a draft Environmental Land Usage Restriction (ELUR) and post Construction Soil Management Plan (SMP) for the Waterfront Area and the Genesee & Wyoming property for review and approval. Once approved, the ELUR and SMP shall be recorded in the Land Evidence Records for the City of East Providence and a recorded copy sent back to RIDEM Office of Waste Management within fifteen (15) days of recording. At that time, Chevron may proceed with the transfer in property ownership from Chevron to the new property owner and notify the Department with the new property owner's name and contact information as per Rule 10.03. The new property owner shall be responsible to submit the annual inspection report for the Waterfront Area and the Genesee & Wyoming property as stated in the ELUR and also submit a Remedial Action Work Plan for any Waterfront re-development after the transfer of property title.

Based upon review and consideration of the above referenced document, the Department approves the Limited Remedial Action Work Plan (LRAWP) through this RAL provided that:

1. All work must be performed in accordance with all applicable regulations and the Department approved LRAWP.

2. Start of the work described in the Department approved LRAWP must be initiated within six (6) months of issuance of this RAL.

3. Prior to initiating any remedial activities, the Department shall be provided with a list of all contractors, and their respective contact information, that will be used on Site to complete the remedial work described in the Department approved LRAWP. The Department shall be notified, when feasible, a minimum of five (5) working days in advance of any changes in contractors and/or consultants involved with the remedial work on this Site. The notification must be promptly supplied in writing with complete contact information for each new contractor or consultant (including but not limited to company name and address, contact name and address, contact telephone number and e-mail address).

4. All excavated regulated soil, if not approved for encapsulation onsite, shall be disposed of off-site at an appropriately licensed disposal facility in accordance with all local, State, and Federal laws. Copies of the material shipping records and manifests associated with the disposal of the material shall be included along with the Closure Report.

5. Areas of the site where contaminated soils are to be excavated must be staged and temporarily stored in a designated area, as proposed in the LRAWP, of the site with proper polyethylene covers. Any stockpiled materials, including clean fill, must be underlain and covered with polyethylene sheeting and be secured at the end of each day with all appropriate erosion and sediment controls to limit the loss of the cover and protect against storm-water and wind erosion (i.e. hay bales, rocks, silt fencing). These appropriate sedimentation and erosion controls must be in place and in proper working order at all times until all disturbed areas are stabilized and capped as proposed. Within reason, the storage location will be selected to limit the unauthorized access to the materials (i.e. away from public roadways/walkways). No regulated soil will be stockpiled on-site for greater than thirty (30) days. In the event that stockpiled soils pose a risk or threat of leaching hazardous materials, a proper leak-proof container (i.e. drum or lined roll-off) or secondary containment will be required and utilized.

6. The OWM no longer requires the submittal of analytical data prior to clean fill being brought to a Site. It is the sole responsibility of the Performing Party and their consultant to analyze the material, certify that the material meets the Department's Residential Direct Exposure Criteria (RDEC), as defined by the Remediation Regulations, for all constituents, and is suitable for use on the Site. The OWM strongly suggests that enough representative samples of the clean fill are collected prior to moving the material to the Site to satisfy the Performing Party and their consultant that the material meets the RDEC. Please note that the OWM reserves its rights to sample the fill, if suspect, to confirm compliance with the RDEC.

7. All regulated soil remaining onsite shall be encapsulated by an engineered control consistent with those described in the Department approved RAWP.

8. Dust suppression techniques (i.e. watering) must be employed at all times during all soil disturbing/handling activities at the site in order to minimize the generation of fugitive dust.

9. Within sixty (60) days of completion of the work described in the Department approved LRAWP, a Closure Report detailing the remedial action and including any disposal documentation shall be submitted to the OWM.

10. Within sixty (60) days of completion of the work described in the Department approved LRAWP, the final Department approved ELUR shall be recorded in the City of East Providence Land Evidence Records for the property and a stamped, certified copy returned to the Department within fifteen (15) days of recording. Upon receipt of a copy of the recorded (stamped) ELUR, the OWM will issue an Interim Letter of Compliance to Chevron Land & Development Company for the Waterfront area.

11. Following recording of the ELUR, the Waterfront Area shall be maintained and annually inspected to evaluate the compliance status of the site with the ELUR. Within thirty (30) days of each annual inspection, an evaluation report shall be prepared and submitted to the OWM detailing the findings of the inspection and noting any compliance violations at the site.

12. Any changes in the activities detailed in the LRAWP shall be reported to the OWM by telephone within one (1) working day and in writing within five (5) business days.

13. The OWM shall be notified forty-eight (48) hours prior to initiating the remedial activities at the site associated with the Department approved LRAWP.

14. The OWM shall be immediately notified of any site or operation condition that results in non-compliance with this RAL.

At this time, the OWM offers its concurrence with the proposed remedial action for the Waterfront portion of the property and the Genesee & Wyoming property. The Department approves the LRAWP provided that all activities and procedures detailed in the LRAWP are strictly adhered to. Furthermore, this letter continues to place primary responsibility for the construction, operation, maintenance, and monitoring of the approved LRAWP and its associated implementation on Chevron. As the Responsible Party and Performing Party, Chevron is expected to implement the LRAWP in an expeditious and professional manner that prevents non-compliance with this RAL and said LRAWP and is protective of human health and the environment.

Please note that at this time the Department does not approve the ELUR for recording in the Land Evidence Records with the City of East Providence. Please forward an electronic version of the draft ELUR and the post-construction SMP in red line / strikeout format for Department review and approval. The ELUR and SMP shall be reviewed and approved by the Department, followed by recording, at the completion of all remedial work in the Waterfront Area and the Genesee & Wyoming property.

This RAL does not remove your obligation to obtain any other necessary permits from other local, State, or Federal agencies.

If you have any questions regarding this letter or would like the opportunity to meet with Department personnel, please contact me by telephone at (401) 222-2797, ext. 7102, or by E-mail at jeff.crawford@dem.ri.gov.

Sincerely,

Jeffrey Crawford, Project Manager
Principal Environmental Scientist
Office of Waste Management

Authorized by,

Kelly J. Owens

Kelly Owens
Supervising Engineer
Office of Waste Management

Cc: Susan Forcier, Esq.-DEM Legal
Neal Personeus, OWR
Leanne Miner, Arcadis
Donna Pallister, Arcadis
Melanie Jewett Army, RIDOT
Davis Reis, CRMC
Kendra Beaver, Save the Bay

APPENDIX H

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9C27008
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 10-January-2022

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
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Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 03/27/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9C27008. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9C27008-01	SE 101 (10-15) (MW)	Soil	03/21/2019	03/27/2019
9C27008-02	SE 102 (10-15)	Soil	03/21/2019	03/27/2019
9C27008-03	SE 105 (0-5)	Soil	03/21/2019	03/27/2019
9C27008-05	SE 106 (5-10)	Soil	03/21/2019	03/27/2019
9C27008-06	SE 108 (5-10) (MW)	Soil	03/21/2019	03/27/2019
9C27008-07	SE 109 (0-5)	Soil	03/21/2019	03/27/2019
9C27008-14	SE 104 (0-5)	Soil	03/21/2019	03/27/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE 101 (10-15) (MW) (Lab Number: 9C27008-01)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 102 (10-15) (Lab Number: 9C27008-02)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 104 (0-5) (Lab Number: 9C27008-14)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 105 (0-5) (Lab Number: 9C27008-03)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C

Request for Analysis (continued)

SE 105 (0-5) (Lab Number: 9C27008-03) (continued)

Analysis	Method
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 106 (5-10) (Lab Number: 9C27008-05)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 108 (5-10) (MW) (Lab Number: 9C27008-06)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE 109 (0-5) (Lab Number: 9C27008-07)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

PCBs

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

The sample "SE 101 (10-15)(MW)" was reported with a surrogate recovery limit that is outside of recovery limits due to sample matrix interfence.

Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

Results: Total Metals

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**12.4**		1.10	mg/kg	03/28/19	03/29/19
Barium	**48.8**		0.55	mg/kg	03/28/19	03/29/19
Cadmium	**3.03**		0.55	mg/kg	03/28/19	03/29/19
Chromium	**86.1**		0.55	mg/kg	03/28/19	03/29/19
Lead	**53.0**		0.55	mg/kg	03/28/19	03/29/19
Mercury	**0.358**		0.118	mg/kg	03/29/19	03/29/19
Selenium	ND		1.10	mg/kg	03/28/19	03/29/19
Silver	ND		0.55	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**11.4**		0.97	mg/kg	03/28/19	03/29/19
Barium	**57.7**		0.48	mg/kg	03/28/19	03/29/19
Cadmium	**4.21**		0.48	mg/kg	03/28/19	03/29/19
Chromium	**71.9**		0.48	mg/kg	03/28/19	03/29/19
Lead	**66.3**		0.48	mg/kg	03/28/19	03/29/19
Mercury	ND		0.111	mg/kg	03/29/19	03/29/19
Selenium	ND		0.97	mg/kg	03/28/19	03/29/19
Silver	ND		0.48	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.94**		0.65	mg/kg	03/28/19	03/29/19
Barium	**16.5**		0.33	mg/kg	03/28/19	03/29/19
Cadmium	**0.72**		0.33	mg/kg	03/28/19	03/29/19
Chromium	**6.07**		0.33	mg/kg	03/28/19	03/29/19
Lead	**7.26**		0.33	mg/kg	03/28/19	03/29/19
Mercury	ND		0.073	mg/kg	03/29/19	03/29/19
Selenium	ND		0.65	mg/kg	03/28/19	03/29/19
Silver	ND		0.33	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.19**		0.60	mg/kg	03/28/19	03/29/19
Barium	**8.29**		0.30	mg/kg	03/28/19	03/29/19
Cadmium	ND		0.30	mg/kg	03/28/19	03/29/19
Chromium	**1.20**		0.30	mg/kg	03/28/19	03/29/19
Lead	**2.99**		0.30	mg/kg	03/28/19	03/29/19
Mercury	ND		0.068	mg/kg	03/29/19	03/29/19
Selenium	ND		0.60	mg/kg	03/28/19	03/29/19
Silver	ND		0.30	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.17**		0.61	mg/kg	03/28/19	03/29/19
Barium	**20.0**		0.31	mg/kg	03/28/19	03/29/19
Cadmium	**0.77**		0.31	mg/kg	03/28/19	03/29/19
Chromium	**5.65**		0.31	mg/kg	03/28/19	03/29/19
Lead	**11.1**		0.31	mg/kg	03/28/19	03/29/19
Mercury	ND		0.078	mg/kg	03/29/19	03/29/19
Selenium	ND		0.61	mg/kg	03/28/19	03/29/19
Silver	ND		0.31	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.85**		0.71	mg/kg	03/28/19	03/29/19
Barium	**17.8**		0.36	mg/kg	03/28/19	03/29/19
Cadmium	**0.54**		0.36	mg/kg	03/28/19	03/29/19
Chromium	**7.02**		0.36	mg/kg	03/28/19	03/29/19
Lead	**12.1**		0.36	mg/kg	03/28/19	03/29/19
Mercury	ND		0.080	mg/kg	03/29/19	03/29/19
Selenium	ND		0.71	mg/kg	03/28/19	03/29/19
Silver	ND		0.36	mg/kg	03/28/19	03/29/19

Results: Total Metals

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.23**		0.61	mg/kg	03/28/19	03/29/19
Barium	**5.06**		0.31	mg/kg	03/28/19	03/29/19
Cadmium	ND		0.31	mg/kg	03/28/19	03/29/19
Chromium	**0.82**		0.31	mg/kg	03/28/19	03/29/19
Lead	**2.11**		0.31	mg/kg	03/28/19	03/29/19
Mercury	ND		0.070	mg/kg	03/29/19	03/29/19
Selenium	ND		0.61	mg/kg	03/28/19	03/29/19
Silver	ND		0.31	mg/kg	03/28/19	03/29/19

Results: Volatile Organic Compounds

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		450	ug/kg	03/29/19	03/30/19
Benzene	ND		90	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		90	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		90	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		90	ug/kg	03/29/19	03/30/19
Bromoform	ND		90	ug/kg	03/29/19	03/30/19
Bromomethane	ND		90	ug/kg	03/29/19	03/30/19
2-Butanone	ND		450	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		450	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		90	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		90	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		90	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		90	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		90	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		90	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		90	ug/kg	03/29/19	03/30/19
Chloroethane	ND		90	ug/kg	03/29/19	03/30/19
Chloroform	ND		90	ug/kg	03/29/19	03/30/19
Chloromethane	ND		90	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		90	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		90	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		90	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		90	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	17	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		90	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		90	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		90	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		90	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		90	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		90	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		90	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		90	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		90	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		90	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		90	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		90	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		90	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		90	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		180	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		450	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		45000	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		90	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		90	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		450	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		90	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		90	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		90	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		450	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 101 (10-15) (MW) (Continued)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		90	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		90	ug/kg	03/29/19	03/30/19
Styrene	ND		90	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		90	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		90	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		450	ug/kg	03/29/19	03/30/19
Toluene	ND		90	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		90	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		90	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		90	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		90	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		90	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		90	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		90	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		90	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	33	ug/kg	03/29/19	03/30/19
o-Xylene	ND		90	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		180	ug/kg	03/29/19	03/30/19
Total xylenes	ND		180	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		90	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		90	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		90	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		90	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		90	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		90	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		90	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.8%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*102%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*98.6%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		566	ug/kg	03/29/19	03/30/19
Benzene	ND		113	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		113	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		113	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		113	ug/kg	03/29/19	03/30/19
Bromoform	ND		113	ug/kg	03/29/19	03/30/19
Bromomethane	ND		113	ug/kg	03/29/19	03/30/19
2-Butanone	ND		566	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		566	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		113	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		113	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		113	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		113	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		113	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		113	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		113	ug/kg	03/29/19	03/30/19
Chloroethane	ND		113	ug/kg	03/29/19	03/30/19
Chloroform	ND		113	ug/kg	03/29/19	03/30/19
Chloromethane	ND		113	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		113	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		113	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		113	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		113	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	15	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		113	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		113	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		113	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		113	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		113	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		113	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		113	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		113	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		113	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		113	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		113	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		113	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		113	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		113	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		226	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		566	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		56600	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		113	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		113	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		566	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		113	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		113	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		113	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		566	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 102 (10-15) (Continued)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		113	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		113	ug/kg	03/29/19	03/30/19
Styrene	ND		113	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		113	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		113	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		566	ug/kg	03/29/19	03/30/19
Toluene	ND		113	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		113	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		113	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		113	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		113	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		113	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		113	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		113	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		113	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	28	ug/kg	03/29/19	03/30/19
o-Xylene	ND		113	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		226	ug/kg	03/29/19	03/30/19
Total xylenes	ND		226	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		113	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		113	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		113	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		113	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		113	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		113	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		113	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*100%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*98.2%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.2%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		119	ug/kg	03/29/19	03/30/19
Benzene	ND		24	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		24	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		24	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		24	ug/kg	03/29/19	03/30/19
Bromoform	ND		24	ug/kg	03/29/19	03/30/19
Bromomethane	ND		24	ug/kg	03/29/19	03/30/19
2-Butanone	ND		119	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		119	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		24	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		24	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		24	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		24	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		24	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		24	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		24	ug/kg	03/29/19	03/30/19
Chloroethane	ND		24	ug/kg	03/29/19	03/30/19
Chloroform	ND		24	ug/kg	03/29/19	03/30/19
Chloromethane	ND		24	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		24	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		24	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		24	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		24	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	12	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		24	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		24	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		24	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		24	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		24	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		24	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		24	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		24	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		24	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		24	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		24	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		24	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		24	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		24	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		47	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		119	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		11900	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		24	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		24	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		119	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		24	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		24	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		24	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		119	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 105 (0-5) (Continued)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		24	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		24	ug/kg	03/29/19	03/30/19
Styrene	ND		24	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		24	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		24	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		119	ug/kg	03/29/19	03/30/19
Toluene	ND		24	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		24	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		24	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		24	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		24	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		24	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		24	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		24	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		24	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	23	ug/kg	03/29/19	03/30/19
o-Xylene	ND		24	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		47	ug/kg	03/29/19	03/30/19
Total xylenes	ND		47	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		24	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		24	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		24	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		24	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		24	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		24	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		24	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.0%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*95.8%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.2%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		128	ug/kg	03/29/19	03/30/19
Benzene	ND		26	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		26	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		26	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		26	ug/kg	03/29/19	03/30/19
Bromoform	ND		26	ug/kg	03/29/19	03/30/19
Bromomethane	ND		26	ug/kg	03/29/19	03/30/19
2-Butanone	ND		128	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		128	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		26	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		26	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		26	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		26	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		26	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
Chloroethane	ND		26	ug/kg	03/29/19	03/30/19
Chloroform	ND		26	ug/kg	03/29/19	03/30/19
Chloromethane	ND		26	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		26	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		26	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	11	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		26	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		26	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		26	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		26	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		26	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		26	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		26	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		26	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		26	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		51	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		128	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		12800	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		26	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		128	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		26	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		26	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		26	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		128	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 106 (5-10) (Continued)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		26	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Styrene	ND		26	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		26	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		26	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		128	ug/kg	03/29/19	03/30/19
Toluene	ND		26	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		26	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		26	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		26	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		26	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		26	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		26	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		26	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	23	ug/kg	03/29/19	03/30/19
o-Xylene	ND		26	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		51	ug/kg	03/29/19	03/30/19
Total xylenes	ND		51	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		26	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		26	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		26	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		26	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		26	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		26	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		26	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*101%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.5%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		123	ug/kg	03/29/19	03/30/19
Benzene	ND		25	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		25	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		25	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		25	ug/kg	03/29/19	03/30/19
Bromoform	ND		25	ug/kg	03/29/19	03/30/19
Bromomethane	ND		25	ug/kg	03/29/19	03/30/19
2-Butanone	ND		123	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		123	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		25	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		25	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		25	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		25	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		25	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
Chloroethane	ND		25	ug/kg	03/29/19	03/30/19
Chloroform	ND		25	ug/kg	03/29/19	03/30/19
Chloromethane	ND		25	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		25	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		25	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	13	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		25	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		25	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		25	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		25	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		25	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		25	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		25	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		25	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		25	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		49	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		123	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		12300	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		25	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		123	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		25	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		25	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		25	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		123	ug/kg	03/29/19	03/30/19

Sample: SE 108 (5-10) (MW) (Continued)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		25	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Styrene	ND		25	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		25	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		25	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		123	ug/kg	03/29/19	03/30/19
Toluene	ND		25	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		25	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		25	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		25	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		25	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		25	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		25	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		25	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND		25	ug/kg	03/29/19	03/30/19
o-Xylene	ND		25	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		49	ug/kg	03/29/19	03/30/19
Total xylenes	ND		49	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		25	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		25	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		25	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		25	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		25	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		25	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		25	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*95.5%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.1%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		217	ug/kg	03/29/19	03/30/19
Benzene	ND		43	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		43	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		43	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		43	ug/kg	03/29/19	03/30/19
Bromoform	ND		43	ug/kg	03/29/19	03/30/19
Bromomethane	ND		43	ug/kg	03/29/19	03/30/19
2-Butanone	ND		217	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		217	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		43	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		43	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		43	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		43	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		43	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		43	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		43	ug/kg	03/29/19	03/30/19
Chloroethane	ND		43	ug/kg	03/29/19	03/30/19
Chloroform	ND		43	ug/kg	03/29/19	03/30/19
Chloromethane	ND		43	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		43	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		43	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		43	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		43	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	12	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		43	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		43	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		43	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		43	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		43	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		43	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		43	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		43	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		43	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		43	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		43	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		43	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		43	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		43	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		87	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		217	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		21700	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		43	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		43	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		217	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		43	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		43	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		43	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		217	ug/kg	03/29/19	03/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE 109 (0-5) (Continued)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		43	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		43	ug/kg	03/29/19	03/30/19
Styrene	ND		43	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		43	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		43	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		217	ug/kg	03/29/19	03/30/19
Toluene	ND		43	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		43	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		43	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		43	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		43	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		43	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		43	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		43	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		43	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	24	ug/kg	03/29/19	03/30/19
o-Xylene	ND		43	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		87	ug/kg	03/29/19	03/30/19
Total xylenes	ND		87	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		43	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		43	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		43	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		43	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		43	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		43	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		43	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*102%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*96.5%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*98.3%*	*70-130*	03/29/19	03/30/19

Results: Volatile Organic Compounds

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		135	ug/kg	03/29/19	03/30/19
Benzene	ND		27	ug/kg	03/29/19	03/30/19
Bromobenzene	ND		27	ug/kg	03/29/19	03/30/19
Bromochloromethane	ND		27	ug/kg	03/29/19	03/30/19
Bromodichloromethane	ND		27	ug/kg	03/29/19	03/30/19
Bromoform	ND		27	ug/kg	03/29/19	03/30/19
Bromomethane	ND		27	ug/kg	03/29/19	03/30/19
2-Butanone	ND		135	ug/kg	03/29/19	03/30/19
tert-Butyl alcohol	ND		135	ug/kg	03/29/19	03/30/19
sec-Butylbenzene	ND		27	ug/kg	03/29/19	03/30/19
n-Butylbenzene	ND		27	ug/kg	03/29/19	03/30/19
tert-Butylbenzene	ND		27	ug/kg	03/29/19	03/30/19
Methyl t-butyl ether (MTBE)	ND		27	ug/kg	03/29/19	03/30/19
Carbon Disulfide	ND		27	ug/kg	03/29/19	03/30/19
Carbon Tetrachloride	ND		27	ug/kg	03/29/19	03/30/19
Chlorobenzene	ND		27	ug/kg	03/29/19	03/30/19
Chloroethane	ND		27	ug/kg	03/29/19	03/30/19
Chloroform	ND		27	ug/kg	03/29/19	03/30/19
Chloromethane	ND		27	ug/kg	03/29/19	03/30/19
4-Chlorotoluene	ND		27	ug/kg	03/29/19	03/30/19
2-Chlorotoluene	ND		27	ug/kg	03/29/19	03/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		27	ug/kg	03/29/19	03/30/19
Dibromochloromethane	ND		27	ug/kg	03/29/19	03/30/19
1,2-Dibromoethane (EDB)	ND	J	11	ug/kg	03/29/19	03/30/19
Dibromomethane	ND		27	ug/kg	03/29/19	03/30/19
1,2-Dichlorobenzene	ND		27	ug/kg	03/29/19	03/30/19
1,3-Dichlorobenzene	ND		27	ug/kg	03/29/19	03/30/19
1,4-Dichlorobenzene	ND		27	ug/kg	03/29/19	03/30/19
1,1-Dichloroethane	ND		27	ug/kg	03/29/19	03/30/19
1,2-Dichloroethane	ND		27	ug/kg	03/29/19	03/30/19
trans-1,2-Dichloroethene	ND		27	ug/kg	03/29/19	03/30/19
cis-1,2-Dichloroethene	ND		27	ug/kg	03/29/19	03/30/19
1,1-Dichloroethene	ND		27	ug/kg	03/29/19	03/30/19
1,2-Dichloropropane	ND		27	ug/kg	03/29/19	03/30/19
2,2-Dichloropropane	ND		27	ug/kg	03/29/19	03/30/19
cis-1,3-Dichloropropene	ND		27	ug/kg	03/29/19	03/30/19
trans-1,3-Dichloropropene	ND		27	ug/kg	03/29/19	03/30/19
1,1-Dichloropropene	ND		27	ug/kg	03/29/19	03/30/19
1,3-Dichloropropene (cis + trans)	ND		54	ug/kg	03/29/19	03/30/19
Diethyl ether	ND		135	ug/kg	03/29/19	03/30/19
1,4-Dioxane	ND		13500	ug/kg	03/29/19	03/30/19
Ethylbenzene	ND		27	ug/kg	03/29/19	03/30/19
Hexachlorobutadiene	ND		27	ug/kg	03/29/19	03/30/19
2-Hexanone	ND		135	ug/kg	03/29/19	03/30/19
Isopropylbenzene	ND		27	ug/kg	03/29/19	03/30/19
p-Isopropyltoluene	ND		27	ug/kg	03/29/19	03/30/19
Methylene Chloride	ND		27	ug/kg	03/29/19	03/30/19
4-Methyl-2-pentanone	ND		135	ug/kg	03/29/19	03/30/19

Sample: SE 104 (0-5) (Continued)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		27	ug/kg	03/29/19	03/30/19
n-Propylbenzene	ND		27	ug/kg	03/29/19	03/30/19
Styrene	ND		27	ug/kg	03/29/19	03/30/19
1,1,1,2-Tetrachloroethane	ND		27	ug/kg	03/29/19	03/30/19
Tetrachloroethene	ND		27	ug/kg	03/29/19	03/30/19
Tetrahydrofuran	ND		135	ug/kg	03/29/19	03/30/19
Toluene	ND		27	ug/kg	03/29/19	03/30/19
1,2,4-Trichlorobenzene	ND		27	ug/kg	03/29/19	03/30/19
1,2,3-Trichlorobenzene	ND		27	ug/kg	03/29/19	03/30/19
1,1,2-Trichloroethane	ND		27	ug/kg	03/29/19	03/30/19
1,1,1-Trichloroethane	ND		27	ug/kg	03/29/19	03/30/19
Trichloroethene	ND		27	ug/kg	03/29/19	03/30/19
1,2,3-Trichloropropane	ND		27	ug/kg	03/29/19	03/30/19
1,3,5-Trimethylbenzene	ND		27	ug/kg	03/29/19	03/30/19
1,2,4-Trimethylbenzene	ND		27	ug/kg	03/29/19	03/30/19
Vinyl Chloride	ND	J	22	ug/kg	03/29/19	03/30/19
o-Xylene	ND		27	ug/kg	03/29/19	03/30/19
m&p-Xylene	ND		54	ug/kg	03/29/19	03/30/19
Total xylenes	ND		54	ug/kg	03/29/19	03/30/19
1,1,2,2-Tetrachloroethane	ND		27	ug/kg	03/29/19	03/30/19
tert-Amyl methyl ether	ND		27	ug/kg	03/29/19	03/30/19
1,3-Dichloropropane	ND		27	ug/kg	03/29/19	03/30/19
Ethyl tert-butyl ether	ND		27	ug/kg	03/29/19	03/30/19
Diisopropyl ether	ND		27	ug/kg	03/29/19	03/30/19
Trichlorofluoromethane	ND		27	ug/kg	03/29/19	03/30/19
Dichlorodifluoromethane	ND		27	ug/kg	03/29/19	03/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*99.8%*	*70-130*	03/29/19	03/30/19
1,2-Dichloroethane-d4	*101%*	*70-130*	03/29/19	03/30/19
Toluene-d8	*99.3%*	*70-130*	03/29/19	03/30/19

Results: Semivolatile organic compounds

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		209	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		209	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		209	ug/kg	03/28/19	03/29/19
Anthracene	ND		209	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	**296**		209	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	**683**		209	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	**332**		209	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		209	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		209	ug/kg	03/28/19	03/29/19
Chrysene	**286**		209	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		209	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		209	ug/kg	03/28/19	03/29/19
Fluoranthene	**509**		209	ug/kg	03/28/19	03/29/19
Fluorene	ND		209	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		209	ug/kg	03/28/19	03/29/19
Naphthalene	**222**		209	ug/kg	03/28/19	03/29/19
Phenanthrene	**337**		209	ug/kg	03/28/19	03/29/19
Pyrene	**750**		209	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*70.1%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*81.4%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*71.6%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		210	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		210	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		210	ug/kg	03/28/19	03/29/19
Anthracene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		210	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		210	ug/kg	03/28/19	03/29/19
Chrysene	ND		210	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		210	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		210	ug/kg	03/28/19	03/29/19
Fluoranthene	**294**		210	ug/kg	03/28/19	03/29/19
Fluorene	ND		210	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		210	ug/kg	03/28/19	03/29/19
Naphthalene	ND		210	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		210	ug/kg	03/28/19	03/29/19
Pyrene	**318**		210	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*50.0%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*66.4%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*63.3%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		133	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		133	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		133	ug/kg	03/28/19	03/29/19
Anthracene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		133	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		133	ug/kg	03/28/19	03/29/19
Chrysene	ND		133	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		133	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		133	ug/kg	03/28/19	03/29/19
Fluoranthene	**173**		133	ug/kg	03/28/19	03/29/19
Fluorene	ND		133	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		133	ug/kg	03/28/19	03/29/19
Naphthalene	ND		133	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		133	ug/kg	03/28/19	03/29/19
Pyrene	ND		133	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*98.6%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*90.4%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*87.0%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		131	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		131	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		131	ug/kg	03/28/19	03/29/19
Anthracene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		131	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		131	ug/kg	03/28/19	03/29/19
Chrysene	ND		131	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		131	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		131	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		131	ug/kg	03/28/19	03/29/19
Fluorene	ND		131	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		131	ug/kg	03/28/19	03/29/19
Naphthalene	ND		131	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		131	ug/kg	03/28/19	03/29/19
Pyrene	ND		131	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*103%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*94.2%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*90.0%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		142	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		142	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		142	ug/kg	03/28/19	03/29/19
Anthracene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	**170**		142	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		142	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Chrysene	ND		142	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		142	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		142	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		142	ug/kg	03/28/19	03/29/19
Fluorene	ND		142	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		142	ug/kg	03/28/19	03/29/19
Naphthalene	ND		142	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		142	ug/kg	03/28/19	03/29/19
Pyrene	**221**		142	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*50.3%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*86.8%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*57.9%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		143	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		143	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		143	ug/kg	03/28/19	03/29/19
Anthracene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		143	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		143	ug/kg	03/28/19	03/29/19
Chrysene	ND		143	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		143	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		143	ug/kg	03/28/19	03/29/19
Fluoranthene	**245**		143	ug/kg	03/28/19	03/29/19
Fluorene	ND		143	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		143	ug/kg	03/28/19	03/29/19
Naphthalene	ND		143	ug/kg	03/28/19	03/29/19
Phenanthrene	**160**		143	ug/kg	03/28/19	03/29/19
Pyrene	**229**		143	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*74.6%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*94.3%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*69.8%*	*34-130*	03/28/19	03/29/19

Results: Semivolatile organic compounds

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		132	ug/kg	03/28/19	03/29/19
Acenaphthene	ND		132	ug/kg	03/28/19	03/29/19
Acenaphthylene	ND		132	ug/kg	03/28/19	03/29/19
Anthracene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(a)anthracene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(a)pyrene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(b)fluoranthene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(g,h,i)perylene	ND		132	ug/kg	03/28/19	03/29/19
Benzo(k)fluoranthene	ND		132	ug/kg	03/28/19	03/29/19
Chrysene	ND		132	ug/kg	03/28/19	03/29/19
Dibenz(a,h)anthracene	ND		132	ug/kg	03/28/19	03/29/19
Dibenzofuran	ND		132	ug/kg	03/28/19	03/29/19
Fluoranthene	ND		132	ug/kg	03/28/19	03/29/19
Fluorene	ND		132	ug/kg	03/28/19	03/29/19
Indeno(1,2,3-cd)pyrene	ND		132	ug/kg	03/28/19	03/29/19
Naphthalene	ND		132	ug/kg	03/28/19	03/29/19
Phenanthrene	ND		132	ug/kg	03/28/19	03/29/19
Pyrene	ND		132	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*103%*	*30-126*	03/28/19	03/29/19
p-Terphenyl-d14	*99.7%*	*47-130*	03/28/19	03/29/19
2-Fluorobiphenyl	*92.3%*	*34-130*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		109	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		109	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*40.1%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*19.4%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		109	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		109	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		109	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*62.3%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*76.4%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 105 (0-5)

Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1254	**125**		66	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		66	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		66	ug/kg	03/28/19	03/29/19
PCBs (Total)	**125**		66	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*78.9%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*78.3%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 106 (5-10)

Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		68	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		68	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		68	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*81.8%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*87.8%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1254	**164**		72	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		72	ug/kg	03/28/19	03/29/19
PCBs (Total)	**164**		72	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*60.0%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*73.6%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		72	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		72	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		72	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*72.1%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*63.5%*	*43.3-118*	03/28/19	03/29/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1221	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1232	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1242	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1248	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1254	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1260	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1262	ND		65	ug/kg	03/28/19	03/29/19
Aroclor-1268	ND		65	ug/kg	03/28/19	03/29/19
PCBs (Total)	ND		65	ug/kg	03/28/19	03/29/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*85.4%*	*36.2-108*	03/28/19	03/29/19
Decachlorobiphenyl (DCBP)	*86.8%*	*43.3-118*	03/28/19	03/29/19

Results: Total Petroleum Hydrocarbons

Sample: SE 101 (10-15) (MW)

Lab Number: 9C27008-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**313**		45	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*70.6%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 102 (10-15)

Lab Number: 9C27008-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**299**		45	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*61.8%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 105 (0-5)
Lab Number: 9C27008-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		28	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*90.4%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 106 (5-10)
Lab Number: 9C27008-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*84.9%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 108 (5-10) (MW)

Lab Number: 9C27008-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**220**		30	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*58.9%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 109 (0-5)

Lab Number: 9C27008-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**42**		30	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*88.3%*		*56.5-114*		03/29/19	04/01/19

Results: Total Petroleum Hydrocarbons

Sample: SE 104 (0-5)

Lab Number: 9C27008-14 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		27	mg/kg	03/29/19	04/01/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*85.6%*		*56.5-114*		03/29/19	04/01/19

Quality Control

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C1029 - Metals Digestion Soils										
Blank (B9C1029-BLK1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Lead	ND		0.33	mg/kg						
Selenium	ND		0.66	mg/kg						
Chromium	ND		0.33	mg/kg						
Cadmium	ND		0.33	mg/kg						
Barium	ND		0.33	mg/kg						
Arsenic	ND		0.66	mg/kg						
Silver	ND		0.33	mg/kg						
LCS (B9C1029-BS1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Selenium	18.3		0.66	mg/kg	20.0		91.5	85-115		
Barium	97.3		0.33	mg/kg	100		97.3	85-115		
Cadmium	94.6		0.33	mg/kg	100		94.6	85-115		
Silver	35.0		0.33	mg/kg	40.0		87.6	85-115		
Chromium	86.0		0.33	mg/kg	100		86.0	85-115		
Lead	92.0		0.33	mg/kg	100		92.0	85-115		
Arsenic	18.6		0.66	mg/kg	20.0		92.9	85-115		
Batch: B9C1093 - Metals Digestion Soils										
Blank (B9C1093-BLK1)					Prepared & Analyzed: 03/29/19					
Mercury	ND		0.071	mg/kg						
LCS (B9C1093-BS1)					Prepared & Analyzed: 03/29/19					
Mercury	0.938			ug/l	1.00		93.8	93-114		

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap										
Blank (B9D0022-BLK1)					Prepared: 03/29/19 Analyzed: 03/30/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
Blank (B9D0022-BLK1)					Prepared: 03/29/19 Analyzed: 03/30/19					
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*49.6*	ug/l	*50.0*		*99.2*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*47.3*	ug/l	*50.0*		*94.6*	*70-130*		
Surrogate: Toluene-d8			*49.4*	ug/l	*50.0*		*98.8*	*70-130*		
LCS (B9D0022-BS1)					Prepared: 03/29/19 Analyzed: 03/30/19					
Acetone	49			ug/l	50.0		97.0	70-130		
Benzene	50			ug/l	50.0		100	70-130		
Bromobenzene	47			ug/l	50.0		94.4	70-130		
Bromochloromethane	50			ug/l	50.0		100	70-130		
Bromodichloromethane	50			ug/l	50.0		100	70-130		
Bromoform	47			ug/l	50.0		94.0	70-130		
Bromomethane	48			ug/l	50.0		95.3	70-130		
2-Butanone	49			ug/l	50.0		98.9	70-130		
tert-Butyl alcohol	59			ug/l	50.0		118	70-130		
sec-Butylbenzene	51			ug/l	50.0		102	70-130		
n-Butylbenzene	50			ug/l	50.0		99.2	70-130		
tert-Butylbenzene	49			ug/l	50.0		98.4	70-130		
Methyl t-butyl ether (MTBE)	52			ug/l	50.0		104	70-130		
Carbon Disulfide	58			ug/l	50.0		116	70-130		
Carbon Tetrachloride	49			ug/l	50.0		97.2	70-130		
Chlorobenzene	48			ug/l	50.0		96.2	70-130		
Chloroethane	51			ug/l	50.0		102	70-130		
Chloroform	48			ug/l	50.0		95.5	70-130		
Chloromethane	41			ug/l	50.0		82.8	70-130		
4-Chlorotoluene	49			ug/l	50.0		97.9	70-130		
2-Chlorotoluene	49			ug/l	50.0		97.9	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	46			ug/l	50.0		91.1	70-130		
Dibromochloromethane	49			ug/l	50.0		98.5	70-130		
1,2-Dibromoethane (EDB)	50			ug/l	50.0		100	70-130		
Dibromomethane	50			ug/l	50.0		100	70-130		
1,2-Dichlorobenzene	47			ug/l	50.0		94.0	70-130		
1,3-Dichlorobenzene	48			ug/l	50.0		95.1	70-130		
1,4-Dichlorobenzene	47			ug/l	50.0		94.1	70-130		
1,1-Dichloroethane	51			ug/l	50.0		101	70-130		
1,2-Dichloroethane	52			ug/l	50.0		105	70-130		
trans-1,2-Dichloroethene	52			ug/l	50.0		104	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.3	70-130		
1,1-Dichloroethene	55			ug/l	50.0		111	70-130		
1,2-Dichloropropane	51			ug/l	50.0		101	70-130		
2,2-Dichloropropane	35			ug/l	50.0		69.6	70-130		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
LCS (B9D0022-BS1)					Prepared: 03/29/19 Analyzed: 03/30/19					
cis-1,3-Dichloropropene	47			ug/l	50.0		94.5	70-130		
trans-1,3-Dichloropropene	50			ug/l	50.0		99.9	70-130		
1,1-Dichloropropene	53			ug/l	50.0		105	70-130		
Diethyl ether	55			ug/l	50.0		110	70-130		
1,4-Dioxane	256			ug/l	250		102	70-130		
Ethylbenzene	50			ug/l	50.0		99.3	70-130		
Hexachlorobutadiene	38			ug/l	50.0		75.6	70-130		
2-Hexanone	44			ug/l	50.0		87.1	70-130		
Isopropylbenzene	50			ug/l	50.0		100	70-130		
p-Isopropyltoluene	51			ug/l	50.0		102	70-130		
Methylene Chloride	58			ug/l	50.0		116	70-130		
4-Methyl-2-pentanone	52			ug/l	50.0		104	70-130		
Naphthalene	46			ug/l	50.0		91.6	70-130		
n-Propylbenzene	52			ug/l	50.0		104	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	48			ug/l	50.0		96.5	70-130		
Tetrachloroethene	45			ug/l	50.0		90.7	70-130		
Tetrahydrofuran	50			ug/l	50.0		99.4	70-130		
Toluene	49			ug/l	50.0		98.1	70-130		
1,2,4-Trichlorobenzene	43			ug/l	50.0		85.9	70-130		
1,2,3-Trichlorobenzene	44			ug/l	50.0		88.7	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		103	70-130		
1,1,1-Trichloroethane	49			ug/l	50.0		98.4	70-130		
Trichloroethene	52			ug/l	50.0		104	70-130		
1,2,3-Trichloropropane	49			ug/l	50.0		98.1	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	46			ug/l	50.0		91.5	70-130		
o-Xylene	49			ug/l	50.0		98.0	70-130		
m&p-Xylene	98			ug/l	100		97.8	70-130		
1,1,2,2-Tetrachloroethane	40			ug/l	50.0		80.7	70-130		
tert-Amyl methyl ether	49			ug/l	50.0		98.5	70-130		
1,3-Dichloropropane	52			ug/l	50.0		104	70-130		
Ethyl tert-butyl ether	50			ug/l	50.0		99.9	70-130		
Diisopropyl ether	52			ug/l	50.0		104	70-130		
Trichlorofluoromethane	54			ug/l	50.0		107	70-130		
Dichlorodifluoromethane	30			ug/l	50.0		60.8	70-130		
Surrogate: 4-Bromofluorobenzene			*50.8*	ug/l	*50.0*		*102*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.5*	ug/l	*50.0*		*105*	*70-130*		
Surrogate: Toluene-d8			*51.0*	ug/l	*50.0*		*102*	*70-130*		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
LCS Dup (B9D0022-BSD1)					Prepared: 03/29/19 Analyzed: 03/30/19					
Acetone	47			ug/l	50.0		94.0	70-130	3.16	200
Benzene	51			ug/l	50.0		102	70-130	2.09	200
Bromobenzene	47			ug/l	50.0		93.2	70-130	1.26	200
Bromochloromethane	50			ug/l	50.0		99.5	70-130	0.761	200
Bromodichloromethane	50			ug/l	50.0		99.5	70-130	0.880	200
Bromoform	46			ug/l	50.0		91.8	70-130	2.32	200
Bromomethane	52			ug/l	50.0		104	70-130	8.48	200
2-Butanone	43			ug/l	50.0		86.9	70-130	12.9	200
tert-Butyl alcohol	53			ug/l	50.0		106	70-130	10.6	200
sec-Butylbenzene	52			ug/l	50.0		104	70-130	2.15	200
n-Butylbenzene	52			ug/l	50.0		104	70-130	4.42	200
tert-Butylbenzene	51			ug/l	50.0		101	70-130	2.90	200
Methyl t-butyl ether (MTBE)	51			ug/l	50.0		102	70-130	2.50	200
Carbon Disulfide	60			ug/l	50.0		119	70-130	2.79	200
Carbon Tetrachloride	50			ug/l	50.0		101	70-130	3.68	200
Chlorobenzene	49			ug/l	50.0		98.1	70-130	1.98	200
Chloroethane	54			ug/l	50.0		108	70-130	5.00	200
Chloroform	49			ug/l	50.0		97.2	70-130	1.68	200
Chloromethane	42			ug/l	50.0		84.2	70-130	1.63	200
4-Chlorotoluene	49			ug/l	50.0		98.3	70-130	0.449	200
2-Chlorotoluene	49			ug/l	50.0		98.3	70-130	0.449	200
1,2-Dibromo-3-chloropropane (DBCP)	46			ug/l	50.0		91.5	70-130	0.460	200
Dibromochloromethane	48			ug/l	50.0		96.3	70-130	2.22	200
1,2-Dibromoethane (EDB)	48			ug/l	50.0		97.0	70-130	3.47	200
Dibromomethane	49			ug/l	50.0		97.3	70-130	2.94	200
1,2-Dichlorobenzene	47			ug/l	50.0		94.6	70-130	0.615	200
1,3-Dichlorobenzene	47			ug/l	50.0		93.9	70-130	1.27	200
1,4-Dichlorobenzene	48			ug/l	50.0		95.8	70-130	1.87	200
1,1-Dichloroethane	52			ug/l	50.0		104	70-130	2.42	200
1,2-Dichloroethane	51			ug/l	50.0		103	70-130	1.68	200
trans-1,2-Dichloroethene	54			ug/l	50.0		108	70-130	4.14	200
cis-1,2-Dichloroethene	49			ug/l	50.0		98.3	70-130	2.06	200
1,1-Dichloroethene	57			ug/l	50.0		114	70-130	2.97	200
1,2-Dichloropropane	52			ug/l	50.0		103	70-130	1.97	200
2,2-Dichloropropane	35			ug/l	50.0		69.4	70-130	0.230	200
cis-1,3-Dichloropropene	46			ug/l	50.0		92.6	70-130	2.05	200
trans-1,3-Dichloropropene	49			ug/l	50.0		97.4	70-130	2.51	200
1,1-Dichloropropene	53			ug/l	50.0		106	70-130	0.907	200
Diethyl ether	55			ug/l	50.0		110	70-130	0.563	200
1,4-Dioxane	222			ug/l	250		88.7	70-130	14.3	200
Ethylbenzene	51			ug/l	50.0		102	70-130	2.19	200
Hexachlorobutadiene	41			ug/l	50.0		81.9	70-130	7.92	200
2-Hexanone	41			ug/l	50.0		82.6	70-130	5.28	200
Isopropylbenzene	51			ug/l	50.0		103	70-130	2.15	200
p-Isopropyltoluene	52			ug/l	50.0		104	70-130	2.15	200
Methylene Chloride	57			ug/l	50.0		114	70-130	1.72	200
4-Methyl-2-pentanone	49			ug/l	50.0		98.6	70-130	5.58	200
Naphthalene	50			ug/l	50.0		99.7	70-130	8.47	200
n-Propylbenzene	53			ug/l	50.0		105	70-130	1.65	200
Styrene	51			ug/l	50.0		102	70-130	0.392	200
1,1,1,2-Tetrachloroethane	48			ug/l	50.0		96.4	70-130	0.0829	200
Tetrachloroethene	47			ug/l	50.0		94.0	70-130	3.51	200
Tetrahydrofuran	51			ug/l	50.0		101	70-130	1.64	200
Toluene	50			ug/l	50.0		99.2	70-130	1.03	200
1,2,4-Trichlorobenzene	46			ug/l	50.0		91.4	70-130	6.16	200
1,2,3-Trichlorobenzene	47			ug/l	50.0		93.6	70-130	5.46	200
1,1,2-Trichloroethane	49			ug/l	50.0		98.1	70-130	5.13	200

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0022 - Purge-Trap (Continued)										
LCS Dup (B9D0022-BSD1)					Prepared: 03/29/19 Analyzed: 03/30/19					
1,1,1-Trichloroethane	48			ug/l	50.0		96.6	70-130	1.87	200
Trichloroethene	53			ug/l	50.0		107	70-130	2.62	200
1,2,3-Trichloropropane	48			ug/l	50.0		96.4	70-130	1.79	200
1,3,5-Trimethylbenzene	52			ug/l	50.0		104	70-130	1.62	200
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130	0.232	200
Vinyl Chloride	47			ug/l	50.0		94.4	70-130	3.12	200
o-Xylene	50			ug/l	50.0		101	70-130	2.56	200
m&p-Xylene	100			ug/l	100		100	70-130	2.52	200
1,1,2,2-Tetrachloroethane	38			ug/l	50.0		75.1	70-130	7.11	200
tert-Amyl methyl ether	49			ug/l	50.0		97.2	70-130	1.39	200
1,3-Dichloropropane	51			ug/l	50.0		101	70-130	2.30	200
Ethyl tert-butyl ether	49			ug/l	50.0		98.9	70-130	1.01	200
Diisopropyl ether	52			ug/l	50.0		104	70-130	0.0383	200
Trichlorofluoromethane	54			ug/l	50.0		109	70-130	1.61	200
Dichlorodifluoromethane	32			ug/l	50.0		64.2	70-130	5.47	200
Surrogate: 4-Bromofluorobenzene			*50.6*	ug/l	*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.4*	ug/l	*50.0*		*105*	*70-130*		
Surrogate: Toluene-d8			*50.7*	ug/l	*50.0*		*101*	*70-130*		

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C0991 - EPA 3546										
Blank (B9C0991-BLK1)					Prepared: 03/28/19 Analyzed: 03/29/19					
2-Methylnaphthalene	ND		130	ug/kg						
Acenaphthene	ND		130	ug/kg						
Acenaphthylene	ND		130	ug/kg						
Anthracene	ND		130	ug/kg						
Benzo(a)anthracene	ND		130	ug/kg						
Benzo(a)pyrene	ND		130	ug/kg						
Benzo(b)fluoranthene	ND		130	ug/kg						
Benzo(g,h,i)perylene	ND		130	ug/kg						
Benzo(k)fluoranthene	ND		130	ug/kg						
Chrysene	ND		130	ug/kg						
Dibenz(a,h)anthracene	ND		130	ug/kg						
Dibenzofuran	ND		130	ug/kg						
Fluoranthene	ND		130	ug/kg						
Fluorene	ND		130	ug/kg						
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg						
Naphthalene	ND		130	ug/kg						
Phenanthrene	ND		130	ug/kg						
Pyrene	ND		130	ug/kg						
Surrogate: Nitrobenzene-d5			*3130*	ug/kg	*3330*		*94.0*	*30-126*		
Surrogate: p-Terphenyl-d14			*2890*	ug/kg	*3330*		*86.8*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2760*	ug/kg	*3330*		*82.9*	*34-130*		
LCS (B9C0991-BS1)					Prepared: 03/28/19 Analyzed: 03/29/19					
2-Methylnaphthalene	2930		130	ug/kg	3330		88.0	40-140		
Acenaphthene	2660		130	ug/kg	3330		79.9	40-140		
Acenaphthylene	2680		130	ug/kg	3330		80.5	40-140		
Anthracene	2810		130	ug/kg	3330		84.3	40-140		
Benzo(a)anthracene	2840		130	ug/kg	3330		85.2	40-140		
Benzo(a)pyrene	3020		130	ug/kg	3330		90.6	40-140		
Benzo(b)fluoranthene	3000		130	ug/kg	3330		90.0	40-140		
Benzo(g,h,i)perylene	2700		130	ug/kg	3330		80.9	40-140		
Benzo(k)fluoranthene	2960		130	ug/kg	3330		88.7	40-140		
Chrysene	2790		130	ug/kg	3330		83.6	40-140		
Dibenz(a,h)anthracene	2760		130	ug/kg	3330		82.8	40-140		
Dibenzofuran	2760		130	ug/kg	3330		82.7	40-140		
Fluoranthene	2840		130	ug/kg	3330		85.1	40-140		
Fluorene	2790		130	ug/kg	3330		83.6	40-140		
Indeno(1,2,3-cd)pyrene	2970		130	ug/kg	3330		89.1	40-140		
Naphthalene	2790		130	ug/kg	3330		83.8	40-140		
Phenanthrene	2830		130	ug/kg	3330		85.0	40-140		
Pyrene	2700		130	ug/kg	3330		80.9	40-140		
Surrogate: Nitrobenzene-d5			*3070*	ug/kg	*3330*		*92.1*	*30-126*		
Surrogate: p-Terphenyl-d14			*2900*	ug/kg	*3330*		*87.1*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2810*	ug/kg	*3330*		*84.3*	*34-130*		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C0991 - EPA 3546 (Continued)										
LCS Dup (B9C0991-BSD1)					Prepared: 03/28/19 Analyzed: 03/29/19					
2-Methylnaphthalene	3030		130	ug/kg	3330		90.9	40-140	3.24	30
Acenaphthene	2760		130	ug/kg	3330		82.8	40-140	3.54	30
Acenaphthylene	2760		130	ug/kg	3330		82.7	40-140	2.77	30
Anthracene	2840		130	ug/kg	3330		85.3	40-140	1.13	30
Benzo(a)anthracene	2930		130	ug/kg	3330		87.8	40-140	2.96	30
Benzo(a)pyrene	3060		130	ug/kg	3330		91.9	40-140	1.45	30
Benzo(b)fluoranthene	3110		130	ug/kg	3330		93.4	40-140	3.71	30
Benzo(g,h,i)perylene	2720		130	ug/kg	3330		81.5	40-140	0.665	30
Benzo(k)fluoranthene	3020		130	ug/kg	3330		90.5	40-140	2.03	30
Chrysene	2860		130	ug/kg	3330		85.7	40-140	2.41	30
Dibenz(a,h)anthracene	2810		130	ug/kg	3330		84.2	40-140	1.75	30
Dibenzofuran	2840		130	ug/kg	3330		85.3	40-140	3.10	30
Fluoranthene	2880		130	ug/kg	3330		86.3	40-140	1.42	30
Fluorene	2870		130	ug/kg	3330		86.2	40-140	3.16	30
Indeno(1,2,3-cd)pyrene	3020		130	ug/kg	3330		90.7	40-140	1.87	30
Naphthalene	2900		130	ug/kg	3330		86.9	40-140	3.59	30
Phenanthrene	2890		130	ug/kg	3330		86.8	40-140	2.05	30
Pyrene	2750		130	ug/kg	3330		82.6	40-140	2.10	30
Surrogate: Nitrobenzene-d5			*3260*	ug/kg	*3330*		*97.9*	*30-126*		
Surrogate: p-Terphenyl-d14			*2920*	ug/kg	*3330*		*87.7*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2900*	ug/kg	*3330*		*87.0*	*34-130*		

Quality Control
(Continued)

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C1037 - EPA 3546										
Blank (B9C1037-BLK1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*10.8*	ug/kg	*13.3*		*80.9*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*10.8*	ug/kg	*13.3*		*80.7*	*43.3-118*		
LCS (B9C1037-BS1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Aroclor-1016	143		66	ug/kg	167		85.8	58.2-125		
Aroclor-1260	152		66	ug/kg	167		91.0	65.5-130		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*11.8*	ug/kg	*13.3*		*88.4*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*11.2*	ug/kg	*13.3*		*83.6*	*43.3-118*		
LCS Dup (B9C1037-BSD1)					Prepared: 03/28/19 Analyzed: 03/29/19					
Aroclor-1016	138		66	ug/kg	167		82.7	58.2-125	3.75	20
Aroclor-1260	161		66	ug/kg	167		96.3	65.5-130	5.66	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*10.2*	ug/kg	*13.3*		*76.8*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*11.2*	ug/kg	*13.3*		*83.7*	*43.3-118*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9C1103 - EPA 3546										
Blank (B9C1103-BLK1)					Prepared: 03/29/19 Analyzed: 04/01/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*7.12*	mg/kg	*8.33*		*85.5*	*56.5-114*		
LCS (B9C1103-BS1)					Prepared: 03/29/19 Analyzed: 04/01/19					
Total Petroleum Hydrocarbons	558		27	mg/kg	667		83.8	44.7-98.7		
Surrogate: Chlorooctadecane			*7.38*	mg/kg	*8.33*		*88.6*	*56.5-114*		
LCS Dup (B9C1103-BSD1)					Prepared: 03/29/19 Analyzed: 04/01/19					
Total Petroleum Hydrocarbons	543		27	mg/kg	667		81.4	44.7-98.7	2.81	200
Surrogate: Chlorooctadecane			*6.61*	mg/kg	*8.33*		*79.3*	*56.5-114*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9C2 70081

CHAIN OF CUSTODY R

PROJ. NO. S3291 | PROJECT NAME/LOCATION: South Quay East Providence RI

CLIENT: SAGE

REPORT TO:

INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** TPH	VOC	PAHs	RCRA 8 Metals	PCB	REMARKS
3/21		X		SE 101 (10-15)(MW).		X		2	None/Methanol	X	X	X	X	X	
3/21				SE 102 (10-15).											
3/21				SE 105 (0-5).											
3/21				~~SE 105 (5-10)~~ SE 113 (10-14)											
3/21				SE 106 (5-10).											
3/21				SE 108 (5-10)(MW).											
3/21				SE 109 (0-5).											
3/25				SE 110 (5-10)(MW).											
3/25				SE 111 (5-10).											
3/25				SE 112 (0-5).											
3/25				SE 113 (5-10)(MW).											
3/25				SE 114 (5-10).											
3/25				SE 115 (5-10)(MW).											
3/21		X		SE 104 (0-5).											

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	3/25		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	3/27 9:30		3/27/19 930
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time
	3/27/19 1515		3/27/19 1515

Laboratory Remarks:
Temp. received: 4
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM R-DEC and GB Leachability criteria

Turnaround (Business Days) 5

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9E21011
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 24-May-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 05/21/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9E21011. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9E21011-01	SE-201 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-02	SE-202 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-03	SE-203 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-04	SE-204 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-05	SE-205 (5-10)	Soil	05/20/2019	05/21/2019
9E21011-06	SE-206 (10-15)	Soil	05/20/2019	05/21/2019
9E21011-07	SE-207 (0-5)	Soil	05/20/2019	05/21/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-201 (10-15) (Lab Number: 9E21011-01)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-202 (10-15) (Lab Number: 9E21011-02)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-203 (10-15) (Lab Number: 9E21011-03)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-204 (10-15) (Lab Number: 9E21011-04)

Analysis	Method
Arsenic	EPA 6010C

SE-204 (10-15) (Lab Number: 9E21011-04) (continued)

Analysis	Method
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-205 (5-10) (Lab Number: 9E21011-05)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

SE-206 (10-15) (Lab Number: 9E21011-06)

Analysis	Method
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Request for Analysis (continued)

SE-207 (0-5) (Lab Number: 9E21011-07)

Analysis	**Method**
Arsenic	EPA 6010C
Barium	EPA 6010C
Cadmium	EPA 6010C
Chromium	EPA 6010C
Lead	EPA 6010C
Mercury	EPA 7471B
PCBs	EPA 8082A
Polynuclear Aromatic Hydrocarbons	EPA 8270D
Selenium	EPA 6010C
Silver	EPA 6010C
Total Petroleum Hydrocarbons	EPA-8100-mod
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

PCBs

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

The samples "SE-201(10-15)" and "SE-207(0-5)" exceeded the instrument calibration range and were analyzed at a dilution. As a result, the assoicated surrogate was reported as 0% recovery.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

Results: Total Metals

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**10.8**		0.17	mg/kg	05/22/19	05/22/19
Barium	**25.4**		0.09	mg/kg	05/22/19	05/22/19
Cadmium	**2.57**		0.09	mg/kg	05/22/19	05/22/19
Chromium	**15.1**		0.09	mg/kg	05/22/19	05/22/19
Lead	**69.2**		0.09	mg/kg	05/22/19	05/22/19
Mercury	ND		0.074	mg/kg	05/23/19	05/24/19
Selenium	ND		0.17	mg/kg	05/22/19	05/22/19
Silver	ND		0.09	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.98**		0.24	mg/kg	05/22/19	05/22/19
Barium	**30.0**		0.12	mg/kg	05/22/19	05/22/19
Cadmium	**1.56**		0.12	mg/kg	05/22/19	05/22/19
Chromium	**12.7**		0.12	mg/kg	05/22/19	05/22/19
Lead	**24.8**		0.12	mg/kg	05/22/19	05/22/19
Mercury	**0.093**		0.048	mg/kg	05/23/19	05/24/19
Selenium	ND		0.24	mg/kg	05/22/19	05/22/19
Silver	ND		0.12	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**18.3**		0.20	mg/kg	05/22/19	05/22/19
Barium	**10.5**		0.10	mg/kg	05/22/19	05/22/19
Cadmium	**1.34**		0.10	mg/kg	05/22/19	05/22/19
Chromium	**7.18**		0.10	mg/kg	05/22/19	05/22/19
Lead	**690**		0.10	mg/kg	05/22/19	05/22/19
Mercury	ND		0.058	mg/kg	05/23/19	05/24/19
Selenium	ND		0.20	mg/kg	05/22/19	05/22/19
Silver	ND		0.10	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.70**		0.23	mg/kg	05/22/19	05/22/19
Barium	**13.3**		0.12	mg/kg	05/22/19	05/22/19
Cadmium	**1.31**		0.12	mg/kg	05/22/19	05/22/19
Chromium	**8.15**		0.12	mg/kg	05/22/19	05/22/19
Lead	**53.9**		0.12	mg/kg	05/22/19	05/22/19
Mercury	**0.042**		0.035	mg/kg	05/23/19	05/24/19
Selenium	ND		0.23	mg/kg	05/22/19	05/22/19
Silver	ND		0.12	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**1.62**		0.29	mg/kg	05/22/19	05/22/19
Barium	**33.4**		0.15	mg/kg	05/22/19	05/22/19
Cadmium	**1.34**		0.15	mg/kg	05/22/19	05/22/19
Chromium	**8.32**		0.15	mg/kg	05/22/19	05/22/19
Lead	**8.24**		0.15	mg/kg	05/22/19	05/22/19
Mercury	ND		0.055	mg/kg	05/23/19	05/24/19
Selenium	ND		0.29	mg/kg	05/22/19	05/22/19
Silver	ND		0.15	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.79**		0.13	mg/kg	05/22/19	05/22/19
Barium	**20.0**		0.07	mg/kg	05/22/19	05/22/19
Cadmium	**1.81**		0.07	mg/kg	05/22/19	05/22/19
Chromium	**10.1**		0.07	mg/kg	05/22/19	05/22/19
Lead	**18.1**		0.07	mg/kg	05/22/19	05/22/19
Mercury	ND		0.058	mg/kg	05/23/19	05/24/19
Selenium	ND		0.13	mg/kg	05/22/19	05/22/19
Silver	ND		0.07	mg/kg	05/22/19	05/22/19

Results: Total Metals

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Arsenic	**5.77**		0.38	mg/kg	05/22/19	05/22/19
Barium	**62.4**		0.19	mg/kg	05/22/19	05/22/19
Cadmium	**2.29**		0.19	mg/kg	05/22/19	05/22/19
Chromium	**32.8**		0.19	mg/kg	05/22/19	05/22/19
Lead	**471**		0.19	mg/kg	05/22/19	05/22/19
Mercury	ND		0.075	mg/kg	05/23/19	05/24/19
Selenium	ND		0.38	mg/kg	05/22/19	05/22/19
Silver	ND		0.19	mg/kg	05/22/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		136	ug/kg	05/21/19	05/22/19
Benzene	ND		27	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		27	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		27	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		27	ug/kg	05/21/19	05/22/19
Bromoform	ND		27	ug/kg	05/21/19	05/22/19
Bromomethane	ND		27	ug/kg	05/21/19	05/22/19
2-Butanone	ND		136	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		136	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	ND		27	ug/kg	05/21/19	05/22/19
n-Butylbenzene	ND		27	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	ND		27	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		27	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		27	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		27	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
Chloroethane	ND		27	ug/kg	05/21/19	05/22/19
Chloroform	ND		27	ug/kg	05/21/19	05/22/19
Chloromethane	ND		27	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		27	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		27	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	24	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		27	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		27	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		27	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		27	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		27	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		27	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		27	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		27	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		27	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		54	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		136	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		13600	ug/kg	05/21/19	05/22/19
Ethylbenzene	**87**		27	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		27	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		136	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**55**		27	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-201 (10-15) (Continued)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**99**		27	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		27	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		136	ug/kg	05/21/19	05/22/19
Naphthalene	ND		27	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**47**		27	ug/kg	05/21/19	05/22/19
Styrene	ND		27	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		27	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		27	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		136	ug/kg	05/21/19	05/22/19
Toluene	**34**		27	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		27	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		27	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		27	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		27	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		27	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	ND		27	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	ND		27	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	24	ug/kg	05/21/19	05/22/19
o-Xylene	**43**		27	ug/kg	05/21/19	05/22/19
m&p-Xylene	**121**		54	ug/kg	05/21/19	05/22/19
Total xylenes	**164**		54	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		27	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		27	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		27	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		27	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		27	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		27	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		27	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*89.6%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*97.4%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*95.7%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		191	ug/kg	05/21/19	05/22/19
Benzene	ND		38	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		38	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		38	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		38	ug/kg	05/21/19	05/22/19
Bromoform	ND		38	ug/kg	05/21/19	05/22/19
Bromomethane	ND		38	ug/kg	05/21/19	05/22/19
2-Butanone	ND		191	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		191	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	**761**		38	ug/kg	05/21/19	05/22/19
n-Butylbenzene	**630**		38	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	**139**		38	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		38	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		38	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		38	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
Chloroethane	ND		38	ug/kg	05/21/19	05/22/19
Chloroform	ND		38	ug/kg	05/21/19	05/22/19
Chloromethane	ND		38	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		38	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		38	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	24	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		38	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		38	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		38	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		38	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		38	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		38	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		38	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		38	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		38	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		76	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		191	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		19100	ug/kg	05/21/19	05/22/19
Ethylbenzene	ND		38	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		38	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		191	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**180**		38	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-202 (10-15) (Continued)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		38	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		38	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		191	ug/kg	05/21/19	05/22/19
Naphthalene	ND		38	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**351**		38	ug/kg	05/21/19	05/22/19
Styrene	ND		38	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		38	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		38	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		191	ug/kg	05/21/19	05/22/19
Toluene	ND		38	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		38	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		38	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		38	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		38	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		38	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	**69**		38	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**207**		38	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	24	ug/kg	05/21/19	05/22/19
o-Xylene	ND		38	ug/kg	05/21/19	05/22/19
m&p-Xylene	ND		76	ug/kg	05/21/19	05/22/19
Total xylenes	ND		76	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		38	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		38	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		38	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		38	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		38	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		38	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		38	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*108%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*98.5%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*92.0%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		146	ug/kg	05/21/19	05/22/19
Benzene	ND		29	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		29	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		29	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		29	ug/kg	05/21/19	05/22/19
Bromoform	ND		29	ug/kg	05/21/19	05/22/19
Bromomethane	ND		29	ug/kg	05/21/19	05/22/19
2-Butanone	ND		146	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		146	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	**652**		29	ug/kg	05/21/19	05/22/19
n-Butylbenzene	**708**		29	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	**73**		29	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		29	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		29	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		29	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
Chloroethane	ND		29	ug/kg	05/21/19	05/22/19
Chloroform	ND		29	ug/kg	05/21/19	05/22/19
Chloromethane	ND		29	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		29	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		29	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	26	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		29	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		29	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		29	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		29	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		29	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		29	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		29	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		29	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		29	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		58	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		146	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		14600	ug/kg	05/21/19	05/22/19
Ethylbenzene	**245**		29	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		29	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		146	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**1080**		29	ug/kg	05/21/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-203 (10-15) (Continued)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**653**		29	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		29	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		146	ug/kg	05/21/19	05/22/19
Naphthalene	**860**		29	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**1880**		29	ug/kg	05/21/19	05/22/19
Styrene	ND		29	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		29	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		29	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		146	ug/kg	05/21/19	05/22/19
Toluene	ND		29	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		29	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		29	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		29	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		29	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		29	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	**2240**		29	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**4550**		29	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	25	ug/kg	05/21/19	05/22/19
o-Xylene	**89**		29	ug/kg	05/21/19	05/22/19
m&p-Xylene	**1360**		58	ug/kg	05/21/19	05/22/19
Total xylenes	**1450**		58	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		29	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		29	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		29	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		29	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		29	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		29	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		29	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*101%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*93.4%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*91.6%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		127	ug/kg	05/21/19	05/22/19
Benzene	ND		25	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		25	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		25	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		25	ug/kg	05/21/19	05/22/19
Bromoform	ND		25	ug/kg	05/21/19	05/22/19
Bromomethane	ND		25	ug/kg	05/21/19	05/22/19
2-Butanone	ND		127	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		127	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	**548**		25	ug/kg	05/21/19	05/22/19
n-Butylbenzene	**609**		25	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	**59**		25	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		25	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		25	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		25	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
Chloroethane	ND		25	ug/kg	05/21/19	05/22/19
Chloroform	ND		25	ug/kg	05/21/19	05/22/19
Chloromethane	ND		25	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		25	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		25	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	25	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		25	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		25	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		25	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		25	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		25	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		25	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		25	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		25	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		25	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		51	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		127	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		12700	ug/kg	05/21/19	05/22/19
Ethylbenzene	**207**		25	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		25	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		127	ug/kg	05/21/19	05/22/19
Isopropylbenzene	**885**		25	ug/kg	05/21/19	05/22/19

Sample: SE-204 (10-15) (Continued)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**565**		25	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		25	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		127	ug/kg	05/21/19	05/22/19
Naphthalene	**895**		25	ug/kg	05/21/19	05/22/19
n-Propylbenzene	**1530**		25	ug/kg	05/21/19	05/22/19
Styrene	ND		25	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		25	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		25	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		127	ug/kg	05/21/19	05/22/19
Toluene	ND		25	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		25	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		25	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		25	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		25	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		25	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	**1850**		25	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**4020**		25	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	25	ug/kg	05/21/19	05/22/19
o-Xylene	**66**		25	ug/kg	05/21/19	05/22/19
m&p-Xylene	**1050**		51	ug/kg	05/21/19	05/22/19
Total xylenes	**1120**		51	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		25	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		25	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		25	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		25	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		25	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		25	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		25	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*97.7%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*103%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*92.8%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		161	ug/kg	05/21/19	05/22/19
Benzene	ND		32	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		32	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		32	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		32	ug/kg	05/21/19	05/22/19
Bromoform	ND		32	ug/kg	05/21/19	05/22/19
Bromomethane	ND		32	ug/kg	05/21/19	05/22/19
2-Butanone	ND		161	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		161	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	ND		32	ug/kg	05/21/19	05/22/19
n-Butylbenzene	ND		32	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		32	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		32	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		32	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
Chloroethane	ND		32	ug/kg	05/21/19	05/22/19
Chloroform	ND		32	ug/kg	05/21/19	05/22/19
Chloromethane	ND		32	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		32	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		32	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	25	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		32	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		32	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		32	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		32	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		32	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		32	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		32	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		32	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		32	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		65	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		161	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		16100	ug/kg	05/21/19	05/22/19
Ethylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		32	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		161	ug/kg	05/21/19	05/22/19
Isopropylbenzene	ND		32	ug/kg	05/21/19	05/22/19

Sample: SE-205 (5-10) (Continued)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		32	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		32	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		161	ug/kg	05/21/19	05/22/19
Naphthalene	ND		32	ug/kg	05/21/19	05/22/19
n-Propylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Styrene	ND		32	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		32	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		32	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		161	ug/kg	05/21/19	05/22/19
Toluene	ND		32	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		32	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		32	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		32	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		32	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		32	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	ND		32	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	ND		32	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND	J	25	ug/kg	05/21/19	05/22/19
o-Xylene	ND		32	ug/kg	05/21/19	05/22/19
m&p-Xylene	ND		65	ug/kg	05/21/19	05/22/19
Total xylenes	ND		65	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		32	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		32	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		32	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		32	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		32	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		32	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		32	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.7%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*100%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*94.8%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		157	ug/kg	05/21/19	05/22/19
Benzene	ND		31	ug/kg	05/21/19	05/22/19
Bromobenzene	ND		31	ug/kg	05/21/19	05/22/19
Bromochloromethane	ND		31	ug/kg	05/21/19	05/22/19
Bromodichloromethane	ND		31	ug/kg	05/21/19	05/22/19
Bromoform	ND		31	ug/kg	05/21/19	05/22/19
Bromomethane	ND		31	ug/kg	05/21/19	05/22/19
2-Butanone	ND		157	ug/kg	05/21/19	05/22/19
tert-Butyl alcohol	ND		157	ug/kg	05/21/19	05/22/19
sec-Butylbenzene	ND		31	ug/kg	05/21/19	05/22/19
n-Butylbenzene	ND		31	ug/kg	05/21/19	05/22/19
tert-Butylbenzene	ND		31	ug/kg	05/21/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		31	ug/kg	05/21/19	05/22/19
Carbon Disulfide	ND		31	ug/kg	05/21/19	05/22/19
Carbon Tetrachloride	ND		31	ug/kg	05/21/19	05/22/19
Chlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
Chloroethane	ND		31	ug/kg	05/21/19	05/22/19
Chloroform	ND		31	ug/kg	05/21/19	05/22/19
Chloromethane	ND		31	ug/kg	05/21/19	05/22/19
4-Chlorotoluene	ND		31	ug/kg	05/21/19	05/22/19
2-Chlorotoluene	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		31	ug/kg	05/21/19	05/22/19
Dibromochloromethane	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dibromoethane (EDB)	ND		31	ug/kg	05/21/19	05/22/19
Dibromomethane	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,3-Dichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,4-Dichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,1-Dichloroethane	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dichloroethane	ND		31	ug/kg	05/21/19	05/22/19
trans-1,2-Dichloroethene	ND		31	ug/kg	05/21/19	05/22/19
cis-1,2-Dichloroethene	ND		31	ug/kg	05/21/19	05/22/19
1,1-Dichloroethene	ND		31	ug/kg	05/21/19	05/22/19
1,2-Dichloropropane	ND		31	ug/kg	05/21/19	05/22/19
2,2-Dichloropropane	ND		31	ug/kg	05/21/19	05/22/19
cis-1,3-Dichloropropene	ND		31	ug/kg	05/21/19	05/22/19
trans-1,3-Dichloropropene	ND		31	ug/kg	05/21/19	05/22/19
1,1-Dichloropropene	ND		31	ug/kg	05/21/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		63	ug/kg	05/21/19	05/22/19
Diethyl ether	ND		157	ug/kg	05/21/19	05/22/19
1,4-Dioxane	ND		15700	ug/kg	05/21/19	05/22/19
Ethylbenzene	ND		31	ug/kg	05/21/19	05/22/19
Hexachlorobutadiene	ND		31	ug/kg	05/21/19	05/22/19
2-Hexanone	ND		157	ug/kg	05/21/19	05/22/19
Isopropylbenzene	ND		31	ug/kg	05/21/19	05/22/19

Sample: SE-206 (10-15) (Continued)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	**12600**		126	ug/kg	05/21/19	05/22/19
Methylene Chloride	ND		31	ug/kg	05/21/19	05/22/19
4-Methyl-2-pentanone	ND		157	ug/kg	05/21/19	05/22/19
Naphthalene	ND		31	ug/kg	05/21/19	05/22/19
n-Propylbenzene	ND		31	ug/kg	05/21/19	05/22/19
Styrene	ND		31	ug/kg	05/21/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		31	ug/kg	05/21/19	05/22/19
Tetrachloroethene	ND		31	ug/kg	05/21/19	05/22/19
Tetrahydrofuran	ND		157	ug/kg	05/21/19	05/22/19
Toluene	ND		31	ug/kg	05/21/19	05/22/19
1,2,4-Trichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,2,3-Trichlorobenzene	ND		31	ug/kg	05/21/19	05/22/19
1,1,2-Trichloroethane	ND		31	ug/kg	05/21/19	05/22/19
1,1,1-Trichloroethane	ND		31	ug/kg	05/21/19	05/22/19
Trichloroethene	ND		31	ug/kg	05/21/19	05/22/19
1,2,3-Trichloropropane	ND		31	ug/kg	05/21/19	05/22/19
1,3,5-Trimethylbenzene	ND		31	ug/kg	05/21/19	05/22/19
1,2,4-Trimethylbenzene	**42**		31	ug/kg	05/21/19	05/22/19
Vinyl Chloride	ND		31	ug/kg	05/21/19	05/22/19
o-Xylene	ND		31	ug/kg	05/21/19	05/22/19
m&p-Xylene	ND		63	ug/kg	05/21/19	05/22/19
Total xylenes	ND		63	ug/kg	05/21/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		31	ug/kg	05/21/19	05/22/19
tert-Amyl methyl ether	ND		31	ug/kg	05/21/19	05/22/19
1,3-Dichloropropane	ND		31	ug/kg	05/21/19	05/22/19
Ethyl tert-butyl ether	ND		31	ug/kg	05/21/19	05/22/19
Diisopropyl ether	ND		31	ug/kg	05/21/19	05/22/19
Trichlorofluoromethane	ND		31	ug/kg	05/21/19	05/22/19
Dichlorodifluoromethane	ND		31	ug/kg	05/21/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*90.0%*	*70-130*	05/21/19	05/22/19
1,2-Dichloroethane-d4	*103%*	*70-130*	05/21/19	05/22/19
Toluene-d8	*96.6%*	*70-130*	05/21/19	05/22/19

Results: Volatile Organic Compounds

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		201	ug/kg	05/22/19	05/22/19
Benzene	ND		40	ug/kg	05/22/19	05/22/19
Bromobenzene	ND		40	ug/kg	05/22/19	05/22/19
Bromochloromethane	ND		40	ug/kg	05/22/19	05/22/19
Bromodichloromethane	ND		40	ug/kg	05/22/19	05/22/19
Bromoform	ND		40	ug/kg	05/22/19	05/22/19
Bromomethane	ND		40	ug/kg	05/22/19	05/22/19
2-Butanone	ND		201	ug/kg	05/22/19	05/22/19
tert-Butyl alcohol	ND		201	ug/kg	05/22/19	05/22/19
sec-Butylbenzene	ND		40	ug/kg	05/22/19	05/22/19
n-Butylbenzene	ND		40	ug/kg	05/22/19	05/22/19
tert-Butylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Methyl t-butyl ether (MTBE)	ND		40	ug/kg	05/22/19	05/22/19
Carbon Disulfide	ND		40	ug/kg	05/22/19	05/22/19
Carbon Tetrachloride	ND		40	ug/kg	05/22/19	05/22/19
Chlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
Chloroethane	ND		40	ug/kg	05/22/19	05/22/19
Chloroform	ND		40	ug/kg	05/22/19	05/22/19
Chloromethane	ND		40	ug/kg	05/22/19	05/22/19
4-Chlorotoluene	ND		40	ug/kg	05/22/19	05/22/19
2-Chlorotoluene	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dibromo-3-chloropropane (DBCP)	ND		40	ug/kg	05/22/19	05/22/19
Dibromochloromethane	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dibromoethane (EDB)	ND	J	10	ug/kg	05/22/19	05/22/19
Dibromomethane	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,3-Dichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,4-Dichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,1-Dichloroethane	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dichloroethane	ND		40	ug/kg	05/22/19	05/22/19
trans-1,2-Dichloroethene	ND		40	ug/kg	05/22/19	05/22/19
cis-1,2-Dichloroethene	ND		40	ug/kg	05/22/19	05/22/19
1,1-Dichloroethene	ND		40	ug/kg	05/22/19	05/22/19
1,2-Dichloropropane	ND		40	ug/kg	05/22/19	05/22/19
2,2-Dichloropropane	ND		40	ug/kg	05/22/19	05/22/19
cis-1,3-Dichloropropene	ND		40	ug/kg	05/22/19	05/22/19
trans-1,3-Dichloropropene	ND		40	ug/kg	05/22/19	05/22/19
1,1-Dichloropropene	ND		40	ug/kg	05/22/19	05/22/19
1,3-Dichloropropene (cis + trans)	ND		80	ug/kg	05/22/19	05/22/19
Diethyl ether	ND		201	ug/kg	05/22/19	05/22/19
1,4-Dioxane	ND		20100	ug/kg	05/22/19	05/22/19
Ethylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Hexachlorobutadiene	ND		40	ug/kg	05/22/19	05/22/19
2-Hexanone	ND		201	ug/kg	05/22/19	05/22/19
Isopropylbenzene	ND		40	ug/kg	05/22/19	05/22/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-207 (0-5) (Continued)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		40	ug/kg	05/22/19	05/22/19
Methylene Chloride	ND		40	ug/kg	05/22/19	05/22/19
4-Methyl-2-pentanone	ND		201	ug/kg	05/22/19	05/22/19
Naphthalene	ND		40	ug/kg	05/22/19	05/22/19
n-Propylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Styrene	ND		40	ug/kg	05/22/19	05/22/19
1,1,1,2-Tetrachloroethane	ND		40	ug/kg	05/22/19	05/22/19
Tetrachloroethene	ND		40	ug/kg	05/22/19	05/22/19
Tetrahydrofuran	ND		201	ug/kg	05/22/19	05/22/19
Toluene	ND		40	ug/kg	05/22/19	05/22/19
1,2,4-Trichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,2,3-Trichlorobenzene	ND		40	ug/kg	05/22/19	05/22/19
1,1,2-Trichloroethane	ND		40	ug/kg	05/22/19	05/22/19
1,1,1-Trichloroethane	ND		40	ug/kg	05/22/19	05/22/19
Trichloroethene	ND		40	ug/kg	05/22/19	05/22/19
1,2,3-Trichloropropane	ND		40	ug/kg	05/22/19	05/22/19
1,3,5-Trimethylbenzene	ND		40	ug/kg	05/22/19	05/22/19
1,2,4-Trimethylbenzene	ND		40	ug/kg	05/22/19	05/22/19
Vinyl Chloride	ND	J	21	ug/kg	05/22/19	05/22/19
o-Xylene	ND		40	ug/kg	05/22/19	05/22/19
m&p-Xylene	ND		80	ug/kg	05/22/19	05/22/19
Total xylenes	ND		80	ug/kg	05/22/19	05/22/19
1,1,2,2-Tetrachloroethane	ND		40	ug/kg	05/22/19	05/22/19
tert-Amyl methyl ether	ND		40	ug/kg	05/22/19	05/22/19
1,3-Dichloropropane	ND		40	ug/kg	05/22/19	05/22/19
Ethyl tert-butyl ether	ND		40	ug/kg	05/22/19	05/22/19
Diisopropyl ether	ND		40	ug/kg	05/22/19	05/22/19
Trichlorofluoromethane	ND		40	ug/kg	05/22/19	05/22/19
Dichlorodifluoromethane	ND		40	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*84.9%*	*70-130*	05/22/19	05/22/19
1,2-Dichloroethane-d4	*107%*	*70-130*	05/22/19	05/22/19
Toluene-d8	*92.6%*	*70-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		153	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		153	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		153	ug/kg	05/22/19	05/22/19
Anthracene	ND		153	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	**165**		153	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		153	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	**184**		153	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	**185**		153	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		153	ug/kg	05/22/19	05/22/19
Chrysene	**202**		153	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		153	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		153	ug/kg	05/22/19	05/22/19
Fluoranthene	**233**		153	ug/kg	05/22/19	05/22/19
Fluorene	ND		153	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		153	ug/kg	05/22/19	05/22/19
Naphthalene	ND		153	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		153	ug/kg	05/22/19	05/22/19
Pyrene	ND		153	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*71.8%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*82.8%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*71.1%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**5750**		1520	ug/kg	05/22/19	05/24/19
Acenaphthene	ND		1520	ug/kg	05/22/19	05/24/19
Acenaphthylene	ND		1520	ug/kg	05/22/19	05/24/19
Anthracene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(a)anthracene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(a)pyrene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(b)fluoranthene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(g,h,i)perylene	ND		1520	ug/kg	05/22/19	05/24/19
Benzo(k)fluoranthene	ND		1520	ug/kg	05/22/19	05/24/19
Chrysene	ND		1520	ug/kg	05/22/19	05/24/19
Dibenz(a,h)anthracene	ND		1520	ug/kg	05/22/19	05/24/19
Dibenzofuran	ND		1520	ug/kg	05/22/19	05/24/19
Fluoranthene	ND		1520	ug/kg	05/22/19	05/24/19
Fluorene	ND		1520	ug/kg	05/22/19	05/24/19
Indeno(1,2,3-cd)pyrene	ND		1520	ug/kg	05/22/19	05/24/19
Naphthalene	ND		1520	ug/kg	05/22/19	05/24/19
Phenanthrene	**1820**		1520	ug/kg	05/22/19	05/24/19
Pyrene	ND		1520	ug/kg	05/22/19	05/24/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*86.2%*	*30-126*	05/22/19	05/24/19
p-Terphenyl-d14	*90.6%*	*47-130*	05/22/19	05/24/19
2-Fluorobiphenyl	*79.6%*	*34-130*	05/22/19	05/24/19

Results: Semivolatile organic compounds

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**1610**		156	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		156	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		156	ug/kg	05/22/19	05/22/19
Anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Chrysene	ND		156	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		156	ug/kg	05/22/19	05/22/19
Fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Fluorene	ND		156	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Naphthalene	**1250**		156	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		156	ug/kg	05/22/19	05/22/19
Pyrene	ND		156	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*84.3%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*93.3%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*75.3%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		171	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		171	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		171	ug/kg	05/22/19	05/22/19
Anthracene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		171	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		171	ug/kg	05/22/19	05/22/19
Chrysene	ND		171	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		171	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		171	ug/kg	05/22/19	05/22/19
Fluoranthene	**231**		171	ug/kg	05/22/19	05/22/19
Fluorene	ND		171	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		171	ug/kg	05/22/19	05/22/19
Naphthalene	ND		171	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		171	ug/kg	05/22/19	05/22/19
Pyrene	ND		171	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*74.9%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*86.1%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*70.0%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		156	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		156	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		156	ug/kg	05/22/19	05/22/19
Anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		156	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Chrysene	ND		156	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		156	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		156	ug/kg	05/22/19	05/22/19
Fluoranthene	ND		156	ug/kg	05/22/19	05/22/19
Fluorene	ND		156	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		156	ug/kg	05/22/19	05/22/19
Naphthalene	ND		156	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		156	ug/kg	05/22/19	05/22/19
Pyrene	ND		156	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*76.5%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*98.6%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*89.1%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	**825**		146	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		146	ug/kg	05/22/19	05/22/19
Acenaphthylene	**218**		146	ug/kg	05/22/19	05/22/19
Anthracene	**996**		146	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	**849**		146	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	**628**		146	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	**813**		146	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	**360**		146	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	**273**		146	ug/kg	05/22/19	05/22/19
Chrysene	**836**		146	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		146	ug/kg	05/22/19	05/22/19
Dibenzofuran	**175**		146	ug/kg	05/22/19	05/22/19
Fluoranthene	**2090**		146	ug/kg	05/22/19	05/22/19
Fluorene	ND		146	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	**445**		146	ug/kg	05/22/19	05/22/19
Naphthalene	**227**		146	ug/kg	05/22/19	05/22/19
Phenanthrene	**2510**		146	ug/kg	05/22/19	05/22/19
Pyrene	**1900**		146	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*80.1%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*83.3%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*76.9%*	*34-130*	05/22/19	05/22/19

Results: Semivolatile organic compounds

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
2-Methylnaphthalene	ND		3820	ug/kg	05/22/19	05/22/19
Acenaphthene	ND		3820	ug/kg	05/22/19	05/22/19
Acenaphthylene	ND		3820	ug/kg	05/22/19	05/22/19
Anthracene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(a)anthracene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(a)pyrene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(b)fluoranthene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(g,h,i)perylene	ND		3820	ug/kg	05/22/19	05/22/19
Benzo(k)fluoranthene	ND		3820	ug/kg	05/22/19	05/22/19
Chrysene	ND		3820	ug/kg	05/22/19	05/22/19
Dibenz(a,h)anthracene	ND		3820	ug/kg	05/22/19	05/22/19
Dibenzofuran	ND		3820	ug/kg	05/22/19	05/22/19
Fluoranthene	ND		3820	ug/kg	05/22/19	05/22/19
Fluorene	ND		3820	ug/kg	05/22/19	05/22/19
Indeno(1,2,3-cd)pyrene	ND		3820	ug/kg	05/22/19	05/22/19
Naphthalene	ND		3820	ug/kg	05/22/19	05/22/19
Phenanthrene	ND		3820	ug/kg	05/22/19	05/22/19
Pyrene	**17400**		3820	ug/kg	05/22/19	05/22/19

Surrogate(s)	Recovery%	Limits		
Nitrobenzene-d5	*75.0%*	*30-126*	05/22/19	05/22/19
p-Terphenyl-d14	*88.5%*	*47-130*	05/22/19	05/22/19
2-Fluorobiphenyl	*80.5%*	*34-130*	05/22/19	05/22/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		78	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		78	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*55.0%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*63.0%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		74	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		74	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*53.4%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*62.1%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		77	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		77	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		77	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*62.3%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*71.4%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		85	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		85	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		85	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*46.8%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*56.4%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		78	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		78	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		78	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*83.5%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*70.1%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1221	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1232	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1242	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1248	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1254	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1260	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1262	ND		74	ug/kg	05/22/19	05/23/19
Aroclor-1268	ND		74	ug/kg	05/22/19	05/23/19
PCBs (Total)	ND		74	ug/kg	05/22/19	05/23/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*64.0%*	*36.2-108*	05/22/19	05/23/19
Decachlorobiphenyl (DCBP)	*69.1%*	*43.3-118*	05/22/19	05/23/19

Results: Polychlorinated Biphenyls (PCBs)

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Aroclor-1016	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1221	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1232	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1242	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1248	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1254	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1260	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1262	ND		79	ug/kg	05/22/19	05/24/19
Aroclor-1268	ND		79	ug/kg	05/22/19	05/24/19
PCBs (Total)	ND		79	ug/kg	05/22/19	05/24/19

Surrogate(s)	Recovery%	Limits		
2,4,5,6-Tetrachloro-m-xylene (TCMX)	*55.1%*	*36.2-108*	05/22/19	05/24/19
Decachlorobiphenyl (DCBP)	*61.5%*	*43.3-118*	05/22/19	05/24/19

Results: Total Petroleum Hydrocarbons

Sample: SE-201 (10-15)

Lab Number: 9E21011-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**1400**		32	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*68.7%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-202 (10-15)

Lab Number: 9E21011-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**13300**		637	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-203 (10-15)

Lab Number: 9E21011-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**1770**		33	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*68.4%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-204 (10-15)

Lab Number: 9E21011-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**2520**		35	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*64.9%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-205 (5-10)

Lab Number: 9E21011-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		32	mg/kg	05/22/19	05/22/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*74.0%*		*56.5-114*		05/22/19	05/22/19

Results: Total Petroleum Hydrocarbons

Sample: SE-206 (10-15)

Lab Number: 9E21011-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**1040**		31	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*75.4%*		*56.5-114*		05/22/19	05/23/19

Results: Total Petroleum Hydrocarbons

Sample: SE-207 (0-5)

Lab Number: 9E21011-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**27000**		1620	mg/kg	05/22/19	05/23/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*%*		*56.5-114*		05/22/19	05/23/19

Quality Control

Total Metals

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0902 - Metals Digestion Soils										
Blank (B9E0902-BLK1)					Prepared & Analyzed: 05/22/19					
Lead	ND		0.33	mg/kg						
Selenium	ND		0.66	mg/kg						
Chromium	ND		0.33	mg/kg						
Cadmium	ND		0.33	mg/kg						
Barium	ND		0.33	mg/kg						
Arsenic	ND		0.66	mg/kg						
Silver	ND		0.33	mg/kg						
LCS (B9E0902-BS1)					Prepared & Analyzed: 05/22/19					
Chromium	99.4		0.33	mg/kg	100		99.4	85-115		
Arsenic	19.6		0.66	mg/kg	20.0		98.1	85-115		
Barium	100		0.33	mg/kg	100		100	85-115		
Lead	96.4		0.33	mg/kg	100		96.4	85-115		
Cadmium	97.0		0.33	mg/kg	100		97.0	85-115		
Selenium	19.3		0.66	mg/kg	20.0		96.5	85-115		
Silver	39.4		0.33	mg/kg	40.0		98.5	85-115		
Batch: B9E0992 - Metals Digestion Soils										
Blank (B9E0992-BLK1)					Prepared: 05/23/19 Analyzed: 05/24/19					
Mercury	ND		0.071	mg/kg						
LCS (B9E0992-BS1)					Prepared: 05/23/19 Analyzed: 05/24/19					
Mercury	0.145		0.071	mg/kg	0.143		101	93-114		

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap										
Blank (B9E0892-BLK1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
Blank (B9E0892-BLK1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*44.8*	ug/l	*50.0*		*89.5*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.4*	ug/l	*50.0*		*96.9*	*70-130*		
Surrogate: Toluene-d8			*47.2*	ug/l	*50.0*		*94.5*	*70-130*		
LCS (B9E0892-BS1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Acetone	44			ug/l	50.0		88.2	70-130		
Benzene	52			ug/l	50.0		104	70-130		
Bromobenzene	55			ug/l	50.0		109	70-130		
Bromochloromethane	48			ug/l	50.0		97.0	70-130		
Bromodichloromethane	50			ug/l	50.0		99.5	70-130		
Bromoform	56			ug/l	50.0		113	70-130		
Bromomethane	48			ug/l	50.0		96.8	70-130		
2-Butanone	53			ug/l	50.0		106	70-130		
tert-Butyl alcohol	52			ug/l	50.0		105	70-130		
sec-Butylbenzene	63			ug/l	50.0		126	70-130		
n-Butylbenzene	65			ug/l	50.0		129	70-130		
tert-Butylbenzene	61			ug/l	50.0		121	70-130		
Methyl t-butyl ether (MTBE)	49			ug/l	50.0		97.7	70-130		
Carbon Disulfide	51			ug/l	50.0		103	70-130		
Carbon Tetrachloride	53			ug/l	50.0		105	70-130		
Chlorobenzene	56			ug/l	50.0		112	70-130		
Chloroethane	48			ug/l	50.0		95.6	70-130		
Chloroform	50			ug/l	50.0		99.7	70-130		
Chloromethane	50			ug/l	50.0		99.2	70-130		
4-Chlorotoluene	58			ug/l	50.0		115	70-130		
2-Chlorotoluene	58			ug/l	50.0		115	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	53			ug/l	50.0		106	70-130		
Dibromochloromethane	51			ug/l	50.0		103	70-130		
1,2-Dibromoethane (EDB)	50			ug/l	50.0		100	70-130		
Dibromomethane	50			ug/l	50.0		99.6	70-130		
1,2-Dichlorobenzene	58			ug/l	50.0		116	70-130		
1,3-Dichlorobenzene	58			ug/l	50.0		116	70-130		
1,4-Dichlorobenzene	57			ug/l	50.0		114	70-130		
1,1-Dichloroethane	51			ug/l	50.0		101	70-130		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
LCS (B9E0892-BS1)					Prepared: 05/21/19 Analyzed: 05/22/19					
1,2-Dichloroethane	52			ug/l	50.0		104	70-130		
trans-1,2-Dichloroethene	50			ug/l	50.0		101	70-130		
cis-1,2-Dichloroethene	52			ug/l	50.0		104	70-130		
1,1-Dichloroethene	52			ug/l	50.0		105	70-130		
1,2-Dichloropropane	49			ug/l	50.0		98.1	70-130		
2,2-Dichloropropane	40			ug/l	50.0		79.9	70-130		
cis-1,3-Dichloropropene	50			ug/l	50.0		101	70-130		
trans-1,3-Dichloropropene	51			ug/l	50.0		102	70-130		
1,1-Dichloropropene	52			ug/l	50.0		104	70-130		
Diethyl ether	50			ug/l	50.0		100	70-130		
1,4-Dioxane	195			ug/l	250		78.0	70-130		
Ethylbenzene	58			ug/l	50.0		116	70-130		
Hexachlorobutadiene	60			ug/l	50.0		119	70-130		
2-Hexanone	43			ug/l	50.0		85.3	70-130		
Isopropylbenzene	61			ug/l	50.0		121	70-130		
p-Isopropyltoluene	64			ug/l	50.0		129	70-130		
Methylene Chloride	44			ug/l	50.0		88.8	70-130		
4-Methyl-2-pentanone	46			ug/l	50.0		92.0	70-130		
Naphthalene	55			ug/l	50.0		111	70-130		
n-Propylbenzene	63			ug/l	50.0		125	70-130		
Styrene	63			ug/l	50.0		127	70-130		
1,1,1,2-Tetrachloroethane	54			ug/l	50.0		109	70-130		
Tetrachloroethene	51			ug/l	50.0		103	70-130		
Tetrahydrofuran	47			ug/l	50.0		94.2	70-130		
Toluene	50			ug/l	50.0		99.8	70-130		
1,2,4-Trichlorobenzene	52			ug/l	50.0		105	70-130		
1,2,3-Trichlorobenzene	51			ug/l	50.0		101	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130		
1,1,1-Trichloroethane	52			ug/l	50.0		104	70-130		
Trichloroethene	52			ug/l	50.0		104	70-130		
1,2,3-Trichloropropane	52			ug/l	50.0		104	70-130		
1,3,5-Trimethylbenzene	61			ug/l	50.0		123	70-130		
1,2,4-Trimethylbenzene	62			ug/l	50.0		124	70-130		
Vinyl Chloride	51			ug/l	50.0		102	70-130		
o-Xylene	58			ug/l	50.0		116	70-130		
m&p-Xylene	117			ug/l	100		117	70-130		
1,1,2,2-Tetrachloroethane	53			ug/l	50.0		105	70-130		
tert-Amyl methyl ether	50			ug/l	50.0		99.3	70-130		
1,3-Dichloropropane	53			ug/l	50.0		106	70-130		
Ethyl tert-butyl ether	50			ug/l	50.0		101	70-130		
Diisopropyl ether	51			ug/l	50.0		102	70-130		
Trichlorofluoromethane	52			ug/l	50.0		105	70-130		
Dichlorodifluoromethane	50			ug/l	50.0		101	70-130		
Surrogate: 4-Bromofluorobenzene			*50.3*	ug/l	*50.0*		*101*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.0*	ug/l	*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8			*49.3*	ug/l	*50.0*		*98.5*	*70-130*		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
LCS Dup (B9E0892-BSD1)					Prepared: 05/21/19 Analyzed: 05/22/19					
Acetone	47			ug/l	50.0		94.0	70-130	6.37	200
Benzene	52			ug/l	50.0		103	70-130	1.12	200
Bromobenzene	57			ug/l	50.0		113	70-130	3.63	200
Bromochloromethane	50			ug/l	50.0		100	70-130	3.05	200
Bromodichloromethane	50			ug/l	50.0		101	70-130	1.40	200
Bromoform	55			ug/l	50.0		111	70-130	1.49	200
Bromomethane	52			ug/l	50.0		104	70-130	7.14	200
2-Butanone	54			ug/l	50.0		108	70-130	1.75	200
tert-Butyl alcohol	63			ug/l	50.0		125	70-130	17.7	200
sec-Butylbenzene	62			ug/l	50.0		124	70-130	1.42	200
n-Butylbenzene	65			ug/l	50.0		130	70-130	0.418	200
tert-Butylbenzene	61			ug/l	50.0		122	70-130	0.740	200
Methyl t-butyl ether (MTBE)	48			ug/l	50.0		95.8	70-130	1.96	200
Carbon Disulfide	51			ug/l	50.0		102	70-130	0.664	200
Carbon Tetrachloride	52			ug/l	50.0		103	70-130	2.07	200
Chlorobenzene	56			ug/l	50.0		111	70-130	0.305	200
Chloroethane	47			ug/l	50.0		94.4	70-130	1.33	200
Chloroform	49			ug/l	50.0		97.7	70-130	2.03	200
Chloromethane	49			ug/l	50.0		98.0	70-130	1.24	200
4-Chlorotoluene	57			ug/l	50.0		115	70-130	0.418	200
2-Chlorotoluene	57			ug/l	50.0		115	70-130	0.418	200
1,2-Dibromo-3-chloropropane (DBCP)	53			ug/l	50.0		106	70-130	0.717	200
Dibromochloromethane	51			ug/l	50.0		102	70-130	0.254	200
1,2-Dibromoethane (EDB)	50			ug/l	50.0		99.5	70-130	0.741	200
Dibromomethane	51			ug/l	50.0		101	70-130	1.73	200
1,2-Dichlorobenzene	58			ug/l	50.0		116	70-130	0.328	200
1,3-Dichlorobenzene	58			ug/l	50.0		116	70-130	0.275	200
1,4-Dichlorobenzene	57			ug/l	50.0		114	70-130	0.140	200
1,1-Dichloroethane	50			ug/l	50.0		101	70-130	0.555	200
1,2-Dichloroethane	50			ug/l	50.0		101	70-130	2.64	200
trans-1,2-Dichloroethene	50			ug/l	50.0		100	70-130	0.698	200
cis-1,2-Dichloroethene	51			ug/l	50.0		103	70-130	0.909	200
1,1-Dichloroethene	52			ug/l	50.0		104	70-130	0.192	200
1,2-Dichloropropane	49			ug/l	50.0		98.9	70-130	0.893	200
2,2-Dichloropropane	40			ug/l	50.0		79.1	70-130	1.03	200
cis-1,3-Dichloropropene	48			ug/l	50.0		96.7	70-130	3.95	200
trans-1,3-Dichloropropene	49			ug/l	50.0		97.8	70-130	3.75	200
1,1-Dichloropropene	50			ug/l	50.0		100	70-130	3.95	200
Diethyl ether	50			ug/l	50.0		99.4	70-130	0.542	200
1,4-Dioxane	248			ug/l	250		99.2	70-130	23.9	200
Ethylbenzene	58			ug/l	50.0		115	70-130	0.693	200
Hexachlorobutadiene	61			ug/l	50.0		122	70-130	2.34	200
2-Hexanone	47			ug/l	50.0		93.5	70-130	9.08	200
Isopropylbenzene	60			ug/l	50.0		120	70-130	1.41	200
p-Isopropyltoluene	64			ug/l	50.0		128	70-130	0.218	200
Methylene Chloride	45			ug/l	50.0		90.1	70-130	1.43	200
4-Methyl-2-pentanone	48			ug/l	50.0		95.9	70-130	4.15	200
Naphthalene	62			ug/l	50.0		124	70-130	11.4	200
n-Propylbenzene	62			ug/l	50.0		124	70-130	1.33	200
Styrene	63			ug/l	50.0		126	70-130	0.888	200
1,1,1,2-Tetrachloroethane	53			ug/l	50.0		106	70-130	2.31	200
Tetrachloroethene	49			ug/l	50.0		97.8	70-130	4.81	200
Tetrahydrofuran	53			ug/l	50.0		107	70-130	12.4	200
Toluene	51			ug/l	50.0		102	70-130	1.85	200

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0892 - Purge-Trap (Continued)										
LCS Dup (B9E0892-BSD1)					Prepared: 05/21/19 Analyzed: 05/22/19					
1,2,4-Trichlorobenzene	55			ug/l	50.0		110	70-130	4.68	200
1,2,3-Trichlorobenzene	61			ug/l	50.0		123	70-130	19.0	200
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130	0.424	200
1,1,1-Trichloroethane	51			ug/l	50.0		102	70-130	1.67	200
Trichloroethene	52			ug/l	50.0		105	70-130	0.402	200
1,2,3-Trichloropropane	51			ug/l	50.0		102	70-130	1.75	200
1,3,5-Trimethylbenzene	61			ug/l	50.0		121	70-130	1.13	200
1,2,4-Trimethylbenzene	61			ug/l	50.0		123	70-130	0.648	200
Vinyl Chloride	52			ug/l	50.0		104	70-130	1.50	200
o-Xylene	57			ug/l	50.0		113	70-130	2.43	200
m&p-Xylene	116			ug/l	100		116	70-130	0.558	200
1,1,2,2-Tetrachloroethane	50			ug/l	50.0		99.5	70-130	5.70	200
tert-Amyl methyl ether	48			ug/l	50.0		96.5	70-130	2.90	200
1,3-Dichloropropane	53			ug/l	50.0		105	70-130	0.341	200
Ethyl tert-butyl ether	49			ug/l	50.0		98.3	70-130	2.37	200
Diisopropyl ether	51			ug/l	50.0		102	70-130	0.0586	200
Trichlorofluoromethane	51			ug/l	50.0		102	70-130	2.63	200
Dichlorodifluoromethane	50			ug/l	50.0		99.9	70-130	0.777	200
Surrogate: 4-Bromofluorobenzene			*50.2*	ug/l	*50.0*		*100*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.4*	ug/l	*50.0*		*107*	*70-130*		
Surrogate: Toluene-d8			*48.7*	ug/l	*50.0*		*97.5*	*70-130*		
Batch: B9E0945 - Purge-Trap										
Blank (B9E0945-BLK1)					Prepared & Analyzed: 05/22/19					
Acetone	ND		250	ug/kg						
Benzene	ND		50	ug/kg						
Bromobenzene	ND		50	ug/kg						
Bromochloromethane	ND		50	ug/kg						
Bromodichloromethane	ND		50	ug/kg						
Bromoform	ND		50	ug/kg						
Bromomethane	ND		50	ug/kg						
2-Butanone	ND		250	ug/kg						
tert-Butyl alcohol	ND		250	ug/kg						
sec-Butylbenzene	ND		50	ug/kg						
n-Butylbenzene	ND		50	ug/kg						
tert-Butylbenzene	ND		50	ug/kg						
Methyl t-butyl ether (MTBE)	ND		50	ug/kg						
Carbon Disulfide	ND		50	ug/kg						
Carbon Tetrachloride	ND		50	ug/kg						
Chlorobenzene	ND		50	ug/kg						
Chloroethane	ND		50	ug/kg						
Chloroform	ND		50	ug/kg						
Chloromethane	ND		50	ug/kg						
4-Chlorotoluene	ND		50	ug/kg						
2-Chlorotoluene	ND		50	ug/kg						
1,2-Dibromo-3-chloropropane (DBCP)	ND		50	ug/kg						
Dibromochloromethane	ND		50	ug/kg						
1,2-Dibromoethane (EDB)	ND		50	ug/kg						
Dibromomethane	ND		50	ug/kg						
1,2-Dichlorobenzene	ND		50	ug/kg						
1,3-Dichlorobenzene	ND		50	ug/kg						
1,4-Dichlorobenzene	ND		50	ug/kg						
1,1-Dichloroethane	ND		50	ug/kg						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
Blank (B9E0945-BLK1)					Prepared & Analyzed: 05/22/19					
1,2-Dichloroethane	ND		50	ug/kg						
trans-1,2-Dichloroethene	ND		50	ug/kg						
cis-1,2-Dichloroethene	ND		50	ug/kg						
1,1-Dichloroethene	ND		50	ug/kg						
1,2-Dichloropropane	ND		50	ug/kg						
2,2-Dichloropropane	ND		50	ug/kg						
cis-1,3-Dichloropropene	ND		50	ug/kg						
trans-1,3-Dichloropropene	ND		50	ug/kg						
1,1-Dichloropropene	ND		50	ug/kg						
1,3-Dichloropropene (cis + trans)	ND		100	ug/kg						
Diethyl ether	ND		250	ug/kg						
1,4-Dioxane	ND		25000	ug/kg						
Ethylbenzene	ND		50	ug/kg						
Hexachlorobutadiene	ND		50	ug/kg						
2-Hexanone	ND		250	ug/kg						
Isopropylbenzene	ND		50	ug/kg						
p-Isopropyltoluene	ND		50	ug/kg						
Methylene Chloride	ND		50	ug/kg						
4-Methyl-2-pentanone	ND		250	ug/kg						
Naphthalene	ND		50	ug/kg						
n-Propylbenzene	ND		50	ug/kg						
Styrene	ND		50	ug/kg						
1,1,1,2-Tetrachloroethane	ND		50	ug/kg						
Tetrachloroethene	ND		50	ug/kg						
Tetrahydrofuran	ND		250	ug/kg						
Toluene	ND		50	ug/kg						
1,2,4-Trichlorobenzene	ND		50	ug/kg						
1,2,3-Trichlorobenzene	ND		50	ug/kg						
1,1,2-Trichloroethane	ND		50	ug/kg						
1,1,1-Trichloroethane	ND		50	ug/kg						
Trichloroethene	ND		50	ug/kg						
1,2,3-Trichloropropane	ND		50	ug/kg						
1,3,5-Trimethylbenzene	ND		50	ug/kg						
1,2,4-Trimethylbenzene	ND		50	ug/kg						
Vinyl Chloride	ND		50	ug/kg						
o-Xylene	ND		50	ug/kg						
m&p-Xylene	ND		100	ug/kg						
Total xylenes	ND		100	ug/kg						
1,1,2,2-Tetrachloroethane	ND		50	ug/kg						
tert-Amyl methyl ether	ND		50	ug/kg						
1,3-Dichloropropane	ND		50	ug/kg						
Ethyl tert-butyl ether	ND		50	ug/kg						
Diisopropyl ether	ND		50	ug/kg						
Trichlorofluoromethane	ND		50	ug/kg						
Dichlorodifluoromethane	ND		50	ug/kg						
Surrogate: 4-Bromofluorobenzene			*43.2*	ug/l	*50.0*		*86.4*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*51.1*	ug/l	*50.0*		*102*	*70-130*		
Surrogate: Toluene-d8			*47.4*	ug/l	*50.0*		*94.8*	*70-130*		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
LCS (B9E0945-BS1)					Prepared & Analyzed: 05/22/19					
Acetone	38			ug/l	50.0		76.7	70-130		
Benzene	54			ug/l	50.0		108	70-130		
Bromobenzene	58			ug/l	50.0		117	70-130		
Bromochloromethane	52			ug/l	50.0		104	70-130		
Bromodichloromethane	50			ug/l	50.0		99.3	70-130		
Bromoform	55			ug/l	50.0		110	70-130		
Bromomethane	51			ug/l	50.0		101	70-130		
2-Butanone	52			ug/l	50.0		103	70-130		
tert-Butyl alcohol	31			ug/l	50.0		62.9	70-130		
sec-Butylbenzene	64			ug/l	50.0		128	70-130		
n-Butylbenzene	66			ug/l	50.0		133	70-130		
tert-Butylbenzene	62			ug/l	50.0		124	70-130		
Methyl t-butyl ether (MTBE)	48			ug/l	50.0		96.2	70-130		
Carbon Disulfide	53			ug/l	50.0		105	70-130		
Carbon Tetrachloride	52			ug/l	50.0		104	70-130		
Chlorobenzene	57			ug/l	50.0		115	70-130		
Chloroethane	42			ug/l	50.0		84.2	70-130		
Chloroform	49			ug/l	50.0		97.4	70-130		
Chloromethane	47			ug/l	50.0		93.4	70-130		
4-Chlorotoluene	57			ug/l	50.0		114	70-130		
2-Chlorotoluene	57			ug/l	50.0		114	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	50			ug/l	50.0		101	70-130		
Dibromochloromethane	50			ug/l	50.0		100	70-130		
1,2-Dibromoethane (EDB)	51			ug/l	50.0		103	70-130		
Dibromomethane	50			ug/l	50.0		99.3	70-130		
1,2-Dichlorobenzene	59			ug/l	50.0		118	70-130		
1,3-Dichlorobenzene	60			ug/l	50.0		120	70-130		
1,4-Dichlorobenzene	60			ug/l	50.0		119	70-130		
1,1-Dichloroethane	50			ug/l	50.0		101	70-130		
1,2-Dichloroethane	47			ug/l	50.0		93.7	70-130		
trans-1,2-Dichloroethene	52			ug/l	50.0		104	70-130		
cis-1,2-Dichloroethene	55			ug/l	50.0		110	70-130		
1,1-Dichloroethene	55			ug/l	50.0		111	70-130		
1,2-Dichloropropane	50			ug/l	50.0		100	70-130		
2,2-Dichloropropane	55			ug/l	50.0		109	70-130		
cis-1,3-Dichloropropene	54			ug/l	50.0		108	70-130		
trans-1,3-Dichloropropene	52			ug/l	50.0		104	70-130		
1,1-Dichloropropene	57			ug/l	50.0		113	70-130		
Diethyl ether	47			ug/l	50.0		93.1	70-130		
1,4-Dioxane	298			ug/l	250		119	70-130		
Ethylbenzene	59			ug/l	50.0		118	70-130		
Hexachlorobutadiene	62			ug/l	50.0		124	70-130		
2-Hexanone	43			ug/l	50.0		86.7	70-130		
Isopropylbenzene	61			ug/l	50.0		122	70-130		
p-Isopropyltoluene	66			ug/l	50.0		132	70-130		
Methylene Chloride	43			ug/l	50.0		86.5	70-130		
4-Methyl-2-pentanone	42			ug/l	50.0		83.8	70-130		
Naphthalene	50			ug/l	50.0		99.7	70-130		
n-Propylbenzene	63			ug/l	50.0		126	70-130		
Styrene	65			ug/l	50.0		130	70-130		
1,1,1,2-Tetrachloroethane	54			ug/l	50.0		108	70-130		
Tetrachloroethene	57			ug/l	50.0		113	70-130		
Tetrahydrofuran	54			ug/l	50.0		109	70-130		
Toluene	53			ug/l	50.0		107	70-130		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
LCS (B9E0945-BS1)					Prepared & Analyzed: 05/22/19					
1,2,4-Trichlorobenzene	48			ug/l	50.0		96.4	70-130		
1,2,3-Trichlorobenzene	42			ug/l	50.0		84.1	70-130		
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130		
1,1,1-Trichloroethane	52			ug/l	50.0		104	70-130		
Trichloroethene	52			ug/l	50.0		104	70-130		
1,2,3-Trichloropropane	48			ug/l	50.0		96.2	70-130		
1,3,5-Trimethylbenzene	61			ug/l	50.0		123	70-130		
1,2,4-Trimethylbenzene	62			ug/l	50.0		125	70-130		
Vinyl Chloride	52			ug/l	50.0		104	70-130		
o-Xylene	59			ug/l	50.0		118	70-130		
m&p-Xylene	124			ug/l	100		124	70-130		
1,1,2,2-Tetrachloroethane	53			ug/l	50.0		106	70-130		
tert-Amyl methyl ether	52			ug/l	50.0		104	70-130		
1,3-Dichloropropane	53			ug/l	50.0		106	70-130		
Ethyl tert-butyl ether	51			ug/l	50.0		101	70-130		
Diisopropyl ether	49			ug/l	50.0		98.3	70-130		
Trichlorofluoromethane	46			ug/l	50.0		92.5	70-130		
Dichlorodifluoromethane	48			ug/l	50.0		95.2	70-130		
Surrogate: 4-Bromofluorobenzene			*47.2*	ug/l	*50.0*		*94.5*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.9*	ug/l	*50.0*		*108*	*70-130*		
Surrogate: Toluene-d8			*48.7*	ug/l	*50.0*		*97.4*	*70-130*		
LCS Dup (B9E0945-BSD1)					Prepared & Analyzed: 05/22/19					
Acetone	38			ug/l	50.0		76.3	70-130	0.601	200
Benzene	55			ug/l	50.0		110	70-130	2.48	200
Bromobenzene	58			ug/l	50.0		115	70-130	1.48	200
Bromochloromethane	53			ug/l	50.0		106	70-130	1.12	200
Bromodichloromethane	50			ug/l	50.0		99.6	70-130	0.382	200
Bromoform	56			ug/l	50.0		111	70-130	1.26	200
Bromomethane	56			ug/l	50.0		112	70-130	9.74	200
2-Butanone	48			ug/l	50.0		95.1	70-130	8.29	200
tert-Butyl alcohol	32			ug/l	50.0		64.2	70-130	2.01	200
sec-Butylbenzene	65			ug/l	50.0		129	70-130	0.699	200
n-Butylbenzene	68			ug/l	50.0		136	70-130	2.19	200
tert-Butylbenzene	62			ug/l	50.0		123	70-130	0.194	200
Methyl t-butyl ether (MTBE)	48			ug/l	50.0		95.6	70-130	0.709	200
Carbon Disulfide	54			ug/l	50.0		108	70-130	2.38	200
Carbon Tetrachloride	54			ug/l	50.0		107	70-130	3.51	200
Chlorobenzene	60			ug/l	50.0		119	70-130	3.76	200
Chloroethane	47			ug/l	50.0		93.7	70-130	10.7	200
Chloroform	50			ug/l	50.0		99.3	70-130	1.93	200
Chloromethane	47			ug/l	50.0		94.8	70-130	1.55	200
4-Chlorotoluene	58			ug/l	50.0		115	70-130	1.31	200
2-Chlorotoluene	58			ug/l	50.0		115	70-130	1.31	200
1,2-Dibromo-3-chloropropane (DBCP)	51			ug/l	50.0		101	70-130	0.594	200
Dibromochloromethane	52			ug/l	50.0		105	70-130	4.45	200
1,2-Dibromoethane (EDB)	52			ug/l	50.0		104	70-130	1.18	200
Dibromomethane	51			ug/l	50.0		102	70-130	2.60	200
1,2-Dichlorobenzene	60			ug/l	50.0		120	70-130	1.50	200
1,3-Dichlorobenzene	61			ug/l	50.0		122	70-130	1.68	200
1,4-Dichlorobenzene	60			ug/l	50.0		119	70-130	0.218	200
1,1-Dichloroethane	51			ug/l	50.0		103	70-130	2.18	200
1,2-Dichloroethane	48			ug/l	50.0		95.5	70-130	1.99	200
trans-1,2-Dichloroethene	53			ug/l	50.0		105	70-130	1.48	200

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0945 - Purge-Trap (Continued)										
LCS Dup (B9E0945-BSD1)					Prepared & Analyzed: 05/22/19					
cis-1,2-Dichloroethene	55			ug/l	50.0		111	70-130	0.797	200
1,1-Dichloroethene	57			ug/l	50.0		115	70-130	3.31	200
1,2-Dichloropropane	51			ug/l	50.0		102	70-130	2.35	200
2,2-Dichloropropane	56			ug/l	50.0		111	70-130	1.54	200
cis-1,3-Dichloropropene	52			ug/l	50.0		105	70-130	2.46	200
trans-1,3-Dichloropropene	54			ug/l	50.0		108	70-130	3.82	200
1,1-Dichloropropene	59			ug/l	50.0		118	70-130	3.88	200
Diethyl ether	47			ug/l	50.0		94.2	70-130	1.22	200
1,4-Dioxane	278			ug/l	250		111	70-130	7.08	200
Ethylbenzene	60			ug/l	50.0		120	70-130	1.58	200
Hexachlorobutadiene	68			ug/l	50.0		135	70-130	8.33	200
2-Hexanone	45			ug/l	50.0		89.1	70-130	2.68	200
Isopropylbenzene	62			ug/l	50.0		124	70-130	1.15	200
p-Isopropyltoluene	68			ug/l	50.0		135	70-130	2.17	200
Methylene Chloride	43			ug/l	50.0		86.9	70-130	0.461	200
4-Methyl-2-pentanone	43			ug/l	50.0		86.1	70-130	2.73	200
Naphthalene	61			ug/l	50.0		123	70-130	20.8	200
n-Propylbenzene	64			ug/l	50.0		128	70-130	1.42	200
Styrene	66			ug/l	50.0		132	70-130	0.855	200
1,1,1,2-Tetrachloroethane	56			ug/l	50.0		111	70-130	2.33	200
Tetrachloroethene	58			ug/l	50.0		116	70-130	2.06	200
Tetrahydrofuran	53			ug/l	50.0		106	70-130	3.13	200
Toluene	55			ug/l	50.0		109	70-130	2.15	200
1,2,4-Trichlorobenzene	58			ug/l	50.0		115	70-130	17.7	200
1,2,3-Trichlorobenzene	47			ug/l	50.0		94.2	70-130	11.4	200
1,1,2-Trichloroethane	52			ug/l	50.0		104	70-130	0.0961	200
1,1,1-Trichloroethane	53			ug/l	50.0		106	70-130	1.81	200
Trichloroethene	53			ug/l	50.0		106	70-130	2.43	200
1,2,3-Trichloropropane	48			ug/l	50.0		96.9	70-130	0.808	200
1,3,5-Trimethylbenzene	62			ug/l	50.0		123	70-130	0.650	200
1,2,4-Trimethylbenzene	63			ug/l	50.0		126	70-130	1.05	200
Vinyl Chloride	53			ug/l	50.0		107	70-130	2.77	200
o-Xylene	59			ug/l	50.0		119	70-130	0.405	200
m&p-Xylene	124			ug/l	100		124	70-130	0.435	200
1,1,2,2-Tetrachloroethane	54			ug/l	50.0		107	70-130	0.880	200
tert-Amyl methyl ether	52			ug/l	50.0		104	70-130	0.212	200
1,3-Dichloropropane	54			ug/l	50.0		108	70-130	2.26	200
Ethyl tert-butyl ether	51			ug/l	50.0		102	70-130	0.592	200
Diisopropyl ether	50			ug/l	50.0		99.9	70-130	1.61	200
Trichlorofluoromethane	49			ug/l	50.0		98.7	70-130	6.44	200
Dichlorodifluoromethane	50			ug/l	50.0		99.6	70-130	4.50	200
Surrogate: 4-Bromofluorobenzene			*47.4*	ug/l	*50.0*		*94.7*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*53.0*	ug/l	*50.0*		*106*	*70-130*		
Surrogate: Toluene-d8			*48.8*	ug/l	*50.0*		*97.7*	*70-130*		

Semivolatile organic compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0870 - EPA 3546										
Blank (B9E0870-BLK1)					Prepared & Analyzed: 05/22/19					
2-Methylnaphthalene	ND		130	ug/kg						
Acenaphthene	ND		130	ug/kg						
Acenaphthylene	ND		130	ug/kg						
Anthracene	ND		130	ug/kg						
Benzo(a)anthracene	ND		130	ug/kg						
Benzo(a)pyrene	ND		130	ug/kg						
Benzo(b)fluoranthene	ND		130	ug/kg						
Benzo(g,h,i)perylene	ND		130	ug/kg						
Benzo(k)fluoranthene	ND		130	ug/kg						
Chrysene	ND		130	ug/kg						
Dibenz(a,h)anthracene	ND		130	ug/kg						
Dibenzofuran	ND		130	ug/kg						
Fluoranthene	ND		130	ug/kg						
Fluorene	ND		130	ug/kg						
Indeno(1,2,3-cd)pyrene	ND		130	ug/kg						
Naphthalene	ND		130	ug/kg						
Phenanthrene	ND		130	ug/kg						
Pyrene	ND		130	ug/kg						
Surrogate: Nitrobenzene-d5			*2810*	ug/kg	*3330*		*84.3*	*30-126*		
Surrogate: p-Terphenyl-d14			*2680*	ug/kg	*3330*		*80.5*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2230*	ug/kg	*3330*		*67.0*	*34-130*		
LCS (B9E0870-BS1)					Prepared & Analyzed: 05/22/19					
2-Methylnaphthalene	2900		130	ug/kg	3330		86.9	40-140		
Acenaphthene	2550		130	ug/kg	3330		76.5	40-140		
Acenaphthylene	2700		130	ug/kg	3330		81.0	40-140		
Anthracene	2860		130	ug/kg	3330		85.8	40-140		
Benzo(a)anthracene	2980		130	ug/kg	3330		89.4	40-140		
Benzo(a)pyrene	3040		130	ug/kg	3330		91.2	40-140		
Benzo(b)fluoranthene	3080		130	ug/kg	3330		92.3	40-140		
Benzo(g,h,i)perylene	2960		130	ug/kg	3330		88.9	40-140		
Benzo(k)fluoranthene	2920		130	ug/kg	3330		87.6	40-140		
Chrysene	2930		130	ug/kg	3330		87.8	40-140		
Dibenz(a,h)anthracene	3020		130	ug/kg	3330		90.5	40-140		
Dibenzofuran	2780		130	ug/kg	3330		83.4	40-140		
Fluoranthene	2830		130	ug/kg	3330		84.8	40-140		
Fluorene	2670		130	ug/kg	3330		80.2	40-140		
Indeno(1,2,3-cd)pyrene	3250		130	ug/kg	3330		97.4	40-140		
Naphthalene	2870		130	ug/kg	3330		86.0	40-140		
Phenanthrene	2870		130	ug/kg	3330		86.0	40-140		
Pyrene	2920		130	ug/kg	3330		87.6	40-140		
Surrogate: Nitrobenzene-d5			*2570*	ug/kg	*3330*		*77.2*	*30-126*		
Surrogate: p-Terphenyl-d14			*2980*	ug/kg	*3330*		*89.4*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2680*	ug/kg	*3330*		*80.3*	*34-130*		

Quality Control
(Continued)

Semivolatile organic compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0870 - EPA 3546 (Continued)										
LCS Dup (B9E0870-BSD1)					Prepared & Analyzed: 05/22/19					
2-Methylnaphthalene	3000		130	ug/kg	3330		90.1	40-140	3.62	30
Acenaphthene	2600		130	ug/kg	3330		78.0	40-140	1.94	30
Acenaphthylene	2810		130	ug/kg	3330		84.2	40-140	3.80	30
Anthracene	2980		130	ug/kg	3330		89.3	40-140	4.07	30
Benzo(a)anthracene	3030		130	ug/kg	3330		91.0	40-140	1.82	30
Benzo(a)pyrene	3220		130	ug/kg	3330		96.6	40-140	5.79	30
Benzo(b)fluoranthene	3210		130	ug/kg	3330		96.3	40-140	4.26	30
Benzo(g,h,i)perylene	3130		130	ug/kg	3330		94.0	40-140	5.53	30
Benzo(k)fluoranthene	3110		130	ug/kg	3330		93.3	40-140	6.37	30
Chrysene	3010		130	ug/kg	3330		90.3	40-140	2.81	30
Dibenz(a,h)anthracene	3190		130	ug/kg	3330		95.8	40-140	5.75	30
Dibenzofuran	2910		130	ug/kg	3330		87.2	40-140	4.48	30
Fluoranthene	2990		130	ug/kg	3330		89.8	40-140	5.75	30
Fluorene	2790		130	ug/kg	3330		83.7	40-140	4.34	30
Indeno(1,2,3-cd)pyrene	3460		130	ug/kg	3330		104	40-140	6.32	30
Naphthalene	2970		130	ug/kg	3330		89.1	40-140	3.52	30
Phenanthrene	3030		130	ug/kg	3330		90.8	40-140	5.36	30
Pyrene	2980		130	ug/kg	3330		89.4	40-140	2.08	30
Surrogate: Nitrobenzene-d5			*2590*	ug/kg	*3330*		*77.8*	*30-126*		
Surrogate: p-Terphenyl-d14			*3080*	ug/kg	*3330*		*92.5*	*47-130*		
Surrogate: 2-Fluorobiphenyl			*2810*	ug/kg	*3330*		*84.4*	*34-130*		

Polychlorinated Biphenyls (PCBs)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0919 - EPA 3546										
Blank (B9E0919-BLK1)					Prepared: 05/22/19 Analyzed: 05/23/19					
Aroclor-1016	ND		66	ug/kg						
Aroclor-1221	ND		66	ug/kg						
Aroclor-1232	ND		66	ug/kg						
Aroclor-1242	ND		66	ug/kg						
Aroclor-1248	ND		66	ug/kg						
Aroclor-1254	ND		66	ug/kg						
Aroclor-1260	ND		66	ug/kg						
Aroclor-1262	ND		66	ug/kg						
Aroclor-1268	ND		66	ug/kg						
PCBs (Total)	ND		66	ug/kg						
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*12.2*	ug/kg	*13.3*		*91.6*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*12.5*	ug/kg	*13.3*		*93.5*	*43.3-118*		
LCS (B9E0919-BS1)					Prepared: 05/22/19 Analyzed: 05/23/19					
Aroclor-1016	142		66	ug/kg	167		85.3	58.2-125		
Aroclor-1260	150		66	ug/kg	167		90.1	65.5-130		
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*12.4*	ug/kg	*13.3*		*93.2*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*13.2*	ug/kg	*13.3*		*98.7*	*43.3-118*		
LCS Dup (B9E0919-BSD1)					Prepared: 05/22/19 Analyzed: 05/23/19					
Aroclor-1016	157		66	ug/kg	167		94.3	58.2-125	9.94	20
Aroclor-1260	155		66	ug/kg	167		92.7	65.5-130	2.85	20
Surrogate: 2,4,5,6-Tetrachloro-m-xylene (TCMX)			*12.2*	ug/kg	*13.3*		*91.5*	*36.2-108*		
Surrogate: Decachlorobiphenyl (DCBP)			*12.8*	ug/kg	*13.3*		*96.2*	*43.3-118*		

Quality Control
(Continued)

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E0897 - EPA 3546										
Blank (B9E0897-BLK1)					Prepared & Analyzed: 05/22/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*4.81*	mg/kg	*8.33*		*57.8*	*56.5-114*		
LCS (B9E0897-BS1)					Prepared & Analyzed: 05/22/19					
Total Petroleum Hydrocarbons	382		27	mg/kg	667		57.3	44.7-98.7		
Surrogate: Chlorooctadecane			*5.98*	mg/kg	*8.33*		*71.7*	*56.5-114*		
LCS Dup (B9E0897-BSD1)					Prepared & Analyzed: 05/22/19					
Total Petroleum Hydrocarbons	420		27	mg/kg	667		63.0	44.7-98.7	9.48	200
Surrogate: Chlorooctadecane			*7.57*	mg/kg	*8.33*		*90.8*	*56.5-114*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 E 2 1011 P

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME/LOCATION
S3291	S3291 — CHEVRON SLIVER, EAST PROVIDENCE

CLIENT: SAGE
REPORT TO: sage@sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** RCRA 8 METALS	VOCs	TPH	PAHs	PCBs	REMARKS
5/20			X	SE-201 (10-15)		X		2	NaW/MeOH	X	X	X	X	X	
				SE-202 (10-15)											
				SE-203 (10-15)											
				SE-204 (10-15)											
				SE-205 (5-10)											
				SE-206 (10-15)											
				SE-207 (0-5)											

Sampled by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
			5/21/19 0947
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
	5/21/19 1600		
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)	Date/Time
			5/21/19 1600

Laboratory Remarks:
Temp. received: 4
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM R-DEC GB-LC

Turnaround (Business Days) 72 Hr

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9E31042
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 03-June-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 05/31/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9E31042. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9E31042-01	SE-208 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-02	SE-209 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-03	SE-210 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-04	SE-211 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-05	SE-212 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-06	SE-213 (2-4')	Soil	05/28/2019	05/31/2019
9E31042-07	SE-214 (2-4')	Soil	05/28/2019	05/31/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-208 (2-4') (Lab Number: 9E31042-01)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-209 (2-4') (Lab Number: 9E31042-02)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-210 (2-4') (Lab Number: 9E31042-03)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-211 (2-4') (Lab Number: 9E31042-04)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-212 (2-4') (Lab Number: 9E31042-05)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-213 (2-4') (Lab Number: 9E31042-06)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

SE-214 (2-4') (Lab Number: 9E31042-07)

Analysis	Method
Total Petroleum Hydrocarbons	EPA-8100-mod

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Total Petroleum Hydrocarbons

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Results: Total Petroleum Hydrocarbons

Sample: SE-208 (2-4')

Lab Number: 9E31042-01 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**359**		33	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*71.5%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-209 (2-4')

Lab Number: 9E31042-02 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		33	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*74.2%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-210 (2-4')

Lab Number: 9E31042-03 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		32	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*56.9%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-211 (2-4')

Lab Number: 9E31042-04 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**220**		34	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*64.5%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-212 (2-4')

Lab Number: 9E31042-05 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	ND		30	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*59.2%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-213 (2-4')

Lab Number: 9E31042-06 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**90**		31	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*75.2%*		*56.5-114*		06/03/19	06/03/19

Results: Total Petroleum Hydrocarbons

Sample: SE-214 (2-4')

Lab Number: 9E31042-07 (Soil)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Total Petroleum Hydrocarbons	**95**		29	mg/kg	06/03/19	06/03/19
Surrogate(s)	Recovery%		Limits			
Chlorooctadecane	*76.0%*		*56.5-114*		06/03/19	06/03/19

Quality Control

Total Petroleum Hydrocarbons

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9F0003 - EPA 3546										
Blank (B9F0003-BLK1)					Prepared & Analyzed: 06/03/19					
Total Petroleum Hydrocarbons	ND		27	mg/kg						
Surrogate: Chlorooctadecane			*6.26*	mg/kg	*8.33*		*75.1*	*56.5-114*		
LCS (B9F0003-BS1)					Prepared & Analyzed: 06/03/19					
Total Petroleum Hydrocarbons	387		27	mg/kg	667		58.0	44.7-98.7		
Surrogate: Chlorooctadecane			*6.68*	mg/kg	*8.33*		*80.2*	*56.5-114*		
LCS Dup (B9F0003-BSD1)					Prepared & Analyzed: 06/03/19					
Total Petroleum Hydrocarbons	371		27	mg/kg	667		55.6	44.7-98.7	4.27	200
Surrogate: Chlorooctadecane			*5.11*	mg/kg	*8.33*		*61.3*	*56.5-114*		

Notes and Definitions

Item	Definition
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 E 3 1042 ?

CHAIN OF CUSTODY RECO

PROJ. NO.	PROJECT NAME/LOCATION
S3291	S3291 — CHEVRON SLIVER

CLIENT: SAGE ENVIRONMENTAL
REPORT TO: sage @ sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** TPH	REMARKS
5/28			X	SE-208 (2-4')		X		1	NON	X	
				SE-209 (2-4')							
				SE-210 (2-4')							
				SE-211 (2-4')							
				SE-212 (2-4)							
				SE-213 (2-4')							
				SE-214 (2-4')							

	Date/Time	Received by: (Signature)	Date/Time
Sampled by: (Signature)	5/28 1600		
Relinquished by: (Signature)	5/31 2:25		5/31/19 1425
Relinquished by: (Signature)	5-31-19 1525	Received for Laboratory by: (Signature)	5/31/19 1525

Laboratory Remarks:
Temp. received: 4
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:

RIDEM R-DEC
GB-LC

Turnaround (Business Days) 24 HR

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

B6

APPENDIX I

New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9D02067
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 10-January-2022

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 04/02/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9D02067. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9D02067-01	SE-101 (MW)	Water	04/01/2019	04/02/2019
9D02067-02	SE-103 (MW)	Water	04/01/2019	04/02/2019
9D02067-03	SE-105 (MW)	Water	04/01/2019	04/02/2019
9D02067-04	SE-107 (MW)	Water	04/01/2019	04/02/2019
9D02067-05	SE-108 (MW)	Water	04/01/2019	04/02/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-101 (MW) (Lab Number: 9D02067-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-103 (MW) (Lab Number: 9D02067-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-105 (MW) (Lab Number: 9D02067-03)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-107 (MW) (Lab Number: 9D02067-04)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-108 (MW) (Lab Number: 9D02067-05)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'SE-101,' 'SE-108,' and 'SE-110' were reported with elevated detection limits due to the foaming nature of the samples.

In order to meet client specified reporting limits, the compounds '1,2-Dibromomethane (EDB),' '1,2-Dibromo-3-chloropropane,' and 'Vinyl Chloride' were estimated down to MDL limits as denoted by a 'J' on the report forms.

Results: Volatile Organic Compounds

Sample: SE-101 (MW)

Lab Number: 9D02067-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	04/03/19	04/03/19
Benzene	ND		5	ug/l	04/03/19	04/03/19
Bromobenzene	ND		5	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromoform	ND		5	ug/l	04/03/19	04/03/19
Bromomethane	ND		5	ug/l	04/03/19	04/03/19
2-Butanone	ND		25	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		25	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		5	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		5	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		5	ug/l	04/03/19	04/03/19
Chloroethane	ND		5	ug/l	04/03/19	04/03/19
Chloroform	ND		5	ug/l	04/03/19	04/03/19
Chloromethane	ND		5	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromomethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	04/03/19	04/03/19
Diethyl ether	ND		25	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		2500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		5	ug/l	04/03/19	04/03/19
2-Hexanone	ND		25	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		5	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		5	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		25	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		25	ug/l	04/03/19	04/03

Results: Volatile Organic Compounds (Continued)

Sample: SE-101 (MW) (Continued)

Lab Number: 9D02067-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		5	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		5	ug/l	04/03/19	04/03/19
Styrene	ND		5	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		5	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		25	ug/l	04/03/19	04/03/19
Toluene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
Trichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		5	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		5	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		10	ug/l	04/03/19	04/03/19
Total xylenes	ND		10	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		5	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		5	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		5	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		5	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*92.1%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*116%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*105%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-103 (MW)

Lab Number: 9D02067-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03

Sample: SE-103 (MW) (Continued)

Lab Number: 9D02067-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*89.5%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*90.5%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*102%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-105 (MW)

Lab Number: 9D02067-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03

Results: Volatile Organic Compounds (Continued)

Sample: SE-105 (MW) (Continued)

Lab Number: 9D02067-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*91.8%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*105%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*96.3%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-107 (MW)

Lab Number: 9D02067-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		5	ug/l	04/03/19	04/03/19
Benzene	ND		1	ug/l	04/03/19	04/03/19
Bromobenzene	ND		1	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		1	ug/l	04/03/19	04/03/19
Bromoform	ND		1	ug/l	04/03/19	04/03/19
Bromomethane	ND		1	ug/l	04/03/19	04/03/19
2-Butanone	ND		5	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		5	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		1	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		1	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		1	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		1	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		1	ug/l	04/03/19	04/03/19
Chloroethane	ND		1	ug/l	04/03/19	04/03/19
Chloroform	ND		1	ug/l	04/03/19	04/03/19
Chloromethane	ND		1	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.2	ug/l	04/03/19	04/03/19
Dibromomethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		1	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		2	ug/l	04/03/19	04/03/19
Diethyl ether	ND		5	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		1	ug/l	04/03/19	04/03/19
2-Hexanone	ND		5	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		1	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		1	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		5	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		5	ug/l	04/03/19	04/03

Sample: SE-107 (MW) (Continued)

Lab Number: 9D02067-04 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		1	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		1	ug/l	04/03/19	04/03/19
Styrene	ND		1	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		1	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		5	ug/l	04/03/19	04/03/19
Toluene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		1	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		1	ug/l	04/03/19	04/03/19
Trichloroethene	ND		1	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		1	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		1	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		1	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		2	ug/l	04/03/19	04/03/19
Total xylenes	ND		2	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		1	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		1	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		1	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		1	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		1	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		1	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		1	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*96.7%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*112%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*108%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: SE-108 (MW)

Lab Number: 9D02067-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		50	ug/l	04/03/19	04/03/19
Benzene	ND		10	ug/l	04/03/19	04/03/19
Bromobenzene	ND		10	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromoform	ND		10	ug/l	04/03/19	04/03/19
Bromomethane	ND		10	ug/l	04/03/19	04/03/19
2-Butanone	ND		50	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		50	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		10	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		10	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		10	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		10	ug/l	04/03/19	04/03/19
Chloroethane	ND		10	ug/l	04/03/19	04/03/19
Chloroform	ND		10	ug/l	04/03/19	04/03/19
Chloromethane	ND		10	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromomethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		20	ug/l	04/03/19	04/03/19
Diethyl ether	ND		50	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		5000	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		10	ug/l	04/03/19	04/03/19
2-Hexanone	ND		50	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		10	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		10	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		50	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		50	ug/l	04/03/19	04/03/19

Sample: SE-108 (MW) (Continued)

Lab Number: 9D02067-05 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		10	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		10	ug/l	04/03/19	04/03/19
Styrene	ND		10	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		10	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		50	ug/l	04/03/19	04/03/19
Toluene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
Trichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		10	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		10	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		20	ug/l	04/03/19	04/03/19
Total xylenes	ND		20	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		10	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		10	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		10	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		10	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*90.1%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*101%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*102%*	*70-130*	04/03/19	04/03/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*45.3*	ug/l	*50.0*		*90.6*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.1*	ug/l	*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8			*51.3*	ug/l	*50.0*		*103*	*70-130*		
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
Acetone	23			ug/l	50.0		45.1	70-130		
Benzene	46			ug/l	50.0		91.9	70-130		
Bromobenzene	55			ug/l	50.0		110	70-130		
Bromochloromethane	54			ug/l	50.0		108	70-130		
Bromodichloromethane	51			ug/l	50.0		103	70-130		
Bromoform	53			ug/l	50.0		106	70-130		
Bromomethane	35			ug/l	50.0		70.1	70-130		
2-Butanone	31			ug/l	50.0		62.8	70-130		
tert-Butyl alcohol	49			ug/l	50.0		97.0	70-130		
sec-Butylbenzene	50			ug/l	50.0		101	70-130		
n-Butylbenzene	43			ug/l	50.0		85.1	70-130		
tert-Butylbenzene	53			ug/l	50.0		106	70-130		
Methyl t-butyl ether (MTBE)	49			ug/l	50.0		98.8	70-130		
Carbon Disulfide	41			ug/l	50.0		82.0	70-130		
Carbon Tetrachloride	63			ug/l	50.0		125	70-130		
Chlorobenzene	49			ug/l	50.0		98.6	70-130		
Chloroethane	43			ug/l	50.0		86.1	70-130		
Chloroform	49			ug/l	50.0		98.2	70-130		
Chloromethane	42			ug/l	50.0		83.1	70-130		
4-Chlorotoluene	46			ug/l	50.0		92.7	70-130		
2-Chlorotoluene	47			ug/l	50.0		93.4	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	48			ug/l	50.0		95.0	70-130		
Dibromochloromethane	53			ug/l	50.0		107	70-130		
1,2-Dibromoethane (EDB)	49			ug/l	50.0		97.7	70-130		
Dibromomethane	53			ug/l	50.0		106	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		95.4	70-130		
1,3-Dichlorobenzene	53			ug/l	50.0		106	70-130		
1,4-Dichlorobenzene	48			ug/l	50.0		95.7	70-130		
1,1-Dichloroethane	40			ug/l	50.0		80.2	70-130		
1,2-Dichloroethane	58			ug/l	50.0		115	70-130		
trans-1,2-Dichloroethene	47			ug/l	50.0		93.3	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.2	70-130		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
1,1-Dichloroethene	45			ug/l	50.0		90.9	70-130		
1,2-Dichloropropane	41			ug/l	50.0		81.0	70-130		
2,2-Dichloropropane	59			ug/l	50.0		119	70-130		
cis-1,3-Dichloropropene	48			ug/l	50.0		95.2	70-130		
trans-1,3-Dichloropropene	55			ug/l	50.0		110	70-130		
1,1-Dichloropropene	53			ug/l	50.0		107	70-130		
Diethyl ether	41			ug/l	50.0		81.4	70-130		
1,4-Dioxane	211			ug/l	250		84.6	70-130		
Ethylbenzene	45			ug/l	50.0		89.9	70-130		
Hexachlorobutadiene	52			ug/l	50.0		103	70-130		
2-Hexanone	35			ug/l	50.0		69.6	70-130		
Isopropylbenzene	49			ug/l	50.0		97.2	70-130		
p-Isopropyltoluene	52			ug/l	50.0		103	70-130		
Methylene Chloride	37			ug/l	50.0		73.8	70-130		
4-Methyl-2-pentanone	42			ug/l	50.0		83.6	70-130		
Naphthalene	47			ug/l	50.0		94.3	70-130		
n-Propylbenzene	47			ug/l	50.0		93.5	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	52			ug/l	50.0		105	70-130		
Tetrachloroethene	54			ug/l	50.0		108	70-130		
Tetrahydrofuran	49			ug/l	50.0		98.0	70-130		
Toluene	50			ug/l	50.0		99.2	70-130		
1,2,4-Trichlorobenzene	50			ug/l	50.0		100	70-130		
1,2,3-Trichlorobenzene	50			ug/l	50.0		99.3	70-130		
1,1,2-Trichloroethane	45			ug/l	50.0		90.0	70-130		
1,1,1-Trichloroethane	58			ug/l	50.0		115	70-130		
Trichloroethene	45			ug/l	50.0		89.1	70-130		
1,2,3-Trichloropropane	48			ug/l	50.0		95.5	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	36			ug/l	50.0		72.8	70-130		
o-Xylene	51			ug/l	50.0		101	70-130		
m&p-Xylene	100			ug/l	100		100	70-130		
1,1,2,2-Tetrachloroethane	46			ug/l	50.0		92.9	70-130		
tert-Amyl methyl ether	49			ug/l	50.0		98.5	70-130		
1,3-Dichloropropane	45			ug/l	50.0		89.7	70-130		
Ethyl tert-butyl ether	44			ug/l	50.0		87.1	70-130		
Diisopropyl ether	40			ug/l	50.0		80.8	70-130		
Trichlorofluoromethane	54			ug/l	50.0		108	70-130		
Dichlorodifluoromethane	42			ug/l	50.0		83.2	70-130		
Surrogate: 4-Bromofluorobenzene			*48.9*	ug/l	*50.0*		*97.9*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*40.7*	ug/l	*50.0*		*81.4*	*70-130*		
Surrogate: Toluene-d8			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9D0 2067.

CHAIN OF CUSTODY RECORD

PROJ. NO. 53291 | PROJECT NAME/LOCATION 53291 E. Providence

CLIENT: SAGE Environmental
REPORT TO: sage@sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOCs via 8260C	REMARKS
4/1/19	10:00		X	SE-101 (mw)	X		"	2-40 ml	HCl	X	
	9:25			SE-103 (mw)			"				
	14:35			SE-105 (mw)			"				
	14:25			SE-107 (mw)			"				
	13:20			SE-108 (mw)			"				
	11:35			SE-110 (mw)			"				
	11:40			SE-112 (mw)			"				
	10:35			SE-113 (mw)			"				
	10:25			SE-115 (mw)			"				

Sampled by: (Signature) BT Bocey	Date/Time 4-1-19 17:20	Received by: (Signature)	Date/Time	Laboratory Remarks: Temp. received: 4 Cooled ☐
Relinquished by: (Signature)	Date/Time 4/2 2:30	Received by: (Signature) Bernie Rosocha	Date/Time 4-2-19 1430	Special Instructions: List Specific Detection Limit Requirements: RIDEM GA GW Obj. Need results by mid day Friday 4/5 MG
Relinquished by: (Signature) Bernie Rosocha	Date/Time 4-2-19 1515	Received for Laboratory by: (Signature)	Date/Time 4/2/19 1515	Turnaround (Business Days) Std 3

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9D02068
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 10-January-2022

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 04/02/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9D02068. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9D02068-01	PW-MW-1	Water	04/01/2019	04/02/2019
9D02068-02	PW-MW-2	Water	04/01/2019	04/02/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

PW-MW-1 (Lab Number: 9D02068-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

PW-MW-2 (Lab Number: 9D02068-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'PE MW-1' and 'PE MW-2' were reported with elevated detection limits due to the foaming nature of the samples.

In order to meet client specified reporting limits, the compounds '1,2-Dibromomethane (EDB),' '1,2-Dibromo-3-chloropropane,' and 'Vinyl Chloride' were estimated down to MDL limits as denoted by a 'J' on the report forms.

Results: Volatile Organic Compounds

Sample: PW-MW-1

Lab Number: 9D02068-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		50	ug/l	04/03/19	04/03/19
Benzene	ND		10	ug/l	04/03/19	04/03/19
Bromobenzene	ND		10	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		10	ug/l	04/03/19	04/03/19
Bromoform	ND		10	ug/l	04/03/19	04/03/19
Bromomethane	ND		10	ug/l	04/03/19	04/03/19
2-Butanone	ND		50	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		50	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		10	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		10	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		10	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		10	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		10	ug/l	04/03/19	04/03/19
Chloroethane	ND		10	ug/l	04/03/19	04/03/19
Chloroform	ND		10	ug/l	04/03/19	04/03/19
Chloromethane	ND		10	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	1	ug/l	04/03/19	04/03/19
Dibromomethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		10	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		20	ug/l	04/03/19	04/03/19
Diethyl ether	ND		50	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		5000	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		10	ug/l	04/03/19	04/03/19
2-Hexanone	ND		50	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		10	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		10	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		50	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		50	ug/l	04/03/19	04/03

Results: Volatile Organic Compounds (Continued)

Sample: PW-MW-1 (Continued)

Lab Number: 9D02068-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		10	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		10	ug/l	04/03/19	04/03/19
Styrene	ND		10	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		10	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		50	ug/l	04/03/19	04/03/19
Toluene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		10	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		10	ug/l	04/03/19	04/03/19
Trichloroethene	ND		10	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		10	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		10	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		10	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		20	ug/l	04/03/19	04/03/19
Total xylenes	ND		20	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		10	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		10	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		10	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		10	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		10	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		10	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		10	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*92.5%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*103%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*99.9%*	*70-130*	04/03/19	04/03/19

Results: Volatile Organic Compounds

Sample: PW-MW-2

Lab Number: 9D02068-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	04/03/19	04/03/19
Benzene	ND		5	ug/l	04/03/19	04/03/19
Bromobenzene	ND		5	ug/l	04/03/19	04/03/19
Bromochloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromodichloromethane	ND		5	ug/l	04/03/19	04/03/19
Bromoform	ND		5	ug/l	04/03/19	04/03/19
Bromomethane	ND		5	ug/l	04/03/19	04/03/19
2-Butanone	ND		25	ug/l	04/03/19	04/03/19
tert-Butyl alcohol	ND		25	ug/l	04/03/19	04/03/19
sec-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
n-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
tert-Butylbenzene	ND		5	ug/l	04/03/19	04/03/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	04/03/19	04/03/19
Carbon Disulfide	ND		5	ug/l	04/03/19	04/03/19
Carbon Tetrachloride	ND		5	ug/l	04/03/19	04/03/19
Chlorobenzene	ND		5	ug/l	04/03/19	04/03/19
Chloroethane	ND		5	ug/l	04/03/19	04/03/19
Chloroform	ND		5	ug/l	04/03/19	04/03/19
Chloromethane	ND		5	ug/l	04/03/19	04/03/19
4-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
2-Chlorotoluene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromochloromethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dibromoethane (EDB)	ND	J	0.5	ug/l	04/03/19	04/03/19
Dibromomethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,4-Dichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloroethane	ND		5	ug/l	04/03/19	04/03/19
trans-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
cis-1,2-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
2,2-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
cis-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
trans-1,3-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,1-Dichloropropene	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	04/03/19	04/03/19
Diethyl ether	ND		25	ug/l	04/03/19	04/03/19
1,4-Dioxane	ND		2500	ug/l	04/03/19	04/03/19
Ethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Hexachlorobutadiene	ND		5	ug/l	04/03/19	04/03/19
2-Hexanone	ND		25	ug/l	04/03/19	04/03/19
Isopropylbenzene	ND		5	ug/l	04/03/19	04/03/19
p-Isopropyltoluene	ND		5	ug/l	04/03/19	04/03/19
Methylene Chloride	ND		25	ug/l	04/03/19	04/03/19
4-Methyl-2-pentanone	ND		25	ug/l	04/03/19	04/03

Sample: PW-MW-2 (Continued)

Lab Number: 9D02068-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Naphthalene	ND		5	ug/l	04/03/19	04/03/19
n-Propylbenzene	ND		5	ug/l	04/03/19	04/03/19
Styrene	ND		5	ug/l	04/03/19	04/03/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
Tetrachloroethene	ND		5	ug/l	04/03/19	04/03/19
Tetrahydrofuran	ND		25	ug/l	04/03/19	04/03/19
Toluene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichlorobenzene	ND		5	ug/l	04/03/19	04/03/19
1,1,2-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
1,1,1-Trichloroethane	ND		5	ug/l	04/03/19	04/03/19
Trichloroethene	ND		5	ug/l	04/03/19	04/03/19
1,2,3-Trichloropropane	ND		5	ug/l	04/03/19	04/03/19
1,3,5-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
1,2,4-Trimethylbenzene	ND		5	ug/l	04/03/19	04/03/19
Vinyl Chloride	ND	J	2	ug/l	04/03/19	04/03/19
o-Xylene	ND		5	ug/l	04/03/19	04/03/19
m&p-Xylene	ND		10	ug/l	04/03/19	04/03/19
Total xylenes	ND		10	ug/l	04/03/19	04/03/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	04/03/19	04/03/19
tert-Amyl methyl ether	ND		5	ug/l	04/03/19	04/03/19
1,3-Dichloropropane	ND		5	ug/l	04/03/19	04/03/19
Ethyl tert-butyl ether	ND		5	ug/l	04/03/19	04/03/19
Diisopropyl ether	ND		5	ug/l	04/03/19	04/03/19
Trichlorofluoromethane	ND		5	ug/l	04/03/19	04/03/19
Dichlorodifluoromethane	ND		5	ug/l	04/03/19	04/03/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*88.8%*	*70-130*	04/03/19	04/03/19
1,2-Dichloroethane-d4	*91.2%*	*70-130*	04/03/19	04/03/19
Toluene-d8	*100%*	*70-130*	04/03/19	04/03/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		1	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
Blank (B9D0180-BLK1)					Prepared & Analyzed: 04/03/19					
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*45.3*	ug/l	*50.0*		*90.6*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*52.1*	ug/l	*50.0*		*104*	*70-130*		
Surrogate: Toluene-d8			*51.3*	ug/l	*50.0*		*103*	*70-130*		
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
Acetone	23			ug/l	50.0		45.1	70-130		
Benzene	46			ug/l	50.0		91.9	70-130		
Bromobenzene	55			ug/l	50.0		110	70-130		
Bromochloromethane	54			ug/l	50.0		108	70-130		
Bromodichloromethane	51			ug/l	50.0		103	70-130		
Bromoform	53			ug/l	50.0		106	70-130		
Bromomethane	35			ug/l	50.0		70.1	70-130		
2-Butanone	31			ug/l	50.0		62.8	70-130		
tert-Butyl alcohol	49			ug/l	50.0		97.0	70-130		
sec-Butylbenzene	50			ug/l	50.0		101	70-130		
n-Butylbenzene	43			ug/l	50.0		85.1	70-130		
tert-Butylbenzene	53			ug/l	50.0		106	70-130		
Methyl t-butyl ether (MTBE)	49			ug/l	50.0		98.8	70-130		
Carbon Disulfide	41			ug/l	50.0		82.0	70-130		
Carbon Tetrachloride	63			ug/l	50.0		125	70-130		
Chlorobenzene	49			ug/l	50.0		98.6	70-130		
Chloroethane	43			ug/l	50.0		86.1	70-130		
Chloroform	49			ug/l	50.0		98.2	70-130		
Chloromethane	42			ug/l	50.0		83.1	70-130		
4-Chlorotoluene	46			ug/l	50.0		92.7	70-130		
2-Chlorotoluene	47			ug/l	50.0		93.4	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	48			ug/l	50.0		95.0	70-130		
Dibromochloromethane	53			ug/l	50.0		107	70-130		
1,2-Dibromoethane (EDB)	49			ug/l	50.0		97.7	70-130		
Dibromomethane	53			ug/l	50.0		106	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		95.4	70-130		
1,3-Dichlorobenzene	53			ug/l	50.0		106	70-130		
1,4-Dichlorobenzene	48			ug/l	50.0		95.7	70-130		
1,1-Dichloroethane	40			ug/l	50.0		80.2	70-130		
1,2-Dichloroethane	58			ug/l	50.0		115	70-130		
trans-1,2-Dichloroethene	47			ug/l	50.0		93.3	70-130		
cis-1,2-Dichloroethene	48			ug/l	50.0		96.2	70-130		

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9D0180 - Purge-Trap (Continued)										
LCS (B9D0180-BS1)					Prepared & Analyzed: 04/03/19					
1,1-Dichloroethene	45			ug/l	50.0		90.9	70-130		
1,2-Dichloropropane	41			ug/l	50.0		81.0	70-130		
2,2-Dichloropropane	59			ug/l	50.0		119	70-130		
cis-1,3-Dichloropropene	48			ug/l	50.0		95.2	70-130		
trans-1,3-Dichloropropene	55			ug/l	50.0		110	70-130		
1,1-Dichloropropene	53			ug/l	50.0		107	70-130		
Diethyl ether	41			ug/l	50.0		81.4	70-130		
1,4-Dioxane	211			ug/l	250		84.6	70-130		
Ethylbenzene	45			ug/l	50.0		89.9	70-130		
Hexachlorobutadiene	52			ug/l	50.0		103	70-130		
2-Hexanone	35			ug/l	50.0		69.6	70-130		
Isopropylbenzene	49			ug/l	50.0		97.2	70-130		
p-Isopropyltoluene	52			ug/l	50.0		103	70-130		
Methylene Chloride	37			ug/l	50.0		73.8	70-130		
4-Methyl-2-pentanone	42			ug/l	50.0		83.6	70-130		
Naphthalene	47			ug/l	50.0		94.3	70-130		
n-Propylbenzene	47			ug/l	50.0		93.5	70-130		
Styrene	51			ug/l	50.0		102	70-130		
1,1,1,2-Tetrachloroethane	52			ug/l	50.0		105	70-130		
Tetrachloroethene	54			ug/l	50.0		108	70-130		
Tetrahydrofuran	49			ug/l	50.0		98.0	70-130		
Toluene	50			ug/l	50.0		99.2	70-130		
1,2,4-Trichlorobenzene	50			ug/l	50.0		100	70-130		
1,2,3-Trichlorobenzene	50			ug/l	50.0		99.3	70-130		
1,1,2-Trichloroethane	45			ug/l	50.0		90.0	70-130		
1,1,1-Trichloroethane	58			ug/l	50.0		115	70-130		
Trichloroethene	45			ug/l	50.0		89.1	70-130		
1,2,3-Trichloropropane	48			ug/l	50.0		95.5	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	52			ug/l	50.0		104	70-130		
Vinyl Chloride	36			ug/l	50.0		72.8	70-130		
o-Xylene	51			ug/l	50.0		101	70-130		
m&p-Xylene	100			ug/l	100		100	70-130		
1,1,2,2-Tetrachloroethane	46			ug/l	50.0		92.9	70-130		
tert-Amyl methyl ether	49			ug/l	50.0		98.5	70-130		
1,3-Dichloropropane	45			ug/l	50.0		89.7	70-130		
Ethyl tert-butyl ether	44			ug/l	50.0		87.1	70-130		
Diisopropyl ether	40			ug/l	50.0		80.8	70-130		
Trichlorofluoromethane	54			ug/l	50.0		108	70-130		
Dichlorodifluoromethane	42			ug/l	50.0		83.2	70-130		
Surrogate: 4-Bromofluorobenzene			*48.9*	ug/l	*50.0*		*97.9*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*40.7*	ug/l	*50.0*		*81.4*	*70-130*		
Surrogate: Toluene-d8			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9D0 20684

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME/LOCATION
S3291	S3291 E. Providence

CLIENT: SAGE Environmental
REPORT TO: sage@sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOCs via 8260C	REMARKS
4/1/19	13:35		X	PE-MW-1	X			2-40ml	HCl	X	
	13:00			PE-MW-2							
	12:00			PE-MW-3							
	10:35			PE-MW-4							

	Date/Time		Date/Time
Sampled by: (Signature) BT Brock	4-1-19 17:15	Received by: (Signature)	
Relinquished by: (Signature)	4/2 9:30	Received by: (Signature)	4-2-19 1430
Relinquished by: (Signature)	4-2-19 1515	Received for Laboratory by: (Signature)	4/2/19 1515

Laboratory Remarks:
Temp. received: 4
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM GA GW Obj.
Need results by midday Friday 4/5 MG

Turnaround (Business Days) ~~Std~~ 3

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

BB

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New England Testing Laboratory, Inc.
(401) 353-3420

REPORT OF ANALYTICAL RESULTS

NETLAB Work Order Number: 9E29031
Client Project: S3291 - South Quay, East Providence, RI

Report Date: 30-May-2019

Prepared for:

Cathy Racine
SAGE Environmental
172 Armistice Blvd
Pawtucket, RI 02860

Richard Warila, Laboratory Director
New England Testing Laboratory, Inc.
59 Greenhill Street
West Warwick, RI 02893
rich.warila@newenglandtesting.com

Samples Submitted :

The samples listed below were submitted to New England Testing Laboratory on 05/29/19. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is 9E29031. Custody records are included in this report.

Lab ID	Sample	Matrix	Date Sampled	Date Received
9E29031-01	SE-201 (MW)	Water	05/28/2019	05/29/2019
9E29031-02	SE-204 (MW)	Water	05/24/2019	05/29/2019
9E29031-03	SE-207 (MW)	Water	05/28/2019	05/29/2019

Request for Analysis

At the client's request, the analyses presented in the following table were performed on the samples submitted.

SE-201 (MW) (Lab Number: 9E29031-01)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-204 (MW) (Lab Number: 9E29031-02)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

SE-207 (MW) (Lab Number: 9E29031-03)

Analysis	Method
Volatile Organic Compounds	EPA 8260C

Method References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, USEPA

Case Narrative

Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control requirements and allowances.

'SE-204,' 'SE-201,' and 'SE-207' were reported with elevated detection limits due to the foaming nature of the samples.

Results: Volatile Organic Compounds

Sample: SE-201 (MW)

Lab Number: 9E29031-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	05/30/19	05/30/19
Benzene	ND		5	ug/l	05/30/19	05/30/19
Bromobenzene	ND		5	ug/l	05/30/19	05/30/19
Bromochloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromodichloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromoform	ND		5	ug/l	05/30/19	05/30/19
Bromomethane	ND		5	ug/l	05/30/19	05/30/19
2-Butanone	ND		25	ug/l	05/30/19	05/30/19
tert-Butyl alcohol	ND		25	ug/l	05/30/19	05/30/19
sec-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
n-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
tert-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	05/30/19	05/30/19
Carbon Disulfide	ND		5	ug/l	05/30/19	05/30/19
Carbon Tetrachloride	ND		5	ug/l	05/30/19	05/30/19
Chlorobenzene	ND		5	ug/l	05/30/19	05/30/19
Chloroethane	ND		5	ug/l	05/30/19	05/30/19
Chloroform	ND		5	ug/l	05/30/19	05/30/19
Chloromethane	ND		5	ug/l	05/30/19	05/30/19
4-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
2-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	2	ug/l	05/30/19	05/30/19
Dibromochloromethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	05/30/19	05/30/19
Dibromomethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,4-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
trans-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
cis-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
2,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
cis-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
trans-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	05/30/19	05/30/19
Diethyl ether	ND		25	ug/l	05/30/19	05/30/19
1,4-Dioxane	ND		2500	ug/l	05/30/19	05/30/19
Ethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Hexachlorobutadiene	ND		5	ug/l	05/30/19	05/30/19
2-Hexanone	ND		25	ug/l	05/30/19	05/30/19
Isopropylbenzene	ND		5	ug/l	05/30/19	05/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-201 (MW) (Continued)

Lab Number: 9E29031-01 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	05/30/19	05/30/19
Methylene Chloride	ND		25	ug/l	05/30/19	05/30/19
4-Methyl-2-pentanone	ND		25	ug/l	05/30/19	05/30/19
Naphthalene	ND		5	ug/l	05/30/19	05/30/19
n-Propylbenzene	ND		5	ug/l	05/30/19	05/30/19
Styrene	ND		5	ug/l	05/30/19	05/30/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
Tetrachloroethene	ND		5	ug/l	05/30/19	05/30/19
Tetrahydrofuran	ND		25	ug/l	05/30/19	05/30/19
Toluene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1,2-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,1,1-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
Trichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichloropropane	ND		5	ug/l	05/30/19	05/30/19
1,3,5-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Vinyl Chloride	ND	J	2	ug/l	05/30/19	05/30/19
o-Xylene	ND		5	ug/l	05/30/19	05/30/19
m&p-Xylene	**11**		10	ug/l	05/30/19	05/30/19
Total xylenes	**11**		10	ug/l	05/30/19	05/30/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
tert-Amyl methyl ether	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
Ethyl tert-butyl ether	ND		5	ug/l	05/30/19	05/30/19
Diisopropyl ether	ND		5	ug/l	05/30/19	05/30/19
Trichlorofluoromethane	ND		5	ug/l	05/30/19	05/30/19
Dichlorodifluoromethane	ND		5	ug/l	05/30/19	05/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.4%*	*70-130*	05/30/19	05/30/19
1,2-Dichloroethane-d4	*98.2%*	*70-130*	05/30/19	05/30/19
Toluene-d8	*99.2%*	*70-130*	05/30/19	05/30/19

Results: Volatile Organic Compounds

Sample: SE-204 (MW)

Lab Number: 9E29031-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	05/30/19	05/30/19
Benzene	ND		5	ug/l	05/30/19	05/30/19
Bromobenzene	ND		5	ug/l	05/30/19	05/30/19
Bromochloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromodichloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromoform	ND		5	ug/l	05/30/19	05/30/19
Bromomethane	ND		5	ug/l	05/30/19	05/30/19
2-Butanone	ND		25	ug/l	05/30/19	05/30/19
tert-Butyl alcohol	ND		25	ug/l	05/30/19	05/30/19
sec-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
n-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
tert-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	05/30/19	05/30/19
Carbon Disulfide	ND		5	ug/l	05/30/19	05/30/19
Carbon Tetrachloride	ND		5	ug/l	05/30/19	05/30/19
Chlorobenzene	ND		5	ug/l	05/30/19	05/30/19
Chloroethane	ND		5	ug/l	05/30/19	05/30/19
Chloroform	ND		5	ug/l	05/30/19	05/30/19
Chloromethane	ND		5	ug/l	05/30/19	05/30/19
4-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
2-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	2	ug/l	05/30/19	05/30/19
Dibromochloromethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	05/30/19	05/30/19
Dibromomethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,4-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
trans-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
cis-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
2,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
cis-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
trans-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	05/30/19	05/30/19
Diethyl ether	ND		25	ug/l	05/30/19	05/30/19
1,4-Dioxane	ND		2500	ug/l	05/30/19	05/30/19
Ethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Hexachlorobutadiene	ND		5	ug/l	05/30/19	05/30/19
2-Hexanone	ND		25	ug/l	05/30/19	05/30/19
Isopropylbenzene	ND		5	ug/l	05/30/19	05/30/19

Sample: SE-204 (MW) (Continued)

Lab Number: 9E29031-02 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	05/30/19	05/30/19
Methylene Chloride	ND		25	ug/l	05/30/19	05/30/19
4-Methyl-2-pentanone	ND		25	ug/l	05/30/19	05/30/19
Naphthalene	ND		5	ug/l	05/30/19	05/30/19
n-Propylbenzene	ND		5	ug/l	05/30/19	05/30/19
Styrene	ND		5	ug/l	05/30/19	05/30/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
Tetrachloroethene	ND		5	ug/l	05/30/19	05/30/19
Tetrahydrofuran	ND		25	ug/l	05/30/19	05/30/19
Toluene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1,2-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,1,1-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
Trichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichloropropane	ND		5	ug/l	05/30/19	05/30/19
1,3,5-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Vinyl Chloride	ND	J	2	ug/l	05/30/19	05/30/19
o-Xylene	ND		5	ug/l	05/30/19	05/30/19
m&p-Xylene	ND		10	ug/l	05/30/19	05/30/19
Total xylenes	ND		10	ug/l	05/30/19	05/30/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
tert-Amyl methyl ether	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
Ethyl tert-butyl ether	ND		5	ug/l	05/30/19	05/30/19
Diisopropyl ether	ND		5	ug/l	05/30/19	05/30/19
Trichlorofluoromethane	ND		5	ug/l	05/30/19	05/30/19
Dichlorodifluoromethane	ND		5	ug/l	05/30/19	05/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.5%*	*70-130*	05/30/19	05/30/19
1,2-Dichloroethane-d4	*105%*	*70-130*	05/30/19	05/30/19
Toluene-d8	*101%*	*70-130*	05/30/19	05/30/19

Results: Volatile Organic Compounds

Sample: SE-207 (MW)

Lab Number: 9E29031-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
Acetone	ND		25	ug/l	05/30/19	05/30/19
Benzene	ND		5	ug/l	05/30/19	05/30/19
Bromobenzene	ND		5	ug/l	05/30/19	05/30/19
Bromochloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromodichloromethane	ND		5	ug/l	05/30/19	05/30/19
Bromoform	ND		5	ug/l	05/30/19	05/30/19
Bromomethane	ND		5	ug/l	05/30/19	05/30/19
2-Butanone	ND		25	ug/l	05/30/19	05/30/19
tert-Butyl alcohol	ND		25	ug/l	05/30/19	05/30/19
sec-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
n-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
tert-Butylbenzene	ND		5	ug/l	05/30/19	05/30/19
Methyl t-butyl ether (MTBE)	ND		5	ug/l	05/30/19	05/30/19
Carbon Disulfide	ND		5	ug/l	05/30/19	05/30/19
Carbon Tetrachloride	ND		5	ug/l	05/30/19	05/30/19
Chlorobenzene	ND		5	ug/l	05/30/19	05/30/19
Chloroethane	ND		5	ug/l	05/30/19	05/30/19
Chloroform	ND		5	ug/l	05/30/19	05/30/19
Chloromethane	ND		5	ug/l	05/30/19	05/30/19
4-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
2-Chlorotoluene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromo-3-chloropropane (DBCP)	ND	J	2	ug/l	05/30/19	05/30/19
Dibromochloromethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dibromoethane (EDB)	ND		5	ug/l	05/30/19	05/30/19
Dibromomethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,4-Dichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloroethane	ND		5	ug/l	05/30/19	05/30/19
trans-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
cis-1,2-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
2,2-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
cis-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
trans-1,3-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,1-Dichloropropene	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropene (cis + trans)	ND		10	ug/l	05/30/19	05/30/19
Diethyl ether	ND		25	ug/l	05/30/19	05/30/19
1,4-Dioxane	ND		2500	ug/l	05/30/19	05/30/19
Ethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Hexachlorobutadiene	ND		5	ug/l	05/30/19	05/30/19
2-Hexanone	ND		25	ug/l	05/30/19	05/30/19
Isopropylbenzene	ND		5	ug/l	05/30/19	05/30/19

Results: Volatile Organic Compounds (Continued)

Sample: SE-207 (MW) (Continued)

Lab Number: 9E29031-03 (Water)

Analyte	Result	Qual	Reporting Limit	Units	Date Prepared	Date Analyzed
p-Isopropyltoluene	ND		5	ug/l	05/30/19	05/30/19
Methylene Chloride	ND		25	ug/l	05/30/19	05/30/19
4-Methyl-2-pentanone	ND		25	ug/l	05/30/19	05/30/19
Naphthalene	ND		5	ug/l	05/30/19	05/30/19
n-Propylbenzene	ND		5	ug/l	05/30/19	05/30/19
Styrene	ND		5	ug/l	05/30/19	05/30/19
1,1,1,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
Tetrachloroethene	ND		5	ug/l	05/30/19	05/30/19
Tetrahydrofuran	ND		25	ug/l	05/30/19	05/30/19
Toluene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichlorobenzene	ND		5	ug/l	05/30/19	05/30/19
1,1,2-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
1,1,1-Trichloroethane	ND		5	ug/l	05/30/19	05/30/19
Trichloroethene	ND		5	ug/l	05/30/19	05/30/19
1,2,3-Trichloropropane	ND		5	ug/l	05/30/19	05/30/19
1,3,5-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
1,2,4-Trimethylbenzene	ND		5	ug/l	05/30/19	05/30/19
Vinyl Chloride	ND	J	2	ug/l	05/30/19	05/30/19
o-Xylene	ND		5	ug/l	05/30/19	05/30/19
m&p-Xylene	ND		10	ug/l	05/30/19	05/30/19
Total xylenes	ND		10	ug/l	05/30/19	05/30/19
1,1,2,2-Tetrachloroethane	ND		5	ug/l	05/30/19	05/30/19
tert-Amyl methyl ether	ND		5	ug/l	05/30/19	05/30/19
1,3-Dichloropropane	ND		5	ug/l	05/30/19	05/30/19
Ethyl tert-butyl ether	ND		5	ug/l	05/30/19	05/30/19
Diisopropyl ether	ND		5	ug/l	05/30/19	05/30/19
Trichlorofluoromethane	ND		5	ug/l	05/30/19	05/30/19
Dichlorodifluoromethane	ND		5	ug/l	05/30/19	05/30/19

Surrogate(s)	Recovery%	Limits		
4-Bromofluorobenzene	*93.1%*	*70-130*	05/30/19	05/30/19
1,2-Dichloroethane-d4	*95.9%*	*70-130*	05/30/19	05/30/19
Toluene-d8	*96.9%*	*70-130*	05/30/19	05/30/19

Quality Control

Volatile Organic Compounds

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E1233 - Purge-Trap										
Blank (B9E1233-BLK1)					Prepared & Analyzed: 05/30/19					
Acetone	ND		5	ug/l						
Benzene	ND		1	ug/l						
Bromobenzene	ND		1	ug/l						
Bromochloromethane	ND		1	ug/l						
Bromodichloromethane	ND		1	ug/l						
Bromoform	ND		1	ug/l						
Bromomethane	ND		1	ug/l						
2-Butanone	ND		5	ug/l						
tert-Butyl alcohol	ND		5	ug/l						
sec-Butylbenzene	ND		1	ug/l						
n-Butylbenzene	ND		1	ug/l						
tert-Butylbenzene	ND		1	ug/l						
Methyl t-butyl ether (MTBE)	ND		1	ug/l						
Carbon Disulfide	ND		1	ug/l						
Carbon Tetrachloride	ND		1	ug/l						
Chlorobenzene	ND		1	ug/l						
Chloroethane	ND		1	ug/l						
Chloroform	ND		1	ug/l						
Chloromethane	ND		1	ug/l						
4-Chlorotoluene	ND		1	ug/l						
2-Chlorotoluene	ND		1	ug/l						
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	ug/l						
Dibromochloromethane	ND		1	ug/l						
1,2-Dibromoethane (EDB)	ND		1	ug/l						
Dibromomethane	ND		1	ug/l						
1,2-Dichlorobenzene	ND		1	ug/l						
1,3-Dichlorobenzene	ND		1	ug/l						
1,4-Dichlorobenzene	ND		1	ug/l						
1,1-Dichloroethane	ND		1	ug/l						
1,2-Dichloroethane	ND		1	ug/l						
trans-1,2-Dichloroethene	ND		1	ug/l						
cis-1,2-Dichloroethene	ND		1	ug/l						
1,1-Dichloroethene	ND		1	ug/l						
1,2-Dichloropropane	ND		1	ug/l						
2,2-Dichloropropane	ND		1	ug/l						
cis-1,3-Dichloropropene	ND		1	ug/l						
trans-1,3-Dichloropropene	ND		1	ug/l						
1,1-Dichloropropene	ND		1	ug/l						
1,3-Dichloropropene (cis + trans)	ND		2	ug/l						
Diethyl ether	ND		5	ug/l						
1,4-Dioxane	ND		500	ug/l						
Ethylbenzene	ND		1	ug/l						
Hexachlorobutadiene	ND		1	ug/l						
2-Hexanone	ND		5	ug/l						
Isopropylbenzene	ND		1	ug/l						
p-Isopropyltoluene	ND		1	ug/l						
Methylene Chloride	ND		5	ug/l						
4-Methyl-2-pentanone	ND		5	ug/l						
Naphthalene	ND		1	ug/l						
n-Propylbenzene	ND		1	ug/l						
Styrene	ND		1	ug/l						

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E1233 - Purge-Trap (Continued)										
Blank (B9E1233-BLK1)					Prepared & Analyzed: 05/30/19					
1,1,1,2-Tetrachloroethane	ND		1	ug/l						
Tetrachloroethene	ND		1	ug/l						
Tetrahydrofuran	ND		5	ug/l						
Toluene	ND		1	ug/l						
1,2,4-Trichlorobenzene	ND		1	ug/l						
1,2,3-Trichlorobenzene	ND		1	ug/l						
1,1,2-Trichloroethane	ND		1	ug/l						
1,1,1-Trichloroethane	ND		1	ug/l						
Trichloroethene	ND		1	ug/l						
1,2,3-Trichloropropane	ND		1	ug/l						
1,3,5-Trimethylbenzene	ND		1	ug/l						
1,2,4-Trimethylbenzene	ND		1	ug/l						
Vinyl Chloride	ND		1	ug/l						
o-Xylene	ND		1	ug/l						
m&p-Xylene	ND		2	ug/l						
Total xylenes	ND		2	ug/l						
1,1,2,2-Tetrachloroethane	ND		1	ug/l						
tert-Amyl methyl ether	ND		1	ug/l						
1,3-Dichloropropane	ND		1	ug/l						
Ethyl tert-butyl ether	ND		1	ug/l						
Diisopropyl ether	ND		1	ug/l						
Trichlorofluoromethane	ND		1	ug/l						
Dichlorodifluoromethane	ND		1	ug/l						
Surrogate: 4-Bromofluorobenzene			*47.2*	ug/l	*50.0*		*94.4*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*48.0*	ug/l	*50.0*		*96.1*	*70-130*		
Surrogate: Toluene-d8			*48.6*	ug/l	*50.0*		*97.1*	*70-130*		
LCS (B9E1233-BS1)					Prepared & Analyzed: 05/30/19					
Acetone	63			ug/l	50.0		125	70-130		
Benzene	47			ug/l	50.0		93.2	70-130		
Bromobenzene	48			ug/l	50.0		96.7	70-130		
Bromochloromethane	47			ug/l	50.0		93.6	70-130		
Bromodichloromethane	46			ug/l	50.0		93.0	70-130		
Bromoform	44			ug/l	50.0		88.7	70-130		
Bromomethane	64			ug/l	50.0		129	70-130		
2-Butanone	53			ug/l	50.0		107	70-130		
tert-Butyl alcohol	50			ug/l	50.0		99.2	70-130		
sec-Butylbenzene	51			ug/l	50.0		103	70-130		
n-Butylbenzene	52			ug/l	50.0		105	70-130		
tert-Butylbenzene	52			ug/l	50.0		104	70-130		
Methyl t-butyl ether (MTBE)	43			ug/l	50.0		86.8	70-130		
Carbon Disulfide	44			ug/l	50.0		87.7	70-130		
Carbon Tetrachloride	44			ug/l	50.0		89.0	70-130		
Chlorobenzene	48			ug/l	50.0		95.9	70-130		
Chloroethane	51			ug/l	50.0		101	70-130		
Chloroform	45			ug/l	50.0		89.3	70-130		
Chloromethane	49			ug/l	50.0		97.8	70-130		
4-Chlorotoluene	50			ug/l	50.0		101	70-130		
2-Chlorotoluene	50			ug/l	50.0		99.4	70-130		
1,2-Dibromo-3-chloropropane (DBCP)	44			ug/l	50.0		87.5	70-130		
Dibromochloromethane	47			ug/l	50.0		93.2	70-130		
1,2-Dibromoethane (EDB)	46			ug/l	50.0		91.5	70-130		
Dibromomethane	46			ug/l	50.0		92.6	70-130		
1,2-Dichlorobenzene	48			ug/l	50.0		95.3	70-130		

Quality Control
(Continued)

Volatile Organic Compounds (Continued)

Analyte	Result	Qual	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
Batch: B9E1233 - Purge-Trap (Continued)										
LCS (B9E1233-BS1)					Prepared & Analyzed: 05/30/19					
1,3-Dichlorobenzene	50			ug/l	50.0		99.3	70-130		
1,4-Dichlorobenzene	47			ug/l	50.0		93.3	70-130		
1,1-Dichloroethane	44			ug/l	50.0		88.6	70-130		
1,2-Dichloroethane	43			ug/l	50.0		85.3	70-130		
trans-1,2-Dichloroethene	47			ug/l	50.0		94.7	70-130		
cis-1,2-Dichloroethene	46			ug/l	50.0		91.2	70-130		
1,1-Dichloroethene	45			ug/l	50.0		90.8	70-130		
1,2-Dichloropropane	49			ug/l	50.0		97.0	70-130		
2,2-Dichloropropane	47			ug/l	50.0		93.7	70-130		
cis-1,3-Dichloropropene	46			ug/l	50.0		92.8	70-130		
trans-1,3-Dichloropropene	48			ug/l	50.0		96.2	70-130		
1,1-Dichloropropene	51			ug/l	50.0		101	70-130		
Diethyl ether	44			ug/l	50.0		88.6	70-130		
1,4-Dioxane	286			ug/l	250		115	70-130		
Ethylbenzene	51			ug/l	50.0		101	70-130		
Hexachlorobutadiene	51			ug/l	50.0		101	70-130		
2-Hexanone	50			ug/l	50.0		101	70-130		
Isopropylbenzene	53			ug/l	50.0		106	70-130		
p-Isopropyltoluene	52			ug/l	50.0		105	70-130		
Methylene Chloride	46			ug/l	50.0		92.1	70-130		
4-Methyl-2-pentanone	47			ug/l	50.0		94.0	70-130		
Naphthalene	45			ug/l	50.0		89.7	70-130		
n-Propylbenzene	53			ug/l	50.0		105	70-130		
Styrene	52			ug/l	50.0		104	70-130		
1,1,1,2-Tetrachloroethane	48			ug/l	50.0		95.7	70-130		
Tetrachloroethene	48			ug/l	50.0		96.9	70-130		
Tetrahydrofuran	37			ug/l	50.0		74.8	70-130		
Toluene	47			ug/l	50.0		94.5	70-130		
1,2,4-Trichlorobenzene	45			ug/l	50.0		91.0	70-130		
1,2,3-Trichlorobenzene	43			ug/l	50.0		85.5	70-130		
1,1,2-Trichloroethane	48			ug/l	50.0		96.6	70-130		
1,1,1-Trichloroethane	44			ug/l	50.0		88.8	70-130		
Trichloroethene	47			ug/l	50.0		93.2	70-130		
1,2,3-Trichloropropane	45			ug/l	50.0		89.6	70-130		
1,3,5-Trimethylbenzene	51			ug/l	50.0		102	70-130		
1,2,4-Trimethylbenzene	51			ug/l	50.0		102	70-130		
Vinyl Chloride	50			ug/l	50.0		100	70-130		
o-Xylene	52			ug/l	50.0		105	70-130		
m&p-Xylene	101			ug/l	100		101	70-130		
1,1,2,2-Tetrachloroethane	45			ug/l	50.0		90.5	70-130		
tert-Amyl methyl ether	47			ug/l	50.0		93.8	70-130		
1,3-Dichloropropane	46			ug/l	50.0		92.6	70-130		
Ethyl tert-butyl ether	45			ug/l	50.0		90.9	70-130		
Diisopropyl ether	49			ug/l	50.0		98.7	70-130		
Trichlorofluoromethane	49			ug/l	50.0		97.1	70-130		
Dichlorodifluoromethane	39			ug/l	50.0		78.8	70-130		
Surrogate: 4-Bromofluorobenzene			*49.5*	ug/l	*50.0*		*98.9*	*70-130*		
Surrogate: 1,2-Dichloroethane-d4			*44.7*	ug/l	*50.0*		*89.4*	*70-130*		
Surrogate: Toluene-d8			*48.5*	ug/l	*50.0*		*97.0*	*70-130*		

Notes and Definitions

Item	Definition
J	Below reporting limit
Wet	Sample results reported on a wet weight basis.
ND	Analyte NOT DETECTED at or above the reporting limit.
RPD	Relative Percent Difference.
%REC	Percent Recovery.
Source	Sample that was matrix spiked or duplicated.

NEW ENGLAND TESTING LABORATORY, INC.
59 Greenhill Street
West Warwick, RI 02893
1-888-863-8522

9 E 2 9031 U

CHAIN OF CUSTODY RECOR

PROJ. NO.	PROJECT NAME/LOCATION
S3291	S3291 E. PROVIDENCE (SLIVER)

CLIENT: SAGE ENV.
REPORT TO: Sage@Sage-enviro.com
INVOICE TO:

DATE	TIME	COMP	GRAB	SAMPLE I.D.	AQUEOUS	SOIL	OTHER	NO. OF CONTAINERS	PRESERVATIVE	TESTS** VOCs	REMARKS
5/28			X	SE-201 (MW)	X			2 40mL	HCl	X	
5/24			X	SE-204 (MW)	X			2 40mL	"	X	
5/28			X	SE-207 (MW)	X			2 40mL	"	X	

	Date/Time		Date/Time
Sampled by: (Signature)	5/24-5/28 1560	Received by: (Signature) B Pacheco	5/29/19 1130
Relinquished by: (Signature)	5/29 11:30	Received by: (Signature) B Pacheco	5/29/19 1
Relinquished by: (Signature) B Pacheco	5/29/19 1535	Received for Laboratory by: (Signature)	5/29/19 1535

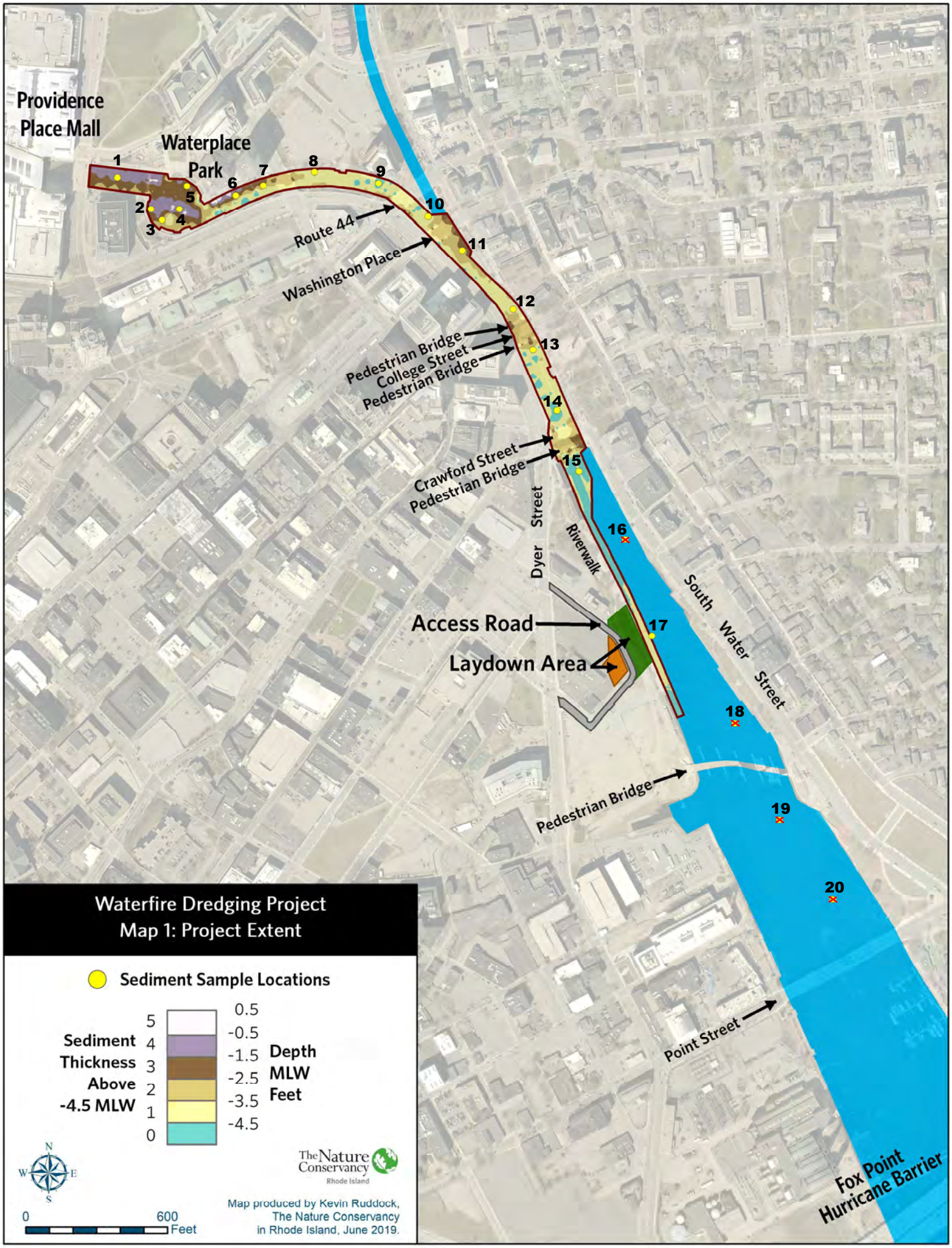
Laboratory Remarks:
Temp. received: 3
Cooled ☐

Special Instructions:
List Specific Detection Limit Requirements:
RIDEM GB GWO

Turnaround (Business Days) 48 HR

**Netlab subcontracts the following tests: Radiologicals, Radon, Asbestos, UCMRs, Perchlorate, Bromate, Bromide, Sieve, Salmonella, Carbamates, CT ETPH

APPENDIX J


Providence Place Mall
Waterplace Park
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Route 44
Washington Place
Pedestrian Bridge
College Street
Pedestrian Bridge
Crawford Street
Pedestrian Bridge
Dyer Street
Riverwalk
South Water Street
Access Road
Laydown Area
Pedestrian Bridge
Point Street
Fox Point Hurricane Barrier
Waterfire Dredging Project
Map 1: Project Extent
Sediment Sample Locations
Sediment Thickness Above -4.5 MLW
5
4
3
2
1
0
Depth MLW Feet
0.5
-0.5
-1.5
-2.5
-3.5
-4.5
N
W
E
S
0
600
Feet
The Nature Conservancy
Rhode Island
Map produced by Kevin Ruddock, The Nature Conservancy in Rhode Island, June 2019.

R.I. ANALYTICAL
Specialists in Environmental Services

LABORATORY REPORT

The Nature Conservancy
Attn: Scott Comings
159 Waterman Street
Providence, RI 02906

Date Received: 5/20/2019
Date Reported: 6/10/2019
P.O. Number

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Enclosed are the analytical results and Chain of Custody for your project referenced above. The sample(s) were analyzed by our Warwick, RI laboratory unless noted otherwise. When applicable, indication of sample analysis at our Hudson, MA laboratory and/or subcontracted results are noted and subcontracted reports are enclosed in their entirety.

All samples were analyzed within the established guidelines of US EPA approved methods with all requirements met, unless otherwise noted at the end of a given sample's analytical results or in a case narrative.

The Detection Limit is defined as the lowest level that can be reliably achieved during routine laboratory conditions.

These results only pertain to the samples submitted for this Work Order # and this report shall not be reproduced except in its entirety.

We certify that the following results are true and accurate to the best of our knowledge. If you have questions or need further assistance, please contact our Customer Service Department.

Approved by:

Dawne E. Smart
Data Reporting Manager

Laboratory Certification Numbers (as applicable to sample's origin state):
Warwick RI * RI LAI00033, MA M-RI015, CT PH-0508 Hudson MA * M-MA1117, RI LAO00319

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 001
Sample Description: FW-19/20 Not applicable
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 10:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH							
TPH GC/FID	7500	452	mg/kg dry	SW-846 8100M	5/24/2019	20:20	SRM
Surrogate			RANGE	SW-846 8100M	5/24/2019	20:20	SRM
2-Fluorobiphenyl	97		40-140%	SW-846 8100M	5/24/2019	20:20	SRM
Moisture	67.1		%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Aroclor-1242	1.4	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Aroclor-1254	1.9	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Aroclor-1260	1.2	0.1	mg/kg dry	SW-846 8082A	5/29/2019	12:53	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	87		30-150%	SW-846 8082A	5/29/2019	12:53	JBW
Decachlorobiphenyl	89		30-150%	SW-846 8082A	5/29/2019	12:53	JBW
Extraction Date	Extracted			SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP							
Cadmium	<0.74	0.74	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Chromium	140	4.4	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Copper	380	7.4	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Lead	650	5.9	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Mercury	0.38	0.28	mg/kg dry	SW-846 7471B	5/29/2019	15:53	MEM
Nickel	56	3.0	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Zinc	780	5.9	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Percent Solids	32.9		%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion				SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion				SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP							
Arsenic	<7.4	7.4	mg/kg dry	SW-846 6010C	5/29/2019	13:01	DDP
Semi-Volatile Organic Comp.							
Acenaphthene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Acenaphthylene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Anthracene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Benzidine	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Benzo(a)anthracene	4.4	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Benzo(b)fluoranthene	6.1	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Benzo(k)fluoranthene	5.6	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 001
Sample Description: FW-19/20 Not applicable
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 10:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	4.3	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Benzo(a)pyrene	5.6	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Bis(2-chloroethyl)ether	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Bis(2-Chloroethoxy)methane	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Bis(2-Chloroisopropyl)Ether	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Bis(2-ethylhexyl)phthalate	10	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
4-Bromophenyl phenyl ether	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Butylbenzyl phthalate	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2-Chloronaphthalene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
4-Chlorophenyl phenyl ether	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Chrysene	6.2	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Dibenzo(a,h)anthracene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Di-n-butyl phthalate	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
1,2-Dichlorobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
1,3-Dichlorobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
1,4-Dichlorobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
3,3'-Dichlorobenzidine	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Diethyl phthalate	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Dimethyl phthalate	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,4-Dinitrotoluene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,6-Dinitrotoluene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Di-n-octyl phthalate	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
1,2-Diphenylhydrazine	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Fluoranthene	14	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Fluorene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Hexachlorobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Hexachlorobutadiene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Hexachlorocyclopentadiene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Hexachloroethane	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Indeno(1,2,3-cd)pyrene	3.8	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Isophorone	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2-Methylnaphthalene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Naphthalene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Nitrobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
N-nitrosodimethylamine	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
N-nitrosodiphenylamine	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
N-nitrosodi-n-propylamine	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Phenanthrene	4.3	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Pyrene	12	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
1,2,4-Trichlorobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 001
Sample Description: ~~FW-19/20~~ Not applicable
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 10:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2-Chlorophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,4-Dichlorophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,4-Dimethylphenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2-Methyl-4,6-dinitrophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,4-Dinitrophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2-Nitrophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
4-Nitrophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Pentachlorophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Phenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,4,5-Trichlorophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2,4,6-Trichlorophenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
4-Chloroaniline	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Dibenzofuran	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
2-Methyl Phenol	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
3 & 4-Methylphenols	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Aniline	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Acetophenone	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Azobenzene	<3.0	3.0	mg/kg dry	SW-846 8270D	6/5/2019	7:24	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	62		30-130%	SW-846 8270D	6/5/2019	7:24	TLW
2-Fluorophenol	50		30-130%	SW-846 8270D	6/5/2019	7:24	TLW
2,4,6-Tribromophenol	80		30-130%	SW-846 8270D	6/5/2019	7:24	TLW
Nitrobenzene-d5	49		30-130%	SW-846 8270D	6/5/2019	7:24	TLW
2-Fluorobiphenyl	43		30-130%	SW-846 8270D	6/5/2019	7:24	TLW
P-Terphenyl-d14	57		30-130%	SW-846 8270D	6/5/2019	7:24	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 002
Sample Description: FW-15/17
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 12:10

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH								
TPH GC/FID	1900	2500	253	mg/kg dry	SW-846 8100M	5/24/2019	18:56	SRM
Surrogate				RANGE	SW-846 8100M	5/24/2019	18:56	SRM
2-Fluorobiphenyl	56			40-140%	SW-846 8100M	5/24/2019	18:56	SRM
Moisture	40.9			%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB								
Aroclor-1016	<0.1	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Aroclor-1221	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Aroclor-1232	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Aroclor-1242	0.4		0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Aroclor-1248	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Aroclor-1254	0.6		0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Aroclor-1260	0.4		0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:22	JBW
Surrogate				RANGE				
Tetrachloro-m-xylene (TCMX)	74			30-150%	SW-846 8082A	5/29/2019	13:22	JBW
Decachlorobiphenyl	68			30-150%	SW-846 8082A	5/29/2019	13:22	JBW
Extraction Date	Extracted				SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP								
Cadmium	<0.42	1,000	0.42	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Chromium	120	10,000	2.5	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Copper	180	10,000	4.2	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Lead	570	500	3.4	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Mercury	1.1	610	0.16	mg/kg dry	SW-846 7471B	5/29/2019	15:54	MEM
Nickel	15	10,000	1.7	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Zinc	350	10,000	3.4	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Percent Solids	59.1			%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion					SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion					SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP								
Arsenic	<4.2	7	4.2	mg/kg dry	SW-846 6010C	5/29/2019	13:02	DDP
Semi-Volatile Organic Comp.								
Acenaphthene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Acenaphthylene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Anthracene	0.7	10,000	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Benzidine	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Benzo(a)anthracene	2.4	7.8	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Benzo(b)fluoranthene	2.4	7.8	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Benzo(k)fluoranthene	2.4	78	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 002
Sample Description: FW-15/17
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 12:10

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	1.7	10,000	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Benzo(a)pyrene	2.6	0.8	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Bis(2-chloroethyl)ether	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Bis(2-Chloroethoxy)methane	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Bis(2-Chloroisopropyl)Ether	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Bis(2-ethylhexyl)phthalate	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
4-Bromophenyl phenyl ether	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Butylbenzyl phthalate	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2-Chloronaphthalene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
4-Chlorophenyl phenyl ether	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Chrysene	2.8	780	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Dibenzo(a,h)anthracene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Di-n-butyl phthalate	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
1,2-Dichlorobenzene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
1,3-Dichlorobenzene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
1,4-Dichlorobenzene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
3,3'-Dichlorobenzidine	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Diethyl phthalate	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Dimethyl phthalate	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,4-Dinitrotoluene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,6-Dinitrotoluene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Di-n-octyl phthalate	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
1,2-Diphenylhydrazine	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Fluoranthene	5.7	7.8	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Fluorene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Hexachlorobenzene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Hexachlorobutadiene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Hexachlorocyclopentadiene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Hexachloroethane	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Indeno(1,2,3-cd)pyrene	1.5		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Isophorone	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2-Methylnaphthalene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Naphthalene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Nitrobenzene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
N-nitrosodimethylamine	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
N-nitrosodiphenylamine	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
N-nitrosodi-n-propylamine	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Phenanthrene	2.0	10,000	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Pyrene	5.6	10,000	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
1,2,4-Trichlorobenzene	<0.56		0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 002
Sample Description: FW-15/17
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 12:10

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2-Chlorophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,4-Dichlorophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,4-Dimethylphenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2-Methyl-4,6-dinitrophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,4-Dinitrophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2-Nitrophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
4-Nitrophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Pentachlorophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Phenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,4,5-Trichlorophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2,4,6-Trichlorophenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
4-Chloroaniline	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Dibenzofuran	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
2-Methyl Phenol	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
3 & 4-Methylphenols	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Aniline	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Acetophenone	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Azobenzene	<0.56	0.56	mg/kg dry	SW-846 8270D	6/5/2019	8:27	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	32		30-130%	SW-846 8270D	6/5/2019	8:27	TLW
2-Fluorophenol	30		30-130%	SW-846 8270D	6/5/2019	8:27	TLW
2,4,6-Tribromophenol	60		30-130%	SW-846 8270D	6/5/2019	8:27	TLW
Nitrobenzene-d5	42		30-130%	SW-846 8270D	6/5/2019	8:27	TLW
2-Fluorobiphenyl	40		30-130%	SW-846 8270D	6/5/2019	8:27	TLW
P-Terphenyl-d14	50		30-130%	SW-846 8270D	6/5/2019	8:27	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 003
Sample Description: FW-16/18
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 13:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH							
TPH GC/FID	4600	285	mg/kg dry	SW-846 8100M	5/24/2019	19:24	SRM
Surrogate			RANGE	SW-846 8100M	5/24/2019	19:24	SRM
2-Fluorobiphenyl	73		40-140%	SW-846 8100M	5/24/2019	19:24	SRM
Moisture	47.8		%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Aroclor-1242	2.0	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Aroclor-1254	3.4	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Aroclor-1260	0.9	0.1	mg/kg dry	SW-846 8082A	5/29/2019	13:50	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	80		30-150%	SW-846 8082A	5/29/2019	13:50	JBW
Decachlorobiphenyl	84		30-150%	SW-846 8082A	5/29/2019	13:50	JBW
Extraction Date	Extracted			SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP							
Cadmium	<0.48	0.48	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Chromium	160	2.9	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Copper	410	4.8	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Lead	650	3.8	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Mercury	1.0	0.19	mg/kg dry	SW-846 7471B	5/29/2019	16:01	MEM
Nickel	29	1.9	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Zinc	470	3.8	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Percent Solids	52.2		%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion				SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion				SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP							
Arsenic	<4.8	4.8	mg/kg dry	SW-846 6010C	5/29/2019	13:17	DDP
Semi-Volatile Organic Comp.							
Acenaphthene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Acenaphthylene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Anthracene	2.2	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Benzidine	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Benzo(a)anthracene	4.7	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Benzo(b)fluoranthene	4.4	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Benzo(k)fluoranthene	4.4	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 003
Sample Description: FW-16/18
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 13:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	3.1	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Benzo(a)pyrene	4.6	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Bis(2-chloroethyl)ether	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Bis(2-Chloroethoxy)methane	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Bis(2-Chloroisopropyl)Ether	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Bis(2-ethylhexyl)phthalate	2.3	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
4-Bromophenyl phenyl ether	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Butylbenzyl phthalate	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2-Chloronaphthalene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
4-Chlorophenyl phenyl ether	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Chrysene	5.3	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Dibenzo(a,h)anthracene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Di-n-butyl phthalate	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
1,2-Dichlorobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
1,3-Dichlorobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
1,4-Dichlorobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
3,3'-Dichlorobenzidine	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Diethyl phthalate	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Dimethyl phthalate	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,4-Dinitrotoluene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,6-Dinitrotoluene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Di-n-octyl phthalate	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
1,2-Diphenylhydrazine	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Fluoranthene	13	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Fluorene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Hexachlorobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Hexachlorobutadiene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Hexachlorocyclopentadiene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Hexachloroethane	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Indeno(1,2,3-cd)pyrene	2.7	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Isophorone	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2-Methylnaphthalene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Naphthalene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Nitrobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
N-nitrosodimethylamine	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
N-nitrosodiphenylamine	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
N-nitrosodi-n-propylamine	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Phenanthrene	8.4	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Pyrene	11	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
1,2,4-Trichlorobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 003
Sample Description: FW-16/18
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 13:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2-Chlorophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,4-Dichlorophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,4-Dimethylphenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2-Methyl-4,6-dinitrophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,4-Dinitrophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2-Nitrophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
4-Nitrophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Pentachlorophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Phenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,4,5-Trichlorophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2,4,6-Trichlorophenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
4-Chloroaniline	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Dibenzofuran	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
2-Methyl Phenol	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
3 & 4-Methylphenols	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Aniline	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Acetophenone	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Azobenzene	<1.9	1.9	mg/kg dry	SW-846 8270D	6/5/2019	8:59	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	51		30-130%	SW-846 8270D	6/5/2019	8:59	TLW
2-Fluorophenol	40		30-130%	SW-846 8270D	6/5/2019	8:59	TLW
2,4,6-Tribromophenol	66		30-130%	SW-846 8270D	6/5/2019	8:59	TLW
Nitrobenzene-d5	45		30-130%	SW-846 8270D	6/5/2019	8:59	TLW
2-Fluorobiphenyl	40		30-130%	SW-846 8270D	6/5/2019	8:59	TLW
P-Terphenyl-d14	48		30-130%	SW-846 8270D	6/5/2019	8:59	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 004
Sample Description: FW-13/14
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 14:45

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH								
TPH GC/FID	950	2,500	213	mg/kg dry	SW-846 8100M	5/24/2019	18:00	SRM
Surrogate				RANGE	SW-846 8100M	5/24/2019	18:00	SRM
2-Fluorobiphenyl	45			40-140%	SW-846 8100M	5/24/2019	18:00	SRM
Moisture	30.0			%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB								
Aroclor-1016	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Aroclor-1221	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Aroclor-1232	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Aroclor-1242	0.7	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Aroclor-1248	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Aroclor-1254	0.5	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Aroclor-1260	0.2	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	14:47	JBW
Surrogate				RANGE				
Tetrachloro-m-xylene (TCMX)	79			30-150%	SW-846 8082A	5/29/2019	14:47	JBW
Decachlorobiphenyl	73			30-150%	SW-846 8082A	5/29/2019	14:47	JBW
Extraction Date	Extracted				SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP								
Cadmium	<0.36		0.36	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Chromium	41	10,000	2.1	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Copper	57	10,000	3.6	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Lead	63	500 610	2.8	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Mercury	<0.14	10,000	0.14	mg/kg dry	SW-846 7471B	5/29/2019	16:02	MEM
Nickel	8.4	10,000	1.4	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Zinc	110		2.8	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Percent Solids	70.0			%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion					SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion					SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP								
Arsenic	<3.6	7	3.6	mg/kg dry	SW-846 6010C	5/29/2019	13:18	DDP
Semi-Volatile Organic Comp.								
Acenaphthene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Acenaphthylene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Anthracene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Benzidine	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Benzo(a)anthracene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Benzo(b)fluoranthene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Benzo(k)fluoranthene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 004
Sample Description: FW-13/14
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 14:45

PARAMETER	SAMPLE RESULTS		DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	<1.4	Ind./Com. -DEC	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Benzo(a)pyrene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Bis(2-chloroethyl)ether	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Bis(2-Chloroethoxy)methane	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Bis(2-Chloroisopropyl)Ether	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Bis(2-ethylhexyl)phthalate	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
4-Bromophenyl phenyl ether	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Butylbenzyl phthalate	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2-Chloronaphthalene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
4-Chlorophenyl phenyl ether	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Chrysene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Dibenzo(a,h)anthracene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Di-n-butyl phthalate	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
1,2-Dichlorobenzene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
1,3-Dichlorobenzene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
1,4-Dichlorobenzene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
3,3'-Dichlorobenzidine	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Diethyl phthalate	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Dimethyl phthalate	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,4-Dinitrotoluene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,6-Dinitrotoluene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Di-n-octyl phthalate	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
1,2-Diphenylhydrazine	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Fluoranthene	2.1	10,000	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Fluorene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Hexachlorobenzene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Hexachlorobutadiene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Hexachlorocyclopentadiene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Hexachloroethane	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Indeno(1,2,3-cd)pyrene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Isophorone	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2-Methylnaphthalene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Naphthalene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Nitrobenzene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
N-nitrosodimethylamine	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
N-nitrosodiphenylamine	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
N-nitrosodi-n-propylamine	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Phenanthrene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Pyrene	2.2	10,000	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
1,2,4-Trichlorobenzene	<1.4		1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 004
Sample Description: FW-13/14
Sample Type : COMPOSITE
Sample Date / Time : 5/15/2019 @ 14:45

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2-Chlorophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,4-Dichlorophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,4-Dimethylphenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2-Methyl-4,6-dinitrophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,4-Dinitrophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2-Nitrophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
4-Nitrophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Pentachlorophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Phenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,4,5-Trichlorophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2,4,6-Trichlorophenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
4-Chloroaniline	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Dibenzofuran	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
2-Methyl Phenol	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
3 & 4-Methylphenols	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Aniline	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Acetophenone	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Azobenzene	<1.4	1.4	mg/kg dry	SW-846 8270D	6/5/2019	9:31	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	46		30-130%	SW-846 8270D	6/5/2019	9:31	TLW
2-Fluorophenol	40		30-130%	SW-846 8270D	6/5/2019	9:31	TLW
2,4,6-Tribromophenol	65		30-130%	SW-846 8270D	6/5/2019	9:31	TLW
Nitrobenzene-d5	48		30-130%	SW-846 8270D	6/5/2019	9:31	TLW
2-Fluorobiphenyl	40		30-130%	SW-846 8270D	6/5/2019	9:31	TLW
P-Terphenyl-d14	53		30-130%	SW-846 8270D	6/5/2019	9:31	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 005
Sample Description: FW-2-5
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 10:30

Ind./Comm.-DEC

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH							
TPH GC/FID	560 2,500	49	mg/kg dry	SW-846 8100M	5/29/2019	20:16	SRM
Surrogate			RANGE	SW-846 8100M	5/29/2019	20:16	SRM
2-Fluorobiphenyl	59		40-140%	SW-846 8100M	5/29/2019	20:16	SRM
Moisture	38.4		%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB							
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Aroclor-1242	0.2 10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Aroclor-1254	0.3 10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Aroclor-1260	0.1 10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:16	JBW
Surrogate			RANGE				
Tetrachloro-m-xylene (TCMX)	84		30-150%	SW-846 8082A	5/29/2019	15:16	JBW
Decachlorobiphenyl	76		30-150%	SW-846 8082A	5/29/2019	15:16	JBW
Extraction Date	Extracted			SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP							
Cadmium	<0.41	0.41	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Chromium	34 10,000	2.4	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Copper	39 10,000	4.1	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Lead	110 500	3.2	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Mercury	<0.16	0.16	mg/kg dry	SW-846 7471B	5/29/2019	16:03	MEM
Nickel	12 10,000	1.6	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Zinc	120 10,000	3.2	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Percent Solids	61.6		%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion				SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion				SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP							
Arsenic	<4.1 7	4.1	mg/kg dry	SW-846 6010C	5/29/2019	13:20	DDP
Semi-Volatile Organic Comp.							
Acenaphthene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Acenaphthylene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Anthracene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Benzidine	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Benzo(a)anthracene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Benzo(b)fluoranthene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Benzo(k)fluoranthene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 005
Sample Description: FW-2-5
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 10:30

Ind./Comm.-DEC

PARAMETER	SAMPLE RESULTS		DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Benzo(a)pyrene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Bis(2-chloroethyl)ether	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Bis(2-Chloroethoxy)methane	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Bis(2-Chloroisopropyl)Ether	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Bis(2-ethylhexyl)phthalate	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
4-Bromophenyl phenyl ether	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Butylbenzyl phthalate	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2-Chloronaphthalene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
4-Chlorophenyl phenyl ether	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Chrysene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Dibenzo(a,h)anthracene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Di-n-butyl phthalate	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
1,2-Dichlorobenzene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
1,3-Dichlorobenzene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
1,4-Dichlorobenzene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
3,3'-Dichlorobenzidine	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Diethyl phthalate	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Dimethyl phthalate	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,4-Dinitrotoluene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,6-Dinitrotoluene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Di-n-octyl phthalate	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
1,2-Diphenylhydrazine	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Fluoranthene	2.9	10,000	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Fluorene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Hexachlorobenzene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Hexachlorobutadiene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Hexachlorocyclopentadiene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Hexachloroethane	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Indeno(1,2,3-cd)pyrene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Isophorone	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2-Methylnaphthalene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Naphthalene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Nitrobenzene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
N-nitrosodimethylamine	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
N-nitrosodiphenylamine	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
N-nitrosodi-n-propylamine	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Phenanthrene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Pyrene	2.6	10,000	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
1,2,4-Trichlorobenzene	<1.6		1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 005
Sample Description: FW-2-5
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 10:30

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2-Chlorophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,4-Dichlorophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,4-Dimethylphenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2-Methyl-4,6-dinitrophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,4-Dinitrophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2-Nitrophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
4-Nitrophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Pentachlorophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Phenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,4,5-Trichlorophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2,4,6-Trichlorophenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
4-Chloroaniline	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Dibenzofuran	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
2-Methyl Phenol	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
3 & 4-Methylphenols	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Aniline	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Acetophenone	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Azobenzene	<1.6	1.6	mg/kg dry	SW-846 8270D	6/5/2019	11:05	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	56		30-130%	SW-846 8270D	6/5/2019	11:05	TLW
2-Fluorophenol	50		30-130%	SW-846 8270D	6/5/2019	11:05	TLW
2,4,6-Tribromophenol	86		30-130%	SW-846 8270D	6/5/2019	11:05	TLW
Nitrobenzene-d5	60		30-130%	SW-846 8270D	6/5/2019	11:05	TLW
2-Fluorobiphenyl	53		30-130%	SW-846 8270D	6/5/2019	11:05	TLW
P-Terphenyl-d14	72		30-130%	SW-846 8270D	6/5/2019	11:05	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 006
Sample Description: FW-8/9
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 12:25

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH								
TPH GC/FID	680	2,500	51	mg/kg dry	SW-846 8100M	5/29/2019	20:44	SRM
Surrogate				RANGE	SW-846 8100M	5/29/2019	20:44	SRM
2-Fluorobiphenyl	64			40-140%	SW-846 8100M	5/29/2019	20:44	SRM
Moisture	42.0			%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB								
Aroclor-1016	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Aroclor-1221	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Aroclor-1232	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Aroclor-1242	0.2	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Aroclor-1248	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Aroclor-1254	0.2	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Aroclor-1260	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	15:44	JBW
Surrogate				RANGE				
Tetrachloro-m-xylene (TCMX)	94			30-150%	SW-846 8082A	5/29/2019	15:44	JBW
Decachlorobiphenyl	90			30-150%	SW-846 8082A	5/29/2019	15:44	JBW
Extraction Date	Extracted				SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP								
Cadmium	<0.43		0.43	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Chromium	27	10,000	2.6	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Copper	44	10,000	4.3	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Lead	130	500	3.4	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Mercury	0.26	610	0.17	mg/kg dry	SW-846 7471B	5/29/2019	16:06	MEM
Nickel	9.9	10,000	1.7	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Zinc	110	10,000	3.4	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Percent Solids	58.0			%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion					SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion					SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP								
Arsenic	<4.3	7	4.3	mg/kg dry	SW-846 6010C	5/29/2019	13:21	DDP
Semi-Volatile Organic Comp.								
Acenaphthene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Acenaphthylene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Anthracene	1.8	10,000	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Benzidine	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Benzo(a)anthracene	5.2	7.8	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Benzo(b)fluoranthene	4.3	7.8	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Benzo(k)fluoranthene	4.4	78	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 006
Sample Description: FW-8/9
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 12:25

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	2.9	10,000	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Benzo(a)pyrene	5.3	0.8	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Bis(2-chloroethyl)ether	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Bis(2-Chloroethoxy)methane	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Bis(2-Chloroisopropyl)Ether	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Bis(2-ethylhexyl)phthalate	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
4-Bromophenyl phenyl ether	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Butylbenzyl phthalate	95	NE	8.6	mg/kg dry	SW-846 8270D	6/8/2019	6:38	TLW
2-Chloronaphthalene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
4-Chlorophenyl phenyl ether	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Chrysene	6.0	780	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Dibenzo(a,h)anthracene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Di-n-butyl phthalate	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
1,2-Dichlorobenzene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
1,3-Dichlorobenzene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
1,4-Dichlorobenzene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
3,3'-Dichlorobenzidine	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Diethyl phthalate	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Dimethyl phthalate	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,4-Dinitrotoluene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,6-Dinitrotoluene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Di-n-octyl phthalate	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
1,2-Diphenylhydrazine	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Fluoranthene	13	10,000	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Fluorene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Hexachlorobenzene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Hexachlorobutadiene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Hexachlorocyclopentadiene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Hexachloroethane	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Indeno(1,2,3-cd)pyrene	2.7	7.8	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Isophorone	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2-Methylnaphthalene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Naphthalene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Nitrobenzene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
N-nitrosodimethylamine	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
N-nitrosodiphenylamine	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
N-nitrosodi-n-propylamine	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Phenanthrene	13	10,000	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Pyrene	14	10,000	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
1,2,4-Trichlorobenzene	<1.7		1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW

NE: no established quantitation limit for this analyte

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 006
Sample Description: FW-8/9
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 12:25

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2-Chlorophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,4-Dichlorophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,4-Dimethylphenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2-Methyl-4,6-dinitrophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,4-Dinitrophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2-Nitrophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
4-Nitrophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Pentachlorophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Phenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,4,5-Trichlorophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2,4,6-Trichlorophenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
4-Chloroaniline	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Dibenzofuran	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
2-Methyl Phenol	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
3 & 4-Methylphenols	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Aniline	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Acetophenone	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Azobenzene	<1.7	1.7	mg/kg dry	SW-846 8270D	6/5/2019	11:37	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	47		30-130%	SW-846 8270D	6/5/2019	11:37	TLW
2-Fluorophenol	39		30-130%	SW-846 8270D	6/5/2019	11:37	TLW
2,4,6-Tribromophenol	84		30-130%	SW-846 8270D	6/5/2019	11:37	TLW
Nitrobenzene-d5	46		30-130%	SW-846 8270D	6/5/2019	11:37	TLW
2-Fluorobiphenyl	44		30-130%	SW-846 8270D	6/5/2019	11:37	TLW
P-Terphenyl-d14	72		30-130%	SW-846 8270D	6/5/2019	11:37	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 007
Sample Description: FW-10-12
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 15:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED	ANALYST
TPH	Ind./Commercial-DEC					
TPH GC/FID	630 2,500	43	mg/kg dry	SW-846 8100M	5/29/2019 21:13	SRM
Surrogate			RANGE	SW-846 8100M	5/29/2019 21:13	SRM
2-Fluorobiphenyl	68		40-140%	SW-846 8100M	5/29/2019 21:13	SRM
Moisture	30.1		%	SM2540G 18-21ed	5/24/2019 17:30	BR
PCB						
Aroclor-1016	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Aroclor-1221	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Aroclor-1232	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Aroclor-1242	0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Aroclor-1248	<0.1	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Aroclor-1254	0.2	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Aroclor-1260	<0.1 10	0.1	mg/kg dry	SW-846 8082A	5/29/2019 16:13	JBW
Surrogate			RANGE			
Tetrachloro-m-xylene (TCMX)	94		30-150%	SW-846 8082A	5/29/2019 16:13	JBW
Decachlorobiphenyl	86		30-150%	SW-846 8082A	5/29/2019 16:13	JBW
Extraction Date	Extracted			SW-846 3540C	5/23/2019 11:35	NRG
Total Metals Analyzed by ICP						
Cadmium	<0.35	0.35	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Chromium	13 10,000	2.1	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Copper	40 10,000	3.5	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Lead	78 500	2.8	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Mercury	0.21 610	0.13	mg/kg dry	SW-846 7471B	5/29/2019 16:07	MEM
Nickel	7.2 10,000	1.4	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Zinc	85 10,000	2.8	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Percent Solids	69.9		%	SM2540G 18-21ed	5/24/2019 17:30	BR
ICP Digestion				SW-846 3050B	5/29/2019 8:29	MEM
Mercury Digestion				SW-846 7471B	5/29/2019 12:12	MEM
Total Metals Analyzed by ICP						
Arsenic	<3.5 7	3.5	mg/kg dry	SW-846 6010C	5/29/2019 13:23	DDP
Semi-Volatile Organic Comp.						
Acenaphthene	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW
Acenaphthylene	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW
Anthracene	0.54 10,000	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW
Benzidine	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW
Benzo(a)anthracene	1.4 7.8	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW
Benzo(b)fluoranthene	1.4 7.8	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW
Benzo(k)fluoranthene	1.3 78	0.48	mg/kg dry	SW-846 8270D	6/5/2019 5:50	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 007
Sample Description: FW-10-12
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 15:00

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	0.94	10,000	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Benzo(a)pyrene	1.5	0.8	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Bis(2-chloroethyl)ether	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Bis(2-Chloroethoxy)methane	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Bis(2-Chloroisopropyl)Ether	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Bis(2-ethylhexyl)phthalate	0.49		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
4-Bromophenyl phenyl ether	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Butylbenzyl phthalate	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2-Chloronaphthalene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
4-Chlorophenyl phenyl ether	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Chrysene	1.6	780	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Dibenzo(a,h)anthracene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Di-n-butyl phthalate	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
1,2-Dichlorobenzene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
1,3-Dichlorobenzene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
1,4-Dichlorobenzene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
3,3'-Dichlorobenzidine	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Diethyl phthalate	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Dimethyl phthalate	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,4-Dinitrotoluene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,6-Dinitrotoluene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Di-n-octyl phthalate	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
1,2-Diphenylhydrazine	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Fluoranthene	4.0	10,000	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Fluorene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Hexachlorobenzene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Hexachlorobutadiene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Hexachlorocyclopentadiene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Hexachloroethane	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Indeno(1,2,3-cd)pyrene	0.88	7.8	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Isophorone	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2-Methylnaphthalene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Naphthalene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Nitrobenzene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
N-nitrosodimethylamine	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
N-nitrosodiphenylamine	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
N-nitrosodi-n-propylamine	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Phenanthrene	2.4	10,000	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Pyrene	3.3	10,000	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
1,2,4-Trichlorobenzene	<0.48		0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 007
Sample Description: FW-10-12
Sample Type : COMPOSITE
Sample Date / Time : 5/16/2019 @ 15:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2-Chlorophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,4-Dichlorophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,4-Dimethylphenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2-Methyl-4,6-dinitrophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,4-Dinitrophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2-Nitrophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
4-Nitrophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Pentachlorophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Phenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,4,5-Trichlorophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2,4,6-Trichlorophenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
4-Chloroaniline	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Dibenzofuran	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
2-Methyl Phenol	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
3 & 4-Methylphenols	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Aniline	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Acetophenone	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Azobenzene	<0.48	0.48	mg/kg dry	SW-846 8270D	6/5/2019	5:50	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	30		30-130%	SW-846 8270D	6/5/2019	5:50	TLW
2-Fluorophenol	27		30-130%	SW-846 8270D	6/5/2019	5:50	TLW
2,4,6-Tribromophenol	44		30-130%	SW-846 8270D	6/5/2019	5:50	TLW
Nitrobenzene-d5	34		30-130%	SW-846 8270D	6/5/2019	5:50	TLW
2-Fluorobiphenyl	33		30-130%	SW-846 8270D	6/5/2019	5:50	TLW
P-Terphenyl-d14	37		30-130%	SW-846 8270D	6/5/2019	5:50	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 008
Sample Description: FW-6/7
Sample Type : COMPOSITE
Sample Date / Time : 5/17/2019 @ 10:15

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH								
TPH GC/FID	390	2,500	44	mg/kg dry	SW-846 8100M	5/28/2019	19:31	SRM
Surrogate				RANGE	SW-846 8100M	5/28/2019	19:31	SRM
2-Fluorobiphenyl	76			40-140%	SW-846 8100M	5/28/2019	19:31	SRM
Moisture	32.6			%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB								
Aroclor-1016	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Aroclor-1221	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Aroclor-1232	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Aroclor-1242	0.2		0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Aroclor-1248	<0.1		0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Aroclor-1254	0.3		0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Aroclor-1260	0.1	10	0.1	mg/kg dry	SW-846 8082A	5/29/2019	17:10	JBW
Surrogate				RANGE				
Tetrachloro-m-xylene (TCMX)	86			30-150%	SW-846 8082A	5/29/2019	17:10	JBW
Decachlorobiphenyl	75			30-150%	SW-846 8082A	5/29/2019	17:10	JBW
Extraction Date	Extracted				SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP								
Cadmium	<0.36		0.36	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Chromium	30	10,000	2.2	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Copper	60	10,000	3.6	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Lead	120	500	2.9	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Mercury	<0.14		0.14	mg/kg dry	SW-846 7471B	5/29/2019	16:09	MEM
Nickel	11	10,000	1.5	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Zinc	130	10,000	2.9	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Percent Solids	67.4			%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion					SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion					SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP								
Arsenic	<3.6		3.6	mg/kg dry	SW-846 6010C	5/29/2019	13:24	DDP
Semi-Volatile Organic Comp.								
Acenaphthene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Acenaphthylene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Anthracene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Benzidine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Benzo(a)anthracene	0.74	7.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Benzo(b)fluoranthene	0.82	7.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Benzo(k)fluoranthene	0.81	78	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 008
Sample Description: FW-6/7
Sample Type : COMPOSITE
Sample Date / Time : 5/17/2019 @ 10:15

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	0.62	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Benzo(a)pyrene	0.88	0.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Bis(2-chloroethyl)ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Bis(2-Chloroethoxy)methane	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Bis(2-Chloroisopropyl)Ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Bis(2-ethylhexyl)phthalate	0.62	410	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
4-Bromophenyl phenyl ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Butylbenzyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2-Chloronaphthalene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
4-Chlorophenyl phenyl ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Chrysene	0.86	780	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Dibenzo(a,h)anthracene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Di-n-butyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
1,2-Dichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
1,3-Dichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
1,4-Dichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
3,3'-Dichlorobenzidine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Diethyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Dimethyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,4-Dinitrotoluene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,6-Dinitrotoluene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Di-n-octyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
1,2-Diphenylhydrazine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Fluoranthene	1.9	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Fluorene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Hexachlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Hexachlorobutadiene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Hexachlorocyclopentadiene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Hexachloroethane	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Indeno(1,2,3-cd)pyrene	0.56	7.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Isophorone	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2-Methylnaphthalene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Naphthalene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Nitrobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
N-nitrosodimethylamine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
N-nitrosodiphenylamine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
N-nitrosodi-n-propylamine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Phenanthrene	0.72	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Pyrene	1.7	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
1,2,4-Trichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 008
Sample Description: FW-6/7
Sample Type : COMPOSITE
Sample Date / Time : 5/17/2019 @ 10:15

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2-Chlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,4-Dichlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,4-Dimethylphenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2-Methyl-4,6-dinitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,4-Dinitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2-Nitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
4-Nitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Pentachlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Phenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,4,5-Trichlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2,4,6-Trichlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
4-Chloroaniline	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Dibenzofuran	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
2-Methyl Phenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
3 & 4-Methylphenols	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Aniline	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Acetophenone	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Azobenzene	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	6:21	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	44		30-130%	SW-846 8270D	6/5/2019	6:21	TLW
2-Fluorophenol	37		30-130%	SW-846 8270D	6/5/2019	6:21	TLW
2,4,6-Tribromophenol	70		30-130%	SW-846 8270D	6/5/2019	6:21	TLW
Nitrobenzene-d5	44		30-130%	SW-846 8270D	6/5/2019	6:21	TLW
2-Fluorobiphenyl	40		30-130%	SW-846 8270D	6/5/2019	6:21	TLW
P-Terphenyl-d14	56		30-130%	SW-846 8270D	6/5/2019	6:21	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 009
Sample Description: FW-1
Sample Type : GRAB
Sample Date / Time : 5/17/2019 @ 11:00

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
TPH								
TPH GC/FID	810	2,500	44	mg/kg dry	SW-846 8100M	5/24/2019	17:32	SRM
Surrogate				RANGE	SW-846 8100M	5/24/2019	17:32	SRM
2-Fluorobiphenyl	71			40-140%	SW-846 8100M	5/24/2019	17:32	SRM
Moisture	32.7			%	SM2540G 18-21ed	5/24/2019	17:30	BR
PCB								
Aroclor-1016	<0.1		0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Aroclor-1221	<0.1		0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Aroclor-1232	<0.1		0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Aroclor-1242	<0.1		0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Aroclor-1248	<0.1		0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Aroclor-1254	<0.1		0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Aroclor-1260	8.2	10	0.1	mg/kg dry	SW-846 8082A	5/30/2019	0:03	JBW
Surrogate				RANGE				
Tetrachloro-m-xylene (TCMX)	81			30-150%	SW-846 8082A	5/30/2019	0:03	JBW
Decachlorobiphenyl	68			30-150%	SW-846 8082A	5/30/2019	0:03	JBW
Extraction Date	Extracted				SW-846 3540C	5/23/2019	11:35	NRG
Total Metals Analyzed by ICP								
Cadmium	<0.36		0.36	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Chromium	48	10,000	2.2	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Copper	46	10,000	3.6	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Lead	140	500	2.9	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Mercury	<0.13		0.13	mg/kg dry	SW-846 7471B	5/29/2019	16:12	MEM
Nickel	12	10,000	1.4	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Zinc	110	10,000	2.9	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Percent Solids	67.3			%	SM2540G 18-21ed	5/24/2019	17:30	BR
ICP Digestion					SW-846 3050B	5/29/2019	8:29	MEM
Mercury Digestion					SW-846 7471B	5/29/2019	12:12	MEM
Total Metals Analyzed by ICP								
Arsenic	<3.6		3.6	mg/kg dry	SW-846 6010C	5/29/2019	13:25	DDP
Semi-Volatile Organic Comp.								
Acenaphthene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Acenaphthylene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Anthracene	0.65	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Benzidine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Benzo(a)anthracene	1.8	7.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Benzo(b)fluoranthene	1.6	7.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Benzo(k)fluoranthene	1.6	78	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy

Work Order #: 1905-09297

Project Name: NINE SOIL SAMPLES

Sample Number: 009
Sample Description: FW-1
Sample Type : GRAB
Sample Date / Time : 5/17/2019 @ 11:00

PARAMETER	SAMPLE RESULTS	Ind./Comm.-DEC	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
Benzo(g,h,i)perylene	1.2	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Benzo(a)pyrene	1.8	0.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Bis(2-chloroethyl)ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Bis(2-Chloroethoxy)methane	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Bis(2-Chloroisopropyl)Ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Bis(2-ethylhexyl)phthalate	0.92	410	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
4-Bromophenyl phenyl ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Butylbenzyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2-Chloronaphthalene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
4-Chlorophenyl phenyl ether	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Chrysene	1.9	780	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Dibenzo(a,h)anthracene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Di-n-butyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
1,2-Dichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
1,3-Dichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
1,4-Dichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
3,3'-Dichlorobenzidine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Diethyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Dimethyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,4-Dinitrotoluene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,6-Dinitrotoluene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Di-n-octyl phthalate	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
1,2-Diphenylhydrazine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Fluoranthene	4.4	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Fluorene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Hexachlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Hexachlorobutadiene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Hexachlorocyclopentadiene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Hexachloroethane	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Indeno(1,2,3-cd)pyrene	1.0	7.8	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Isophorone	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2-Methylnaphthalene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Naphthalene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Nitrobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
N-nitrosodimethylamine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
N-nitrosodiphenylamine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
N-nitrosodi-n-propylamine	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Phenanthrene	3.1	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Pyrene	4.6	10,000	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
1,2,4-Trichlorobenzene	<0.49		0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW

R.I. Analytical Laboratories, Inc.

Laboratory Report

The Nature Conservancy
Work Order #: 1905-09297
Project Name: NINE SOIL SAMPLES

Sample Number: 009
Sample Description: FW-1
Sample Type : GRAB
Sample Date / Time : 5/17/2019 @ 11:00

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE/TIME ANALYZED		ANALYST
4-Chloro-3-methylphenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2-Chlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,4-Dichlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,4-Dimethylphenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2-Methyl-4,6-dinitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,4-Dinitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2-Nitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
4-Nitrophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Pentachlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Phenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,4,5-Trichlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2,4,6-Trichlorophenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
4-Chloroaniline	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Dibenzofuran	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
2-Methyl Phenol	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
3 & 4-Methylphenols	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Aniline	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Acetophenone	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Azobenzene	<0.49	0.49	mg/kg dry	SW-846 8270D	6/5/2019	12:08	TLW
Surrogates			RANGE	SW-846 8270D	6/7/2019	10:37	TLW
Phenol-d5	48		30-130%	SW-846 8270D	6/5/2019	12:08	TLW
2-Fluorophenol	43		30-130%	SW-846 8270D	6/5/2019	12:08	TLW
2,4,6-Tribromophenol	75		30-130%	SW-846 8270D	6/5/2019	12:08	TLW
Nitrobenzene-d5	50		30-130%	SW-846 8270D	6/5/2019	12:08	TLW
2-Fluorobiphenyl	46		30-130%	SW-846 8270D	6/5/2019	12:08	TLW
P-Terphenyl-d14	64		30-130%	SW-846 8270D	6/5/2019	12:08	TLW
Semi Extraction Date				SW-846 3546	5/22/2019	14:10	NRG

R.I. ANALYTICAL
Specialists in Environmental Services

CHAIN OF CUSTODY RECORD

41 Illinois Avenue
Warwick, RI 02888-3007
800-937-2580 • Fax: 401-738-1970

131 Coolidge St., Suite 105
Hudson, MA 01749-1331
800-937-2580 • Fax: 978-568-0078

Date Collected	Time Collected	Field Sample Identification	Grab or Composite	# of Containers & Type C	Preservation Code P	Matrix Code M	ICP: As, Ca, Fe, Cu, Pb, Ni, Zn	Hg	TPH	PCB	8270 SVOC (w/ PAHs)
5/15/19	1045	FW-19/20	C	16	NP	S	X	X	X	X	X
	1210	FW-15/17									
	1300	FW-16/18									
	1445	FW-13/14									
5/16/19	10:30	FW-2-5									
	12:25	FW-8/9									
	1500	FW-10-12									
5/17/19	10:15	FW-6/7									
	11:00	FW-1	G								

Client Information

Company Name: The Nature Conservancy
Address: 159 Waterman Street
City / State / Zip: Providence, RI 02906
Telephone: (401) 331-7110 Fax:
Contact Person: Scott Comings

Project Information

Project Name:
P.O. Number: Project Number:
Report To: Scott Comings Phone: Fax
Sampled By:
Quote No:
Email report to these addresses: scomings@tnc.org 5/21/19

Relinquished By Signatures	Date	Time	Received By Signatures	Date	Time
	5/20/19	1:17		5/20/19	1317
	5/20/19	1340		5-20-19	1340

Turn Around Time

- Normal / EMAIL Report
- 5 Business days. Possible surcharge
- Rush – Date Due: ___/___

Project Comments

Circle if applicable: GW-1, GW-2, GW-3, S-1, S-2, S-3 MCP Data Enhancement QC Package? Yes No

Temp. Upon Receipt 4.9 °C JD

Lab Use Only

- Sample Pick-Up Only
- RIAL sampled; attach field hours
- X Shipped on ice

Workorder No: 1905-09297

Containers: P=Poly, G=Glass, AG=Amber Glass, V=Vial, St=Sterile Preservatives: A=Ascorbic Acid, NH4=NH_4Cl, H=HCl, M=MeOH, N=HNO_3, NP=None, S=H_2SO_4, SB=$NaHSO_4$, SH=NaOH, T=$Na_2S_2O_3$, Z=ZnOAc
Matrix Codes: GW=Groundwater, SW=Surface Water, WW=Wastewater, DW=Drinking Water, S=Soil, SL=Sludge, A=Air, B=Bulk/Solid, WP=Wipe, O=_____

APPENDIX K

South Key Air Monitoring Log

Job#: S3291

Date: 11/27/2019 **Staff: TS** **Weather:** Cloudy, upper 40° - low 50° **Wind Direction: Northeast**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)									
Dustraks #: 001			**Dustraks #: 002**			**Dustraks #: 003**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
14:14	0.023	ND	14:11	0.031	ND	14:08	0.038	ND	
14:54	0.024	ND	14:53	0.029	ND	14:51	0.036	ND	
15:16	0.025	ND	15:15	0.032	ND	15:13	0.041	ND	
15:36	0.024	ND	15:38	0.034	ND	15:40	0.038	ND	
16:01	0.021	ND	16:00	0.027	ND	15:58	0.035	ND	
16:24	0.021	ND	16:22	0.026	ND	16:20	0.035	ND	
-	-	-	17:03	0.026	ND	16:57	0.036	ND	

South Key Air Monitoring Log

Job#: S3291

Date: 11/29/2019 **Staff: BB** **Weather:** Sunny, ~40° **Wind Direction: North, 15 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖ Screening location (#### - Dustrack© Serial Number)

* Soil pile locations are approximate.

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 2111			**Dustraks #: 3011**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
10:01	0.009	ND	10:03	0.003	ND	10:05	0.008	ND	
11:05	0.005	ND	11:06	0.003	ND	11:08	0.006	ND	
11:45	0.005	ND	11:47	0.003	ND	11:48	0.006	ND	
12:21	0.005	ND	12:22	0.004	ND	12:23	0.005	ND	
13:17	0.005	ND	13:18	0.002	ND	13:20	0.005	ND	
14:03	0.003	ND	14:05	0.002	ND	14:07	0.006	ND	
15:09	0.005	ND	15:10	0.002	ND	15:11	0.006	ND	
16:12	0.004	ND	16:16	0.002	ND	16:17	0.009	ND	
17:00	0.006	ND	17:02	0.003	ND	17:03	0.009	ND	

South Key Air Monitoring Log

Job#: S3291

Date: 11/30/2019 **Staff: BB** **Weather:** Sunny, ~35° **Wind Direction: North, 15-20 mph**

Screening Location

PID measurements are taken at each monitoring location.
Unless noted, TVOV is not detected
(ND= <0.1 ppmV)
✖ Screening location (#### - Dustrack© Serial Number)
* Soil pile locations are

PID (ppmV)/Dustrak© Screening Results (mg/m³)									
Dustraks #: SAGE			**Dustraks #: 2111**			**Dustraks #: 3011**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
9:30	0.003	ND	9:32	0.006	ND	9:33	0.005	ND	
11:06	0.020	ND	11:07	0.007	ND	11:08	0.003	ND	
12:06	0.010	ND	12:07	0.010	ND	12:08	0.003	ND	
12:50	0.014	ND	12:51	0.006	ND	12:52	0.002	ND	
13:20	0.016	ND	13:21	0.018	ND	13:22	0.003	ND	
14:05	0.010	ND	14:07	0.003	ND	14:08	0.003	ND	
14:56	0.016	ND	14:57	0.017	ND	14:58	0.003	ND	
15:35	0.011	ND	15:37	0.008	ND	15:39	0.003	ND	
16:04	0.011	ND	16:05	0.008	ND	16:06	0.004	ND	
16:36	0.014	ND	16:40	0.014	ND	16:41	0.004	ND	

South Key Air Monitoring Log

Job#: S3291

Date: 12/1/2019 **Staff: HS** **Weather:** Partly cloudy, ~24° **Wind Direction: Northeast, 5.7 mph**

Screening Location

PID measurements are taken at each monitoring location.
Unless noted, TVOV is not detected
(ND= <0.1 ppmV)
✖ Screening location (#### -

PID (ppmV)/Dustrak© Screening Results (mg/m³)									
Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: Sage**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
8:30	0.012	0.1	8:33	0.015	ND	8:35	0.023	ND	
8:50	0.012	ND	8:51	0.017	0.1	8:53	0.025	0.1	
9:19	0.013	0.1	9:22	0.017	ND	9:25	0.026	0.1	
9:50	0.013	0.2	9:45	0.016	ND	9:47	0.028	0.1	
10:00	0.013	ND	10:05	0.018	0.1	10:07	0.026	ND	
10:32	0.014	0.3	10:35	0.016	0.2	10:36	0.028	0.2	
10:55	0.014	0.2	10:56	0.014	0.1	10:58	0.026	0.1	
11:18	0.014	0.2	11:20	0.012	0.3	11:22	0.024	0.3	
11:45	0.013	ND	11:47	0.012	0.2	11:48	0.024	0.1	
12:05	0.012	0.1	12:06	0.013	ND	12:08	0.026	ND	
12:30	0.012	ND	12:33	0.015	0.1	12:38	0.024	0.2	
12:45	0.011	0.1	12:48	0.013	0.2	12:50	0.024	0.1	
13:05	0.011	0.1	13:06	0.015	0.1	13:08	0.024	0.1	
13:48	0.012	ND	13:42	0.015	0.1	13:45	0.26	0.1	
14:15	0.011	0.1	14:09	0.014	0.1	14:11	0.28	ND	
14:54	0.014	0.1	14:56	0.20	ND	14:59	0.30	0.1	
15:19	0.014	ND	15:22	0.23	0.1	15:24	0.039	0.1	
15:31	0.018	0.1	15:35	0.27	0.1	-	-	-	
15:45	0.020	ND	-	-	-	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/02/2019 **Staff: MG** **Weather:** Snow/rain, ~32° **Wind Direction: North northeast, 16 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

Screening location (#### - Dustrack© Serial Number)

PID (ppmV)/Dustrak© Screening Results (mg/m³)									
Dustraks #: SAGE			**Dustraks #: 3011**			**Dustraks #: 2111**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
8:20	0.067	ND	8:30	0.003	ND	-	-	ND	
9:15	0.071	ND	9:19	0.002	ND	9:18	0.006	ND	
9:45	-	ND	9:36	0.002	ND	9:22	0.005	ND	
-	-	-	-	-	-	9:34	0.005	ND	
10:06	0.071	ND	10:00	0.002	ND	10:00	0.004	ND	
10:35	0.072	ND	10:32	0.002	ND	10:30	0.005	ND	
11:09	0.068	ND	11:11	0.002	ND	11:10	0.005	ND	
11:41	0.068	ND	11:41	0.002	ND	11:40	0.005	ND	
12:06	0.068	ND	12:09	0.001	ND	12:08	0.004	ND	
12:41	0.067	ND	12:51	0.002	ND	12:50	0.005	ND	
13:19	0.068	ND	13:22	0.001	ND	13:21	0.004	ND	
13:46	0.068	ND	13:44	0.002	ND	13:43	0.005	ND	
14:07	0.067	ND	14:04	0.002	ND	14:03	0.005	ND	
14:40	0.068	ND	14:37	0.002	ND	14:36	0.004	ND	

South Key Air Monitoring Log

Job#: S3291

Date: 12/03/2019 **Staff: HS** **Weather:** Snow, ~30° **Wind Direction: North-northwest**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

Screening location (#### - Dustrack© Serial Number)

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 2111			**Dustraks #: SAGE**			**Dustraks #: 3011**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
8:00	0.006	ND	8:05	0.061	ND	8:15	0.005	ND	
8:36	0.007	ND	8:38	0.061	ND	8:40	0.005	ND	
9:00	0.006	ND	8:55	0.060	ND	8:56	0.006	ND	
14:33	0.007	ND	14:34	0.063	ND	14:36	0.007	ND	
15:01	0.007	ND	15:03	0.061	ND	15:04	0.007	ND	
16:00	0.007	ND	15:40	0.063	ND	15:41	0.006	ND	
16:05	0.007	ND	16:05	0.065	ND	16:08	0.007	ND	

South Key Air Monitoring Log

Job#: S3291

Date: 12/4/2019 **Staff: HS** **Weather:** Cloudy, ~32° **Wind Direction: Southwest, 5 mph**

Screening Location

PID measurements are
taken at each monitoring location.
Unless noted, TVOV is not detected
(ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
7:30	0.019	ND	7:50	0.016	ND	8:00	0.070	ND	
7:44	0.020	ND	8:05	0.016	ND	8:15	0.067	ND	
8:00	0.019	ND	8:52	0.024	ND	8:54	0.081	ND	
14:31	0.013	ND	14:33	0.013	ND	14:34	0.066	ND	
14:50	0.014	ND	14:53	0.014	ND	14:55	0.070	ND	
15:19	0.013	ND	15:18	0.014	ND	15:21	0.071	ND	
15:26	0.013	ND	-	-	-	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/05/2019 **Staff: HS** **Weather:** Cloudy, ~35° **Wind Direction: West, 6 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
7:20	0.037	ND	7:14	0.062	ND	7:16	0.062	ND	
7:49	0.034	ND	7:47	0.043	ND	7:46	0.092	ND	
14:58	0.007	ND	14:54	0.009	ND	14:55	0.054	ND	
15:19	0.004	ND	15:17	0.004	ND	15:16	0.054	ND	
15:50	0.004	ND	15:54	0.004	ND	15:52	0.055	ND	
16:09	0.004	ND	16:00	0.004	ND	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/06/2019 **Staff: HS** **Weather:** Partly clou **Wind Direction: Southwest, 3 mph**

Screening Location

PID measurements are
taken at each monitoring location.
Unless noted, TVOV is not detected
(ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
3:50	0.005	ND	3:43	0.005	ND	3:41	0.003	ND	
4:07	0.004	ND	4:10	0.006	ND	4:11	0.005	ND	
4:37	0.006	ND	4:40	0.006	ND	4:42	0.004	ND	
4:57	0.006	ND	5:00	0.005	ND	5:02	0.004	ND	
11:40	0.010	ND	11:52	0.010	ND	11:53	0.065	ND	
12:00	0.011	ND	12:03	0.011	ND	12:05	0.011	ND	
12:27	0.011	ND	12:28	0.017	ND	12:28	0.013	ND	

South Key Air Monitoring Log

Job#: S3291

Date: 12/07/2019 **Staff: HS** **Weather:** Partly Cloudy, ~28° **Wind Direction: North northwest, 6 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: SAGE**			**Dustraks #: --**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
6:05	0.006	ND	6:05	0.012	ND				
6:17	0.007	ND	6:19	0.011	ND				
6:33	0.007	ND	6:35	0.012	ND				
6:39	0.006	ND	6:51	0.011	ND				
7:00	0.007	ND	7:05	0.012	ND				
17:59	0.011	ND	17:55	0.021	ND				
18:15	0.012	ND	18:50	-	ND				
18:59	0.010	ND	-	-	-				
19:04	0.013	ND	-	-	-				
19:08	0.009	ND	-	-	-				

South Key Air Monitoring Log

Job#: S3291

Date: 12/08/2019 **Staff: HS** **Weather:** Cloudy, ~3 **Wind Direction: South southwest, 3 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
8:00	0.009	ND	8:20	0:08	ND	8:21	0.015	ND	
8:29	0.012	ND	8:27	0:08	ND	8:28	0.015	ND	
8:52	0.013	ND	9:08	-	-	9:07	0.017	ND	
9:01	0.014	ND	9:30	0:05	ND	9:32	0.019	-	
9:10	0.013	ND	9:40	-	-	-	-	-	
9:29	0.016	ND	15:00	-	-	-	-	-	
9:39	0.019	ND	15:29	0.006	ND	-	-	-	
15:03	0.006	ND	-	-	-	-	-	-	
15:09	0.005	ND	-	-	-	-	-	-	
15:20	0.006	ND	-	-	-	-	-	-	
15:39	0.006	ND	-	-	-	-	-	-	
16:07	0.007	ND	-	-	-	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/10/2019 **Staff: HS** **Weather:** Cloudy, ~55° **Wind Direction: Southwest**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
7:25	0.022	ND	7:39	0.022	ND	7:37	0.029	ND	
7:43	0.023	ND	7:50	0.023	ND	8:00	0.027	ND	
8:03	0.026	ND	8:06	0.023	ND	8:25	0.033	ND	
8:30	0.027	ND	8:35	0.031	ND	8:57	0.038	ND	
8:54	0.027	ND	8:56	0.033	ND	14:59	0.043	ND	
9:04	0.049	ND	14:58	0.036	ND	15:31	0.033	ND	
14:55	0.035	ND	15:30	0.028	ND	15:44	0.030	ND	
15:24	0.031	ND	15:46	0.025	ND	16:10	0.028	ND	
15:33	0.030	ND	16:09	0.023	ND	-	-	-	
15:47	0.025	ND	-	-	-	-	-	-	
16:12	0.024	ND	-	-	-	-	-	-	
16:18	0.023	ND	-	-	-	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/12/2019 **Staff: HS** **Weather:** Snow, ~31° **Wind Direction: Northwest, 8 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
5:38	0.012	ND	5:34	0.016	ND	5:32	0.017	ND	
7:00	0.016	ND	6:00	0.021	ND	6:05	0.022	ND	
12:12	0.006	ND	6:44	0.022	ND	6:46	0.022	ND	
12:22	0.006	ND	12:17	0.007	ND	12:19	0.014	ND	
12:50	0.007	ND	12:20	0.007	ND	12:40	0.020	ND	
13:00	0.007	ND	12:45	0.008	ND	13:03	0.030	ND	
13:06	0.006	ND	13:02	0.008	ND	13:04	0.016	ND	
13:20	0.007	ND	13:25	0.008	ND	13:28	0.016	ND	
13:39	0.007	ND	13:41	0.008	ND	13:42	0.018	ND	
13:47	0.007	ND	-	-	-	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/13/2019 **Staff: HS** **Weather:** Clear, ~27° **Wind Direction: East Northeast**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #: SAGE**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
5:24	0.026	ND	5:22	0.026	ND	5:21	0.021	ND	
5:50	0.024	ND	5:52	0.031	ND	5:54	0.021	ND	
6:07	0.022	ND	6:09	0.036	ND	6:03	0.022	ND	
6:27	0.023	ND	6:36	0.040	ND	6:30	0.023	ND	
6:55	0.026	ND	15:28	0.018	ND	15:29	0.023	ND	
15:31	0.015	ND	15:34	0.018	ND	15:35	0.027	ND	
15:42	0.017	ND	15:45	0.032	ND	15:39	0.024	ND	
16:10	0.017	ND	-	-	-	-	-	-	

South Key Air Monitoring Log

Job#: S3291

Date: 12/14/2019 **Staff: HS** **Weather:** Rain, ~55° **Wind Direction: Southeast, 2 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #:**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
6:15	0.002	ND	6:28	0.040	ND				
6:30	0.002	ND	6:50	0.001	ND				
6:50	0.002	ND	7:05	0.001	ND				
7:11	0.004	ND	7:22	0.001	ND				
7:22	0.004	ND	7:30	0.001	ND				
7:38	0.002	ND	7:42	0.001	ND				
7:47	0.001	ND	13:06	0.006	ND				
13:03	0.013	ND	13:26	0.001	ND				
13:08	0.008	ND	13:48	0.001	ND				
13:28	0.005	ND	14:07	0.001	ND				
13:50	0.001	ND	14:20	0.001	ND				
14:05	0.008	ND	14:23	0.001	ND				
14:18	0.003	ND	-	-	-				
14:25	0.004	ND	-	-	-				

South Key Air Monitoring Log

Job#: S3291

Date: 12/15/2019 **Staff: HS** **Weather:** Clear, ~44° **Wind Direction: West, 18 mph**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #:**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
6:30	0.003	ND	6:28	0.003	ND				
9:20	0.003	ND	9:24	0.004	ND				
9:26	0.003	ND	9:43	0.006	ND				
9:40	0.003	ND	10:00	0.005	ND				
9:48	0.004	ND	10:30	0.004	ND				
10:05	0.005	ND	10:51	0.005	ND				
10:49	0.005	ND	11:20	0.005	ND				
10:53	0.004	ND	16:08	0.005	ND				
11:19	0.004	ND	-	-	-				
16:03	0.003	ND	-	-	-				

South Key Air Monitoring Log

Job#: S3291

Date: 12/16/2019 **Staff: HS** **Weather:** Cloudy, ~34° **Wind Direction: West**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: 3011			**Dustraks #: 2111**			**Dustraks #:**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
5:37	0.003	ND	5:40	0.006	ND				
5:50	0.003	ND	5:53	0.005	ND				
6:05	0.004	ND	6:05	0.004	ND				
6:30	0.004	ND	6:28	0.006	ND				
6:50	0.005	ND	6:48	0.006	ND				
13:07	0.005	ND	13:10	0.006	ND				
13:20	0.005	ND	13:28	0.007	ND				
13:50	0.005	ND	13:52	0.007	ND				
14:07	0.006	ND	14:05	0.006	ND				

South Key Air Monitoring Log

Job#: S3291

Date: 12/17/2019 **Staff: HS** **Weather:** Snow, ~31° **Wind Direction: Southeast**

Screening Location

PID measurements are taken at each monitoring location. Unless noted, TVOV is not detected (ND= <0.1 ppmV)

✖

PID (ppmV)/Dustrak© Screening Results (mg/m³)

Dustraks #: SAGE			**Dustraks #:**			**Dustraks #:**			
Time	**Dust**	**PID**	**Time**	**Dust**	**PID**	**Time**	**Dust**	**PID**	
7:10	0.001	ND							
7:32	0.001	ND							
15:00	0.020	ND							
15:23	0.023	ND							
16:00	0.022	ND							

APPENDIX L

CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0014

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 4:28 pm, Dec 09, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

SAMPLE RECEIPT

The following samples were received on December 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by SAGE Environmental on November 27, 2019 at 1830.

Lab Number	Sample Name	Matrix	Analysis
19L0014-01	20191127-001	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0014

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CL90408-BS1 **Blank Spike recovery is above upper control limit (B+).**
Trichlorofluoromethane (133% @ 70-130%)

CL90408-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (66% @ 70-130%), Tetrahydrofuran (68% @ 70-130%)

8082A Polychlorinated Biphenyls (PCB)

19L0014-01 **Lower value is used due to matrix interferences (LC).**
Aroclor 1248 [2C]

19L0014-01 **Percent difference between primary and confirmation results exceeds 40% (P).**
Aroclor 1248 [2C]

8270D Semi-Volatile Organic Compounds

C9L0027-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (101% @ 80-120%), Benzoic Acid (106% @ 80-120%), Pentachlorophenol (105% @ 80-120%)

Total Metals

CL90338-BSD1 **Blank Spike recovery is below lower control limit (B-).**
Cadmium (75% @ 80-120%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.53)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Arsenic	ND (2.27)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Barium	**14.0** (2.27)		6010C		1	KJK	12/04/19 12:54	2.4	100	CL90338
Beryllium	**0.20** (0.10)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Cadmium	ND (0.45)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Chromium	**39.2** (0.91)		6010C		1	KJK	12/04/19 12:54	2.4	100	CL90338
Copper	**37.7** (2.27)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Lead	**105** (4.53)		6010C		1	KJK	12/04/19 12:54	2.4	100	CL90338
Mercury	**0.088** (0.019)		7471B		1	MKS	12/04/19 12:43	1.11	40	CL90340
Nickel	**6.49** (2.27)		6010C		1	KJK	12/04/19 12:54	2.4	100	CL90338
Selenium	ND (4.53)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Silver	**1.90** (0.45)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Thallium	ND (4.53)		6010C		1	BJV	12/04/19 2:24	2.4	100	CL90338
Zinc	**51.3** (2.27)		6010C		1	KJK	12/04/19 12:54	2.4	100	CL90338

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,1,1-Trichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,1,2,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,1,2-Trichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,1-Dichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,1-Dichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,1-Dichloropropene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2,3-Trichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2,3-Trichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2,4-Trichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2,4-Trimethylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2-Dibromo-3-Chloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2-Dibromoethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2-Dichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,2-Dichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,3,5-Trimethylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,3-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,3-Dichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,4-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1,4-Dioxane	ND (0.0812)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
1-Chlorohexane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
2,2-Dichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
2-Butanone	ND (0.0406)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
2-Chlorotoluene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
2-Hexanone	ND (0.0406)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
4-Chlorotoluene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
4-Isopropyltoluene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
4-Methyl-2-Pentanone	ND (0.0406)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Acetone	ND (0.0406)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Benzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Bromobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Bromodichloromethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Bromoform	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Bromomethane	ND (0.0081)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Carbon Disulfide	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Carbon Tetrachloride	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Chlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Chloroethane	ND (0.0081)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Chloroform	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Chloromethane	ND (0.0081)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
cis-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
cis-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Dibromochloromethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Dibromomethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Dichlorodifluoromethane	ND (0.0081)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Diethyl Ether	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Di-isopropyl ether	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Ethyl tertiary-butyl ether	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Ethylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Hexachlorobutadiene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Isopropylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Methyl tert-Butyl Ether	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Methylene Chloride	ND (0.0203)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Naphthalene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
n-Butylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
n-Propylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
sec-Butylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Styrene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
tert-Butylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Tertiary-amyl methyl ether	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Tetrachloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Tetrahydrofuran	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
trans-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
trans-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Trichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Trichlorofluoromethane	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Vinyl Acetate	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Vinyl Chloride	ND (0.0081)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Xylene O	ND (0.0041)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Xylene P,M	ND (0.0081)		8260B Low		1	12/04/19 20:22	C9L0060	CL90408
Xylenes (Total)	ND (0.00812)		8260B Low		1	12/04/19 20:22		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*102 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*94 %*		*70-130*
Surrogate: Dibromofluoromethane	*96 %*		*70-130*
Surrogate: Toluene-d8	*103 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 20.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/3/19 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1221	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1232	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1242	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1248 [2C]	**P, LC 0.07** (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1254	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1260	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1262	ND (0.05)		8082A		1	12/06/19 15:33		CL90628
Aroclor 1268	ND (0.05)		8082A		1	12/06/19 15:33		CL90628

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*77 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*71 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*62 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*82 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 19
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/3/19 10:55

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**260** (42.9)		8100M		1	12/05/19 20:00	C9L0045	CL90311

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
1,2,4-Trichlorobenzene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
1,2-Dichlorobenzene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
1,3-Dichlorobenzene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
1,4-Dichlorobenzene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,3,4,6-Tetrachlorophenol	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,4,5-Trichlorophenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,4,6-Trichlorophenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,4-Dichlorophenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,4-Dimethylphenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,4-Dinitrophenol	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,4-Dinitrotoluene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2,6-Dinitrotoluene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2-Chloronaphthalene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2-Chlorophenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2-Methylnaphthalene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2-Methylphenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2-Nitroaniline	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
2-Nitrophenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
3,3′-Dichlorobenzidine	ND (0.740)		8270D		1	12/04/19 0:38	C9L0027	CL90310
3+4-Methylphenol	ND (0.740)		8270D		1	12/04/19 0:38	C9L0027	CL90310
3-Nitroaniline	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4,6-Dinitro-2-Methylphenol	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4-Bromophenyl-phenylether	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4-Chloro-3-Methylphenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4-Chloroaniline	ND (0.740)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4-Chloro-phenyl-phenyl ether	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4-Nitroaniline	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
4-Nitrophenol	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Acenaphthene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Acenaphthylene	**0.456** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Acetophenone	ND (0.740)		8270D		1	12/04/19 0:38	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.740)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Anthracene	**1.40** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Azobenzene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzo(a)anthracene	**3.31** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzo(a)pyrene	**2.94** (0.185)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzo(b)fluoranthene	**2.42** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzo(g,h,i)perylene	**1.69** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzo(k)fluoranthene	**2.69** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzoic Acid	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Benzyl Alcohol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
bis(2-Chloroethoxy)methane	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
bis(2-Chloroethyl)ether	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
bis(2-chloroisopropyl)Ether	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
bis(2-Ethylhexyl)phthalate	**0.415** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Butylbenzylphthalate	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Carbazole	**0.694** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Chrysene	**2.75** (0.185)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Dibenzo(a,h)Anthracene	**0.729** (0.185)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Dibenzofuran	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Diethylphthalate	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Dimethylphthalate	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Di-n-butylphthalate	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Di-n-octylphthalate	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Fluoranthene	**6.34** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Fluorene	**0.479** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Hexachlorobenzene	ND (0.185)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Hexachlorobutadiene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Hexachlorocyclopentadiene	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Hexachloroethane	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Indeno(1,2,3-cd)Pyrene	**1.61** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Isophorone	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Naphthalene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191127-001
Date Sampled: 11/27/19 16:15
Percent Solids: 92
Initial Volume: 14.7
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0014
ESS Laboratory Sample ID: 19L0014-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
N-Nitrosodimethylamine	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
N-Nitroso-Di-n-Propylamine	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
N-nitrosodiphenylamine	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Pentachlorophenol	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Phenanthrene	**4.48** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Phenol	ND (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Pyrene	**5.97** (0.370)		8270D		1	12/04/19 0:38	C9L0027	CL90310
Pyridine	ND (1.85)		8270D		1	12/04/19 0:38	C9L0027	CL90310

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*63 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*98 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*67 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*67 %*		*30-130*
Surrogate: 2-Fluorophenol	*63 %*		*30-130*
Surrogate: Nitrobenzene-d5	*66 %*		*30-130*
Surrogate: Phenol-d6	*70 %*		*30-130*
Surrogate: p-Terphenyl-d14	*100 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL90338 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	38.1	15.6	mg/kg wet	51.30		74	40-160			
Arsenic	182	7.81	mg/kg wet	202.0		90	80-120			
Barium	316	7.81	mg/kg wet	343.0		92	80-120			
Beryllium	46.6	0.34	mg/kg wet	52.10		90	80-120			
Cadmium	121	1.56	mg/kg wet	149.0		81	80-120			
Chromium	164	3.12	mg/kg wet	182.0		90	80-120			
Copper	217	7.81	mg/kg wet	225.0		96	80-120			
Lead	302	15.6	mg/kg wet	333.0		91	74-127			
Nickel	152	7.81	mg/kg wet	167.0		91	80-120			
Selenium	155	15.6	mg/kg wet	169.0		92	80-120			
Silver	43.2	1.56	mg/kg wet	48.90		88	80-120			
Thallium	63.4	15.6	mg/kg wet	82.30		77	62-139			
Zinc	400	7.81	mg/kg wet	459.0		87	80-120			
LCS Dup										
Antimony	32.1	11.6	mg/kg wet	51.30		63	40-160	17	20	
Arsenic	168	5.81	mg/kg wet	202.0		83	80-120	8	20	
Barium	299	5.81	mg/kg wet	343.0		87	80-120	6	20	
Beryllium	43.3	0.26	mg/kg wet	52.10		83	80-120	8	20	
Cadmium	112	1.16	mg/kg wet	149.0		75	80-120	8	20	B-
Chromium	150	2.33	mg/kg wet	182.0		83	80-120	9	20	
Copper	188	5.81	mg/kg wet	225.0		84	80-120	14	20	
Lead	262	11.6	mg/kg wet	333.0		79	74-127	14	20	
Nickel	137	5.81	mg/kg wet	167.0		82	80-120	11	20	
Selenium	142	11.6	mg/kg wet	169.0		84	80-120	9	20	
Silver	40.1	1.16	mg/kg wet	48.90		82	80-120	7	20	
Thallium	59.0	11.6	mg/kg wet	82.30		72	62-139	7	20	
Zinc	374	5.81	mg/kg wet	459.0		81	80-120	7	20	
Batch CL90340 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90340 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.65	0.455	mg/kg wet	7.760		99	80-120			
LCS Dup										
Mercury	8.12	0.558	mg/kg wet	7.760		105	80-120	6	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0538*		mg/kg wet	*0.05000*		*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0500*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0482*		mg/kg wet	*0.05000*		*96*	*70-130*			
Surrogate: Toluene-d8	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
1,1,1-Trichloroethane	0.0586	0.0050	mg/kg wet	0.05000		117	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL90408 - 5035										
1,1,2,2-Tetrachloroethane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130			
1,1,2-Trichloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,1-Dichloroethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
1,1-Dichloroethene	0.0598	0.0050	mg/kg wet	0.05000		120	70-130			
1,1-Dichloropropene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130			
1,2,3-Trichlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,2,3-Trichloropropane	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
1,2,4-Trichlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
1,2,4-Trimethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,2-Dibromo-3-Chloropropane	0.0330	0.0050	mg/kg wet	0.05000		66	70-130			B-
1,2-Dibromoethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
1,2-Dichlorobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichloroethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,3,5-Trimethylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
1,3-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,3-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,4-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,4-Dioxane	0.770	0.100	mg/kg wet	1.000		77	70-130			
1-Chlorohexane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
2,2-Dichloropropane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
2-Butanone	0.250	0.0500	mg/kg wet	0.2500		100	70-130			
2-Chlorotoluene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
2-Hexanone	0.197	0.0500	mg/kg wet	0.2500		79	70-130			
4-Chlorotoluene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
4-Isopropyltoluene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
4-Methyl-2-Pentanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130			
Acetone	0.212	0.0500	mg/kg wet	0.2500		85	70-130			
Benzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Bromobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
Bromochloromethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Bromodichloromethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
Bromoform	0.0386	0.0050	mg/kg wet	0.05000		77	70-130			
Bromomethane	0.0490	0.0100	mg/kg wet	0.05000		98	70-130			
Carbon Disulfide	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Carbon Tetrachloride	0.0616	0.0050	mg/kg wet	0.05000		123	70-130			
Chlorobenzene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Chloroethane	0.0500	0.0100	mg/kg wet	0.05000		100	70-130			
Chloroform	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Chloromethane	0.0488	0.0100	mg/kg wet	0.05000		98	70-130			
cis-1,2-Dichloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
cis-1,3-Dichloropropene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Dibromochloromethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Dibromomethane	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Dichlorodifluoromethane	0.0496	0.0100	mg/kg wet	0.05000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Diethyl Ether	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Di-isopropyl ether	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Ethyl tertiary-butyl ether	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Ethylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Hexachlorobutadiene	0.0600	0.0050	mg/kg wet	0.05000		120	70-130			
Isopropylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
Methyl tert-Butyl Ether	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Methylene Chloride	0.0532	0.0250	mg/kg wet	0.05000		106	70-130			
Naphthalene	0.0410	0.0050	mg/kg wet	0.05000		82	70-130			
n-Butylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
n-Propylbenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130			
sec-Butylbenzene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
Styrene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
Tertiary-amyl methyl ether	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
Tetrachloroethene	0.0590	0.0050	mg/kg wet	0.05000		118	70-130			
Tetrahydrofuran	0.0340	0.0050	mg/kg wet	0.05000		68	70-130			B-
Toluene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,2-Dichloroethene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130			
trans-1,3-Dichloropropene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Trichloroethene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
Trichlorofluoromethane	0.0663	0.0050	mg/kg wet	0.05000		133	70-130			B+
Vinyl Acetate	0.0358	0.0050	mg/kg wet	0.05000		72	70-130			
Vinyl Chloride	0.0517	0.0100	mg/kg wet	0.05000		103	70-130			
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0497*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	0.2	25	
1,1,1-Trichloroethane	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130	6	25	
1,1,2-Trichloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
1,1-Dichloroethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	0.8	25	
1,1-Dichloroethene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	3	25	
1,1-Dichloropropene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	2	25	
1,2,3-Trichlorobenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
1,2,3-Trichloropropane	0.0415	0.0050	mg/kg wet	0.05000		83	70-130	6	25	
1,2,4-Trichlorobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
1,2,4-Trimethylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.1	25	
1,2-Dibromo-3-Chloropropane	0.0380	0.0050	mg/kg wet	0.05000		76	70-130	14	25	
1,2-Dibromoethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
1,2-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	

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Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
1,2-Dichloroethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
1,2-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
1,3,5-Trimethylbenzene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	0.8	25	
1,3-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	0.08	25	
1,3-Dichloropropane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	2	25	
1,4-Dichlorobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
1,4-Dioxane	0.779	0.100	mg/kg wet	1.000		78	70-130	1	20	
1-Chlorohexane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
2,2-Dichloropropane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	2	25	
2-Butanone	0.256	0.0500	mg/kg wet	0.2500		103	70-130	3	25	
2-Chlorotoluene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	1	25	
2-Hexanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130	8	25	
4-Chlorotoluene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
4-Isopropyltoluene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
4-Methyl-2-Pentanone	0.228	0.0500	mg/kg wet	0.2500		91	70-130	7	25	
Acetone	0.233	0.0500	mg/kg wet	0.2500		93	70-130	9	25	
Benzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.6	25	
Bromobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	1	25	
Bromochloromethane	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
Bromodichloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
Bromoform	0.0408	0.0050	mg/kg wet	0.05000		82	70-130	5	25	
Bromomethane	0.0482	0.0100	mg/kg wet	0.05000		96	70-130	1	25	
Carbon Disulfide	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Carbon Tetrachloride	0.0602	0.0050	mg/kg wet	0.05000		120	70-130	2	25	
Chlorobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
Chloroethane	0.0486	0.0100	mg/kg wet	0.05000		97	70-130	3	25	
Chloroform	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.7	25	
Chloromethane	0.0472	0.0100	mg/kg wet	0.05000		94	70-130	3	25	
cis-1,2-Dichloroethene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
cis-1,3-Dichloropropene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	2	25	
Dibromochloromethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
Dibromomethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	4	25	
Dichlorodifluoromethane	0.0476	0.0100	mg/kg wet	0.05000		95	70-130	4	25	
Diethyl Ether	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Di-isopropyl ether	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
Ethyl tertiary-butyl ether	0.0444	0.0050	mg/kg wet	0.05000		89	70-130	2	25	
Ethylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
Hexachlorobutadiene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	2	25	
Isopropylbenzene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	1	25	
Methyl tert-Butyl Ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
Methylene Chloride	0.0540	0.0250	mg/kg wet	0.05000		108	70-130	1	25	
Naphthalene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	6	25	
n-Butylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
n-Propylbenzene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
sec-Butylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	

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Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Styrene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	0.7	25	
tert-Butylbenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
Tertiary-amyl methyl ether	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	4	25	
Tetrachloroethene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	2	25	
Tetrahydrofuran	0.0373	0.0050	mg/kg wet	0.05000		75	70-130	9	25	
Toluene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.5	25	
trans-1,2-Dichloroethene	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
trans-1,3-Dichloropropene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130	3	25	
Trichloroethene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	1	25	
Trichlorofluoromethane	0.0640	0.0050	mg/kg wet	0.05000		128	70-130	4	25	
Vinyl Acetate	0.0379	0.0050	mg/kg wet	0.05000		76	70-130	6	25	
Vinyl Chloride	0.0499	0.0100	mg/kg wet	0.05000		100	70-130	4	25	
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	0.07	25	
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130	0.1	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0494*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0488*		mg/kg wet	*0.05000*		*98*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL90628 - 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	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0215*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL90628 - 3540C										
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Surrogate: Decachlorobiphenyl	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg wet	*0.02500*		*88*	*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		99	40-140	0.1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL90311 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.77*		mg/kg wet	*5.000*		*95*	*40-140*			
LCS										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140			

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Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL90311 - 3546										
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		90	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		65	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Total Petroleum Hydrocarbons	31.8	37.5	mg/kg wet	35.00		91	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Surrogate: O-Terphenyl	*4.63*		mg/kg wet	*5.000*		*93*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140	2	25	
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		96	40-140	1	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		86	40-140	2	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		94	40-140	2	25	
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		96	40-140	2	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		104	40-140	3	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		66	30-140	2	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		94	40-140	2	25	
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		96	40-140	2	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	2	25	
Total Petroleum Hydrocarbons	32.4	37.5	mg/kg wet	35.00		92	40-140	2	25	
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Surrogate: O-Terphenyl	*4.66*		mg/kg wet	*5.000*		*93*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.167	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.52*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.78*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.40*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: 2-Fluorophenol	*3.88*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.57*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: Phenol-d6	*3.87*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.67*		mg/kg wet	*3.333*		*80*	*30-130*			
LCS										
1,1-Biphenyl	2.29	0.333	mg/kg wet	3.333		69	40-140			
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,2-Dichlorobenzene	2.05	0.333	mg/kg wet	3.333		62	40-140			
1,3-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
1,4-Dichlorobenzene	2.01	0.333	mg/kg wet	3.333		60	40-140			
2,3,4,6-Tetrachlorophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.99	0.333	mg/kg wet	3.333		90	30-130			
2,4,6-Trichlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dimethylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dinitrophenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
2,4-Dinitrotoluene	3.04	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140			
2-Chloronaphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
2-Chlorophenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
2-Methylnaphthalene	2.21	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.32	0.333	mg/kg wet	3.333		70	30-130			
2-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140			
2-Nitrophenol	2.30	0.333	mg/kg wet	3.333		69	30-130			
3,3´-Dichlorobenzidine	2.37	0.333	mg/kg wet	3.333		71	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
3+4-Methylphenol	4.31	0.667	mg/kg wet	6.667		65	30-130			
3-Nitroaniline	2.74	0.333	mg/kg wet	3.333		82	40-140			
4,6-Dinitro-2-Methylphenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
4-Bromophenyl-phenylether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Chloro-3-Methylphenol	2.80	0.333	mg/kg wet	3.333		84	30-130			
4-Chloroaniline	1.75	0.667	mg/kg wet	3.333		52	40-140			
4-Chloro-phenyl-phenyl ether	2.52	0.333	mg/kg wet	3.333		76	40-140			
4-Nitroaniline	2.57	0.333	mg/kg wet	3.333		77	40-140			
4-Nitrophenol	2.67	1.67	mg/kg wet	3.333		80	30-130			
Acenaphthene	2.44	0.333	mg/kg wet	3.333		73	40-140			
Acenaphthylene	2.53	0.333	mg/kg wet	3.333		76	40-140			
Acetophenone	2.01	0.667	mg/kg wet	3.333		60	40-140			
Aniline	1.77	0.667	mg/kg wet	3.333		53	40-140			
Anthracene	2.70	0.333	mg/kg wet	3.333		81	40-140			
Azobenzene	2.78	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)anthracene	3.03	0.333	mg/kg wet	3.333		91	40-140			
Benzo(a)pyrene	2.83	0.167	mg/kg wet	3.333		85	40-140			
Benzo(b)fluoranthene	3.01	0.333	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Benzoic Acid	2.94	1.67	mg/kg wet	3.333		88	40-140			
Benzyl Alcohol	1.85	0.333	mg/kg wet	3.333		56	40-140			
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethyl)ether	2.12	0.167	mg/kg wet	3.333		64	40-140			
bis(2-chloroisopropyl)Ether	2.07	0.333	mg/kg wet	3.333		62	40-140			
bis(2-Ethylhexyl)phthalate	2.65	0.333	mg/kg wet	3.333		80	40-140			
Butylbenzylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Carbazole	2.86	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	2.99	0.167	mg/kg wet	3.333		90	40-140			
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140			
Diethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Di-n-butylphthalate	2.93	0.333	mg/kg wet	3.333		88	40-140			
Di-n-octylphthalate	2.69	0.333	mg/kg wet	3.333		81	40-140			
Fluoranthene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Fluorene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Hexachlorobutadiene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Hexachlorocyclopentadiene	1.96	1.67	mg/kg wet	3.333		59	40-140			
Hexachloroethane	2.04	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Isophorone	2.10	0.333	mg/kg wet	3.333		63	40-140			
Naphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140			
Nitrobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
N-Nitrosodimethylamine	2.03	0.333	mg/kg wet	3.333		61	40-140			
N-Nitroso-Di-n-Propylamine	2.27	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.84	0.333	mg/kg wet	3.333		85	40-140			
Pentachlorophenol	3.05	1.67	mg/kg wet	3.333		92	30-130			
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
Pyrene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Pyridine	2.12	1.67	mg/kg wet	3.333		64	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.90*		mg/kg wet	*5.000*		*98*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.49*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: 2-Fluorophenol	*3.50*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.34*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: Phenol-d6	*3.56*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.10*		mg/kg wet	*3.333*		*93*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.26	0.333	mg/kg wet	3.333		68	40-140	1	30	
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140	0.03	30	
1,2-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
1,3-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
1,4-Dichlorobenzene	2.07	0.333	mg/kg wet	3.333		62	40-140	3	30	
2,3,4,6-Tetrachlorophenol	2.83	1.67	mg/kg wet	3.333		85	30-130	0.2	30	
2,4,5-Trichlorophenol	2.99	0.333	mg/kg wet	3.333		90	30-130	0.07	30	
2,4,6-Trichlorophenol	2.81	0.333	mg/kg wet	3.333		84	30-130	1	30	
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130	0.1	30	
2,4-Dimethylphenol	2.46	0.333	mg/kg wet	3.333		74	30-130	0.7	30	
2,4-Dinitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	3	30	
2,4-Dinitrotoluene	3.08	0.333	mg/kg wet	3.333		92	40-140	1	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	0.2	30	
2-Chloronaphthalene	2.21	0.333	mg/kg wet	3.333		66	40-140	3	30	
2-Chlorophenol	2.20	0.333	mg/kg wet	3.333		66	30-130	0.5	30	
2-Methylnaphthalene	2.17	0.333	mg/kg wet	3.333		65	40-140	2	30	
2-Methylphenol	2.35	0.333	mg/kg wet	3.333		71	30-130	1	30	
2-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140	0.2	30	
2-Nitrophenol	2.32	0.333	mg/kg wet	3.333		70	30-130	0.8	30	
3,3´-Dichlorobenzidine	2.24	0.333	mg/kg wet	3.333		67	40-140	5	30	
3+4-Methylphenol	4.35	0.667	mg/kg wet	6.667		65	30-130	0.9	30	
3-Nitroaniline	2.68	0.333	mg/kg wet	3.333		80	40-140	2	30	
4,6-Dinitro-2-Methylphenol	2.95	1.67	mg/kg wet	3.333		89	30-130	0.2	30	
4-Bromophenyl-phenylether	2.78	0.333	mg/kg wet	3.333		83	40-140	0.7	30	
4-Chloro-3-Methylphenol	2.80	0.333	mg/kg wet	3.333		84	30-130	0.2	30	
4-Chloroaniline	1.70	0.667	mg/kg wet	3.333		51	40-140	2	30	
4-Chloro-phenyl-phenyl ether	2.54	0.333	mg/kg wet	3.333		76	40-140	0.7	30	
4-Nitroaniline	2.51	0.333	mg/kg wet	3.333		75	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
4-Nitrophenol	2.71	1.67	mg/kg wet	3.333		81	30-130	1	30	
Acenaphthene	2.42	0.333	mg/kg wet	3.333		73	40-140	0.9	30	
Acenaphthylene	2.50	0.333	mg/kg wet	3.333		75	40-140	2	30	
Acetophenone	2.00	0.667	mg/kg wet	3.333		60	40-140	0.4	30	
Aniline	1.78	0.667	mg/kg wet	3.333		53	40-140	0.6	30	
Anthracene	2.62	0.333	mg/kg wet	3.333		79	40-140	3	30	
Azobenzene	2.74	0.333	mg/kg wet	3.333		82	40-140	2	30	
Benzo(a)anthracene	2.98	0.333	mg/kg wet	3.333		89	40-140	2	30	
Benzo(a)pyrene	2.84	0.167	mg/kg wet	3.333		85	40-140	0.2	30	
Benzo(b)fluoranthene	3.06	0.333	mg/kg wet	3.333		92	40-140	2	30	
Benzo(g,h,i)perylene	3.01	0.333	mg/kg wet	3.333		90	40-140	1	30	
Benzo(k)fluoranthene	2.57	0.333	mg/kg wet	3.333		77	40-140	1	30	
Benzoic Acid	3.02	1.67	mg/kg wet	3.333		91	40-140	3	30	
Benzyl Alcohol	1.82	0.333	mg/kg wet	3.333		55	40-140	2	30	
bis(2-Chloroethoxy)methane	2.15	0.333	mg/kg wet	3.333		65	40-140	0.3	30	
bis(2-Chloroethyl)ether	2.13	0.167	mg/kg wet	3.333		64	40-140	0.6	30	
bis(2-chloroisopropyl)Ether	2.07	0.333	mg/kg wet	3.333		62	40-140	0.3	30	
bis(2-Ethylhexyl)phthalate	2.74	0.333	mg/kg wet	3.333		82	40-140	3	30	
Butylbenzylphthalate	2.67	0.333	mg/kg wet	3.333		80	40-140	2	30	
Carbazole	2.80	0.333	mg/kg wet	3.333		84	40-140	2	30	
Chrysene	2.72	0.167	mg/kg wet	3.333		82	40-140	2	30	
Dibenzo(a,h)Anthracene	3.00	0.167	mg/kg wet	3.333		90	40-140	0.4	30	
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140	0.2	30	
Diethylphthalate	2.86	0.333	mg/kg wet	3.333		86	40-140	0.7	30	
Dimethylphthalate	2.73	0.333	mg/kg wet	3.333		82	40-140	1	30	
Di-n-butylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	0.4	30	
Di-n-octylphthalate	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140	2	30	
Fluorene	2.62	0.333	mg/kg wet	3.333		78	40-140	0.2	30	
Hexachlorobenzene	2.72	0.167	mg/kg wet	3.333		82	40-140	2	30	
Hexachlorobutadiene	2.11	0.333	mg/kg wet	3.333		63	40-140	0.6	30	
Hexachlorocyclopentadiene	1.95	1.67	mg/kg wet	3.333		59	40-140	0.5	30	
Hexachloroethane	2.11	0.333	mg/kg wet	3.333		63	40-140	3	30	
Indeno(1,2,3-cd)Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140	0.08	30	
Isophorone	2.12	0.333	mg/kg wet	3.333		64	40-140	0.7	30	
Naphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	0.8	30	
Nitrobenzene	2.16	0.333	mg/kg wet	3.333		65	40-140	1	30	
N-Nitrosodimethylamine	2.10	0.333	mg/kg wet	3.333		63	40-140	4	30	
N-Nitroso-Di-n-Propylamine	2.26	0.333	mg/kg wet	3.333		68	40-140	0.5	30	
N-nitrosodiphenylamine	2.81	0.333	mg/kg wet	3.333		84	40-140	1	30	
Pentachlorophenol	3.07	1.67	mg/kg wet	3.333		92	30-130	0.6	30	
Phenanthrene	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	
Phenol	2.21	0.333	mg/kg wet	3.333		66	30-130	0.7	30	
Pyrene	2.84	0.333	mg/kg wet	3.333		85	40-140	2	30	
Pyridine	2.22	1.67	mg/kg wet	3.333		67	40-140	5	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.61*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.36*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.35*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2-Fluorophenol	*3.42*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.28*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: Phenol-d6	*3.44*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.98*		mg/kg wet	*3.333*		*89*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0014

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
P	Percent difference between primary and confirmation results exceeds 40% (P).
LC	Lower value is used due to matrix interferences (LC).
D	Diluted.
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0014

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0014
Date Received: 12/2/2019
Project Due Date: 12/9/2019
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: 2.4 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: 11/27/19 Time: 1850 By: CLeA

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	417385	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	417388	Yes	NA	Yes	VOA Vial - Other	Other	
01	417389	Yes	NA	Yes	VOA Vial - Other	Other	
01	417392	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	417393	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials MC
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? (Yes) / No / NA
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? Yes / No / (NA)
Are VOA stickers attached if bubbles noted? Yes / No / (NA)

Completed By: Date & Time: 12/2/19 1826
Reviewed By: Date & Time: 12/2/19 1841
Delivered By: 12/2/19 1841

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 # 19L0014

Turn Time: 5-Day **Rush:**
Regulatory State: Rhode Island
Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	11/27/19	1615	Grab/Compc	Soil	20191127-001	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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:	GV 6/10	GV 1	AG 1	AG 1	AG 1	AG 1					
	3*	1*	1*	1*	1*						

Laboratory Use Only
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 2-4 °C

Sampled by : T. Saccoccio / SAGE

Comments: Please specify "Other" preservative and containers types in this space
*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars.
40-ml vials with DI water/stir bars frozen 11 / 27 /2019 at 1830 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
11/27/19 1830	12/2 1200	12/2 17:32	12/2/19 1737
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/2 12:00			

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: S3291 (S3291)
ESS Laboratory Work Order Number: 20A0920

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 5:16 pm, Feb 07, 2020

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: Sage Environmental, Inc.
Client Project ID: S3291

ESS Laboratory Work Order: 20A0920

SAMPLE RECEIPT

The following samples were received on January 31, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
20A0920-01	P-1	Soil	1312, 1312/6010C
20A0920-02	P-6	Soil	1312, 1312/6010C
20A0920-03	P-7	Soil	1312, 1312/6010C

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291 ESS Laboratory Work Order: 20A0920

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: Sage Environmental, Inc.
Client Project ID: S3291

ESS Laboratory Work Order: 20A0920

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: S3291
Client Sample ID: P-1
Date Sampled: 11/27/19 16:15
Percent Solids: N/A

ESS Laboratory Work Order: 20A0920
ESS Laboratory Sample ID: 20A0920-01
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A SPLP

1312 SPLP Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Lead	**0.094** (0.010)		1312/6010C		1	BJV	02/03/20 15:26	50	25	DB00303

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291
Client Sample ID: P-1
Date Sampled: 11/27/19 16:15
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1312

ESS Laboratory Work Order: 20A0920
ESS Laboratory Sample ID: 20A0920-01
Sample Matrix: Soil
Units: °C
Analyst: KJK
Prepared: 1/31/20 18:50

SPLP Extraction by 1312

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**20.8** (N/A)		1312		1	KJK	02/01/20 10:57	DA03156
Temperature (Max C)	**22.3** (N/A)		1312		1	KJK	02/01/20 10:57	DA03156
Temperature (Range)	**Temperature is not within 23 +/-2 ºC.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291
Client Sample ID: P-6
Date Sampled: 12/12/19 06:00
Percent Solids: N/A

ESS Laboratory Work Order: 20A0920
ESS Laboratory Sample ID: 20A0920-02
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A SPLP

1312 SPLP Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Lead	**0.058** (0.010)		1312/6010C		1	BJV	02/03/20 15:58	50	25	DB00303

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291
Client Sample ID: P-6
Date Sampled: 12/12/19 06:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1312

ESS Laboratory Work Order: 20A0920
ESS Laboratory Sample ID: 20A0920-02
Sample Matrix: Soil
Units: °C
Analyst: KJK
Prepared: 1/31/20 18:50

SPLP Extraction by 1312

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**20.8** (N/A)		1312		1	KJK	02/01/20 10:57	DA03156
Temperature (Max C)	**22.3** (N/A)		1312		1	KJK	02/01/20 10:57	DA03156
Temperature (Range)	**Temperature is not within 23 +/-2 ºC.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291
Client Sample ID: P-7
Date Sampled: 12/13/19 16:00
Percent Solids: N/A

ESS Laboratory Work Order: 20A0920
ESS Laboratory Sample ID: 20A0920-03
Sample Matrix: Soil
Units: mg/L

Extraction Method: 3005A SPLP

1312 SPLP Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Lead	**0.018** (0.010)		1312/6010C		1	BJV	02/03/20 16:02	50	25	DB00303

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291
Client Sample ID: P-7
Date Sampled: 12/13/19 16:00
Percent Solids: N/A
Initial Volume: 100
Final Volume: 2000
Extraction Method: 1312

ESS Laboratory Work Order: 20A0920
ESS Laboratory Sample ID: 20A0920-03
Sample Matrix: Soil
Units: °C
Analyst: KJK
Prepared: 1/31/20 18:50

SPLP Extraction by 1312

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	Batch
Temperature (Min C)	**20.8** (N/A)		1312		1	KJK	02/01/20 10:57	DA03156
Temperature (Max C)	**22.3** (N/A)		1312		1	KJK	02/01/20 10:57	DA03156
Temperature (Range)	**Temperature is not within 23 +/-2 ºC.** (N/A)							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291

ESS Laboratory Work Order: 20A0920

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
1312 SPLP Metals										
Batch DB00303 - 3005A_SPLP										
Blank										
Lead	ND	0.010	mg/L							
LCS										
Lead	0.291	0.010	mg/L	0.2500		117	80-120			
LCS Dup										
Lead	0.257	0.010	mg/L	0.2500		103	80-120	13	20	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291 ESS Laboratory Work Order: 20A0920

Notes and Definitions

Z18	Temperature is not within 23 +/-2 ºC.
U	Analyte included in the analysis, but not detected
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: S3291

ESS Laboratory Work Order: 20A0920

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: Sage Environmental, Inc. - ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 20A0920
Date Received: 1/31/2020
Project Due Date: 2/7/2020
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: 3.2 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
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)
1	9996	Yes	N/A	Yes	8 oz jar	NP	
2	9997	Yes	N/A	Yes	8 oz jar	NP	
3	9998	Yes	N/A	Yes	8 oz jar	NP	

2nd Review
Were all containers scanned into storage/lab? Initials _____ Yes / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: _____ Date & Time: 1/31/20 1801
Reviewed By: _____ Date & Time: 1/31/20 1804
Delivered By: _____ 1/31/20 1804

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 # 20A0920

Turn Time 5-Day **Rush**

Regulatory State Rhode Island

Is this project for any of the following?: O CT RCP O MA MCP O RGP

Reporting Limits RIDEM GA Leachability

Electonic Deliverables ☑ Limit Checker ☑ Standard Excel ☐ Other (Please Specify →)

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291	S3291

Contact Person	Address
T. Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	RI	02860	S3291

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: SPLP Lead
01	11/27/19	1615	Grab/Composite	Soil	P-1	X
02	12/12/19	0600	Grab/Composite	Soil	P-6	X
03	12/13/19	1600	Grab/Composite	Soil	P-7	X

Container Type: AC-Air Cassette AG-Amber Glass B-BOD Bottle C-Cubitainer G - Glass O-Other P-Poly S-Sterile V-Vial — AG

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* — 10

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* — 1

Number of Containers per Sample: 1

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: 3.2 °C

Sampled by : T. Saccoccio

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)
1/31/20 10:00	1/31/20 13:00	1/31/20 17:25	1/31/20 1728
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0013

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 5:34 pm, Dec 09, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

SAMPLE RECEIPT

The following samples were received on December 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by SAGE Environmental on November 29, 2019 at 1800.

Lab Number	Sample Name	Matrix	Analysis
19L0013-01	20191129-001	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D
19L0013-02	20191129-002	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0013

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CL90408-BS1 **Blank Spike recovery is above upper control limit (B+).**
Trichlorofluoromethane (133% @ 70-130%)

CL90408-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (66% @ 70-130%), Tetrahydrofuran (68% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C9L0027-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (101% @ 80-120%), Benzoic Acid (106% @ 80-120%), Pentachlorophenol (105% @ 80-120%)

Total Metals

CL90338-BSD1 **Blank Spike recovery is below lower control limit (B-).**
Cadmium (75% @ 80-120%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.05)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Arsenic	ND (2.03)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Barium	**14.7** (2.03)		6010C		1	KJK	12/04/19 12:34	2.64	100	CL90338
Beryllium	**0.22** (0.09)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Cadmium	ND (0.41)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Chromium	**12.7** (0.81)		6010C		1	KJK	12/04/19 12:34	2.64	100	CL90338
Copper	**31.1** (2.03)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Lead	**50.7** (4.05)		6010C		1	KJK	12/04/19 12:34	2.64	100	CL90338
Mercury	**0.055** (0.032)		7471B		1	MKS	12/04/19 12:34	0.66	40	CL90340
Nickel	**4.80** (2.03)		6010C		1	KJK	12/04/19 12:34	2.64	100	CL90338
Selenium	ND (4.05)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Silver	ND (0.41)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Thallium	ND (4.05)		6010C		1	BJV	12/04/19 2:16	2.64	100	CL90338
Zinc	**41.1** (2.03)		6010C		1	KJK	12/04/19 12:34	2.64	100	CL90338

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,1,1-Trichloroethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,1,2,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,1,2-Trichloroethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,1-Dichloroethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,1-Dichloroethene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,1-Dichloropropene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2,3-Trichlorobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2,3-Trichloropropane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2,4-Trichlorobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2,4-Trimethylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2-Dibromo-3-Chloropropane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2-Dibromoethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2-Dichlorobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2-Dichloroethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,2-Dichloropropane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,3,5-Trimethylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,3-Dichlorobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,3-Dichloropropane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,4-Dichlorobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1,4-Dioxane	ND (0.0877)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
1-Chlorohexane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
2,2-Dichloropropane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
2-Butanone	ND (0.0439)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
2-Chlorotoluene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
2-Hexanone	ND (0.0439)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
4-Chlorotoluene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
4-Isopropyltoluene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
4-Methyl-2-Pentanone	ND (0.0439)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Acetone	ND (0.0439)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Benzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Bromobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Bromodichloromethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Bromoform	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Bromomethane	ND (0.0088)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Carbon Disulfide	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Carbon Tetrachloride	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Chlorobenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Chloroethane	ND (0.0088)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Chloroform	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Chloromethane	ND (0.0088)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
cis-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
cis-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Dibromochloromethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Dibromomethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Dichlorodifluoromethane	ND (0.0088)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Diethyl Ether	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Di-isopropyl ether	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Ethyl tertiary-butyl ether	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Ethylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Hexachlorobutadiene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Isopropylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Methyl tert-Butyl Ether	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Methylene Chloride	ND (0.0219)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Naphthalene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
n-Butylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
n-Propylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
sec-Butylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Styrene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
tert-Butylbenzene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Tertiary-amyl methyl ether	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Tetrachloroethene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Tetrahydrofuran	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
trans-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
trans-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Trichloroethene	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Trichlorofluoromethane	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Vinyl Acetate	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Vinyl Chloride	ND (0.0088)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Xylene O	ND (0.0044)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Xylene P,M	ND (0.0088)		8260B Low		1	12/04/19 19:30	C9L0060	CL90408
Xylenes (Total)	ND (0.00877)		8260B Low		1	12/04/19 19:30		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*100 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*97 %*		*70-130*
Surrogate: Dibromofluoromethane	*95 %*		*70-130*
Surrogate: Toluene-d8	*101 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 20.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/3/19 13:45

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1221	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1232	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1242	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1248	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1254	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1260	**0.1** (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1262	ND (0.05)		8082A		1	12/04/19 14:39		CL90209
Aroclor 1268	ND (0.05)		8082A		1	12/04/19 14:39		CL90209

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*66 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*62 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*92 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 20.9
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/3/19 10:55

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**261** (38.4)		8100M		1	12/05/19 18:55	C9L0045	CL90311

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*88 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
1,2,4-Trichlorobenzene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
1,2-Dichlorobenzene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
1,3-Dichlorobenzene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
1,4-Dichlorobenzene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,3,4,6-Tetrachlorophenol	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,4,5-Trichlorophenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,4,6-Trichlorophenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,4-Dichlorophenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,4-Dimethylphenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,4-Dinitrophenol	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,4-Dinitrotoluene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2,6-Dinitrotoluene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2-Chloronaphthalene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2-Chlorophenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2-Methylnaphthalene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2-Methylphenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2-Nitroaniline	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
2-Nitrophenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
3,3′-Dichlorobenzidine	ND (0.733)		8270D		1	12/03/19 23:40	C9L0027	CL90310
3+4-Methylphenol	ND (0.733)		8270D		1	12/03/19 23:40	C9L0027	CL90310
3-Nitroaniline	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4,6-Dinitro-2-Methylphenol	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4-Bromophenyl-phenylether	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4-Chloro-3-Methylphenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4-Chloroaniline	ND (0.733)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4-Chloro-phenyl-phenyl ether	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4-Nitroaniline	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
4-Nitrophenol	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Acenaphthene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Acenaphthylene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Acetophenone	ND (0.733)		8270D		1	12/03/19 23:40	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.733)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Anthracene	**0.757** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Azobenzene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzo(a)anthracene	**2.36** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzo(a)pyrene	**2.16** (0.184)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzo(b)fluoranthene	**1.91** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzo(g,h,i)perylene	**1.24** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzo(k)fluoranthene	**1.85** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzoic Acid	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Benzyl Alcohol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
bis(2-Chloroethoxy)methane	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
bis(2-Chloroethyl)ether	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
bis(2-chloroisopropyl)Ether	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
bis(2-Ethylhexyl)phthalate	**0.398** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Butylbenzylphthalate	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Carbazole	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Chrysene	**2.00** (0.184)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Dibenzo(a,h)Anthracene	**0.532** (0.184)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Dibenzofuran	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Diethylphthalate	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Dimethylphthalate	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Di-n-butylphthalate	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Di-n-octylphthalate	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Fluoranthene	**4.65** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Fluorene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Hexachlorobenzene	ND (0.184)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Hexachlorobutadiene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Hexachlorocyclopentadiene	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Hexachloroethane	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Indeno(1,2,3-cd)Pyrene	**1.18** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Isophorone	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Naphthalene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-001
Date Sampled: 11/29/19 13:40
Percent Solids: 93
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
N-Nitrosodimethylamine	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
N-Nitroso-Di-n-Propylamine	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
N-nitrosodiphenylamine	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Pentachlorophenol	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Phenanthrene	**2.60** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Phenol	ND (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Pyrene	**4.17** (0.366)		8270D		1	12/03/19 23:40	C9L0027	CL90310
Pyridine	ND (1.84)		8270D		1	12/03/19 23:40	C9L0027	CL90310

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*66 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*101 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*73 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*74 %*		*30-130*
Surrogate: 2-Fluorophenol	*68 %*		*30-130*
Surrogate: Nitrobenzene-d5	*70 %*		*30-130*
Surrogate: Phenol-d6	*78 %*		*30-130*
Surrogate: p-Terphenyl-d14	*98 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.81)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Arsenic	ND (2.41)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Barium	**12.7** (2.41)		6010C		1	KJK	12/04/19 12:38	2.5	100	CL90338
Beryllium	**0.21** (0.11)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Cadmium	ND (0.48)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Chromium	**38.9** (0.96)		6010C		1	KJK	12/04/19 12:38	2.5	100	CL90338
Copper	**27.1** (2.41)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Lead	**48.4** (4.81)		6010C		1	KJK	12/04/19 12:38	2.5	100	CL90338
Mercury	**0.047** (0.017)		7471B		1	MKS	12/04/19 12:37	1.42	40	CL90340
Nickel	**5.95** (2.41)		6010C		1	KJK	12/04/19 12:38	2.5	100	CL90338
Selenium	ND (4.81)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Silver	ND (0.48)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Thallium	ND (4.81)		6010C		1	BJV	12/04/19 2:20	2.5	100	CL90338
Zinc	**49.8** (2.41)		6010C		1	KJK	12/04/19 12:38	2.5	100	CL90338

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,1,1-Trichloroethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,1,2,2-Tetrachloroethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,1,2-Trichloroethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,1-Dichloroethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,1-Dichloroethene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,1-Dichloropropene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2,3-Trichlorobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2,3-Trichloropropane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2,4-Trichlorobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2,4-Trimethylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2-Dibromo-3-Chloropropane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2-Dibromoethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2-Dichlorobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2-Dichloroethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,2-Dichloropropane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,3,5-Trimethylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,3-Dichlorobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,3-Dichloropropane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,4-Dichlorobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1,4-Dioxane	ND (0.0898)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
1-Chlorohexane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
2,2-Dichloropropane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
2-Butanone	ND (0.0449)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
2-Chlorotoluene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
2-Hexanone	ND (0.0449)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
4-Chlorotoluene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
4-Isopropyltoluene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
4-Methyl-2-Pentanone	ND (0.0449)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Acetone	ND (0.0449)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Benzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Bromobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Bromodichloromethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Bromoform	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Bromomethane	ND (0.0090)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Carbon Disulfide	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Carbon Tetrachloride	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Chlorobenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Chloroethane	ND (0.0090)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Chloroform	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Chloromethane	ND (0.0090)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
cis-1,2-Dichloroethene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
cis-1,3-Dichloropropene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Dibromochloromethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Dibromomethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Dichlorodifluoromethane	ND (0.0090)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Diethyl Ether	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Di-isopropyl ether	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Ethyl tertiary-butyl ether	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Ethylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Hexachlorobutadiene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Isopropylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Methyl tert-Butyl Ether	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Methylene Chloride	ND (0.0224)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Naphthalene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
n-Butylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
n-Propylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
sec-Butylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Styrene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
tert-Butylbenzene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Tertiary-amyl methyl ether	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Tetrachloroethene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Tetrahydrofuran	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
trans-1,2-Dichloroethene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
trans-1,3-Dichloropropene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Trichloroethene	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Trichlorofluoromethane	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Vinyl Acetate	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Vinyl Chloride	ND (0.0090)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Xylene O	ND (0.0045)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Xylene P,M	ND (0.0090)		8260B Low		1	12/04/19 19:56	C9L0060	CL90408
Xylenes (Total)	ND (0.00898)		8260B Low		1	12/04/19 19:56		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*98 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*96 %*		*70-130*
Surrogate: Dibromofluoromethane	*101 %*		*70-130*
Surrogate: Toluene-d8	*101 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/3/19 13:45

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1221	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1232	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1242	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1248	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1254	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1260	**0.08** (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1262	ND (0.06)		8082A		1	12/04/19 14:58		CL90209
Aroclor 1268	ND (0.06)		8082A		1	12/04/19 14:58		CL90209

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*68 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*56 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*64 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*76 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 20
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/3/19 10:55

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**267** (45.1)		8100M		1	12/05/19 19:28	C9L0045	CL90311

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*91 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
1,2,4-Trichlorobenzene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
1,2-Dichlorobenzene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
1,3-Dichlorobenzene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
1,4-Dichlorobenzene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,3,4,6-Tetrachlorophenol	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,4,5-Trichlorophenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,4,6-Trichlorophenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,4-Dichlorophenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,4-Dimethylphenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,4-Dinitrophenol	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,4-Dinitrotoluene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2,6-Dinitrotoluene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2-Chloronaphthalene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2-Chlorophenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2-Methylnaphthalene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2-Methylphenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2-Nitroaniline	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
2-Nitrophenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
3,3′-Dichlorobenzidine	ND (0.777)		8270D		1	12/04/19 0:09	C9L0027	CL90310
3+4-Methylphenol	ND (0.777)		8270D		1	12/04/19 0:09	C9L0027	CL90310
3-Nitroaniline	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4,6-Dinitro-2-Methylphenol	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4-Bromophenyl-phenylether	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4-Chloro-3-Methylphenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4-Chloroaniline	ND (0.777)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4-Chloro-phenyl-phenyl ether	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4-Nitroaniline	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
4-Nitrophenol	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Acenaphthene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Acenaphthylene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Acetophenone	ND (0.777)		8270D		1	12/04/19 0:09	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.777)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Anthracene	**1.06** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Azobenzene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzo(a)anthracene	**2.66** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzo(a)pyrene	**2.23** (0.194)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzo(b)fluoranthene	**2.08** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzo(g,h,i)perylene	**1.17** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzo(k)fluoranthene	**1.83** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzoic Acid	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Benzyl Alcohol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
bis(2-Chloroethoxy)methane	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
bis(2-Chloroethyl)ether	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
bis(2-chloroisopropyl)Ether	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
bis(2-Ethylhexyl)phthalate	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Butylbenzylphthalate	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Carbazole	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Chrysene	**2.21** (0.194)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Dibenzo(a,h)Anthracene	**0.547** (0.194)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Dibenzofuran	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Diethylphthalate	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Dimethylphthalate	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Di-n-butylphthalate	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Di-n-octylphthalate	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Fluoranthene	**5.00** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Fluorene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Hexachlorobenzene	ND (0.194)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Hexachlorobutadiene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Hexachlorocyclopentadiene	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Hexachloroethane	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Indeno(1,2,3-cd)Pyrene	**1.15** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Isophorone	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Naphthalene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191129-002
Date Sampled: 11/29/19 16:35
Percent Solids: 83
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0013
ESS Laboratory Sample ID: 19L0013-02
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
N-Nitrosodimethylamine	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
N-Nitroso-Di-n-Propylamine	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
N-nitrosodiphenylamine	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Pentachlorophenol	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Phenanthrene	**2.91** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Phenol	ND (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Pyrene	**4.63** (0.388)		8270D		1	12/04/19 0:09	C9L0027	CL90310
Pyridine	ND (1.94)		8270D		1	12/04/19 0:09	C9L0027	CL90310

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*62 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*93 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*67 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*66 %*		*30-130*
Surrogate: 2-Fluorophenol	*64 %*		*30-130*
Surrogate: Nitrobenzene-d5	*61 %*		*30-130*
Surrogate: Phenol-d6	*71 %*		*30-130*
Surrogate: p-Terphenyl-d14	*94 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90338 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	38.1	15.6	mg/kg wet	51.30		74	40-160			
Arsenic	182	7.81	mg/kg wet	202.0		90	80-120			
Barium	316	7.81	mg/kg wet	343.0		92	80-120			
Beryllium	46.6	0.34	mg/kg wet	52.10		90	80-120			
Cadmium	121	1.56	mg/kg wet	149.0		81	80-120			
Chromium	164	3.12	mg/kg wet	182.0		90	80-120			
Copper	217	7.81	mg/kg wet	225.0		96	80-120			
Lead	302	15.6	mg/kg wet	333.0		91	74-127			
Nickel	152	7.81	mg/kg wet	167.0		91	80-120			
Selenium	155	15.6	mg/kg wet	169.0		92	80-120			
Silver	43.2	1.56	mg/kg wet	48.90		88	80-120			
Thallium	63.4	15.6	mg/kg wet	82.30		77	62-139			
Zinc	400	7.81	mg/kg wet	459.0		87	80-120			
LCS Dup										
Antimony	32.1	11.6	mg/kg wet	51.30		63	40-160	17	20	
Arsenic	168	5.81	mg/kg wet	202.0		83	80-120	8	20	
Barium	299	5.81	mg/kg wet	343.0		87	80-120	6	20	
Beryllium	43.3	0.26	mg/kg wet	52.10		83	80-120	8	20	
Cadmium	112	1.16	mg/kg wet	149.0		75	80-120	8	20	B-
Chromium	150	2.33	mg/kg wet	182.0		83	80-120	9	20	
Copper	188	5.81	mg/kg wet	225.0		84	80-120	14	20	
Lead	262	11.6	mg/kg wet	333.0		79	74-127	14	20	
Nickel	137	5.81	mg/kg wet	167.0		82	80-120	11	20	
Selenium	142	11.6	mg/kg wet	169.0		84	80-120	9	20	
Silver	40.1	1.16	mg/kg wet	48.90		82	80-120	7	20	
Thallium	59.0	11.6	mg/kg wet	82.30		72	62-139	7	20	
Zinc	374	5.81	mg/kg wet	459.0		81	80-120	7	20	
Batch CL90340 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90340 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.65	0.455	mg/kg wet	7.760		99	80-120			
LCS Dup										
Mercury	8.12	0.558	mg/kg wet	7.760		105	80-120	6	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0538*		mg/kg wet	*0.05000*		*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0500*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0482*		mg/kg wet	*0.05000*		*96*	*70-130*			
Surrogate: Toluene-d8	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
1,1,1-Trichloroethane	0.0586	0.0050	mg/kg wet	0.05000		117	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
1,1,2,2-Tetrachloroethane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130			
1,1,2-Trichloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,1-Dichloroethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
1,1-Dichloroethene	0.0598	0.0050	mg/kg wet	0.05000		120	70-130			
1,1-Dichloropropene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130			
1,2,3-Trichlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,2,3-Trichloropropane	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
1,2,4-Trichlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
1,2,4-Trimethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,2-Dibromo-3-Chloropropane	0.0330	0.0050	mg/kg wet	0.05000		66	70-130			B-
1,2-Dibromoethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
1,2-Dichlorobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichloroethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,3,5-Trimethylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
1,3-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,3-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,4-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,4-Dioxane	0.770	0.100	mg/kg wet	1.000		77	70-130			
1-Chlorohexane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
2,2-Dichloropropane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
2-Butanone	0.250	0.0500	mg/kg wet	0.2500		100	70-130			
2-Chlorotoluene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
2-Hexanone	0.197	0.0500	mg/kg wet	0.2500		79	70-130			
4-Chlorotoluene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
4-Isopropyltoluene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
4-Methyl-2-Pentanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130			
Acetone	0.212	0.0500	mg/kg wet	0.2500		85	70-130			
Benzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Bromobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
Bromochloromethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Bromodichloromethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
Bromoform	0.0386	0.0050	mg/kg wet	0.05000		77	70-130			
Bromomethane	0.0490	0.0100	mg/kg wet	0.05000		98	70-130			
Carbon Disulfide	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Carbon Tetrachloride	0.0616	0.0050	mg/kg wet	0.05000		123	70-130			
Chlorobenzene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Chloroethane	0.0500	0.0100	mg/kg wet	0.05000		100	70-130			
Chloroform	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Chloromethane	0.0488	0.0100	mg/kg wet	0.05000		98	70-130			
cis-1,2-Dichloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
cis-1,3-Dichloropropene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Dibromochloromethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Dibromomethane	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Dichlorodifluoromethane	0.0496	0.0100	mg/kg wet	0.05000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Diethyl Ether	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Di-isopropyl ether	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Ethyl tertiary-butyl ether	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Ethylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Hexachlorobutadiene	0.0600	0.0050	mg/kg wet	0.05000		120	70-130			
Isopropylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
Methyl tert-Butyl Ether	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Methylene Chloride	0.0532	0.0250	mg/kg wet	0.05000		106	70-130			
Naphthalene	0.0410	0.0050	mg/kg wet	0.05000		82	70-130			
n-Butylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
n-Propylbenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130			
sec-Butylbenzene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
Styrene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
Tertiary-amyl methyl ether	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
Tetrachloroethene	0.0590	0.0050	mg/kg wet	0.05000		118	70-130			
Tetrahydrofuran	0.0340	0.0050	mg/kg wet	0.05000		68	70-130			B-
Toluene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,2-Dichloroethene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130			
trans-1,3-Dichloropropene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Trichloroethene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
Trichlorofluoromethane	0.0663	0.0050	mg/kg wet	0.05000		133	70-130			B+
Vinyl Acetate	0.0358	0.0050	mg/kg wet	0.05000		72	70-130			
Vinyl Chloride	0.0517	0.0100	mg/kg wet	0.05000		103	70-130			
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0497*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	0.2	25	
1,1,1-Trichloroethane	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130	6	25	
1,1,2-Trichloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
1,1-Dichloroethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	0.8	25	
1,1-Dichloroethene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	3	25	
1,1-Dichloropropene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	2	25	
1,2,3-Trichlorobenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
1,2,3-Trichloropropane	0.0415	0.0050	mg/kg wet	0.05000		83	70-130	6	25	
1,2,4-Trichlorobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
1,2,4-Trimethylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.1	25	
1,2-Dibromo-3-Chloropropane	0.0380	0.0050	mg/kg wet	0.05000		76	70-130	14	25	
1,2-Dibromoethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
1,2-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
1,2-Dichloroethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
1,2-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
1,3,5-Trimethylbenzene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	0.8	25	
1,3-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	0.08	25	
1,3-Dichloropropane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	2	25	
1,4-Dichlorobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
1,4-Dioxane	0.779	0.100	mg/kg wet	1.000		78	70-130	1	20	
1-Chlorohexane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
2,2-Dichloropropane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	2	25	
2-Butanone	0.256	0.0500	mg/kg wet	0.2500		103	70-130	3	25	
2-Chlorotoluene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	1	25	
2-Hexanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130	8	25	
4-Chlorotoluene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
4-Isopropyltoluene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
4-Methyl-2-Pentanone	0.228	0.0500	mg/kg wet	0.2500		91	70-130	7	25	
Acetone	0.233	0.0500	mg/kg wet	0.2500		93	70-130	9	25	
Benzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.6	25	
Bromobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	1	25	
Bromochloromethane	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
Bromodichloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
Bromoform	0.0408	0.0050	mg/kg wet	0.05000		82	70-130	5	25	
Bromomethane	0.0482	0.0100	mg/kg wet	0.05000		96	70-130	1	25	
Carbon Disulfide	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Carbon Tetrachloride	0.0602	0.0050	mg/kg wet	0.05000		120	70-130	2	25	
Chlorobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
Chloroethane	0.0486	0.0100	mg/kg wet	0.05000		97	70-130	3	25	
Chloroform	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.7	25	
Chloromethane	0.0472	0.0100	mg/kg wet	0.05000		94	70-130	3	25	
cis-1,2-Dichloroethene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
cis-1,3-Dichloropropene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	2	25	
Dibromochloromethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
Dibromomethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	4	25	
Dichlorodifluoromethane	0.0476	0.0100	mg/kg wet	0.05000		95	70-130	4	25	
Diethyl Ether	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Di-isopropyl ether	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
Ethyl tertiary-butyl ether	0.0444	0.0050	mg/kg wet	0.05000		89	70-130	2	25	
Ethylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
Hexachlorobutadiene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	2	25	
Isopropylbenzene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	1	25	
Methyl tert-Butyl Ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
Methylene Chloride	0.0540	0.0250	mg/kg wet	0.05000		108	70-130	1	25	
Naphthalene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	6	25	
n-Butylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
n-Propylbenzene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
sec-Butylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Styrene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	0.7	25	
tert-Butylbenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
Tertiary-amyl methyl ether	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	4	25	
Tetrachloroethene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	2	25	
Tetrahydrofuran	0.0373	0.0050	mg/kg wet	0.05000		75	70-130	9	25	
Toluene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.5	25	
trans-1,2-Dichloroethene	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
trans-1,3-Dichloropropene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130	3	25	
Trichloroethene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	1	25	
Trichlorofluoromethane	0.0640	0.0050	mg/kg wet	0.05000		128	70-130	4	25	
Vinyl Acetate	0.0379	0.0050	mg/kg wet	0.05000		76	70-130	6	25	
Vinyl Chloride	0.0499	0.0100	mg/kg wet	0.05000		100	70-130	4	25	
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	0.07	25	
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130	0.1	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0494*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0488*		mg/kg wet	*0.05000*		*98*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL90209 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL90209 - 3540C										
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		101	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		100	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Surrogate: Decachlorobiphenyl	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0251*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0254*		mg/kg wet	*0.02500*		*102*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		104	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	3	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		103	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0267*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0256*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0259*		mg/kg wet	*0.02500*		*104*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL90311 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.77*		mg/kg wet	*5.000*		*95*	*40-140*			
LCS										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL90311 - 3546										
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		90	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		65	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Total Petroleum Hydrocarbons	31.8	37.5	mg/kg wet	35.00		91	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Surrogate: O-Terphenyl	*4.63*		mg/kg wet	*5.000*		*93*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140	2	25	
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		96	40-140	1	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		86	40-140	2	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		94	40-140	2	25	
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		96	40-140	2	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		104	40-140	3	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		66	30-140	2	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		94	40-140	2	25	
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		96	40-140	2	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	2	25	
Total Petroleum Hydrocarbons	32.4	37.5	mg/kg wet	35.00		92	40-140	2	25	
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Surrogate: O-Terphenyl	*4.66*		mg/kg wet	*5.000*		*93*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.167	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.52*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.78*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.40*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: 2-Fluorophenol	*3.88*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.57*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: Phenol-d6	*3.87*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.67*		mg/kg wet	*3.333*		*80*	*30-130*			
LCS										
1,1-Biphenyl	2.29	0.333	mg/kg wet	3.333		69	40-140			
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,2-Dichlorobenzene	2.05	0.333	mg/kg wet	3.333		62	40-140			
1,3-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
1,4-Dichlorobenzene	2.01	0.333	mg/kg wet	3.333		60	40-140			
2,3,4,6-Tetrachlorophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.99	0.333	mg/kg wet	3.333		90	30-130			
2,4,6-Trichlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dimethylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dinitrophenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
2,4-Dinitrotoluene	3.04	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140			
2-Chloronaphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
2-Chlorophenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
2-Methylnaphthalene	2.21	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.32	0.333	mg/kg wet	3.333		70	30-130			
2-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140			
2-Nitrophenol	2.30	0.333	mg/kg wet	3.333		69	30-130			
3,3´-Dichlorobenzidine	2.37	0.333	mg/kg wet	3.333		71	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
3+4-Methylphenol	4.31	0.667	mg/kg wet	6.667		65	30-130			
3-Nitroaniline	2.74	0.333	mg/kg wet	3.333		82	40-140			
4,6-Dinitro-2-Methylphenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
4-Bromophenyl-phenylether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Chloro-3-Methylphenol	2.80	0.333	mg/kg wet	3.333		84	30-130			
4-Chloroaniline	1.75	0.667	mg/kg wet	3.333		52	40-140			
4-Chloro-phenyl-phenyl ether	2.52	0.333	mg/kg wet	3.333		76	40-140			
4-Nitroaniline	2.57	0.333	mg/kg wet	3.333		77	40-140			
4-Nitrophenol	2.67	1.67	mg/kg wet	3.333		80	30-130			
Acenaphthene	2.44	0.333	mg/kg wet	3.333		73	40-140			
Acenaphthylene	2.53	0.333	mg/kg wet	3.333		76	40-140			
Acetophenone	2.01	0.667	mg/kg wet	3.333		60	40-140			
Aniline	1.77	0.667	mg/kg wet	3.333		53	40-140			
Anthracene	2.70	0.333	mg/kg wet	3.333		81	40-140			
Azobenzene	2.78	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)anthracene	3.03	0.333	mg/kg wet	3.333		91	40-140			
Benzo(a)pyrene	2.83	0.167	mg/kg wet	3.333		85	40-140			
Benzo(b)fluoranthene	3.01	0.333	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Benzoic Acid	2.94	1.67	mg/kg wet	3.333		88	40-140			
Benzyl Alcohol	1.85	0.333	mg/kg wet	3.333		56	40-140			
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethyl)ether	2.12	0.167	mg/kg wet	3.333		64	40-140			
bis(2-chloroisopropyl)Ether	2.07	0.333	mg/kg wet	3.333		62	40-140			
bis(2-Ethylhexyl)phthalate	2.65	0.333	mg/kg wet	3.333		80	40-140			
Butylbenzylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Carbazole	2.86	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	2.99	0.167	mg/kg wet	3.333		90	40-140			
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140			
Diethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Di-n-butylphthalate	2.93	0.333	mg/kg wet	3.333		88	40-140			
Di-n-octylphthalate	2.69	0.333	mg/kg wet	3.333		81	40-140			
Fluoranthene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Fluorene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Hexachlorobutadiene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Hexachlorocyclopentadiene	1.96	1.67	mg/kg wet	3.333		59	40-140			
Hexachloroethane	2.04	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Isophorone	2.10	0.333	mg/kg wet	3.333		63	40-140			
Naphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140			
Nitrobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
N-Nitrosodimethylamine	2.03	0.333	mg/kg wet	3.333		61	40-140			
N-Nitroso-Di-n-Propylamine	2.27	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.84	0.333	mg/kg wet	3.333		85	40-140			
Pentachlorophenol	3.05	1.67	mg/kg wet	3.333		92	30-130			
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
Pyrene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Pyridine	2.12	1.67	mg/kg wet	3.333		64	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.90*		mg/kg wet	*5.000*		*98*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.49*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: 2-Fluorophenol	*3.50*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.34*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: Phenol-d6	*3.56*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.10*		mg/kg wet	*3.333*		*93*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.26	0.333	mg/kg wet	3.333		68	40-140	1	30	
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140	0.03	30	
1,2-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
1,3-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
1,4-Dichlorobenzene	2.07	0.333	mg/kg wet	3.333		62	40-140	3	30	
2,3,4,6-Tetrachlorophenol	2.83	1.67	mg/kg wet	3.333		85	30-130	0.2	30	
2,4,5-Trichlorophenol	2.99	0.333	mg/kg wet	3.333		90	30-130	0.07	30	
2,4,6-Trichlorophenol	2.81	0.333	mg/kg wet	3.333		84	30-130	1	30	
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130	0.1	30	
2,4-Dimethylphenol	2.46	0.333	mg/kg wet	3.333		74	30-130	0.7	30	
2,4-Dinitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	3	30	
2,4-Dinitrotoluene	3.08	0.333	mg/kg wet	3.333		92	40-140	1	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	0.2	30	
2-Chloronaphthalene	2.21	0.333	mg/kg wet	3.333		66	40-140	3	30	
2-Chlorophenol	2.20	0.333	mg/kg wet	3.333		66	30-130	0.5	30	
2-Methylnaphthalene	2.17	0.333	mg/kg wet	3.333		65	40-140	2	30	
2-Methylphenol	2.35	0.333	mg/kg wet	3.333		71	30-130	1	30	
2-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140	0.2	30	
2-Nitrophenol	2.32	0.333	mg/kg wet	3.333		70	30-130	0.8	30	
3,3´-Dichlorobenzidine	2.24	0.333	mg/kg wet	3.333		67	40-140	5	30	
3+4-Methylphenol	4.35	0.667	mg/kg wet	6.667		65	30-130	0.9	30	
3-Nitroaniline	2.68	0.333	mg/kg wet	3.333		80	40-140	2	30	
4,6-Dinitro-2-Methylphenol	2.95	1.67	mg/kg wet	3.333		89	30-130	0.2	30	
4-Bromophenyl-phenylether	2.78	0.333	mg/kg wet	3.333		83	40-140	0.7	30	
4-Chloro-3-Methylphenol	2.80	0.333	mg/kg wet	3.333		84	30-130	0.2	30	
4-Chloroaniline	1.70	0.667	mg/kg wet	3.333		51	40-140	2	30	
4-Chloro-phenyl-phenyl ether	2.54	0.333	mg/kg wet	3.333		76	40-140	0.7	30	
4-Nitroaniline	2.51	0.333	mg/kg wet	3.333		75	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
4-Nitrophenol	2.71	1.67	mg/kg wet	3.333		81	30-130	1	30	
Acenaphthene	2.42	0.333	mg/kg wet	3.333		73	40-140	0.9	30	
Acenaphthylene	2.50	0.333	mg/kg wet	3.333		75	40-140	2	30	
Acetophenone	2.00	0.667	mg/kg wet	3.333		60	40-140	0.4	30	
Aniline	1.78	0.667	mg/kg wet	3.333		53	40-140	0.6	30	
Anthracene	2.62	0.333	mg/kg wet	3.333		79	40-140	3	30	
Azobenzene	2.74	0.333	mg/kg wet	3.333		82	40-140	2	30	
Benzo(a)anthracene	2.98	0.333	mg/kg wet	3.333		89	40-140	2	30	
Benzo(a)pyrene	2.84	0.167	mg/kg wet	3.333		85	40-140	0.2	30	
Benzo(b)fluoranthene	3.06	0.333	mg/kg wet	3.333		92	40-140	2	30	
Benzo(g,h,i)perylene	3.01	0.333	mg/kg wet	3.333		90	40-140	1	30	
Benzo(k)fluoranthene	2.57	0.333	mg/kg wet	3.333		77	40-140	1	30	
Benzoic Acid	3.02	1.67	mg/kg wet	3.333		91	40-140	3	30	
Benzyl Alcohol	1.82	0.333	mg/kg wet	3.333		55	40-140	2	30	
bis(2-Chloroethoxy)methane	2.15	0.333	mg/kg wet	3.333		65	40-140	0.3	30	
bis(2-Chloroethyl)ether	2.13	0.167	mg/kg wet	3.333		64	40-140	0.6	30	
bis(2-chloroisopropyl)Ether	2.07	0.333	mg/kg wet	3.333		62	40-140	0.3	30	
bis(2-Ethylhexyl)phthalate	2.74	0.333	mg/kg wet	3.333		82	40-140	3	30	
Butylbenzylphthalate	2.67	0.333	mg/kg wet	3.333		80	40-140	2	30	
Carbazole	2.80	0.333	mg/kg wet	3.333		84	40-140	2	30	
Chrysene	2.72	0.167	mg/kg wet	3.333		82	40-140	2	30	
Dibenzo(a,h)Anthracene	3.00	0.167	mg/kg wet	3.333		90	40-140	0.4	30	
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140	0.2	30	
Diethylphthalate	2.86	0.333	mg/kg wet	3.333		86	40-140	0.7	30	
Dimethylphthalate	2.73	0.333	mg/kg wet	3.333		82	40-140	1	30	
Di-n-butylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	0.4	30	
Di-n-octylphthalate	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140	2	30	
Fluorene	2.62	0.333	mg/kg wet	3.333		78	40-140	0.2	30	
Hexachlorobenzene	2.72	0.167	mg/kg wet	3.333		82	40-140	2	30	
Hexachlorobutadiene	2.11	0.333	mg/kg wet	3.333		63	40-140	0.6	30	
Hexachlorocyclopentadiene	1.95	1.67	mg/kg wet	3.333		59	40-140	0.5	30	
Hexachloroethane	2.11	0.333	mg/kg wet	3.333		63	40-140	3	30	
Indeno(1,2,3-cd)Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140	0.08	30	
Isophorone	2.12	0.333	mg/kg wet	3.333		64	40-140	0.7	30	
Naphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	0.8	30	
Nitrobenzene	2.16	0.333	mg/kg wet	3.333		65	40-140	1	30	
N-Nitrosodimethylamine	2.10	0.333	mg/kg wet	3.333		63	40-140	4	30	
N-Nitroso-Di-n-Propylamine	2.26	0.333	mg/kg wet	3.333		68	40-140	0.5	30	
N-nitrosodiphenylamine	2.81	0.333	mg/kg wet	3.333		84	40-140	1	30	
Pentachlorophenol	3.07	1.67	mg/kg wet	3.333		92	30-130	0.6	30	
Phenanthrene	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	
Phenol	2.21	0.333	mg/kg wet	3.333		66	30-130	0.7	30	
Pyrene	2.84	0.333	mg/kg wet	3.333		85	40-140	2	30	
Pyridine	2.22	1.67	mg/kg wet	3.333		67	40-140	5	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.61*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.36*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.35*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2-Fluorophenol	*3.42*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.28*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: Phenol-d6	*3.44*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.98*		mg/kg wet	*3.333*		*89*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0013

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0013

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0013
Date Received: 12/2/2019
Project Due Date: 12/9/2019
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: 2.4 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: 11/29/19 Time: 1800 By: CleA

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	417375	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	417378	Yes	NA	Yes	VOA Vial - Other	Other	
01	417379	Yes	NA	Yes	VOA Vial - Other	Other	
01	417382	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	417383	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	417374	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
02	417376	Yes	NA	Yes	VOA Vial - Other	Other	
02	417377	Yes	NA	Yes	VOA Vial - Other	Other	
02	417380	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
02	417381	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials MW

Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/2/19 1829

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Sage Environmental, Inc. - ML/ML

ESS Project ID: 19L0013

Date Received: 12/2/2019

Reviewed By:

Date & Time: 12/2/19 1841

Delivered By: 12/2/19 1841

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 # 19L0013

Turn Time: 5-Day Rush:
Regulatory State: Rhode Island
Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial
Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	11-29-19	13:40	Grab/Comp	Soil	20191129-001	X	X	X	X	X
2		16:35	comp	soil	20191129-002					

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other

	VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
Container Type	GV	GV	AG	AG	AG
Preservation Code	6/10	1	1	1	1
Number of Containers	3*	1*	1*	1*	1*

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*

Laboratory Use Only
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 2.4 °C

Sampled by: Brent Beauchene/SAGE

Comments: Please specify "Other" preservative and containers types in this space
*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 11 / 29 /2019 at _____ (Time) 18:00

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
18:00 11-29-19	12pm		
12/2 12:00	12/2 17:58		12/2/19 0738

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0015

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 4:32 pm, Dec 09, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

SAMPLE RECEIPT

The following samples were received on December 02, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by SAGE Environmental on December 1, 2019 at 1650.

Lab Number	Sample Name	Matrix	Analysis
19L0015-01	20191201-001	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0015

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CL90408-BS1 **Blank Spike recovery is above upper control limit (B+).**
Trichlorofluoromethane (133% @ 70-130%)

CL90408-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (66% @ 70-130%), Tetrahydrofuran (68% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C9L0027-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (101% @ 80-120%), Benzoic Acid (106% @ 80-120%), Pentachlorophenol (105% @ 80-120%)

Total Metals

CL90338-BSD1 **Blank Spike recovery is below lower control limit (B-).**
Cadmium (75% @ 80-120%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (3.80)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Arsenic	ND (1.90)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Barium	**10.5** (1.90)		6010C		1	KJK	12/04/19 12:58	2.89	100	CL90338
Beryllium	**0.21** (0.08)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Cadmium	ND (0.38)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Chromium	**11.5** (0.76)		6010C		1	KJK	12/04/19 12:58	2.89	100	CL90338
Copper	**23.2** (1.90)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Lead	**55.6** (3.80)		6010C		1	KJK	12/04/19 12:58	2.89	100	CL90338
Mercury	**0.064** (0.029)		7471B		1	MKS	12/04/19 12:45	0.74	40	CL90340
Nickel	**4.80** (1.90)		6010C		1	KJK	12/04/19 12:58	2.89	100	CL90338
Selenium	ND (3.80)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Silver	**0.38** (0.38)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Thallium	ND (3.80)		6010C		1	BJV	12/04/19 2:28	2.89	100	CL90338
Zinc	**43.1** (1.90)		6010C		1	KJK	12/04/19 12:58	2.89	100	CL90338

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,1,1-Trichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,1,2,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,1,2-Trichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,1-Dichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,1-Dichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,1-Dichloropropene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2,3-Trichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2,3-Trichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2,4-Trichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2,4-Trimethylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2-Dibromo-3-Chloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2-Dibromoethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2-Dichloroethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,2-Dichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,3,5-Trimethylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,3-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,3-Dichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,4-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1,4-Dioxane	ND (0.0820)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
1-Chlorohexane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
2,2-Dichloropropane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
2-Butanone	ND (0.0410)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
2-Chlorotoluene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
2-Hexanone	ND (0.0410)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
4-Chlorotoluene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
4-Isopropyltoluene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
4-Methyl-2-Pentanone	ND (0.0410)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Acetone	ND (0.0410)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Benzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Bromobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Bromodichloromethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Bromoform	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Bromomethane	ND (0.0082)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Carbon Disulfide	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Carbon Tetrachloride	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Chlorobenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Chloroethane	ND (0.0082)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Chloroform	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Chloromethane	ND (0.0082)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
cis-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
cis-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Dibromochloromethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Dibromomethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Dichlorodifluoromethane	ND (0.0082)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Diethyl Ether	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Di-isopropyl ether	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Ethyl tertiary-butyl ether	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Ethylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Hexachlorobutadiene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Isopropylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Methyl tert-Butyl Ether	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Methylene Chloride	ND (0.0205)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Naphthalene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
n-Butylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
n-Propylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
sec-Butylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Styrene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
tert-Butylbenzene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Tertiary-amyl methyl ether	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Tetrachloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Tetrahydrofuran	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 6.7
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
trans-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
trans-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Trichloroethene	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Trichlorofluoromethane	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Vinyl Acetate	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Vinyl Chloride	ND (0.0082)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Xylene O	ND (0.0041)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Xylene P,M	ND (0.0082)		8260B Low		1	12/04/19 20:48	C9L0060	CL90408
Xylenes (Total)	ND (0.00820)		8260B Low		1	12/04/19 20:48		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*101 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*96 %*		*70-130*
Surrogate: Dibromofluoromethane	*97 %*		*70-130*
Surrogate: Toluene-d8	*102 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 20.5
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/3/19 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1221	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1232	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1242	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1248	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1254	**0.1** (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1260 [2C]	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1262	ND (0.05)		8082A		1	12/06/19 15:52		CL90628
Aroclor 1268	ND (0.05)		8082A		1	12/06/19 15:52		CL90628

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*65 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*63 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*93 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*84 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 20.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/3/19 10:55

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**669** (80.4)		8100M		2	12/05/19 20:32	C9L0045	CL90311

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*98 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
1,2,4-Trichlorobenzene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
1,2-Dichlorobenzene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
1,3-Dichlorobenzene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
1,4-Dichlorobenzene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,3,4,6-Tetrachlorophenol	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,4,5-Trichlorophenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,4,6-Trichlorophenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,4-Dichlorophenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,4-Dimethylphenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,4-Dinitrophenol	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,4-Dinitrotoluene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2,6-Dinitrotoluene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2-Chloronaphthalene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2-Chlorophenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2-Methylnaphthalene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2-Methylphenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2-Nitroaniline	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
2-Nitrophenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
3,3′-Dichlorobenzidine	ND (0.737)		8270D		1	12/04/19 1:07	C9L0027	CL90310
3+4-Methylphenol	ND (0.737)		8270D		1	12/04/19 1:07	C9L0027	CL90310
3-Nitroaniline	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4,6-Dinitro-2-Methylphenol	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4-Bromophenyl-phenylether	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4-Chloro-3-Methylphenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4-Chloroaniline	ND (0.737)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4-Chloro-phenyl-phenyl ether	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4-Nitroaniline	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
4-Nitrophenol	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Acenaphthene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Acenaphthylene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Acetophenone	ND (0.737)		8270D		1	12/04/19 1:07	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.737)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Anthracene	**1.03** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Azobenzene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzo(a)anthracene	**2.36** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzo(a)pyrene	**1.90** (0.185)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzo(b)fluoranthene	**1.70** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzo(g,h,i)perylene	**0.982** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzo(k)fluoranthene	**1.67** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzoic Acid	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Benzyl Alcohol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
bis(2-Chloroethoxy)methane	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
bis(2-Chloroethyl)ether	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
bis(2-chloroisopropyl)Ether	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
bis(2-Ethylhexyl)phthalate	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Butylbenzylphthalate	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Carbazole	**0.531** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Chrysene	**1.99** (0.185)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Dibenzo(a,h)Anthracene	**0.473** (0.185)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Dibenzofuran	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Diethylphthalate	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Dimethylphthalate	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Di-n-butylphthalate	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Di-n-octylphthalate	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Fluoranthene	**4.56** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Fluorene	**0.540** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Hexachlorobenzene	ND (0.185)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Hexachlorobutadiene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Hexachlorocyclopentadiene	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Hexachloroethane	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Indeno(1,2,3-cd)Pyrene	**0.951** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Isophorone	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Naphthalene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191201-001
Date Sampled: 12/01/19 16:00
Percent Solids: 91
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0015
ESS Laboratory Sample ID: 19L0015-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/3/19 10:30

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
N-Nitrosodimethylamine	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
N-Nitroso-Di-n-Propylamine	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
N-nitrosodiphenylamine	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Pentachlorophenol	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Phenanthrene	**3.54** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Phenol	ND (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Pyrene	**4.22** (0.368)		8270D		1	12/04/19 1:07	C9L0027	CL90310
Pyridine	ND (1.85)		8270D		1	12/04/19 1:07	C9L0027	CL90310

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*61 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*95 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*66 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*64 %*		*30-130*
Surrogate: 2-Fluorophenol	*63 %*		*30-130*
Surrogate: Nitrobenzene-d5	*60 %*		*30-130*
Surrogate: Phenol-d6	*69 %*		*30-130*
Surrogate: p-Terphenyl-d14	*95 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL90338 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	38.1	15.6	mg/kg wet	51.30		74	40-160			
Arsenic	182	7.81	mg/kg wet	202.0		90	80-120			
Barium	316	7.81	mg/kg wet	343.0		92	80-120			
Beryllium	46.6	0.34	mg/kg wet	52.10		90	80-120			
Cadmium	121	1.56	mg/kg wet	149.0		81	80-120			
Chromium	164	3.12	mg/kg wet	182.0		90	80-120			
Copper	217	7.81	mg/kg wet	225.0		96	80-120			
Lead	302	15.6	mg/kg wet	333.0		91	74-127			
Nickel	152	7.81	mg/kg wet	167.0		91	80-120			
Selenium	155	15.6	mg/kg wet	169.0		92	80-120			
Silver	43.2	1.56	mg/kg wet	48.90		88	80-120			
Thallium	63.4	15.6	mg/kg wet	82.30		77	62-139			
Zinc	400	7.81	mg/kg wet	459.0		87	80-120			
LCS Dup										
Antimony	32.1	11.6	mg/kg wet	51.30		63	40-160	17	20	
Arsenic	168	5.81	mg/kg wet	202.0		83	80-120	8	20	
Barium	299	5.81	mg/kg wet	343.0		87	80-120	6	20	
Beryllium	43.3	0.26	mg/kg wet	52.10		83	80-120	8	20	
Cadmium	112	1.16	mg/kg wet	149.0		75	80-120	8	20	B-
Chromium	150	2.33	mg/kg wet	182.0		83	80-120	9	20	
Copper	188	5.81	mg/kg wet	225.0		84	80-120	14	20	
Lead	262	11.6	mg/kg wet	333.0		79	74-127	14	20	
Nickel	137	5.81	mg/kg wet	167.0		82	80-120	11	20	
Selenium	142	11.6	mg/kg wet	169.0		84	80-120	9	20	
Silver	40.1	1.16	mg/kg wet	48.90		82	80-120	7	20	
Thallium	59.0	11.6	mg/kg wet	82.30		72	62-139	7	20	
Zinc	374	5.81	mg/kg wet	459.0		81	80-120	7	20	
Batch CL90340 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90340 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.65	0.455	mg/kg wet	7.760		99	80-120			
LCS Dup										
Mercury	8.12	0.558	mg/kg wet	7.760		105	80-120	6	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0538*		mg/kg wet	*0.05000*		*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0500*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0482*		mg/kg wet	*0.05000*		*96*	*70-130*			
Surrogate: Toluene-d8	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
1,1,1-Trichloroethane	0.0586	0.0050	mg/kg wet	0.05000		117	70-130			

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Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
1,1,2,2-Tetrachloroethane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130			
1,1,2-Trichloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,1-Dichloroethane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
1,1-Dichloroethene	0.0598	0.0050	mg/kg wet	0.05000		120	70-130			
1,1-Dichloropropene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130			
1,2,3-Trichlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,2,3-Trichloropropane	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
1,2,4-Trichlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
1,2,4-Trimethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,2-Dibromo-3-Chloropropane	0.0330	0.0050	mg/kg wet	0.05000		66	70-130			B-
1,2-Dibromoethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
1,2-Dichlorobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichloroethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,3,5-Trimethylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
1,3-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,3-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,4-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,4-Dioxane	0.770	0.100	mg/kg wet	1.000		77	70-130			
1-Chlorohexane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
2,2-Dichloropropane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
2-Butanone	0.250	0.0500	mg/kg wet	0.2500		100	70-130			
2-Chlorotoluene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
2-Hexanone	0.197	0.0500	mg/kg wet	0.2500		79	70-130			
4-Chlorotoluene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
4-Isopropyltoluene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
4-Methyl-2-Pentanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130			
Acetone	0.212	0.0500	mg/kg wet	0.2500		85	70-130			
Benzene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Bromobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
Bromochloromethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Bromodichloromethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
Bromoform	0.0386	0.0050	mg/kg wet	0.05000		77	70-130			
Bromomethane	0.0490	0.0100	mg/kg wet	0.05000		98	70-130			
Carbon Disulfide	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Carbon Tetrachloride	0.0616	0.0050	mg/kg wet	0.05000		123	70-130			
Chlorobenzene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Chloroethane	0.0500	0.0100	mg/kg wet	0.05000		100	70-130			
Chloroform	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Chloromethane	0.0488	0.0100	mg/kg wet	0.05000		98	70-130			
cis-1,2-Dichloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
cis-1,3-Dichloropropene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Dibromochloromethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Dibromomethane	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Dichlorodifluoromethane	0.0496	0.0100	mg/kg wet	0.05000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Diethyl Ether	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Di-isopropyl ether	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Ethyl tertiary-butyl ether	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Ethylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Hexachlorobutadiene	0.0600	0.0050	mg/kg wet	0.05000		120	70-130			
Isopropylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
Methyl tert-Butyl Ether	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Methylene Chloride	0.0532	0.0250	mg/kg wet	0.05000		106	70-130			
Naphthalene	0.0410	0.0050	mg/kg wet	0.05000		82	70-130			
n-Butylbenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
n-Propylbenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130			
sec-Butylbenzene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
Styrene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130			
Tertiary-amyl methyl ether	0.0422	0.0050	mg/kg wet	0.05000		84	70-130			
Tetrachloroethene	0.0590	0.0050	mg/kg wet	0.05000		118	70-130			
Tetrahydrofuran	0.0340	0.0050	mg/kg wet	0.05000		68	70-130			B-
Toluene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,2-Dichloroethene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130			
trans-1,3-Dichloropropene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Trichloroethene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
Trichlorofluoromethane	0.0663	0.0050	mg/kg wet	0.05000		133	70-130			B+
Vinyl Acetate	0.0358	0.0050	mg/kg wet	0.05000		72	70-130			
Vinyl Chloride	0.0517	0.0100	mg/kg wet	0.05000		103	70-130			
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0497*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	0.2	25	
1,1,1-Trichloroethane	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130	6	25	
1,1,2-Trichloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
1,1-Dichloroethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	0.8	25	
1,1-Dichloroethene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	3	25	
1,1-Dichloropropene	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	2	25	
1,2,3-Trichlorobenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
1,2,3-Trichloropropane	0.0415	0.0050	mg/kg wet	0.05000		83	70-130	6	25	
1,2,4-Trichlorobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
1,2,4-Trimethylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.1	25	
1,2-Dibromo-3-Chloropropane	0.0380	0.0050	mg/kg wet	0.05000		76	70-130	14	25	
1,2-Dibromoethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
1,2-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
1,2-Dichloroethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
1,2-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
1,3,5-Trimethylbenzene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	0.8	25	
1,3-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	0.08	25	
1,3-Dichloropropane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	2	25	
1,4-Dichlorobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
1,4-Dioxane	0.779	0.100	mg/kg wet	1.000		78	70-130	1	20	
1-Chlorohexane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
2,2-Dichloropropane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	2	25	
2-Butanone	0.256	0.0500	mg/kg wet	0.2500		103	70-130	3	25	
2-Chlorotoluene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	1	25	
2-Hexanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130	8	25	
4-Chlorotoluene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
4-Isopropyltoluene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
4-Methyl-2-Pentanone	0.228	0.0500	mg/kg wet	0.2500		91	70-130	7	25	
Acetone	0.233	0.0500	mg/kg wet	0.2500		93	70-130	9	25	
Benzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.6	25	
Bromobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	1	25	
Bromochloromethane	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
Bromodichloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
Bromoform	0.0408	0.0050	mg/kg wet	0.05000		82	70-130	5	25	
Bromomethane	0.0482	0.0100	mg/kg wet	0.05000		96	70-130	1	25	
Carbon Disulfide	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Carbon Tetrachloride	0.0602	0.0050	mg/kg wet	0.05000		120	70-130	2	25	
Chlorobenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
Chloroethane	0.0486	0.0100	mg/kg wet	0.05000		97	70-130	3	25	
Chloroform	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.7	25	
Chloromethane	0.0472	0.0100	mg/kg wet	0.05000		94	70-130	3	25	
cis-1,2-Dichloroethene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
cis-1,3-Dichloropropene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	2	25	
Dibromochloromethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
Dibromomethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	4	25	
Dichlorodifluoromethane	0.0476	0.0100	mg/kg wet	0.05000		95	70-130	4	25	
Diethyl Ether	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Di-isopropyl ether	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
Ethyl tertiary-butyl ether	0.0444	0.0050	mg/kg wet	0.05000		89	70-130	2	25	
Ethylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
Hexachlorobutadiene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	2	25	
Isopropylbenzene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	1	25	
Methyl tert-Butyl Ether	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
Methylene Chloride	0.0540	0.0250	mg/kg wet	0.05000		108	70-130	1	25	
Naphthalene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	6	25	
n-Butylbenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
n-Propylbenzene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
sec-Butylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL90408 - 5035										
Styrene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	0.7	25	
tert-Butylbenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
Tertiary-amyl methyl ether	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	4	25	
Tetrachloroethene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	2	25	
Tetrahydrofuran	0.0373	0.0050	mg/kg wet	0.05000		75	70-130	9	25	
Toluene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.5	25	
trans-1,2-Dichloroethene	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
trans-1,3-Dichloropropene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130	3	25	
Trichloroethene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	1	25	
Trichlorofluoromethane	0.0640	0.0050	mg/kg wet	0.05000		128	70-130	4	25	
Vinyl Acetate	0.0379	0.0050	mg/kg wet	0.05000		76	70-130	6	25	
Vinyl Chloride	0.0499	0.0100	mg/kg wet	0.05000		100	70-130	4	25	
Xylene O	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	0.07	25	
Xylene P,M	0.110	0.0100	mg/kg wet	0.1000		110	70-130	0.1	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0494*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0488*		mg/kg wet	*0.05000*		*98*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL90628 - 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	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0215*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL90628 - 3540C										
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		99	40-140			
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		93	40-140			
Surrogate: Decachlorobiphenyl	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg wet	*0.02500*		*88*	*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		99	40-140	0.1	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		98	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0233*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0213*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL90311 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.77*		mg/kg wet	*5.000*		*95*	*40-140*			
LCS										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Dodecane (C12)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140			

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Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL90311 - 3546										
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		90	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		65	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Total Petroleum Hydrocarbons	31.8	37.5	mg/kg wet	35.00		91	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Surrogate: O-Terphenyl	*4.63*		mg/kg wet	*5.000*		*93*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140	2	25	
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		96	40-140	1	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		86	40-140	2	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		94	40-140	2	25	
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		96	40-140	2	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		104	40-140	3	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		66	30-140	2	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		94	40-140	2	25	
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		96	40-140	2	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	2	25	
Total Petroleum Hydrocarbons	32.4	37.5	mg/kg wet	35.00		92	40-140	2	25	
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Surrogate: O-Terphenyl	*4.66*		mg/kg wet	*5.000*		*93*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.167	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.52*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.78*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.40*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: 2-Fluorophenol	*3.88*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.57*		mg/kg wet	*3.333*		*77*	*30-130*			
Surrogate: Phenol-d6	*3.87*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.67*		mg/kg wet	*3.333*		*80*	*30-130*			
LCS										
1,1-Biphenyl	2.29	0.333	mg/kg wet	3.333		69	40-140			
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,2-Dichlorobenzene	2.05	0.333	mg/kg wet	3.333		62	40-140			
1,3-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
1,4-Dichlorobenzene	2.01	0.333	mg/kg wet	3.333		60	40-140			
2,3,4,6-Tetrachlorophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.99	0.333	mg/kg wet	3.333		90	30-130			
2,4,6-Trichlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dimethylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dinitrophenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
2,4-Dinitrotoluene	3.04	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140			
2-Chloronaphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
2-Chlorophenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
2-Methylnaphthalene	2.21	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.32	0.333	mg/kg wet	3.333		70	30-130			
2-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140			
2-Nitrophenol	2.30	0.333	mg/kg wet	3.333		69	30-130			
3,3´-Dichlorobenzidine	2.37	0.333	mg/kg wet	3.333		71	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
3+4-Methylphenol	4.31	0.667	mg/kg wet	6.667		65	30-130			
3-Nitroaniline	2.74	0.333	mg/kg wet	3.333		82	40-140			
4,6-Dinitro-2-Methylphenol	2.95	1.67	mg/kg wet	3.333		88	30-130			
4-Bromophenyl-phenylether	2.80	0.333	mg/kg wet	3.333		84	40-140			
4-Chloro-3-Methylphenol	2.80	0.333	mg/kg wet	3.333		84	30-130			
4-Chloroaniline	1.75	0.667	mg/kg wet	3.333		52	40-140			
4-Chloro-phenyl-phenyl ether	2.52	0.333	mg/kg wet	3.333		76	40-140			
4-Nitroaniline	2.57	0.333	mg/kg wet	3.333		77	40-140			
4-Nitrophenol	2.67	1.67	mg/kg wet	3.333		80	30-130			
Acenaphthene	2.44	0.333	mg/kg wet	3.333		73	40-140			
Acenaphthylene	2.53	0.333	mg/kg wet	3.333		76	40-140			
Acetophenone	2.01	0.667	mg/kg wet	3.333		60	40-140			
Aniline	1.77	0.667	mg/kg wet	3.333		53	40-140			
Anthracene	2.70	0.333	mg/kg wet	3.333		81	40-140			
Azobenzene	2.78	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)anthracene	3.03	0.333	mg/kg wet	3.333		91	40-140			
Benzo(a)pyrene	2.83	0.167	mg/kg wet	3.333		85	40-140			
Benzo(b)fluoranthene	3.01	0.333	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Benzoic Acid	2.94	1.67	mg/kg wet	3.333		88	40-140			
Benzyl Alcohol	1.85	0.333	mg/kg wet	3.333		56	40-140			
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethyl)ether	2.12	0.167	mg/kg wet	3.333		64	40-140			
bis(2-chloroisopropyl)Ether	2.07	0.333	mg/kg wet	3.333		62	40-140			
bis(2-Ethylhexyl)phthalate	2.65	0.333	mg/kg wet	3.333		80	40-140			
Butylbenzylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Carbazole	2.86	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	2.99	0.167	mg/kg wet	3.333		90	40-140			
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140			
Diethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Di-n-butylphthalate	2.93	0.333	mg/kg wet	3.333		88	40-140			
Di-n-octylphthalate	2.69	0.333	mg/kg wet	3.333		81	40-140			
Fluoranthene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Fluorene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Hexachlorobutadiene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Hexachlorocyclopentadiene	1.96	1.67	mg/kg wet	3.333		59	40-140			
Hexachloroethane	2.04	0.333	mg/kg wet	3.333		61	40-140			
Indeno(1,2,3-cd)Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140			
Isophorone	2.10	0.333	mg/kg wet	3.333		63	40-140			
Naphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140			
Nitrobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
N-Nitrosodimethylamine	2.03	0.333	mg/kg wet	3.333		61	40-140			
N-Nitroso-Di-n-Propylamine	2.27	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.84	0.333	mg/kg wet	3.333		85	40-140			
Pentachlorophenol	3.05	1.67	mg/kg wet	3.333		92	30-130			
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140			
Phenol	2.19	0.333	mg/kg wet	3.333		66	30-130			
Pyrene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Pyridine	2.12	1.67	mg/kg wet	3.333		64	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.90*		mg/kg wet	*5.000*		*98*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.49*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: 2-Fluorophenol	*3.50*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.34*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: Phenol-d6	*3.56*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.10*		mg/kg wet	*3.333*		*93*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.26	0.333	mg/kg wet	3.333		68	40-140	1	30	
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140	0.03	30	
1,2-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
1,3-Dichlorobenzene	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
1,4-Dichlorobenzene	2.07	0.333	mg/kg wet	3.333		62	40-140	3	30	
2,3,4,6-Tetrachlorophenol	2.83	1.67	mg/kg wet	3.333		85	30-130	0.2	30	
2,4,5-Trichlorophenol	2.99	0.333	mg/kg wet	3.333		90	30-130	0.07	30	
2,4,6-Trichlorophenol	2.81	0.333	mg/kg wet	3.333		84	30-130	1	30	
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130	0.1	30	
2,4-Dimethylphenol	2.46	0.333	mg/kg wet	3.333		74	30-130	0.7	30	
2,4-Dinitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	3	30	
2,4-Dinitrotoluene	3.08	0.333	mg/kg wet	3.333		92	40-140	1	30	
2,6-Dinitrotoluene	2.86	0.333	mg/kg wet	3.333		86	40-140	0.2	30	
2-Chloronaphthalene	2.21	0.333	mg/kg wet	3.333		66	40-140	3	30	
2-Chlorophenol	2.20	0.333	mg/kg wet	3.333		66	30-130	0.5	30	
2-Methylnaphthalene	2.17	0.333	mg/kg wet	3.333		65	40-140	2	30	
2-Methylphenol	2.35	0.333	mg/kg wet	3.333		71	30-130	1	30	
2-Nitroaniline	3.03	0.333	mg/kg wet	3.333		91	40-140	0.2	30	
2-Nitrophenol	2.32	0.333	mg/kg wet	3.333		70	30-130	0.8	30	
3,3´-Dichlorobenzidine	2.24	0.333	mg/kg wet	3.333		67	40-140	5	30	
3+4-Methylphenol	4.35	0.667	mg/kg wet	6.667		65	30-130	0.9	30	
3-Nitroaniline	2.68	0.333	mg/kg wet	3.333		80	40-140	2	30	
4,6-Dinitro-2-Methylphenol	2.95	1.67	mg/kg wet	3.333		89	30-130	0.2	30	
4-Bromophenyl-phenylether	2.78	0.333	mg/kg wet	3.333		83	40-140	0.7	30	
4-Chloro-3-Methylphenol	2.80	0.333	mg/kg wet	3.333		84	30-130	0.2	30	
4-Chloroaniline	1.70	0.667	mg/kg wet	3.333		51	40-140	2	30	
4-Chloro-phenyl-phenyl ether	2.54	0.333	mg/kg wet	3.333		76	40-140	0.7	30	
4-Nitroaniline	2.51	0.333	mg/kg wet	3.333		75	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

8270D Semi-Volatile Organic Compounds

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL90310 - 3546										
4-Nitrophenol	2.71	1.67	mg/kg wet	3.333		81	30-130	1	30	
Acenaphthene	2.42	0.333	mg/kg wet	3.333		73	40-140	0.9	30	
Acenaphthylene	2.50	0.333	mg/kg wet	3.333		75	40-140	2	30	
Acetophenone	2.00	0.667	mg/kg wet	3.333		60	40-140	0.4	30	
Aniline	1.78	0.667	mg/kg wet	3.333		53	40-140	0.6	30	
Anthracene	2.62	0.333	mg/kg wet	3.333		79	40-140	3	30	
Azobenzene	2.74	0.333	mg/kg wet	3.333		82	40-140	2	30	
Benzo(a)anthracene	2.98	0.333	mg/kg wet	3.333		89	40-140	2	30	
Benzo(a)pyrene	2.84	0.167	mg/kg wet	3.333		85	40-140	0.2	30	
Benzo(b)fluoranthene	3.06	0.333	mg/kg wet	3.333		92	40-140	2	30	
Benzo(g,h,i)perylene	3.01	0.333	mg/kg wet	3.333		90	40-140	1	30	
Benzo(k)fluoranthene	2.57	0.333	mg/kg wet	3.333		77	40-140	1	30	
Benzoic Acid	3.02	1.67	mg/kg wet	3.333		91	40-140	3	30	
Benzyl Alcohol	1.82	0.333	mg/kg wet	3.333		55	40-140	2	30	
bis(2-Chloroethoxy)methane	2.15	0.333	mg/kg wet	3.333		65	40-140	0.3	30	
bis(2-Chloroethyl)ether	2.13	0.167	mg/kg wet	3.333		64	40-140	0.6	30	
bis(2-chloroisopropyl)Ether	2.07	0.333	mg/kg wet	3.333		62	40-140	0.3	30	
bis(2-Ethylhexyl)phthalate	2.74	0.333	mg/kg wet	3.333		82	40-140	3	30	
Butylbenzylphthalate	2.67	0.333	mg/kg wet	3.333		80	40-140	2	30	
Carbazole	2.80	0.333	mg/kg wet	3.333		84	40-140	2	30	
Chrysene	2.72	0.167	mg/kg wet	3.333		82	40-140	2	30	
Dibenzo(a,h)Anthracene	3.00	0.167	mg/kg wet	3.333		90	40-140	0.4	30	
Dibenzofuran	2.50	0.333	mg/kg wet	3.333		75	40-140	0.2	30	
Diethylphthalate	2.86	0.333	mg/kg wet	3.333		86	40-140	0.7	30	
Dimethylphthalate	2.73	0.333	mg/kg wet	3.333		82	40-140	1	30	
Di-n-butylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	0.4	30	
Di-n-octylphthalate	2.85	0.333	mg/kg wet	3.333		86	40-140	6	30	
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140	2	30	
Fluorene	2.62	0.333	mg/kg wet	3.333		78	40-140	0.2	30	
Hexachlorobenzene	2.72	0.167	mg/kg wet	3.333		82	40-140	2	30	
Hexachlorobutadiene	2.11	0.333	mg/kg wet	3.333		63	40-140	0.6	30	
Hexachlorocyclopentadiene	1.95	1.67	mg/kg wet	3.333		59	40-140	0.5	30	
Hexachloroethane	2.11	0.333	mg/kg wet	3.333		63	40-140	3	30	
Indeno(1,2,3-cd)Pyrene	3.02	0.333	mg/kg wet	3.333		91	40-140	0.08	30	
Isophorone	2.12	0.333	mg/kg wet	3.333		64	40-140	0.7	30	
Naphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	0.8	30	
Nitrobenzene	2.16	0.333	mg/kg wet	3.333		65	40-140	1	30	
N-Nitrosodimethylamine	2.10	0.333	mg/kg wet	3.333		63	40-140	4	30	
N-Nitroso-Di-n-Propylamine	2.26	0.333	mg/kg wet	3.333		68	40-140	0.5	30	
N-nitrosodiphenylamine	2.81	0.333	mg/kg wet	3.333		84	40-140	1	30	
Pentachlorophenol	3.07	1.67	mg/kg wet	3.333		92	30-130	0.6	30	
Phenanthrene	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	
Phenol	2.21	0.333	mg/kg wet	3.333		66	30-130	0.7	30	
Pyrene	2.84	0.333	mg/kg wet	3.333		85	40-140	2	30	
Pyridine	2.22	1.67	mg/kg wet	3.333		67	40-140	5	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90310 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.61*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.36*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.35*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2-Fluorophenol	*3.42*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.28*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: Phenol-d6	*3.44*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.98*		mg/kg wet	*3.333*		*89*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0015

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0015

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0015
Date Received: 12/2/2019
Project Due Date: 12/9/2019
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: 2.4 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: 12/1/19 Time: 1650 By: CleuA

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	417394	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	417395	Yes	NA	Yes	VOA Vial - Other	Other	
01	417396	Yes	NA	Yes	VOA Vial - Other	Other	
01	417397	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	417398	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials MN (Yes) / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/2/19 1824
Reviewed By: Date & Time: 12/6/19 1842
Delivered By: 12/2/19 1842

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 # 19L0015

Turn Time: 5-Day **Rush:**
Regulatory State: Rhode Island
Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits RIDEM Residential and Industrial/Commercial

Electonic Deliverables ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/1/19	1600	Grab/Compo	Soil	20191201-001	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other — GV | GV | AG | AG | AG

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* — 6/10 | 1 | 1 | 1 | 1

Number of Containers: 3* | 1* | 1* | 1* | 1*

Laboratory Use Only
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 2.4 °C

Sampled by: H. Stone

Comments: Please specify "Other" preservative and containers types in this space
*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 12/1/2019 at 1650 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/1/19 1700	12/2	12/2 17:32	12/2/19 (735)
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/2 12:00			

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0184

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 5:25 pm, Dec 13, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

SAMPLE RECEIPT

The following samples were received on December 06, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by SAGE Environmental on December 6, 2019 at 0600.

Lab Number	Sample Name	Matrix	Analysis
19L0184-01	20191206-001 Pile 3	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0184

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

C9L0156-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (81% @ 80-120%), Benzoic Acid (93% @ 80-120%), Pentachlorophenol (109% @ 80-120%)

C9L0156-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,3,4,6-Tetrachlorophenol (21% @ 20%), 2,4,5-Trichlorophenol (24% @ 20%), 2,4,6-Tribromophenol (22% @ 20%), 2,4,6-Trichlorophenol (23% @ 20%), 2-Nitroaniline (21% @ 20%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.12)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Arsenic	ND (2.06)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Barium	**35.9** (2.06)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Beryllium	**0.18** (0.09)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Cadmium	ND (0.41)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Chromium	**14.6** (0.82)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Copper	**26.7** (2.06)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Lead	**49.5** (4.12)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Mercury	**0.082** (0.026)		7471B		1	MKS	12/10/19 9:14	0.82	40	CL90947
Nickel	**6.20** (2.06)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Selenium	ND (4.12)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Silver	ND (0.41)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Thallium	ND (4.12)		6010C		1	BJV	12/10/19 1:22	2.61	100	CL90946
Zinc	**80.1** (2.06)		6010C		1	KJK	12/10/19 12:50	2.61	100	CL90946

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 7.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,1,1-Trichloroethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,1,2,2-Tetrachloroethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,1,2-Trichloroethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,1-Dichloroethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,1-Dichloroethene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,1-Dichloropropene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2,3-Trichlorobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2,3-Trichloropropane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2,4-Trichlorobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2,4-Trimethylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2-Dibromo-3-Chloropropane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2-Dibromoethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2-Dichlorobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2-Dichloroethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,2-Dichloropropane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,3,5-Trimethylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,3-Dichlorobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,3-Dichloropropane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,4-Dichlorobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1,4-Dioxane	ND (0.0689)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
1-Chlorohexane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
2,2-Dichloropropane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
2-Butanone	ND (0.0345)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
2-Chlorotoluene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
2-Hexanone	ND (0.0345)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
4-Chlorotoluene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
4-Isopropyltoluene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
4-Methyl-2-Pentanone	ND (0.0345)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Acetone	ND (0.0345)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Benzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Bromobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 7.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Bromodichloromethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Bromoform	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Bromomethane	ND (0.0069)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Carbon Disulfide	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Carbon Tetrachloride	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Chlorobenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Chloroethane	ND (0.0069)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Chloroform	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Chloromethane	ND (0.0069)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
cis-1,2-Dichloroethene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
cis-1,3-Dichloropropene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Dibromochloromethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Dibromomethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Dichlorodifluoromethane	ND (0.0069)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Diethyl Ether	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Di-isopropyl ether	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Ethyl tertiary-butyl ether	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Ethylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Hexachlorobutadiene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Isopropylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Methyl tert-Butyl Ether	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Methylene Chloride	ND (0.0172)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Naphthalene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
n-Butylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
n-Propylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
sec-Butylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Styrene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
tert-Butylbenzene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Tertiary-amyl methyl ether	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Tetrachloroethene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Tetrahydrofuran	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 7.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
trans-1,2-Dichloroethene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
trans-1,3-Dichloropropene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Trichloroethene	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Trichlorofluoromethane	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Vinyl Acetate	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Vinyl Chloride	ND (0.0069)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Xylene O	ND (0.0034)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Xylene P,M	ND (0.0069)		8260B Low		1	12/10/19 18:40	C9L0155	CL91034
Xylenes (Total)	ND (0.00689)		8260B Low		1	12/10/19 18:40		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*106 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*95 %*		*70-130*
Surrogate: Dibromofluoromethane	*102 %*		*70-130*
Surrogate: Toluene-d8	*102 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/6/19 20:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1221	ND (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1232	ND (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1242	ND (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1248	ND (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1260 [2C]	**0.06** (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1262	ND (0.06)		8082A		1	12/12/19 17:08		CL91241
Aroclor 1268	ND (0.06)		8082A		1	12/12/19 17:08		CL91241

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*80 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*73 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*91 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/6/19 20:18

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**503** (82.3)		8100M		2	12/09/19 19:34	C9L0116	CL90608

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*89 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/9/19 17:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
1,2,4-Trichlorobenzene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
1,2-Dichlorobenzene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
1,3-Dichlorobenzene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
1,4-Dichlorobenzene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,3,4,6-Tetrachlorophenol	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,4,5-Trichlorophenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,4,6-Trichlorophenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,4-Dichlorophenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,4-Dimethylphenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,4-Dinitrophenol	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,4-Dinitrotoluene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2,6-Dinitrotoluene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2-Chloronaphthalene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2-Chlorophenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2-Methylnaphthalene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2-Methylphenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2-Nitroaniline	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
2-Nitrophenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
3,3′-Dichlorobenzidine	ND (0.742)		8270D		1	12/10/19 18:09	C9L0156	CL90909
3+4-Methylphenol	ND (0.742)		8270D		1	12/10/19 18:09	C9L0156	CL90909
3-Nitroaniline	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4,6-Dinitro-2-Methylphenol	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4-Bromophenyl-phenylether	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4-Chloro-3-Methylphenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4-Chloroaniline	ND (0.742)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4-Chloro-phenyl-phenyl ether	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4-Nitroaniline	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
4-Nitrophenol	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Acenaphthene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Acenaphthylene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Acetophenone	ND (0.742)		8270D		1	12/10/19 18:09	C9L0156	CL90909

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/9/19 17:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.742)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Anthracene	**0.950** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Azobenzene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzo(a)anthracene	**2.73** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzo(a)pyrene	**2.32** (0.186)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzo(b)fluoranthene	**2.37** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzo(g,h,i)perylene	**1.34** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzo(k)fluoranthene	**1.70** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzoic Acid	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Benzyl Alcohol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
bis(2-Chloroethoxy)methane	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
bis(2-Chloroethyl)ether	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
bis(2-chloroisopropyl)Ether	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
bis(2-Ethylhexyl)phthalate	**0.392** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Butylbenzylphthalate	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Carbazole	**0.429** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Chrysene	**2.41** (0.186)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Dibenzo(a,h)Anthracene	**0.470** (0.186)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Dibenzofuran	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Diethylphthalate	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Dimethylphthalate	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Di-n-butylphthalate	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Di-n-octylphthalate	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Fluoranthene	**5.46** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Fluorene	**0.373** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Hexachlorobenzene	ND (0.186)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Hexachlorobutadiene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Hexachlorocyclopentadiene	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Hexachloroethane	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Indeno(1,2,3-cd)Pyrene	**1.24** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Isophorone	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Naphthalene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191206-001 Pile 3
Date Sampled: 12/06/19 03:45
Percent Solids: 93
Initial Volume: 14.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0184
ESS Laboratory Sample ID: 19L0184-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/9/19 17:10

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
N-Nitrosodimethylamine	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
N-Nitroso-Di-n-Propylamine	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
N-nitrosodiphenylamine	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Pentachlorophenol	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Phenanthrene	**3.85** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Phenol	ND (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Pyrene	**5.35** (0.370)		8270D		1	12/10/19 18:09	C9L0156	CL90909
Pyridine	ND (1.86)		8270D		1	12/10/19 18:09	C9L0156	CL90909

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*44 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*69 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*49 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*49 %*		*30-130*
Surrogate: 2-Fluorophenol	*47 %*		*30-130*
Surrogate: Nitrobenzene-d5	*49 %*		*30-130*
Surrogate: Phenol-d6	*55 %*		*30-130*
Surrogate: p-Terphenyl-d14	*76 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90946 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	32.6	13.7	mg/kg wet	51.30		64	40-160			
Arsenic	189	6.85	mg/kg wet	202.0		94	80-120			
Barium	348	6.85	mg/kg wet	343.0		101	80-120			
Beryllium	47.6	0.30	mg/kg wet	52.10		91	80-120			
Cadmium	129	1.37	mg/kg wet	149.0		86	80-120			
Chromium	175	2.74	mg/kg wet	182.0		96	80-120			
Copper	220	6.85	mg/kg wet	225.0		98	80-120			
Lead	319	13.7	mg/kg wet	333.0		96	80-120			
Nickel	160	6.85	mg/kg wet	167.0		96	80-120			
Selenium	158	13.7	mg/kg wet	169.0		94	80-120			
Silver	45.1	1.37	mg/kg wet	48.90		92	80-120			
Thallium	66.6	13.7	mg/kg wet	82.30		81	80-120			
Zinc	421	6.85	mg/kg wet	459.0		92	80-120			
LCS Dup										
Antimony	32.8	15.2	mg/kg wet	51.30		64	40-160	0.5	20	
Arsenic	196	7.58	mg/kg wet	202.0		97	80-120	3	20	
Barium	325	7.58	mg/kg wet	343.0		95	80-120	7	20	
Beryllium	49.5	0.33	mg/kg wet	52.10		95	80-120	4	20	
Cadmium	133	1.52	mg/kg wet	149.0		89	80-120	3	20	
Chromium	180	3.03	mg/kg wet	182.0		99	80-120	3	20	
Copper	225	7.58	mg/kg wet	225.0		100	80-120	2	20	
Lead	330	15.2	mg/kg wet	333.0		99	80-120	3	20	
Nickel	165	7.58	mg/kg wet	167.0		99	80-120	3	20	
Selenium	161	15.2	mg/kg wet	169.0		95	80-120	2	20	
Silver	45.6	1.52	mg/kg wet	48.90		93	80-120	1	20	
Thallium	69.1	15.2	mg/kg wet	82.30		84	80-120	4	20	
Zinc	438	7.58	mg/kg wet	459.0		95	80-120	4	20	
Batch CL90947 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90947 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.18	0.629	mg/kg wet	7.760		93	80-120			
LCS Dup										
Mercury	7.10	0.609	mg/kg wet	7.760		91	80-120	1	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0510*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0484*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0498*		mg/kg wet	*0.05000*		*100*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
1,1,1-Trichloroethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
1,1,2,2-Tetrachloroethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
1,1,2-Trichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloroethane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			
1,1-Dichloroethene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130			
1,1-Dichloropropene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
1,2,3-Trichlorobenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
1,2,3-Trichloropropane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
1,2,4-Trichlorobenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
1,2,4-Trimethylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
1,2-Dibromo-3-Chloropropane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
1,2-Dibromoethane	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
1,2-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dichloroethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
1,3,5-Trimethylbenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,3-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,3-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
1,4-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,4-Dioxane	0.912	0.100	mg/kg wet	1.000		91	70-130			
1-Chlorohexane	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
2,2-Dichloropropane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
2-Butanone	0.273	0.0500	mg/kg wet	0.2500		109	70-130			
2-Chlorotoluene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
2-Hexanone	0.265	0.0500	mg/kg wet	0.2500		106	70-130			
4-Chlorotoluene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
4-Isopropyltoluene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
4-Methyl-2-Pentanone	0.246	0.0500	mg/kg wet	0.2500		98	70-130			
Acetone	0.237	0.0500	mg/kg wet	0.2500		95	70-130			
Benzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Bromobenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
Bromochloromethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Bromodichloromethane	0.0576	0.0050	mg/kg wet	0.05000		115	70-130			
Bromoform	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Bromomethane	0.0446	0.0100	mg/kg wet	0.05000		89	70-130			
Carbon Disulfide	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Carbon Tetrachloride	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
Chlorobenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Chloroethane	0.0480	0.0100	mg/kg wet	0.05000		96	70-130			
Chloroform	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Chloromethane	0.0464	0.0100	mg/kg wet	0.05000		93	70-130			
cis-1,2-Dichloroethene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Dibromochloromethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Dibromomethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Dichlorodifluoromethane	0.0404	0.0100	mg/kg wet	0.05000		81	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Diethyl Ether	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Di-isopropyl ether	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
Ethyl tertiary-butyl ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Ethylbenzene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Hexachlorobutadiene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
Isopropylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
Methyl tert-Butyl Ether	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
Methylene Chloride	0.0532	0.0250	mg/kg wet	0.05000		106	70-130			
Naphthalene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
n-Butylbenzene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130			
n-Propylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
sec-Butylbenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Styrene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
tert-Butylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
Tertiary-amyl methyl ether	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
Tetrachloroethene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Tetrahydrofuran	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Toluene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,2-Dichloroethene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
trans-1,3-Dichloropropene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Trichloroethene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130			
Trichlorofluoromethane	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Vinyl Acetate	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
Vinyl Chloride	0.0442	0.0100	mg/kg wet	0.05000		88	70-130			
Xylene O	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Xylene P,M	0.109	0.0100	mg/kg wet	0.1000		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0506*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
1,1,1-Trichloroethane	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	0.3	25	
1,1,2,2-Tetrachloroethane	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	4	25	
1,1,2-Trichloroethane	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
1,1-Dichloroethane	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
1,1-Dichloroethene	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
1,1-Dichloropropene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	0.5	25	
1,2,3-Trichlorobenzene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	0.6	25	
1,2,3-Trichloropropane	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
1,2,4-Trichlorobenzene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	0.3	25	
1,2,4-Trimethylbenzene	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	0.3	25	
1,2-Dibromo-3-Chloropropane	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	6	25	
1,2-Dibromoethane	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	5	25	
1,2-Dichlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
1,2-Dichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
1,2-Dichloropropane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
1,3,5-Trimethylbenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	0.2	25	
1,3-Dichlorobenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	1	25	
1,3-Dichloropropane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
1,4-Dichlorobenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	2	25	
1,4-Dioxane	0.972	0.100	mg/kg wet	1.000		97	70-130	6	20	
1-Chlorohexane	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
2,2-Dichloropropane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	0.3	25	
2-Butanone	0.284	0.0500	mg/kg wet	0.2500		114	70-130	4	25	
2-Chlorotoluene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.2	25	
2-Hexanone	0.293	0.0500	mg/kg wet	0.2500		117	70-130	10	25	
4-Chlorotoluene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	0.6	25	
4-Isopropyltoluene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	0.7	25	
4-Methyl-2-Pentanone	0.264	0.0500	mg/kg wet	0.2500		106	70-130	7	25	
Acetone	0.258	0.0500	mg/kg wet	0.2500		103	70-130	9	25	
Benzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
Bromobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
Bromochloromethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
Bromodichloromethane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	1	25	
Bromoform	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Bromomethane	0.0445	0.0100	mg/kg wet	0.05000		89	70-130	0.3	25	
Carbon Disulfide	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	0.5	25	
Carbon Tetrachloride	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	0.4	25	
Chlorobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	5	25	
Chloroethane	0.0487	0.0100	mg/kg wet	0.05000		97	70-130	2	25	
Chloroform	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	1	25	
Chloromethane	0.0461	0.0100	mg/kg wet	0.05000		92	70-130	0.7	25	
cis-1,2-Dichloroethene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	2	25	
cis-1,3-Dichloropropene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
Dibromochloromethane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
Dibromomethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
Dichlorodifluoromethane	0.0399	0.0100	mg/kg wet	0.05000		80	70-130	1	25	
Diethyl Ether	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	4	25	
Di-isopropyl ether	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	2	25	
Ethyl tertiary-butyl ether	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
Ethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
Hexachlorobutadiene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
Isopropylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	0.3	25	
Methyl tert-Butyl Ether	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	4	25	
Methylene Chloride	0.0538	0.0250	mg/kg wet	0.05000		108	70-130	1	25	
Naphthalene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	3	25	
n-Butylbenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	0.7	25	
n-Propylbenzene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	0.3	25	
sec-Butylbenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.3	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Styrene	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
tert-Butylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	0.5	25	
Tertiary-amyl methyl ether	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	4	25	
Tetrachloroethene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	4	25	
Tetrahydrofuran	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	12	25	
Toluene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	0.3	25	
trans-1,2-Dichloroethene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
trans-1,3-Dichloropropene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
Trichloroethene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
Trichlorofluoromethane	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	0.1	25	
Vinyl Acetate	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Vinyl Chloride	0.0445	0.0100	mg/kg wet	0.05000		89	70-130	0.7	25	
Xylene O	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
Xylene P,M	0.113	0.0100	mg/kg wet	0.1000		113	70-130	4	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0504*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0503*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.0507*		mg/kg wet	*0.05000*		*101*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91241 - 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	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0228*		mg/kg wet	*0.02500*		*91*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91241 - 3540C										
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		91	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		90	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Surrogate: Decachlorobiphenyl	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		99	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140	4	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		95	40-140	5	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		91	40-140	7	30	
Surrogate: Decachlorobiphenyl	*0.0247*		mg/kg wet	*0.02500*		*99*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL90608 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.84*		mg/kg wet	*5.000*		*97*	*40-140*			
LCS										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		82	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		93	40-140			

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Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL90608 - 3546										
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		94	40-140			
Hexadecane (C16)	2.2	0.2	mg/kg wet	2.500		90	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		102	40-140			
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		74	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Total Petroleum Hydrocarbons	31.9	37.5	mg/kg wet	35.00		91	40-140			
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Surrogate: O-Terphenyl	*4.63*		mg/kg wet	*5.000*		*93*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140	0.6	25	
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		99	40-140	4	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140	1	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		97	40-140	4	25	
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		98	40-140	4	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Nonadecane (C19)	2.7	0.2	mg/kg wet	2.500		107	40-140	5	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		73	30-140	0.5	25	
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		98	40-140	3	25	
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		96	40-140	4	25	
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		99	40-140	3	25	
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140	2	25	
Total Petroleum Hydrocarbons	32.8	37.5	mg/kg wet	35.00		94	40-140	3	25	
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140	3	25	
Surrogate: O-Terphenyl	*4.66*		mg/kg wet	*5.000*		*93*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

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Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*1.97*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.15*		mg/kg wet	*5.000*		*63*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.90*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: 2-Fluorophenol	*3.17*		mg/kg wet	*5.000*		*63*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.08*		mg/kg wet	*3.333*		*62*	*30-130*			
Surrogate: Phenol-d6	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.27*		mg/kg wet	*3.333*		*68*	*30-130*			
LCS										
1,1-Biphenyl	1.78	0.333	mg/kg wet	3.333		54	40-140			
1,2,4-Trichlorobenzene	1.82	0.333	mg/kg wet	3.333		55	40-140			
1,2-Dichlorobenzene	1.86	0.333	mg/kg wet	3.333		56	40-140			
1,3-Dichlorobenzene	1.79	0.333	mg/kg wet	3.333		54	40-140			
1,4-Dichlorobenzene	1.78	0.333	mg/kg wet	3.333		53	40-140			
2,3,4,6-Tetrachlorophenol	2.74	1.67	mg/kg wet	3.333		82	30-130			
2,4,5-Trichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130			
2,4,6-Trichlorophenol	2.25	0.333	mg/kg wet	3.333		67	30-130			
2,4-Dichlorophenol	2.13	0.333	mg/kg wet	3.333		64	30-130			
2,4-Dimethylphenol	2.07	0.333	mg/kg wet	3.333		62	30-130			
2,4-Dinitrophenol	2.39	1.67	mg/kg wet	3.333		72	30-130			
2,4-Dinitrotoluene	3.03	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.40	0.333	mg/kg wet	3.333		72	40-140			
2-Chloronaphthalene	1.74	0.333	mg/kg wet	3.333		52	40-140			
2-Chlorophenol	2.02	0.333	mg/kg wet	3.333		61	30-130			
2-Methylnaphthalene	1.92	0.333	mg/kg wet	3.333		58	40-140			
2-Methylphenol	2.22	0.333	mg/kg wet	3.333		67	30-130			
2-Nitroaniline	2.63	0.333	mg/kg wet	3.333		79	40-140			
2-Nitrophenol	2.04	0.333	mg/kg wet	3.333		61	30-130			
3,3´-Dichlorobenzidine	1.95	0.667	mg/kg wet	3.333		58	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
3+4-Methylphenol	4.31	0.667	mg/kg wet	6.667		65	30-130			
3-Nitroaniline	2.46	0.333	mg/kg wet	3.333		74	40-140			
4,6-Dinitro-2-Methylphenol	2.50	1.67	mg/kg wet	3.333		75	30-130			
4-Bromophenyl-phenylether	2.28	0.333	mg/kg wet	3.333		68	40-140			
4-Chloro-3-Methylphenol	2.40	0.333	mg/kg wet	3.333		72	30-130			
4-Chloroaniline	1.44	0.667	mg/kg wet	3.333		43	40-140			
4-Chloro-phenyl-phenyl ether	2.15	0.333	mg/kg wet	3.333		65	40-140			
4-Nitroaniline	2.31	0.333	mg/kg wet	3.333		69	40-140			
4-Nitrophenol	2.70	1.67	mg/kg wet	3.333		81	30-130			
Acenaphthene	1.88	0.333	mg/kg wet	3.333		57	40-140			
Acenaphthylene	1.93	0.333	mg/kg wet	3.333		58	40-140			
Acetophenone	1.96	0.667	mg/kg wet	3.333		59	40-140			
Aniline	1.69	0.667	mg/kg wet	3.333		51	40-140			
Anthracene	2.31	0.333	mg/kg wet	3.333		69	40-140			
Azobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
Benzo(a)anthracene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Benzo(a)pyrene	2.34	0.167	mg/kg wet	3.333		70	40-140			
Benzo(b)fluoranthene	2.39	0.333	mg/kg wet	3.333		72	40-140			
Benzo(g,h,i)perylene	2.43	0.333	mg/kg wet	3.333		73	40-140			
Benzo(k)fluoranthene	2.20	0.333	mg/kg wet	3.333		66	40-140			
Benzoic Acid	2.40	1.67	mg/kg wet	3.333		72	40-140			
Benzyl Alcohol	1.84	0.333	mg/kg wet	3.333		55	40-140			
bis(2-Chloroethoxy)methane	1.98	0.333	mg/kg wet	3.333		59	40-140			
bis(2-Chloroethyl)ether	2.02	0.333	mg/kg wet	3.333		60	40-140			
bis(2-chloroisopropyl)Ether	1.91	0.333	mg/kg wet	3.333		57	40-140			
bis(2-Ethylhexyl)phthalate	2.30	0.333	mg/kg wet	3.333		69	40-140			
Butylbenzylphthalate	2.17	0.333	mg/kg wet	3.333		65	40-140			
Carbazole	2.57	0.333	mg/kg wet	3.333		77	40-140			
Chrysene	2.31	0.167	mg/kg wet	3.333		69	40-140			
Dibenzo(a,h)Anthracene	2.44	0.167	mg/kg wet	3.333		73	40-140			
Dibenzofuran	2.00	0.333	mg/kg wet	3.333		60	40-140			
Diethylphthalate	2.56	0.333	mg/kg wet	3.333		77	40-140			
Dimethylphthalate	2.32	0.333	mg/kg wet	3.333		70	40-140			
Di-n-butylphthalate	2.65	0.333	mg/kg wet	3.333		79	40-140			
Di-n-octylphthalate	2.26	0.333	mg/kg wet	3.333		68	40-140			
Fluoranthene	2.71	0.333	mg/kg wet	3.333		81	40-140			
Fluorene	2.23	0.333	mg/kg wet	3.333		67	40-140			
Hexachlorobenzene	2.37	0.167	mg/kg wet	3.333		71	40-140			
Hexachlorobutadiene	1.80	0.333	mg/kg wet	3.333		54	40-140			
Hexachlorocyclopentadiene	1.41	1.67	mg/kg wet	3.333		42	40-140			
Hexachloroethane	1.76	0.333	mg/kg wet	3.333		53	40-140			
Indeno(1,2,3-cd)Pyrene	2.45	0.333	mg/kg wet	3.333		73	40-140			
Isophorone	1.92	0.333	mg/kg wet	3.333		58	40-140			
Naphthalene	1.81	0.333	mg/kg wet	3.333		54	40-140			
Nitrobenzene	1.92	0.333	mg/kg wet	3.333		58	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
N-Nitrosodimethylamine	1.74	0.333	mg/kg wet	3.333		52	40-140			
N-Nitroso-Di-n-Propylamine	2.28	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.30	0.333	mg/kg wet	3.333		69	40-140			
Pentachlorophenol	2.78	1.67	mg/kg wet	3.333		83	30-130			
Phenanthrene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Phenol	2.42	0.333	mg/kg wet	3.333		72	30-130			
Pyrene	2.30	0.333	mg/kg wet	3.333		69	40-140			
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*1.89*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.87*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.09*		mg/kg wet	*5.000*		*62*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.85*		mg/kg wet	*3.333*		*55*	*30-130*			
Surrogate: 2-Fluorophenol	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.00*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: Phenol-d6	*3.39*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.44*		mg/kg wet	*3.333*		*73*	*30-130*			
LCS Dup										
1,1-Biphenyl	1.94	0.333	mg/kg wet	3.333		58	40-140	9	30	
1,2,4-Trichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140	10	30	
1,2-Dichlorobenzene	2.05	0.333	mg/kg wet	3.333		61	40-140	9	30	
1,3-Dichlorobenzene	2.00	0.333	mg/kg wet	3.333		60	40-140	11	30	
1,4-Dichlorobenzene	1.99	0.333	mg/kg wet	3.333		60	40-140	11	30	
2,3,4,6-Tetrachlorophenol	2.87	1.67	mg/kg wet	3.333		86	30-130	5	30	
2,4,5-Trichlorophenol	2.67	0.333	mg/kg wet	3.333		80	30-130	8	30	
2,4,6-Trichlorophenol	2.48	0.333	mg/kg wet	3.333		74	30-130	10	30	
2,4-Dichlorophenol	2.34	0.333	mg/kg wet	3.333		70	30-130	9	30	
2,4-Dimethylphenol	2.25	0.333	mg/kg wet	3.333		68	30-130	9	30	
2,4-Dinitrophenol	2.65	1.67	mg/kg wet	3.333		79	30-130	10	30	
2,4-Dinitrotoluene	3.11	0.333	mg/kg wet	3.333		93	40-140	3	30	
2,6-Dinitrotoluene	2.56	0.333	mg/kg wet	3.333		77	40-140	6	30	
2-Chloronaphthalene	1.90	0.333	mg/kg wet	3.333		57	40-140	9	30	
2-Chlorophenol	2.24	0.333	mg/kg wet	3.333		67	30-130	10	30	
2-Methylnaphthalene	2.08	0.333	mg/kg wet	3.333		62	40-140	8	30	
2-Methylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130	9	30	
2-Nitroaniline	2.78	0.333	mg/kg wet	3.333		83	40-140	5	30	
2-Nitrophenol	2.28	0.333	mg/kg wet	3.333		68	30-130	11	30	
3,3´-Dichlorobenzidine	1.99	0.667	mg/kg wet	3.333		60	40-140	2	30	
3+4-Methylphenol	4.47	0.667	mg/kg wet	6.667		67	30-130	4	30	
3-Nitroaniline	2.45	0.333	mg/kg wet	3.333		74	40-140	0.2	30	
4,6-Dinitro-2-Methylphenol	2.78	1.67	mg/kg wet	3.333		83	30-130	11	30	
4-Bromophenyl-phenylether	2.52	0.333	mg/kg wet	3.333		76	40-140	10	30	
4-Chloro-3-Methylphenol	2.56	0.333	mg/kg wet	3.333		77	30-130	6	30	
4-Chloroaniline	1.37	0.667	mg/kg wet	3.333		41	40-140	4	30	
4-Chloro-phenyl-phenyl ether	2.27	0.333	mg/kg wet	3.333		68	40-140	5	30	
4-Nitroaniline	2.42	0.333	mg/kg wet	3.333		73	40-140	4	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
4-Nitrophenol	2.66	1.67	mg/kg wet	3.333		80	30-130	1	30	
Acenaphthene	2.04	0.333	mg/kg wet	3.333		61	40-140	8	30	
Acenaphthylene	2.07	0.333	mg/kg wet	3.333		62	40-140	7	30	
Acetophenone	2.06	0.667	mg/kg wet	3.333		62	40-140	5	30	
Aniline	1.88	0.667	mg/kg wet	3.333		56	40-140	11	30	
Anthracene	2.46	0.333	mg/kg wet	3.333		74	40-140	6	30	
Azobenzene	2.46	0.333	mg/kg wet	3.333		74	40-140	12	30	
Benzo(a)anthracene	2.78	0.333	mg/kg wet	3.333		83	40-140	7	30	
Benzo(a)pyrene	2.54	0.167	mg/kg wet	3.333		76	40-140	8	30	
Benzo(b)fluoranthene	2.61	0.333	mg/kg wet	3.333		78	40-140	9	30	
Benzo(g,h,i)perylene	2.41	0.333	mg/kg wet	3.333		72	40-140	0.7	30	
Benzo(k)fluoranthene	2.40	0.333	mg/kg wet	3.333		72	40-140	9	30	
Benzoic Acid	2.66	1.67	mg/kg wet	3.333		80	40-140	10	30	
Benzyl Alcohol	1.99	0.333	mg/kg wet	3.333		60	40-140	8	30	
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140	9	30	
bis(2-Chloroethyl)ether	2.23	0.333	mg/kg wet	3.333		67	40-140	10	30	
bis(2-chloroisopropyl)Ether	2.11	0.333	mg/kg wet	3.333		63	40-140	10	30	
bis(2-Ethylhexyl)phthalate	2.53	0.333	mg/kg wet	3.333		76	40-140	9	30	
Butylbenzylphthalate	2.37	0.333	mg/kg wet	3.333		71	40-140	9	30	
Carbazole	2.67	0.333	mg/kg wet	3.333		80	40-140	4	30	
Chrysene	2.46	0.167	mg/kg wet	3.333		74	40-140	6	30	
Dibenzo(a,h)Anthracene	2.48	0.167	mg/kg wet	3.333		74	40-140	1	30	
Dibenzofuran	2.18	0.333	mg/kg wet	3.333		65	40-140	9	30	
Diethylphthalate	2.66	0.333	mg/kg wet	3.333		80	40-140	4	30	
Dimethylphthalate	2.43	0.333	mg/kg wet	3.333		73	40-140	4	30	
Di-n-butylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	6	30	
Di-n-octylphthalate	2.59	0.333	mg/kg wet	3.333		78	40-140	14	30	
Fluoranthene	2.76	0.333	mg/kg wet	3.333		83	40-140	2	30	
Fluorene	2.31	0.333	mg/kg wet	3.333		69	40-140	4	30	
Hexachlorobenzene	2.61	0.167	mg/kg wet	3.333		78	40-140	10	30	
Hexachlorobutadiene	2.05	0.333	mg/kg wet	3.333		61	40-140	13	30	
Hexachlorocyclopentadiene	1.68	1.67	mg/kg wet	3.333		50	40-140	17	30	
Hexachloroethane	1.99	0.333	mg/kg wet	3.333		60	40-140	12	30	
Indeno(1,2,3-cd)Pyrene	2.45	0.333	mg/kg wet	3.333		74	40-140	0.2	30	
Isophorone	2.09	0.333	mg/kg wet	3.333		63	40-140	8	30	
Naphthalene	1.97	0.333	mg/kg wet	3.333		59	40-140	8	30	
Nitrobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140	11	30	
N-Nitrosodimethylamine	1.99	0.333	mg/kg wet	3.333		60	40-140	13	30	
N-Nitroso-Di-n-Propylamine	2.48	0.333	mg/kg wet	3.333		75	40-140	9	30	
N-nitrosodiphenylamine	2.56	0.333	mg/kg wet	3.333		77	40-140	11	30	
Pentachlorophenol	3.05	1.67	mg/kg wet	3.333		92	30-130	9	30	
Phenanthrene	2.42	0.333	mg/kg wet	3.333		72	40-140	7	30	
Phenol	2.44	0.333	mg/kg wet	3.333		73	30-130	0.9	30	
Pyrene	2.53	0.333	mg/kg wet	3.333		76	40-140	10	30	
Pyridine	2.11	1.67	mg/kg wet	3.333		63	40-140	14	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.03*		mg/kg wet	*3.333*		*61*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.08*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.32*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.01*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: 2-Fluorophenol	*3.33*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.18*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: Phenol-d6	*3.54*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.64*		mg/kg wet	*3.333*		*79*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0184

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0184

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0184
Date Received: 12/6/2019
Project Due Date: 12/13/2019
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: 1.6 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: 12/6/19 Time: 0600 By: Client

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	419011	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	419012	Yes	NA	Yes	VOA Vial - Other	Other	
01	419013	Yes	NA	Yes	VOA Vial - Other	Other	
01	419014	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	419015	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/6/19 1957
Reviewed By: Date & Time: 12/6/19 2010
Delivered By: 12/6/19 2010

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 # 1910184

Turn Time: 5-Day Rush:
Regulatory State: Rhode Island
Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial
Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/6/19	0345	Grab/Compo	Soil	20191206-001 (Pile 3)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other — GV GV AG AG AG
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* — 6/10 1 1 1 1
Number of Containers: 3* 1* 1* 1* 1*

Laboratory Use Only
Cooler Present: ✓
Seals Intact: ✓
Cooler Temperature: 1.6 °C

Sampled by: H. Stone

Comments: Please specify "Other" preservative and containers types in this space
*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 12/6/2019 at 600 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/6/19 6:00am	12/6 5:54	12/6 15:14	12/6/19 1814
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0245

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 1:56 pm, Dec 16, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

SAMPLE RECEIPT

The following samples were received on December 09, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
19L0245-01	20191208-001 Pile 4	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0245

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

C9L0156-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (81% @ 80-120%), Benzoic Acid (93% @ 80-120%), Pentachlorophenol (109% @ 80-120%)

C9L0156-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,3,4,6-Tetrachlorophenol (21% @ 20%), 2,4,5-Trichlorophenol (24% @ 20%), 2,4,6-Tribromophenol (22% @ 20%), 2,4,6-Trichlorophenol (23% @ 20%), 2-Nitroaniline (21% @ 20%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.63)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Arsenic	ND (2.31)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Barium	**127** (2.31)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Beryllium	**0.20** (0.10)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Cadmium	ND (0.46)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Chromium	**12.7** (0.93)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Copper	**19.9** (2.31)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Lead	**62.5** (4.63)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Mercury	**0.052** (0.029)		7471B		1	MKS	12/12/19 9:05	0.73	40	CL90947
Nickel	**5.17** (2.31)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Selenium	ND (4.63)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Silver	ND (0.46)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Thallium	ND (4.63)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946
Zinc	**115** (2.31)		6010C		1	KJK	12/10/19 20:16	2.31	100	CL90946

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 14.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,1,1-Trichloroethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,1,2,2-Tetrachloroethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,1,2-Trichloroethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,1-Dichloroethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,1-Dichloroethene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,1-Dichloropropene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2,3-Trichlorobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2,3-Trichloropropane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2,4-Trichlorobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2,4-Trimethylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2-Dibromo-3-Chloropropane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2-Dibromoethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2-Dichlorobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2-Dichloroethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,2-Dichloropropane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,3,5-Trimethylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,3-Dichlorobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,3-Dichloropropane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,4-Dichlorobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1,4-Dioxane	ND (0.0376)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
1-Chlorohexane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
2,2-Dichloropropane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
2-Butanone	ND (0.0188)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
2-Chlorotoluene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
2-Hexanone	ND (0.0188)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
4-Chlorotoluene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
4-Isopropyltoluene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
4-Methyl-2-Pentanone	ND (0.0188)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Acetone	**0.0257** (0.0188)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Benzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Bromobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 14.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Bromodichloromethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Bromoform	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Bromomethane	ND (0.0038)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Carbon Disulfide	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Carbon Tetrachloride	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Chlorobenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Chloroethane	ND (0.0038)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Chloroform	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Chloromethane	ND (0.0038)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
cis-1,2-Dichloroethene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
cis-1,3-Dichloropropene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Dibromochloromethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Dibromomethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Dichlorodifluoromethane	ND (0.0038)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Diethyl Ether	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Di-isopropyl ether	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Ethyl tertiary-butyl ether	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Ethylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Hexachlorobutadiene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Isopropylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Methyl tert-Butyl Ether	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Methylene Chloride	ND (0.0094)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Naphthalene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
n-Butylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
n-Propylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
sec-Butylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Styrene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
tert-Butylbenzene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Tertiary-amyl methyl ether	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Tetrachloroethene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Tetrahydrofuran	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 14.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
trans-1,2-Dichloroethene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
trans-1,3-Dichloropropene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Trichloroethene	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Trichlorofluoromethane	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Vinyl Acetate	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Vinyl Chloride	ND (0.0038)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Xylene O	ND (0.0019)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Xylene P,M	ND (0.0038)		8260B Low		1	12/10/19 19:57	C9L0155	CL91034
Xylenes (Total)	ND (0.00376)		8260B Low		1	12/10/19 19:57		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*105 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*91 %*		*70-130*
Surrogate: Dibromofluoromethane	*103 %*		*70-130*
Surrogate: Toluene-d8	*104 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 19.8
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/9/19 19:06

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1221	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1232	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1242	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1248	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1254 [2C]	**0.1** (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1260	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1262	ND (0.05)		8082A		1	12/12/19 15:51		CL91238
Aroclor 1268	ND (0.05)		8082A		1	12/12/19 15:51		CL91238

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*85 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*86 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*93 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/9/19 19:12

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**279** (82.2)		8100M		2	12/10/19 16:19	C9L0116	CL90910

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*85 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/9/19 19:21

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
1,2,4-Trichlorobenzene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
1,2-Dichlorobenzene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
1,3-Dichlorobenzene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
1,4-Dichlorobenzene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,3,4,6-Tetrachlorophenol	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,4,5-Trichlorophenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,4,6-Trichlorophenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,4-Dichlorophenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,4-Dimethylphenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,4-Dinitrophenol	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,4-Dinitrotoluene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2,6-Dinitrotoluene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2-Chloronaphthalene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2-Chlorophenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2-Methylnaphthalene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2-Methylphenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2-Nitroaniline	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
2-Nitrophenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
3,3´-Dichlorobenzidine	ND (0.708)		8270D		1	12/10/19 21:58	C9L0156	CL90909
3+4-Methylphenol	ND (0.708)		8270D		1	12/10/19 21:58	C9L0156	CL90909
3-Nitroaniline	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4,6-Dinitro-2-Methylphenol	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4-Bromophenyl-phenylether	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4-Chloro-3-Methylphenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4-Chloroaniline	ND (0.708)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4-Chloro-phenyl-phenyl ether	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4-Nitroaniline	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
4-Nitrophenol	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Acenaphthene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Acenaphthylene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Acetophenone	ND (0.708)		8270D		1	12/10/19 21:58	C9L0156	CL90909

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/9/19 19:21

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.708)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Anthracene	**0.424** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Azobenzene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzo(a)anthracene	**1.48** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzo(a)pyrene	**1.39** (0.177)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzo(b)fluoranthene	**1.36** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzo(g,h,i)perylene	**0.799** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzo(k)fluoranthene	**1.09** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzoic Acid	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Benzyl Alcohol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
bis(2-Chloroethoxy)methane	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
bis(2-Chloroethyl)ether	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
bis(2-chloroisopropyl)Ether	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
bis(2-Ethylhexyl)phthalate	**0.781** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Butylbenzylphthalate	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Carbazole	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Chrysene	**1.33** (0.177)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Dibenzo(a,h)Anthracene	**0.269** (0.177)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Dibenzofuran	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Diethylphthalate	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Dimethylphthalate	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Di-n-butylphthalate	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Di-n-octylphthalate	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Fluoranthene	**2.88** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Fluorene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Hexachlorobenzene	ND (0.177)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Hexachlorobutadiene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Hexachlorocyclopentadiene	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Hexachloroethane	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Indeno(1,2,3-cd)Pyrene	**0.782** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Isophorone	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Naphthalene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191208-001 Pile 4
Date Sampled: 12/08/19 15:15
Percent Solids: 94
Initial Volume: 15.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0245
ESS Laboratory Sample ID: 19L0245-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TAJ
Prepared: 12/9/19 19:21

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
N-Nitrosodimethylamine	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
N-Nitroso-Di-n-Propylamine	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
N-nitrosodiphenylamine	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Pentachlorophenol	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Phenanthrene	**1.71** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Phenol	ND (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Pyrene	**2.85** (0.354)		8270D		1	12/10/19 21:58	C9L0156	CL90909
Pyridine	ND (1.77)		8270D		1	12/10/19 21:58	C9L0156	CL90909

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*45 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*70 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*50 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*52 %*		*30-130*
Surrogate: 2-Fluorophenol	*48 %*		*30-130*
Surrogate: Nitrobenzene-d5	*51 %*		*30-130*
Surrogate: Phenol-d6	*56 %*		*30-130*
Surrogate: p-Terphenyl-d14	*71 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90946 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	32.6	13.7	mg/kg wet	51.30		64	40-160			
Arsenic	189	6.85	mg/kg wet	202.0		94	80-120			
Barium	348	6.85	mg/kg wet	343.0		101	80-120			
Beryllium	47.6	0.30	mg/kg wet	52.10		91	80-120			
Cadmium	129	1.37	mg/kg wet	149.0		86	80-120			
Chromium	175	2.74	mg/kg wet	182.0		96	80-120			
Copper	220	6.85	mg/kg wet	225.0		98	80-120			
Lead	319	13.7	mg/kg wet	333.0		96	80-120			
Nickel	160	6.85	mg/kg wet	167.0		96	80-120			
Selenium	158	13.7	mg/kg wet	169.0		94	80-120			
Silver	45.1	1.37	mg/kg wet	48.90		92	80-120			
Thallium	66.6	13.7	mg/kg wet	82.30		81	80-120			
Zinc	421	6.85	mg/kg wet	459.0		92	80-120			
LCS Dup										
Antimony	32.8	15.2	mg/kg wet	51.30		64	40-160	0.5	20	
Arsenic	196	7.58	mg/kg wet	202.0		97	80-120	3	20	
Barium	325	7.58	mg/kg wet	343.0		95	80-120	7	20	
Beryllium	49.5	0.33	mg/kg wet	52.10		95	80-120	4	20	
Cadmium	133	1.52	mg/kg wet	149.0		89	80-120	3	20	
Chromium	180	3.03	mg/kg wet	182.0		99	80-120	3	20	
Copper	225	7.58	mg/kg wet	225.0		100	80-120	2	20	
Lead	330	15.2	mg/kg wet	333.0		99	80-120	3	20	
Nickel	165	7.58	mg/kg wet	167.0		99	80-120	3	20	
Selenium	161	15.2	mg/kg wet	169.0		95	80-120	2	20	
Silver	45.6	1.52	mg/kg wet	48.90		93	80-120	1	20	
Thallium	69.1	15.2	mg/kg wet	82.30		84	80-120	4	20	
Zinc	438	7.58	mg/kg wet	459.0		95	80-120	4	20	
Batch CL90947 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL90947 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.18	0.629	mg/kg wet	7.760		93	80-120			
LCS Dup										
Mercury	7.10	0.609	mg/kg wet	7.760		91	80-120	1	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0510*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0484*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0498*		mg/kg wet	*0.05000*		*100*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
1,1,1-Trichloroethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
1,1,2,2-Tetrachloroethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
1,1,2-Trichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloroethane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			
1,1-Dichloroethene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130			
1,1-Dichloropropene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
1,2,3-Trichlorobenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
1,2,3-Trichloropropane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
1,2,4-Trichlorobenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
1,2,4-Trimethylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
1,2-Dibromo-3-Chloropropane	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
1,2-Dibromoethane	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
1,2-Dichlorobenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dichloroethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
1,3,5-Trimethylbenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,3-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,3-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
1,4-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,4-Dioxane	0.912	0.100	mg/kg wet	1.000		91	70-130			
1-Chlorohexane	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
2,2-Dichloropropane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
2-Butanone	0.273	0.0500	mg/kg wet	0.2500		109	70-130			
2-Chlorotoluene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
2-Hexanone	0.265	0.0500	mg/kg wet	0.2500		106	70-130			
4-Chlorotoluene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
4-Isopropyltoluene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
4-Methyl-2-Pentanone	0.246	0.0500	mg/kg wet	0.2500		98	70-130			
Acetone	0.237	0.0500	mg/kg wet	0.2500		95	70-130			
Benzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Bromobenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
Bromochloromethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Bromodichloromethane	0.0576	0.0050	mg/kg wet	0.05000		115	70-130			
Bromoform	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Bromomethane	0.0446	0.0100	mg/kg wet	0.05000		89	70-130			
Carbon Disulfide	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Carbon Tetrachloride	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
Chlorobenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Chloroethane	0.0480	0.0100	mg/kg wet	0.05000		96	70-130			
Chloroform	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Chloromethane	0.0464	0.0100	mg/kg wet	0.05000		93	70-130			
cis-1,2-Dichloroethene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Dibromochloromethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Dibromomethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Dichlorodifluoromethane	0.0404	0.0100	mg/kg wet	0.05000		81	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Diethyl Ether	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Di-isopropyl ether	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
Ethyl tertiary-butyl ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Ethylbenzene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Hexachlorobutadiene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
Isopropylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
Methyl tert-Butyl Ether	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
Methylene Chloride	0.0532	0.0250	mg/kg wet	0.05000		106	70-130			
Naphthalene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
n-Butylbenzene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130			
n-Propylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
sec-Butylbenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Styrene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
tert-Butylbenzene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130			
Tertiary-amyl methyl ether	0.0556	0.0050	mg/kg wet	0.05000		111	70-130			
Tetrachloroethene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
Tetrahydrofuran	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Toluene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,2-Dichloroethene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
trans-1,3-Dichloropropene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Trichloroethene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130			
Trichlorofluoromethane	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Vinyl Acetate	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
Vinyl Chloride	0.0442	0.0100	mg/kg wet	0.05000		88	70-130			
Xylene O	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Xylene P,M	0.109	0.0100	mg/kg wet	0.1000		109	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0506*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
1,1,1-Trichloroethane	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	0.3	25	
1,1,2,2-Tetrachloroethane	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	4	25	
1,1,2-Trichloroethane	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
1,1-Dichloroethane	0.0548	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
1,1-Dichloroethene	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
1,1-Dichloropropene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	0.5	25	
1,2,3-Trichlorobenzene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	0.6	25	
1,2,3-Trichloropropane	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
1,2,4-Trichlorobenzene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	0.3	25	
1,2,4-Trimethylbenzene	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	0.3	25	
1,2-Dibromo-3-Chloropropane	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	6	25	
1,2-Dibromoethane	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	5	25	
1,2-Dichlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
1,2-Dichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.4	25	
1,2-Dichloropropane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
1,3,5-Trimethylbenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	0.2	25	
1,3-Dichlorobenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	1	25	
1,3-Dichloropropane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
1,4-Dichlorobenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	2	25	
1,4-Dioxane	0.972	0.100	mg/kg wet	1.000		97	70-130	6	20	
1-Chlorohexane	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
2,2-Dichloropropane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	0.3	25	
2-Butanone	0.284	0.0500	mg/kg wet	0.2500		114	70-130	4	25	
2-Chlorotoluene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	0.2	25	
2-Hexanone	0.293	0.0500	mg/kg wet	0.2500		117	70-130	10	25	
4-Chlorotoluene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	0.6	25	
4-Isopropyltoluene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	0.7	25	
4-Methyl-2-Pentanone	0.264	0.0500	mg/kg wet	0.2500		106	70-130	7	25	
Acetone	0.258	0.0500	mg/kg wet	0.2500		103	70-130	9	25	
Benzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
Bromobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
Bromochloromethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
Bromodichloromethane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	1	25	
Bromoform	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Bromomethane	0.0445	0.0100	mg/kg wet	0.05000		89	70-130	0.3	25	
Carbon Disulfide	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	0.5	25	
Carbon Tetrachloride	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	0.4	25	
Chlorobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	5	25	
Chloroethane	0.0487	0.0100	mg/kg wet	0.05000		97	70-130	2	25	
Chloroform	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	1	25	
Chloromethane	0.0461	0.0100	mg/kg wet	0.05000		92	70-130	0.7	25	
cis-1,2-Dichloroethene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	2	25	
cis-1,3-Dichloropropene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
Dibromochloromethane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
Dibromomethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
Dichlorodifluoromethane	0.0399	0.0100	mg/kg wet	0.05000		80	70-130	1	25	
Diethyl Ether	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	4	25	
Di-isopropyl ether	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	2	25	
Ethyl tertiary-butyl ether	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
Ethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
Hexachlorobutadiene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
Isopropylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	0.3	25	
Methyl tert-Butyl Ether	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	4	25	
Methylene Chloride	0.0538	0.0250	mg/kg wet	0.05000		108	70-130	1	25	
Naphthalene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	3	25	
n-Butylbenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	0.7	25	
n-Propylbenzene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	0.3	25	
sec-Butylbenzene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.3	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91034 - 5035										
Styrene	0.0576	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
tert-Butylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	0.5	25	
Tertiary-amyl methyl ether	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	4	25	
Tetrachloroethene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	4	25	
Tetrahydrofuran	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	12	25	
Toluene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	0.3	25	
trans-1,2-Dichloroethene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
trans-1,3-Dichloropropene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
Trichloroethene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
Trichlorofluoromethane	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	0.1	25	
Vinyl Acetate	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Vinyl Chloride	0.0445	0.0100	mg/kg wet	0.05000		89	70-130	0.7	25	
Xylene O	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
Xylene P,M	0.113	0.0100	mg/kg wet	0.1000		113	70-130	4	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0504*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0503*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.0507*		mg/kg wet	*0.05000*		*101*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91238 - 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	*0.0231*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0224*		mg/kg wet	*0.02500*		*90*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91238 - 3540C										
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		95	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		90	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Surrogate: Decachlorobiphenyl	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0216*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		100	40-140	5	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		95	40-140	4	30	
Aroclor 1260	0.5	0.05	mg/kg wet	0.5000		96	40-140	6	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		94	40-140	8	30	
Surrogate: Decachlorobiphenyl	*0.0248*		mg/kg wet	*0.02500*		*99*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0258*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0231*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0232*		mg/kg wet	*0.02500*		*93*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL90910 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.21*		mg/kg wet	*5.000*		*84*	*40-140*			
LCS										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		96	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL90910 - 3546										
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Nonadecane (C19)	2.7	0.2	mg/kg wet	2.500		106	40-140			
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		72	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Tetradecane (C14)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Total Petroleum Hydrocarbons	32.5	37.5	mg/kg wet	35.00		93	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Surrogate: O-Terphenyl	*4.80*		mg/kg wet	*5.000*		*96*	*40-140*			
LCS Dup										
Decane (C10)	2.1	0.2	mg/kg wet	2.500		82	40-140	0.3	25	
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		97	40-140	0.9	25	
Dodecane (C12)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		95	40-140	0.9	25	
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		95	40-140	1	25	
Hexadecane (C16)	2.3	0.2	mg/kg wet	2.500		92	40-140	0.1	25	
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		105	40-140	0.7	25	
Nonane (C9)	1.8	0.2	mg/kg wet	2.500		72	30-140	0.4	25	
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		95	40-140	1	25	
Octadecane (C18)	2.4	0.2	mg/kg wet	2.500		95	40-140	0.7	25	
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		96	40-140	1	25	
Tetradecane (C14)	2.3	0.2	mg/kg wet	2.500		90	40-140	1	25	
Total Petroleum Hydrocarbons	32.4	37.5	mg/kg wet	35.00		93	40-140	0.5	25	
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		94	40-140	1	25	
Surrogate: O-Terphenyl	*4.64*		mg/kg wet	*5.000*		*93*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*1.97*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.15*		mg/kg wet	*5.000*		*63*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.90*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: 2-Fluorophenol	*3.17*		mg/kg wet	*5.000*		*63*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.08*		mg/kg wet	*3.333*		*62*	*30-130*			
Surrogate: Phenol-d6	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.27*		mg/kg wet	*3.333*		*68*	*30-130*			
LCS										
1,1-Biphenyl	1.78	0.333	mg/kg wet	3.333		54	40-140			
1,2,4-Trichlorobenzene	1.82	0.333	mg/kg wet	3.333		55	40-140			
1,2-Dichlorobenzene	1.86	0.333	mg/kg wet	3.333		56	40-140			
1,3-Dichlorobenzene	1.79	0.333	mg/kg wet	3.333		54	40-140			
1,4-Dichlorobenzene	1.78	0.333	mg/kg wet	3.333		53	40-140			
2,3,4,6-Tetrachlorophenol	2.74	1.67	mg/kg wet	3.333		82	30-130			
2,4,5-Trichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130			
2,4,6-Trichlorophenol	2.25	0.333	mg/kg wet	3.333		67	30-130			
2,4-Dichlorophenol	2.13	0.333	mg/kg wet	3.333		64	30-130			
2,4-Dimethylphenol	2.07	0.333	mg/kg wet	3.333		62	30-130			
2,4-Dinitrophenol	2.39	1.67	mg/kg wet	3.333		72	30-130			
2,4-Dinitrotoluene	3.03	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.40	0.333	mg/kg wet	3.333		72	40-140			
2-Chloronaphthalene	1.74	0.333	mg/kg wet	3.333		52	40-140			
2-Chlorophenol	2.02	0.333	mg/kg wet	3.333		61	30-130			
2-Methylnaphthalene	1.92	0.333	mg/kg wet	3.333		58	40-140			
2-Methylphenol	2.22	0.333	mg/kg wet	3.333		67	30-130			
2-Nitroaniline	2.63	0.333	mg/kg wet	3.333		79	40-140			
2-Nitrophenol	2.04	0.333	mg/kg wet	3.333		61	30-130			
3,3´-Dichlorobenzidine	1.95	0.667	mg/kg wet	3.333		58	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
3+4-Methylphenol	4.31	0.667	mg/kg wet	6.667		65	30-130			
3-Nitroaniline	2.46	0.333	mg/kg wet	3.333		74	40-140			
4,6-Dinitro-2-Methylphenol	2.50	1.67	mg/kg wet	3.333		75	30-130			
4-Bromophenyl-phenylether	2.28	0.333	mg/kg wet	3.333		68	40-140			
4-Chloro-3-Methylphenol	2.40	0.333	mg/kg wet	3.333		72	30-130			
4-Chloroaniline	1.44	0.667	mg/kg wet	3.333		43	40-140			
4-Chloro-phenyl-phenyl ether	2.15	0.333	mg/kg wet	3.333		65	40-140			
4-Nitroaniline	2.31	0.333	mg/kg wet	3.333		69	40-140			
4-Nitrophenol	2.70	1.67	mg/kg wet	3.333		81	30-130			
Acenaphthene	1.88	0.333	mg/kg wet	3.333		57	40-140			
Acenaphthylene	1.93	0.333	mg/kg wet	3.333		58	40-140			
Acetophenone	1.96	0.667	mg/kg wet	3.333		59	40-140			
Aniline	1.69	0.667	mg/kg wet	3.333		51	40-140			
Anthracene	2.31	0.333	mg/kg wet	3.333		69	40-140			
Azobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
Benzo(a)anthracene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Benzo(a)pyrene	2.34	0.167	mg/kg wet	3.333		70	40-140			
Benzo(b)fluoranthene	2.39	0.333	mg/kg wet	3.333		72	40-140			
Benzo(g,h,i)perylene	2.43	0.333	mg/kg wet	3.333		73	40-140			
Benzo(k)fluoranthene	2.20	0.333	mg/kg wet	3.333		66	40-140			
Benzoic Acid	2.40	1.67	mg/kg wet	3.333		72	40-140			
Benzyl Alcohol	1.84	0.333	mg/kg wet	3.333		55	40-140			
bis(2-Chloroethoxy)methane	1.98	0.333	mg/kg wet	3.333		59	40-140			
bis(2-Chloroethyl)ether	2.02	0.333	mg/kg wet	3.333		60	40-140			
bis(2-chloroisopropyl)Ether	1.91	0.333	mg/kg wet	3.333		57	40-140			
bis(2-Ethylhexyl)phthalate	2.30	0.333	mg/kg wet	3.333		69	40-140			
Butylbenzylphthalate	2.17	0.333	mg/kg wet	3.333		65	40-140			
Carbazole	2.57	0.333	mg/kg wet	3.333		77	40-140			
Chrysene	2.31	0.167	mg/kg wet	3.333		69	40-140			
Dibenzo(a,h)Anthracene	2.44	0.167	mg/kg wet	3.333		73	40-140			
Dibenzofuran	2.00	0.333	mg/kg wet	3.333		60	40-140			
Diethylphthalate	2.56	0.333	mg/kg wet	3.333		77	40-140			
Dimethylphthalate	2.32	0.333	mg/kg wet	3.333		70	40-140			
Di-n-butylphthalate	2.65	0.333	mg/kg wet	3.333		79	40-140			
Di-n-octylphthalate	2.26	0.333	mg/kg wet	3.333		68	40-140			
Fluoranthene	2.71	0.333	mg/kg wet	3.333		81	40-140			
Fluorene	2.23	0.333	mg/kg wet	3.333		67	40-140			
Hexachlorobenzene	2.37	0.167	mg/kg wet	3.333		71	40-140			
Hexachlorobutadiene	1.80	0.333	mg/kg wet	3.333		54	40-140			
Hexachlorocyclopentadiene	1.41	1.67	mg/kg wet	3.333		42	40-140			
Hexachloroethane	1.76	0.333	mg/kg wet	3.333		53	40-140			
Indeno(1,2,3-cd)Pyrene	2.45	0.333	mg/kg wet	3.333		73	40-140			
Isophorone	1.92	0.333	mg/kg wet	3.333		58	40-140			
Naphthalene	1.81	0.333	mg/kg wet	3.333		54	40-140			
Nitrobenzene	1.92	0.333	mg/kg wet	3.333		58	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
N-Nitrosodimethylamine	1.74	0.333	mg/kg wet	3.333		52	40-140			
N-Nitroso-Di-n-Propylamine	2.28	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.30	0.333	mg/kg wet	3.333		69	40-140			
Pentachlorophenol	2.78	1.67	mg/kg wet	3.333		83	30-130			
Phenanthrene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Phenol	2.42	0.333	mg/kg wet	3.333		72	30-130			
Pyrene	2.30	0.333	mg/kg wet	3.333		69	40-140			
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*1.89*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.87*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.09*		mg/kg wet	*5.000*		*62*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.85*		mg/kg wet	*3.333*		*55*	*30-130*			
Surrogate: 2-Fluorophenol	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.00*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: Phenol-d6	*3.39*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.44*		mg/kg wet	*3.333*		*73*	*30-130*			
LCS Dup										
1,1-Biphenyl	1.94	0.333	mg/kg wet	3.333		58	40-140	9	30	
1,2,4-Trichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140	10	30	
1,2-Dichlorobenzene	2.05	0.333	mg/kg wet	3.333		61	40-140	9	30	
1,3-Dichlorobenzene	2.00	0.333	mg/kg wet	3.333		60	40-140	11	30	
1,4-Dichlorobenzene	1.99	0.333	mg/kg wet	3.333		60	40-140	11	30	
2,3,4,6-Tetrachlorophenol	2.87	1.67	mg/kg wet	3.333		86	30-130	5	30	
2,4,5-Trichlorophenol	2.67	0.333	mg/kg wet	3.333		80	30-130	8	30	
2,4,6-Trichlorophenol	2.48	0.333	mg/kg wet	3.333		74	30-130	10	30	
2,4-Dichlorophenol	2.34	0.333	mg/kg wet	3.333		70	30-130	9	30	
2,4-Dimethylphenol	2.25	0.333	mg/kg wet	3.333		68	30-130	9	30	
2,4-Dinitrophenol	2.65	1.67	mg/kg wet	3.333		79	30-130	10	30	
2,4-Dinitrotoluene	3.11	0.333	mg/kg wet	3.333		93	40-140	3	30	
2,6-Dinitrotoluene	2.56	0.333	mg/kg wet	3.333		77	40-140	6	30	
2-Chloronaphthalene	1.90	0.333	mg/kg wet	3.333		57	40-140	9	30	
2-Chlorophenol	2.24	0.333	mg/kg wet	3.333		67	30-130	10	30	
2-Methylnaphthalene	2.08	0.333	mg/kg wet	3.333		62	40-140	8	30	
2-Methylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130	9	30	
2-Nitroaniline	2.78	0.333	mg/kg wet	3.333		83	40-140	5	30	
2-Nitrophenol	2.28	0.333	mg/kg wet	3.333		68	30-130	11	30	
3,3´-Dichlorobenzidine	1.99	0.667	mg/kg wet	3.333		60	40-140	2	30	
3+4-Methylphenol	4.47	0.667	mg/kg wet	6.667		67	30-130	4	30	
3-Nitroaniline	2.45	0.333	mg/kg wet	3.333		74	40-140	0.2	30	
4,6-Dinitro-2-Methylphenol	2.78	1.67	mg/kg wet	3.333		83	30-130	11	30	
4-Bromophenyl-phenylether	2.52	0.333	mg/kg wet	3.333		76	40-140	10	30	
4-Chloro-3-Methylphenol	2.56	0.333	mg/kg wet	3.333		77	30-130	6	30	
4-Chloroaniline	1.37	0.667	mg/kg wet	3.333		41	40-140	4	30	
4-Chloro-phenyl-phenyl ether	2.27	0.333	mg/kg wet	3.333		68	40-140	5	30	
4-Nitroaniline	2.42	0.333	mg/kg wet	3.333		73	40-140	4	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
4-Nitrophenol	2.66	1.67	mg/kg wet	3.333		80	30-130	1	30	
Acenaphthene	2.04	0.333	mg/kg wet	3.333		61	40-140	8	30	
Acenaphthylene	2.07	0.333	mg/kg wet	3.333		62	40-140	7	30	
Acetophenone	2.06	0.667	mg/kg wet	3.333		62	40-140	5	30	
Aniline	1.88	0.667	mg/kg wet	3.333		56	40-140	11	30	
Anthracene	2.46	0.333	mg/kg wet	3.333		74	40-140	6	30	
Azobenzene	2.46	0.333	mg/kg wet	3.333		74	40-140	12	30	
Benzo(a)anthracene	2.78	0.333	mg/kg wet	3.333		83	40-140	7	30	
Benzo(a)pyrene	2.54	0.167	mg/kg wet	3.333		76	40-140	8	30	
Benzo(b)fluoranthene	2.61	0.333	mg/kg wet	3.333		78	40-140	9	30	
Benzo(g,h,i)perylene	2.41	0.333	mg/kg wet	3.333		72	40-140	0.7	30	
Benzo(k)fluoranthene	2.40	0.333	mg/kg wet	3.333		72	40-140	9	30	
Benzoic Acid	2.66	1.67	mg/kg wet	3.333		80	40-140	10	30	
Benzyl Alcohol	1.99	0.333	mg/kg wet	3.333		60	40-140	8	30	
bis(2-Chloroethoxy)methane	2.16	0.333	mg/kg wet	3.333		65	40-140	9	30	
bis(2-Chloroethyl)ether	2.23	0.333	mg/kg wet	3.333		67	40-140	10	30	
bis(2-chloroisopropyl)Ether	2.11	0.333	mg/kg wet	3.333		63	40-140	10	30	
bis(2-Ethylhexyl)phthalate	2.53	0.333	mg/kg wet	3.333		76	40-140	9	30	
Butylbenzylphthalate	2.37	0.333	mg/kg wet	3.333		71	40-140	9	30	
Carbazole	2.67	0.333	mg/kg wet	3.333		80	40-140	4	30	
Chrysene	2.46	0.167	mg/kg wet	3.333		74	40-140	6	30	
Dibenzo(a,h)Anthracene	2.48	0.167	mg/kg wet	3.333		74	40-140	1	30	
Dibenzofuran	2.18	0.333	mg/kg wet	3.333		65	40-140	9	30	
Diethylphthalate	2.66	0.333	mg/kg wet	3.333		80	40-140	4	30	
Dimethylphthalate	2.43	0.333	mg/kg wet	3.333		73	40-140	4	30	
Di-n-butylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	6	30	
Di-n-octylphthalate	2.59	0.333	mg/kg wet	3.333		78	40-140	14	30	
Fluoranthene	2.76	0.333	mg/kg wet	3.333		83	40-140	2	30	
Fluorene	2.31	0.333	mg/kg wet	3.333		69	40-140	4	30	
Hexachlorobenzene	2.61	0.167	mg/kg wet	3.333		78	40-140	10	30	
Hexachlorobutadiene	2.05	0.333	mg/kg wet	3.333		61	40-140	13	30	
Hexachlorocyclopentadiene	1.68	1.67	mg/kg wet	3.333		50	40-140	17	30	
Hexachloroethane	1.99	0.333	mg/kg wet	3.333		60	40-140	12	30	
Indeno(1,2,3-cd)Pyrene	2.45	0.333	mg/kg wet	3.333		74	40-140	0.2	30	
Isophorone	2.09	0.333	mg/kg wet	3.333		63	40-140	8	30	
Naphthalene	1.97	0.333	mg/kg wet	3.333		59	40-140	8	30	
Nitrobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140	11	30	
N-Nitrosodimethylamine	1.99	0.333	mg/kg wet	3.333		60	40-140	13	30	
N-Nitroso-Di-n-Propylamine	2.48	0.333	mg/kg wet	3.333		75	40-140	9	30	
N-nitrosodiphenylamine	2.56	0.333	mg/kg wet	3.333		77	40-140	11	30	
Pentachlorophenol	3.05	1.67	mg/kg wet	3.333		92	30-130	9	30	
Phenanthrene	2.42	0.333	mg/kg wet	3.333		72	40-140	7	30	
Phenol	2.44	0.333	mg/kg wet	3.333		73	30-130	0.9	30	
Pyrene	2.53	0.333	mg/kg wet	3.333		76	40-140	10	30	
Pyridine	2.11	1.67	mg/kg wet	3.333		63	40-140	14	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL90909 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.03*		mg/kg wet	*3.333*		*61*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.08*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.32*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.01*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: 2-Fluorophenol	*3.33*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.18*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: Phenol-d6	*3.54*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.64*		mg/kg wet	*3.333*		*79*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0245

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0245

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0245
Date Received: 12/9/2019
Project Due Date: 12/16/2019
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: 1.8 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: 12/9/19 Time: 1630 By: client

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	419561	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	419562	Yes	NA	Yes	VOA Vial - Other	Other	
01	419563	Yes	NA	Yes	VOA Vial - Other	Other	
01	419564	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	419565	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials
(Yes) / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/9/19 17:03
Reviewed By: Date & Time: 12/9/19 1715
Delivered By: 12/9/19 1715

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 # 1910245

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/8/19	1515	Grab/Compo	Soil	20191208-001 (Pile 4)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

	GV	GV	AG	AG	AG
	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: ✓

Seals Intact: ____

Cooler Temperature: 1.8 °C

Sampled by: H. Stone

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H_2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 12/8/2019 at 1630 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
H. Stone 12/8/19 1630	12/8/19	12/9/19 11:45	12/9/19 16:59
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0301

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 5:43 pm, Dec 18, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

SAMPLE RECEIPT

The following samples were received on December 11, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by SAGE Environmental on December 11, 2019 at 0745.

Lab Number	Sample Name	Matrix	Analysis
19L0301-01	20191211-001 Pile 5	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0301

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

C9L0174-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (88% @ 80-120%), Benzoic Acid (104% @ 80-120%), Pentachlorophenol (109% @ 80-120%)

C9L0174-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4,6-Tribromophenol (24% @ 20%), 2-Nitrophenol (22% @ 20%), Isophorone (21% @ 20%)

C9L0174-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
4-Nitrophenol (24% @ 20%)

C9L0204-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (103% @ 80-120%), Benzoic Acid (110% @ 80-120%), Pentachlorophenol (109% @ 80-120%)

C9L0204-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2-Fluorophenol (21% @ 20%), Pyridine (24% @ 20%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.84)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Arsenic	ND (2.42)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Barium	**18.4** (2.42)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Beryllium	**0.26** (0.11)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Cadmium	ND (0.48)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Chromium	**9.92** (0.97)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Copper	**18.1** (2.42)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Lead	**48.4** (4.84)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Mercury	**0.044** (0.025)		7471B		1	MKS	12/13/19 9:18	0.87	40	CL91257
Nickel	**6.81** (2.42)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Selenium	ND (4.84)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Silver	ND (0.48)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Thallium	ND (4.84)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256
Zinc	**61.5** (2.42)		6010C		1	KJK	12/13/19 2:41	2.23	100	CL91256

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 8.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,1,1-Trichloroethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,1,2,2-Tetrachloroethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,1,2-Trichloroethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,1-Dichloroethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,1-Dichloroethene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,1-Dichloropropene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2,3-Trichlorobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2,3-Trichloropropane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2,4-Trichlorobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2,4-Trimethylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2-Dibromo-3-Chloropropane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2-Dibromoethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2-Dichlorobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2-Dichloroethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,2-Dichloropropane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,3,5-Trimethylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,3-Dichlorobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,3-Dichloropropane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,4-Dichlorobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1,4-Dioxane	ND (0.0658)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
1-Chlorohexane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
2,2-Dichloropropane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
2-Butanone	ND (0.0329)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
2-Chlorotoluene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
2-Hexanone	ND (0.0329)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
4-Chlorotoluene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
4-Isopropyltoluene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
4-Methyl-2-Pentanone	ND (0.0329)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Acetone	ND (0.0329)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Benzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Bromobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 8.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Bromodichloromethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Bromoform	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Bromomethane	ND (0.0066)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Carbon Disulfide	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Carbon Tetrachloride	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Chlorobenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Chloroethane	ND (0.0066)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Chloroform	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Chloromethane	ND (0.0066)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
cis-1,2-Dichloroethene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
cis-1,3-Dichloropropene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Dibromochloromethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Dibromomethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Dichlorodifluoromethane	ND (0.0066)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Diethyl Ether	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Di-isopropyl ether	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Ethyl tertiary-butyl ether	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Ethylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Hexachlorobutadiene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Isopropylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Methyl tert-Butyl Ether	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Methylene Chloride	ND (0.0164)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Naphthalene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
n-Butylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
n-Propylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
sec-Butylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Styrene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
tert-Butylbenzene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Tertiary-amyl methyl ether	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Tetrachloroethene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Tetrahydrofuran	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 8.2
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
trans-1,2-Dichloroethene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
trans-1,3-Dichloropropene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Trichloroethene	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Trichlorofluoromethane	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Vinyl Acetate	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Vinyl Chloride	ND (0.0066)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Xylene O	ND (0.0033)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Xylene P,M	ND (0.0066)		8260B Low		1	12/14/19 20:12	C9L0233	CL91403
Xylenes (Total)	ND (0.00658)		8260B Low		1	12/14/19 20:12		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*104 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*91 %*		*70-130*
Surrogate: Dibromofluoromethane	*103 %*		*70-130*
Surrogate: Toluene-d8	*105 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 19.9
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/12/19 15:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1221	ND (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1232	ND (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1242	ND (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1248	ND (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1254 [2C]	**0.2** (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1260 [2C]	**0.1** (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1262	ND (0.05)		8082A		1	12/17/19 1:05		CL91215
Aroclor 1268	ND (0.05)		8082A		1	12/17/19 1:05		CL91215

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*59 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*73 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*61 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*76 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/12/19 11:40

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**266** (41.5)		8100M		1	12/12/19 18:09	C9L0171	CL91226

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*97 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/12/19 10:59

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
1,2,4-Trichlorobenzene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
1,2-Dichlorobenzene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
1,3-Dichlorobenzene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
1,4-Dichlorobenzene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,3,4,6-Tetrachlorophenol	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,4,5-Trichlorophenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,4,6-Trichlorophenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,4-Dichlorophenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,4-Dimethylphenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,4-Dinitrophenol	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,4-Dinitrotoluene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2,6-Dinitrotoluene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2-Chloronaphthalene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2-Chlorophenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2-Methylnaphthalene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2-Methylphenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2-Nitroaniline	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
2-Nitrophenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
3,3′-Dichlorobenzidine	ND (0.701)		8270D		1	12/13/19 23:18	C9L0204	CL91228
3+4-Methylphenol	ND (0.701)		8270D		1	12/13/19 23:18	C9L0204	CL91228
3-Nitroaniline	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4,6-Dinitro-2-Methylphenol	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4-Bromophenyl-phenylether	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4-Chloro-3-Methylphenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4-Chloroaniline	ND (0.701)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4-Chloro-phenyl-phenyl ether	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4-Nitroaniline	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
4-Nitrophenol	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Acenaphthene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Acenaphthylene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Acetophenone	ND (0.701)		8270D		1	12/13/19 23:18	C9L0204	CL91228

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/12/19 10:59

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.701)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Anthracene	**0.830** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Azobenzene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzo(a)anthracene	**2.40** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzo(a)pyrene	**2.11** (0.175)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzo(b)fluoranthene	**2.23** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzo(g,h,i)perylene	**1.13** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzo(k)fluoranthene	**1.64** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzoic Acid	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Benzyl Alcohol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
bis(2-Chloroethoxy)methane	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
bis(2-Chloroethyl)ether	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
bis(2-chloroisopropyl)Ether	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
bis(2-Ethylhexyl)phthalate	**6.45** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Butylbenzylphthalate	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Carbazole	**0.438** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Chrysene	**2.11** (0.175)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Dibenzo(a,h)Anthracene	**0.422** (0.175)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Dibenzofuran	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Diethylphthalate	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Dimethylphthalate	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Di-n-butylphthalate	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Di-n-octylphthalate	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Fluoranthene	**4.96** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Fluorene	**0.371** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Hexachlorobenzene	ND (0.175)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Hexachlorobutadiene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Hexachlorocyclopentadiene	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Hexachloroethane	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Indeno(1,2,3-cd)Pyrene	**1.12** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Isophorone	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Naphthalene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191211-001 Pile 5
Date Sampled: 12/11/19 06:30
Percent Solids: 93
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0301
ESS Laboratory Sample ID: 19L0301-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/12/19 10:59

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
N-Nitrosodimethylamine	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
N-Nitroso-Di-n-Propylamine	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
N-nitrosodiphenylamine	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Pentachlorophenol	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Phenanthrene	**3.13** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Phenol	ND (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Pyrene	**4.53** (0.350)		8270D		1	12/13/19 23:18	C9L0204	CL91228
Pyridine	ND (1.75)		8270D		1	12/13/19 23:18	C9L0204	CL91228

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*57 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*80 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*65 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*54 %*		*30-130*
Surrogate: 2-Fluorophenol	*61 %*		*30-130*
Surrogate: Nitrobenzene-d5	*60 %*		*30-130*
Surrogate: Phenol-d6	*76 %*		*30-130*
Surrogate: p-Terphenyl-d14	*90 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL91256 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	36.8	16.1	mg/kg wet	51.30		72	40-160			
Arsenic	184	8.06	mg/kg wet	202.0		91	80-120			
Barium	317	8.06	mg/kg wet	343.0		93	80-120			
Beryllium	47.8	0.35	mg/kg wet	52.10		92	80-120			
Cadmium	126	1.61	mg/kg wet	149.0		84	80-120			
Chromium	169	3.23	mg/kg wet	182.0		93	80-120			
Copper	218	8.06	mg/kg wet	225.0		97	80-120			
Lead	312	16.1	mg/kg wet	333.0		94	80-120			
Nickel	157	8.06	mg/kg wet	167.0		94	80-120			
Selenium	160	16.1	mg/kg wet	169.0		95	80-120			
Silver	44.6	1.61	mg/kg wet	48.90		91	80-120			
Thallium	67.8	16.1	mg/kg wet	82.30		82	80-120			
Zinc	416	8.06	mg/kg wet	459.0		91	80-120			
LCS										
Silver	28.8	1.56	mg/kg wet	34.60		83	80-120			
LCS Dup										
Antimony	36.3	15.6	mg/kg wet	51.30		71	40-160	1	20	
Arsenic	188	7.81	mg/kg wet	202.0		93	80-120	2	20	
Barium	323	7.81	mg/kg wet	343.0		94	80-120	2	20	
Beryllium	47.8	0.34	mg/kg wet	52.10		92	80-120	0.06	20	
Cadmium	129	1.56	mg/kg wet	149.0		87	80-120	3	20	
Chromium	173	3.12	mg/kg wet	182.0		95	80-120	2	20	
Copper	227	7.81	mg/kg wet	225.0		101	80-120	4	20	
Lead	306	15.6	mg/kg wet	333.0		92	80-120	2	20	
Nickel	161	7.81	mg/kg wet	167.0		97	80-120	3	20	
Selenium	157	15.6	mg/kg wet	169.0		93	80-120	2	20	
Silver	45.6	1.56	mg/kg wet	48.90		93	80-120	2	20	
Thallium	69.4	15.6	mg/kg wet	82.30		84	80-120	2	20	
Zinc	427	7.81	mg/kg wet	459.0		93	80-120	3	20	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL91257 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.01	0.591	mg/kg wet	7.760		90	80-120			
LCS Dup										
Mercury	7.05	0.629	mg/kg wet	7.760		91	80-120	0.5	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0509*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0475*		mg/kg wet	*0.05000*		*95*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0502*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Toluene-d8	*0.0505*		mg/kg wet	*0.05000*		*101*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0551	0.0050	mg/kg wet	0.05000		110	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
1,1,1-Trichloroethane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			
1,1,2,2-Tetrachloroethane	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
1,1,2-Trichloroethane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
1,1-Dichloroethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloroethene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,1-Dichloropropene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,2,3-Trichlorobenzene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
1,2,3-Trichloropropane	0.0404	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trichlorobenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,2,4-Trimethylbenzene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130			
1,2-Dibromo-3-Chloropropane	0.0420	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dibromoethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloroethane	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichloropropane	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,3,5-Trimethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,3-Dichlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
1,3-Dichloropropane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
1,4-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,4-Dioxane	0.726	0.100	mg/kg wet	1.000		73	70-130			
1-Chlorohexane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
2,2-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
2-Butanone	0.233	0.0500	mg/kg wet	0.2500		93	70-130			
2-Chlorotoluene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
2-Hexanone	0.214	0.0500	mg/kg wet	0.2500		86	70-130			
4-Chlorotoluene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
4-Isopropyltoluene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
4-Methyl-2-Pentanone	0.191	0.0500	mg/kg wet	0.2500		76	70-130			
Acetone	0.202	0.0500	mg/kg wet	0.2500		81	70-130			
Benzene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
Bromobenzene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Bromochloromethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Bromodichloromethane	0.0543	0.0050	mg/kg wet	0.05000		109	70-130			
Bromoform	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
Bromomethane	0.0446	0.0100	mg/kg wet	0.05000		89	70-130			
Carbon Disulfide	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Carbon Tetrachloride	0.0580	0.0050	mg/kg wet	0.05000		116	70-130			
Chlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
Chloroethane	0.0466	0.0100	mg/kg wet	0.05000		93	70-130			
Chloroform	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
Chloromethane	0.0455	0.0100	mg/kg wet	0.05000		91	70-130			
cis-1,2-Dichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
cis-1,3-Dichloropropene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Dibromochloromethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Dibromomethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Dichlorodifluoromethane	0.0386	0.0100	mg/kg wet	0.05000		77	70-130			
Diethyl Ether	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
Di-isopropyl ether	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Ethyl tertiary-butyl ether	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
Ethylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Hexachlorobutadiene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130			
Isopropylbenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130			
Methyl tert-Butyl Ether	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Methylene Chloride	0.0487	0.0250	mg/kg wet	0.05000		97	70-130			
Naphthalene	0.0412	0.0050	mg/kg wet	0.05000		82	70-130			
n-Butylbenzene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130			
n-Propylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
sec-Butylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Styrene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
tert-Butylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
Tertiary-amyl methyl ether	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Tetrachloroethene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Tetrahydrofuran	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
Toluene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
trans-1,2-Dichloroethene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,3-Dichloropropene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
Trichloroethene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
Trichlorofluoromethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Vinyl Acetate	0.0383	0.0050	mg/kg wet	0.05000		77	70-130			
Vinyl Chloride	0.0447	0.0100	mg/kg wet	0.05000		89	70-130			
Xylene O	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Xylene P,M	0.111	0.0100	mg/kg wet	0.1000		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0458*		mg/kg wet	*0.05000*		*92*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0483*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0496*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Toluene-d8	*0.0496*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	5	25	
1,1,1-Trichloroethane	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	4	25	
1,1,2-Trichloroethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	4	25	
1,1-Dichloroethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
1,1-Dichloroethene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	2	25	
1,1-Dichloropropene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	2	25	
1,2,3-Trichlorobenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	5	25	
1,2,3-Trichloropropane	0.0408	0.0050	mg/kg wet	0.05000		82	70-130	1	25	
1,2,4-Trichlorobenzene	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	3	25	
1,2,4-Trimethylbenzene	0.0605	0.0050	mg/kg wet	0.05000		121	70-130	5	25	
1,2-Dibromo-3-Chloropropane	0.0439	0.0050	mg/kg wet	0.05000		88	70-130	4	25	
1,2-Dibromoethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
1,2-Dichlorobenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	5	25	
1,2-Dichloroethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
1,2-Dichloropropane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	3	25	
1,3,5-Trimethylbenzene	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	6	25	
1,3-Dichlorobenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	5	25	
1,3-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	6	25	
1,4-Dichlorobenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	6	25	
1,4-Dioxane	0.822	0.100	mg/kg wet	1.000		82	70-130	13	20	
1-Chlorohexane	0.0593	0.0050	mg/kg wet	0.05000		119	70-130	5	25	
2,2-Dichloropropane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
2-Butanone	0.241	0.0500	mg/kg wet	0.2500		97	70-130	3	25	
2-Chlorotoluene	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	6	25	
2-Hexanone	0.225	0.0500	mg/kg wet	0.2500		90	70-130	5	25	
4-Chlorotoluene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
4-Isopropyltoluene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
4-Methyl-2-Pentanone	0.203	0.0500	mg/kg wet	0.2500		81	70-130	6	25	
Acetone	0.207	0.0500	mg/kg wet	0.2500		83	70-130	3	25	
Benzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	2	25	
Bromobenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	3	25	
Bromochloromethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Bromodichloromethane	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
Bromoform	0.0465	0.0050	mg/kg wet	0.05000		93	70-130	7	25	
Bromomethane	0.0437	0.0100	mg/kg wet	0.05000		87	70-130	2	25	
Carbon Disulfide	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	3	25	
Carbon Tetrachloride	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	2	25	
Chlorobenzene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	6	25	
Chloroethane	0.0470	0.0100	mg/kg wet	0.05000		94	70-130	0.9	25	
Chloroform	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
Chloromethane	0.0470	0.0100	mg/kg wet	0.05000		94	70-130	3	25	
cis-1,2-Dichloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
cis-1,3-Dichloropropene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	4	25	
Dibromochloromethane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
Dibromomethane	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
Dichlorodifluoromethane	0.0392	0.0100	mg/kg wet	0.05000		78	70-130	2	25	
Diethyl Ether	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	5	25	
Di-isopropyl ether	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	3	25	
Ethyl tertiary-butyl ether	0.0476	0.0050	mg/kg wet	0.05000		95	70-130	0.3	25	
Ethylbenzene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	7	25	
Hexachlorobutadiene	0.0599	0.0050	mg/kg wet	0.05000		120	70-130	3	25	
Isopropylbenzene	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	4	25	
Methyl tert-Butyl Ether	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	
Methylene Chloride	0.0503	0.0250	mg/kg wet	0.05000		101	70-130	3	25	
Naphthalene	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	2	25	
n-Butylbenzene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	2	25	
n-Propylbenzene	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
sec-Butylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	3	25	
Styrene	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
tert-Butylbenzene	0.0584	0.0050	mg/kg wet	0.05000		117	70-130	4	25	
Tertiary-amyl methyl ether	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
Tetrachloroethene	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
Tetrahydrofuran	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	5	25	
Toluene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	4	25	
trans-1,2-Dichloroethene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	3	25	
trans-1,3-Dichloropropene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130	3	25	
Trichloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	4	25	
Trichlorofluoromethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
Vinyl Acetate	0.0399	0.0050	mg/kg wet	0.05000		80	70-130	4	25	
Vinyl Chloride	0.0457	0.0100	mg/kg wet	0.05000		91	70-130	2	25	
Xylene O	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
Xylene P,M	0.119	0.0100	mg/kg wet	0.1000		119	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0456*		mg/kg wet	*0.05000*		*91*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Toluene-d8	*0.0515*		mg/kg wet	*0.05000*		*103*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91215 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0168*		mg/kg wet	*0.02500*		*67*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91215 - 3540C										
Surrogate: Tetrachloro-m-xylene [2C]	*0.0187*		mg/kg wet	*0.02500*		*75*	*30-150*			
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		87	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		96	40-140			
Surrogate: Decachlorobiphenyl	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0219*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0175*		mg/kg wet	*0.02500*		*70*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0184*		mg/kg wet	*0.02500*		*74*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		100	40-140	4	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		87	40-140	4	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0211*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0181*		mg/kg wet	*0.02500*		*72*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL91226 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.76*		mg/kg wet	*5.000*		*95*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		66	40-140			
Docosane (C22)	1.9	0.2	mg/kg wet	2.500		75	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL91226 - 3546										
Dodecane (C12)	1.7	0.2	mg/kg wet	2.500		69	40-140			
Eicosane (C20)	1.8	0.2	mg/kg wet	2.500		74	40-140			
Hexacosane (C26)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Hexadecane (C16)	1.8	0.2	mg/kg wet	2.500		73	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		60	30-140			
Octacosane (C28)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Octadecane (C18)	1.9	0.2	mg/kg wet	2.500		74	40-140			
Tetracosane (C24)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Tetradecane (C14)	1.8	0.2	mg/kg wet	2.500		73	40-140			
Total Petroleum Hydrocarbons	25.9	37.5	mg/kg wet	35.00		74	40-140			
Triacontane (C30)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Surrogate: O-Terphenyl	*4.14*		mg/kg wet	*5.000*		*83*	*40-140*			
LCS Dup										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		73	40-140	9	25	
Docosane (C22)	2.0	0.2	mg/kg wet	2.500		81	40-140	7	25	
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		75	40-140	9	25	
Eicosane (C20)	2.0	0.2	mg/kg wet	2.500		79	40-140	7	25	
Hexacosane (C26)	2.0	0.2	mg/kg wet	2.500		80	40-140	7	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		79	40-140	7	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		94	40-140	7	25	
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		66	30-140	11	25	
Octacosane (C28)	2.0	0.2	mg/kg wet	2.500		81	40-140	7	25	
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		79	40-140	7	25	
Tetracosane (C24)	2.0	0.2	mg/kg wet	2.500		80	40-140	7	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		78	40-140	8	25	
Total Petroleum Hydrocarbons	27.9	37.5	mg/kg wet	35.00		80	40-140	7	25	
Triacontane (C30)	2.0	0.2	mg/kg wet	2.500		81	40-140	7	25	
Surrogate: O-Terphenyl	*4.32*		mg/kg wet	*5.000*		*86*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.55*		mg/kg wet	*5.000*		*91*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.60*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.41*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: 2-Fluorophenol	*3.67*		mg/kg wet	*5.000*		*73*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.54*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: Phenol-d6	*3.88*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.05*		mg/kg wet	*3.333*		*91*	*30-130*			
LCS										
1,1-Biphenyl	2.21	0.333	mg/kg wet	3.333		66	40-140			
1,2,4-Trichlorobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140			
1,3-Dichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,4-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	3.12	1.67	mg/kg wet	3.333		94	30-130			
2,4,5-Trichlorophenol	2.93	0.333	mg/kg wet	3.333		88	30-130			
2,4,6-Trichlorophenol	2.74	0.333	mg/kg wet	3.333		82	30-130			
2,4-Dichlorophenol	2.42	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dimethylphenol	2.28	0.333	mg/kg wet	3.333		69	30-130			
2,4-Dinitrophenol	2.90	1.67	mg/kg wet	3.333		87	30-130			
2,4-Dinitrotoluene	3.24	0.333	mg/kg wet	3.333		97	40-140			
2,6-Dinitrotoluene	2.66	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.16	0.333	mg/kg wet	3.333		65	40-140			
2-Chlorophenol	2.22	0.333	mg/kg wet	3.333		67	30-130			
2-Methylnaphthalene	1.86	0.333	mg/kg wet	3.333		56	40-140			
2-Methylphenol	2.36	0.333	mg/kg wet	3.333		71	30-130			
2-Nitroaniline	2.43	0.333	mg/kg wet	3.333		73	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
2-Nitrophenol	2.37	0.333	mg/kg wet	3.333		71	30-130			
3,3´-Dichlorobenzidine	2.61	0.667	mg/kg wet	3.333		78	40-140			
3+4-Methylphenol	4.33	0.667	mg/kg wet	6.667		65	30-130			
3-Nitroaniline	2.65	0.333	mg/kg wet	3.333		79	40-140			
4,6-Dinitro-2-Methylphenol	3.12	1.67	mg/kg wet	3.333		94	30-130			
4-Bromophenyl-phenylether	2.94	0.333	mg/kg wet	3.333		88	40-140			
4-Chloro-3-Methylphenol	2.03	0.333	mg/kg wet	3.333		61	30-130			
4-Chloroaniline	1.75	0.667	mg/kg wet	3.333		53	40-140			
4-Chloro-phenyl-phenyl ether	2.56	0.333	mg/kg wet	3.333		77	40-140			
4-Nitroaniline	2.59	0.333	mg/kg wet	3.333		78	40-140			
4-Nitrophenol	2.33	1.67	mg/kg wet	3.333		70	30-130			
Acenaphthene	2.20	0.333	mg/kg wet	3.333		66	40-140			
Acenaphthylene	2.26	0.333	mg/kg wet	3.333		68	40-140			
Acetophenone	1.99	0.667	mg/kg wet	3.333		60	40-140			
Aniline	1.88	0.667	mg/kg wet	3.333		56	40-140			
Anthracene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Azobenzene	2.30	0.333	mg/kg wet	3.333		69	40-140			
Benzo(a)anthracene	3.12	0.333	mg/kg wet	3.333		94	40-140			
Benzo(a)pyrene	2.88	0.167	mg/kg wet	3.333		86	40-140			
Benzo(b)fluoranthene	2.99	0.333	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	3.17	0.333	mg/kg wet	3.333		95	40-140			
Benzo(k)fluoranthene	2.75	0.333	mg/kg wet	3.333		82	40-140			
Benzoic Acid	2.80	1.67	mg/kg wet	3.333		84	40-140			
Benzyl Alcohol	1.98	0.333	mg/kg wet	3.333		60	40-140			
bis(2-Chloroethoxy)methane	2.29	0.333	mg/kg wet	3.333		69	40-140			
bis(2-Chloroethyl)ether	2.20	0.333	mg/kg wet	3.333		66	40-140			
bis(2-chloroisopropyl)Ether	2.06	0.333	mg/kg wet	3.333		62	40-140			
bis(2-Ethylhexyl)phthalate	2.58	0.333	mg/kg wet	3.333		77	40-140			
Butylbenzylphthalate	2.41	0.333	mg/kg wet	3.333		72	40-140			
Carbazole	2.88	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	3.17	0.167	mg/kg wet	3.333		95	40-140			
Dibenzofuran	2.33	0.333	mg/kg wet	3.333		70	40-140			
Diethylphthalate	2.68	0.333	mg/kg wet	3.333		81	40-140			
Dimethylphthalate	2.55	0.333	mg/kg wet	3.333		77	40-140			
Di-n-butylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140			
Di-n-octylphthalate	2.53	0.333	mg/kg wet	3.333		76	40-140			
Fluoranthene	3.05	0.333	mg/kg wet	3.333		91	40-140			
Fluorene	2.54	0.333	mg/kg wet	3.333		76	40-140			
Hexachlorobenzene	3.08	0.167	mg/kg wet	3.333		92	40-140			
Hexachlorobutadiene	2.22	0.333	mg/kg wet	3.333		67	40-140			
Hexachlorocyclopentadiene	1.98	1.67	mg/kg wet	3.333		59	40-140			
Hexachloroethane	2.01	0.333	mg/kg wet	3.333		60	40-140			
Indeno(1,2,3-cd)Pyrene	3.16	0.333	mg/kg wet	3.333		95	40-140			
Isophorone	2.14	0.333	mg/kg wet	3.333		64	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
Naphthalene	2.15	0.333	mg/kg wet	3.333		64	40-140			
Nitrobenzene	2.20	0.333	mg/kg wet	3.333		66	40-140			
N-Nitrosodimethylamine	2.07	0.333	mg/kg wet	3.333		62	40-140			
N-Nitroso-Di-n-Propylamine	2.42	0.333	mg/kg wet	3.333		73	40-140			
N-nitrosodiphenylamine	2.82	0.333	mg/kg wet	3.333		85	40-140			
Pentachlorophenol	3.50	1.67	mg/kg wet	3.333		105	30-130			
Phenanthrene	2.64	0.333	mg/kg wet	3.333		79	40-140			
Phenol	2.33	0.333	mg/kg wet	3.333		70	30-130			
Pyrene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Pyridine	2.30	1.67	mg/kg wet	3.333		69	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.12*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*5.20*		mg/kg wet	*5.000*		*104*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.37*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.28*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.46*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.29*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.53*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.01*		mg/kg wet	*3.333*		*90*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.11	0.333	mg/kg wet	3.333		63	40-140	5	30	
1,2,4-Trichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140	6	30	
1,2-Dichlorobenzene	2.03	0.333	mg/kg wet	3.333		61	40-140	4	30	
1,3-Dichlorobenzene	2.01	0.333	mg/kg wet	3.333		60	40-140	5	30	
1,4-Dichlorobenzene	1.96	0.333	mg/kg wet	3.333		59	40-140	6	30	
2,3,4,6-Tetrachlorophenol	2.88	1.67	mg/kg wet	3.333		86	30-130	8	30	
2,4,5-Trichlorophenol	2.74	0.333	mg/kg wet	3.333		82	30-130	7	30	
2,4,6-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	4	30	
2,4-Dichlorophenol	2.33	0.333	mg/kg wet	3.333		70	30-130	4	30	
2,4-Dimethylphenol	2.25	0.333	mg/kg wet	3.333		68	30-130	1	30	
2,4-Dinitrophenol	2.78	1.67	mg/kg wet	3.333		83	30-130	4	30	
2,4-Dinitrotoluene	3.09	0.333	mg/kg wet	3.333		93	40-140	5	30	
2,6-Dinitrotoluene	2.56	0.333	mg/kg wet	3.333		77	40-140	4	30	
2-Chloronaphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	4	30	
2-Chlorophenol	2.17	0.333	mg/kg wet	3.333		65	30-130	2	30	
2-Methylnaphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	11	30	
2-Methylphenol	2.36	0.333	mg/kg wet	3.333		71	30-130	0.04	30	
2-Nitroaniline	2.78	0.333	mg/kg wet	3.333		83	40-140	13	30	
2-Nitrophenol	2.31	0.333	mg/kg wet	3.333		69	30-130	3	30	
3,3´-Dichlorobenzidine	2.58	0.667	mg/kg wet	3.333		77	40-140	1	30	
3+4-Methylphenol	4.33	0.667	mg/kg wet	6.667		65	30-130	0.05	30	
3-Nitroaniline	2.58	0.333	mg/kg wet	3.333		77	40-140	3	30	
4,6-Dinitro-2-Methylphenol	3.42	1.67	mg/kg wet	3.333		103	30-130	9	30	
4-Bromophenyl-phenylether	2.85	0.333	mg/kg wet	3.333		86	40-140	3	30	
4-Chloro-3-Methylphenol	2.42	0.333	mg/kg wet	3.333		73	30-130	17	30	
4-Chloroaniline	1.72	0.667	mg/kg wet	3.333		51	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
4-Chloro-phenyl-phenyl ether	2.32	0.333	mg/kg wet	3.333		70	40-140	10	30	
4-Nitroaniline	2.91	0.333	mg/kg wet	3.333		87	40-140	12	30	
4-Nitrophenol	2.57	1.67	mg/kg wet	3.333		77	30-130	10	30	
Acenaphthene	2.14	0.333	mg/kg wet	3.333		64	40-140	3	30	
Acenaphthylene	2.17	0.333	mg/kg wet	3.333		65	40-140	4	30	
Acetophenone	2.02	0.667	mg/kg wet	3.333		61	40-140	1	30	
Aniline	1.89	0.667	mg/kg wet	3.333		57	40-140	0.4	30	
Anthracene	2.66	0.333	mg/kg wet	3.333		80	40-140	4	30	
Azobenzene	2.92	0.333	mg/kg wet	3.333		88	40-140	24	30	
Benzo(a)anthracene	3.10	0.333	mg/kg wet	3.333		93	40-140	0.5	30	
Benzo(a)pyrene	2.82	0.167	mg/kg wet	3.333		85	40-140	2	30	
Benzo(b)fluoranthene	2.99	0.333	mg/kg wet	3.333		90	40-140	0.2	30	
Benzo(g,h,i)perylene	3.03	0.333	mg/kg wet	3.333		91	40-140	4	30	
Benzo(k)fluoranthene	2.65	0.333	mg/kg wet	3.333		80	40-140	3	30	
Benzoic Acid	2.69	1.67	mg/kg wet	3.333		81	40-140	4	30	
Benzyl Alcohol	1.98	0.333	mg/kg wet	3.333		59	40-140	0.4	30	
bis(2-Chloroethoxy)methane	2.21	0.333	mg/kg wet	3.333		66	40-140	4	30	
bis(2-Chloroethyl)ether	2.17	0.333	mg/kg wet	3.333		65	40-140	1	30	
bis(2-chloroisopropyl)Ether	2.04	0.333	mg/kg wet	3.333		61	40-140	0.9	30	
bis(2-Ethylhexyl)phthalate	2.62	0.333	mg/kg wet	3.333		79	40-140	2	30	
Butylbenzylphthalate	2.48	0.333	mg/kg wet	3.333		74	40-140	3	30	
Carbazole	2.78	0.333	mg/kg wet	3.333		84	40-140	3	30	
Chrysene	2.75	0.167	mg/kg wet	3.333		82	40-140	1	30	
Dibenzo(a,h)Anthracene	3.05	0.167	mg/kg wet	3.333		92	40-140	4	30	
Dibenzofuran	2.22	0.333	mg/kg wet	3.333		66	40-140	5	30	
Diethylphthalate	2.63	0.333	mg/kg wet	3.333		79	40-140	2	30	
Dimethylphthalate	2.46	0.333	mg/kg wet	3.333		74	40-140	4	30	
Di-n-butylphthalate	2.88	0.333	mg/kg wet	3.333		86	40-140	2	30	
Di-n-octylphthalate	2.59	0.333	mg/kg wet	3.333		78	40-140	2	30	
Fluoranthene	2.92	0.333	mg/kg wet	3.333		88	40-140	4	30	
Fluorene	2.37	0.333	mg/kg wet	3.333		71	40-140	7	30	
Hexachlorobenzene	3.05	0.167	mg/kg wet	3.333		92	40-140	0.9	30	
Hexachlorobutadiene	2.09	0.333	mg/kg wet	3.333		63	40-140	6	30	
Hexachlorocyclopentadiene	1.88	1.67	mg/kg wet	3.333		56	40-140	5	30	
Hexachloroethane	1.96	0.333	mg/kg wet	3.333		59	40-140	2	30	
Indeno(1,2,3-cd)Pyrene	3.05	0.333	mg/kg wet	3.333		91	40-140	4	30	
Isophorone	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
Naphthalene	2.00	0.333	mg/kg wet	3.333		60	40-140	7	30	
Nitrobenzene	2.17	0.333	mg/kg wet	3.333		65	40-140	1	30	
N-Nitrosodimethylamine	1.99	0.333	mg/kg wet	3.333		60	40-140	4	30	
N-Nitroso-Di-n-Propylamine	2.39	0.333	mg/kg wet	3.333		72	40-140	1	30	
N-nitrosodiphenylamine	3.18	0.333	mg/kg wet	3.333		95	40-140	12	30	
Pentachlorophenol	3.40	1.67	mg/kg wet	3.333		102	30-130	3	30	
Phenanthrene	2.57	0.333	mg/kg wet	3.333		77	40-140	3	30	
Phenol	2.51	0.333	mg/kg wet	3.333		75	30-130	7	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91228 - 3546										
Pyrene	2.89	0.333	mg/kg wet	3.333		87	40-140	2	30	
Pyridine	2.10	1.67	mg/kg wet	3.333		63	40-140	9	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.09*		mg/kg wet	*3.333*		*63*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*5.20*		mg/kg wet	*5.000*		*104*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.36*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.26*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.43*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.30*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.59*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.23*		mg/kg wet	*3.333*		*97*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0301

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0301

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0301
Date Received: 12/11/2019
Project Due Date: 12/18/2019
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: 1.7 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: 12/11/19 Time: 2031 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	420151	Yes	NA	Yes	VOA Vial - Other	Other	
01	420152	Yes	NA	Yes	VOA Vial - Other	Other	
01	420153	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	420637	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	420638	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/11/19 2023
Reviewed By: Date & Time: 12/11/19 2031
Delivered By: 12/11/19 2031

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 # 1910301

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?:
☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specify) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/11/19	630	Grab/Compo	Soil	20191211-001 (Pile 5)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

GV	GV	AG	AG	AG	
6/10	1	1	1	1	
Number of Containers: 3*	1*	1*	1*	1*	

Laboratory Use Only
Cooler Present: ✓
Seals Intact: ____
Cooler Temperature: 1-2 °C

Sampled by: H Stone

Comments: Please specify "Other" preservative and containers types in this space
*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 12/11/2019 at 7:45 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/11/19 7:45	12/11 9:38	12/11 14:31	12/11/19 1431
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0368

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 12:38 pm, Dec 19, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

SAMPLE RECEIPT

The following samples were received on December 12, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
19L0368-01	20191212-001 Pile 6	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0368

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

C9L0203-CCV1	**Calibration required quadratic regression (Q).** 2,4-Dinitrophenol (118% @ 80-120%), 4,6-Dinitro-2-Methylphenol (116% @ 80-120%), Benzoic Acid (109% @ 80-120%), Pentachlorophenol (121% @ 80-120%)
C9L0203-CCV1	**Continuing Calibration %Diff/Drift is above control limit (CD+).** Pentachlorophenol (21% @ 20%)
C9L0203-CCV1	**Initial Calibration Verification recovery is below lower control limit (ICV-).** Aniline
C9L0227-CCV1	**Calibration required quadratic regression (Q).** 2,4-Dinitrophenol (72% @ 80-120%), Benzoic Acid (89% @ 80-120%), Pentachlorophenol (96% @ 80-120%)
C9L0227-CCV1	**Continuing Calibration %Diff/Drift is above control limit (CD+).** 2-Nitroaniline (24% @ 20%), Aniline (23% @ 20%), N-Nitroso-Di-n-Propylamine (25% @ 20%), Phenol (31% @ 20%), Pyridine (21% @ 20%)
C9L0227-CCV1	**Continuing Calibration %Diff/Drift is below control limit (CD-).** 2,4-Dinitrophenol (28% @ 20%)
CL91229-BSD1	**Blank Spike recovery is below lower control limit (B-).** 4-Chloroaniline (34% @ 40-140%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.04)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Arsenic	ND (2.52)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Barium	**458** (2.52)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Beryllium	**0.20** (0.11)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Cadmium	ND (0.50)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Chromium	**12.2** (1.01)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Copper	**27.2** (2.52)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Lead	**429** (5.04)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Mercury	**0.071** (0.031)		7471B		1	MKS	12/17/19 9:57	0.71	40	CL91338
Nickel	**6.04** (2.52)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Selenium	ND (5.04)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Silver	ND (0.50)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Thallium	ND (5.04)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337
Zinc	**92.9** (2.52)		6010C		1	KJK	12/13/19 21:36	2.24	100	CL91337

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,1,1-Trichloroethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,1,2,2-Tetrachloroethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,1,2-Trichloroethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,1-Dichloroethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,1-Dichloroethene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,1-Dichloropropene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2,3-Trichlorobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2,3-Trichloropropane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2,4-Trichlorobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2,4-Trimethylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2-Dibromo-3-Chloropropane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2-Dibromoethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2-Dichlorobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2-Dichloroethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,2-Dichloropropane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,3,5-Trimethylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,3-Dichlorobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,3-Dichloropropane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,4-Dichlorobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1,4-Dioxane	ND (0.0559)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
1-Chlorohexane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
2,2-Dichloropropane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
2-Butanone	ND (0.0279)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
2-Chlorotoluene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
2-Hexanone	ND (0.0279)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
4-Chlorotoluene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
4-Isopropyltoluene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
4-Methyl-2-Pentanone	ND (0.0279)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Acetone	ND (0.0279)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Benzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Bromobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Bromodichloromethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Bromoform	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Bromomethane	ND (0.0056)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Carbon Disulfide	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Carbon Tetrachloride	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Chlorobenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Chloroethane	ND (0.0056)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Chloroform	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Chloromethane	ND (0.0056)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
cis-1,2-Dichloroethene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
cis-1,3-Dichloropropene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Dibromochloromethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Dibromomethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Dichlorodifluoromethane	ND (0.0056)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Diethyl Ether	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Di-isopropyl ether	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Ethyl tertiary-butyl ether	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Ethylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Hexachlorobutadiene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Isopropylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Methyl tert-Butyl Ether	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Methylene Chloride	ND (0.0140)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Naphthalene	**0.0028** (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
n-Butylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
n-Propylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
sec-Butylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Styrene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
tert-Butylbenzene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Tertiary-amyl methyl ether	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Tetrachloroethene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Tetrahydrofuran	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 10.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
trans-1,2-Dichloroethene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
trans-1,3-Dichloropropene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Trichloroethene	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Trichlorofluoromethane	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Vinyl Acetate	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Vinyl Chloride	ND (0.0056)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Xylene O	ND (0.0028)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Xylene P,M	ND (0.0056)		8260B Low		1	12/14/19 20:38	C9L0233	CL91403
Xylenes (Total)	ND (0.00559)		8260B Low		1	12/14/19 20:38		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*105 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*93 %*		*70-130*
Surrogate: Dibromofluoromethane	*104 %*		*70-130*
Surrogate: Toluene-d8	*102 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 20
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/13/19 13:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1221	ND (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1232	ND (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1242	ND (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1248	ND (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1254 [2C]	**0.3** (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1260 [2C]	**0.2** (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1262	ND (0.06)		8082A		1	12/17/19 23:08		CL91216
Aroclor 1268	ND (0.06)		8082A		1	12/17/19 23:08		CL91216

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*64 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*65 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*88 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 19.8
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/12/19 20:36

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**393** (42.7)		8100M		1	12/13/19 20:37	C9L0171	CL91227

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/12/19 20:17

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
1,2,4-Trichlorobenzene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
1,2-Dichlorobenzene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
1,3-Dichlorobenzene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
1,4-Dichlorobenzene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,3,4,6-Tetrachlorophenol	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,4,5-Trichlorophenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,4,6-Trichlorophenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,4-Dichlorophenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,4-Dimethylphenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,4-Dinitrophenol	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,4-Dinitrotoluene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2,6-Dinitrotoluene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2-Chloronaphthalene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2-Chlorophenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2-Methylnaphthalene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2-Methylphenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2-Nitroaniline	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
2-Nitrophenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
3,3´-Dichlorobenzidine	ND (0.733)		8270D		1	12/16/19 22:07	C9L0227	CL91229
3+4-Methylphenol	ND (0.733)		8270D		1	12/16/19 22:07	C9L0227	CL91229
3-Nitroaniline	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4,6-Dinitro-2-Methylphenol	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4-Bromophenyl-phenylether	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4-Chloro-3-Methylphenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4-Chloroaniline	ND (0.733)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4-Chloro-phenyl-phenyl ether	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4-Nitroaniline	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
4-Nitrophenol	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Acenaphthene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Acenaphthylene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Acetophenone	ND (0.733)		8270D		1	12/16/19 22:07	C9L0227	CL91229

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/12/19 20:17

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.733)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Anthracene	**0.579** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Azobenzene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzo(a)anthracene	**1.66** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzo(a)pyrene	**1.51** (0.184)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzo(b)fluoranthene	**1.30** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzo(g,h,i)perylene	**0.924** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzo(k)fluoranthene	**1.17** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzoic Acid	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Benzyl Alcohol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
bis(2-Chloroethoxy)methane	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
bis(2-Chloroethyl)ether	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
bis(2-chloroisopropyl)Ether	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
bis(2-Ethylhexyl)phthalate	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Butylbenzylphthalate	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Carbazole	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Chrysene	**1.53** (0.184)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Dibenzo(a,h)Anthracene	**0.307** (0.184)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Dibenzofuran	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Diethylphthalate	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Dimethylphthalate	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Di-n-butylphthalate	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Di-n-octylphthalate	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Fluoranthene	**3.55** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Fluorene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Hexachlorobenzene	ND (0.184)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Hexachlorobutadiene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Hexachlorocyclopentadiene	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Hexachloroethane	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Indeno(1,2,3-cd)Pyrene	**0.822** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Isophorone	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Naphthalene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191212-001 Pile 6
Date Sampled: 12/12/19 06:00
Percent Solids: 89
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0368
ESS Laboratory Sample ID: 19L0368-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/12/19 20:17

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
N-Nitrosodimethylamine	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
N-Nitroso-Di-n-Propylamine	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
N-nitrosodiphenylamine	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Pentachlorophenol	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Phenanthrene	**2.73** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Phenol	ND (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Pyrene	**3.27** (0.366)		8270D		1	12/16/19 22:07	C9L0227	CL91229
Pyridine	ND (1.84)		8270D		1	12/16/19 22:07	C9L0227	CL91229

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*57 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*79 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*65 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*62 %*		*30-130*
Surrogate: 2-Fluorophenol	*64 %*		*30-130*
Surrogate: Nitrobenzene-d5	*66 %*		*30-130*
Surrogate: Phenol-d6	*72 %*		*30-130*
Surrogate: p-Terphenyl-d14	*74 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL91337 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	34.8	16.4	mg/kg wet	51.30		68	0-302			
Arsenic	184	8.20	mg/kg wet	202.0		91	80-120			
Barium	329	8.20	mg/kg wet	343.0		96	80-120			
Beryllium	45.2	0.36	mg/kg wet	52.10		87	80-120			
Cadmium	119	1.64	mg/kg wet	149.0		80	80-120			
Chromium	168	3.28	mg/kg wet	182.0		92	80-120			
Copper	205	8.20	mg/kg wet	225.0		91	80-120			
Lead	303	16.4	mg/kg wet	333.0		91	80-120			
Nickel	155	8.20	mg/kg wet	167.0		93	80-120			
Selenium	152	16.4	mg/kg wet	169.0		90	80-120			
Silver	42.0	1.64	mg/kg wet	48.90		86	80-120			
Thallium	66.5	16.4	mg/kg wet	82.30		81	62-139			
Zinc	403	8.20	mg/kg wet	459.0		88	80-120			
LCS Dup										
Antimony	37.3	16.7	mg/kg wet	51.30		73	0-302	7	20	
Arsenic	190	8.33	mg/kg wet	202.0		94	80-120	3	20	
Barium	349	8.33	mg/kg wet	343.0		102	80-120	6	20	
Beryllium	45.7	0.37	mg/kg wet	52.10		88	80-120	1	20	
Cadmium	123	1.67	mg/kg wet	149.0		82	80-120	3	20	
Chromium	172	3.33	mg/kg wet	182.0		94	80-120	2	20	
Copper	210	8.33	mg/kg wet	225.0		93	80-120	3	20	
Lead	309	16.7	mg/kg wet	333.0		93	80-120	2	20	
Nickel	158	8.33	mg/kg wet	167.0		95	80-120	2	20	
Selenium	158	16.7	mg/kg wet	169.0		93	80-120	4	20	
Silver	45.7	1.67	mg/kg wet	48.90		93	80-120	8	20	
Thallium	64.1	16.7	mg/kg wet	82.30		78	62-139	4	20	
Zinc	402	8.33	mg/kg wet	459.0		88	80-120	0.08	20	
Batch CL91338 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL91338 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	9.18	0.582	mg/kg wet	7.760		118	80-120			
LCS Dup										
Mercury	8.80	0.609	mg/kg wet	7.760		113	80-120	4	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0509*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0475*		mg/kg wet	*0.05000*		*95*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0502*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Toluene-d8	*0.0505*		mg/kg wet	*0.05000*		*101*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0551	0.0050	mg/kg wet	0.05000		110	70-130			
1,1,1-Trichloroethane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
1,1,2,2-Tetrachloroethane	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
1,1,2-Trichloroethane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
1,1-Dichloroethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloroethene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,1-Dichloropropene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,2,3-Trichlorobenzene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
1,2,3-Trichloropropane	0.0404	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trichlorobenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130			
1,2,4-Trimethylbenzene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130			
1,2-Dibromo-3-Chloropropane	0.0420	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dibromoethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloroethane	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichloropropane	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,3,5-Trimethylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
1,3-Dichlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
1,3-Dichloropropane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
1,4-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,4-Dioxane	0.726	0.100	mg/kg wet	1.000		73	70-130			
1-Chlorohexane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
2,2-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
2-Butanone	0.233	0.0500	mg/kg wet	0.2500		93	70-130			
2-Chlorotoluene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
2-Hexanone	0.214	0.0500	mg/kg wet	0.2500		86	70-130			
4-Chlorotoluene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
4-Isopropyltoluene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
4-Methyl-2-Pentanone	0.191	0.0500	mg/kg wet	0.2500		76	70-130			
Acetone	0.202	0.0500	mg/kg wet	0.2500		81	70-130			
Benzene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
Bromobenzene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130			
Bromochloromethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Bromodichloromethane	0.0543	0.0050	mg/kg wet	0.05000		109	70-130			
Bromoform	0.0435	0.0050	mg/kg wet	0.05000		87	70-130			
Bromomethane	0.0446	0.0100	mg/kg wet	0.05000		89	70-130			
Carbon Disulfide	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Carbon Tetrachloride	0.0580	0.0050	mg/kg wet	0.05000		116	70-130			
Chlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
Chloroethane	0.0466	0.0100	mg/kg wet	0.05000		93	70-130			
Chloroform	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
Chloromethane	0.0455	0.0100	mg/kg wet	0.05000		91	70-130			
cis-1,2-Dichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
cis-1,3-Dichloropropene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Dibromochloromethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Dibromomethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Dichlorodifluoromethane	0.0386	0.0100	mg/kg wet	0.05000		77	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Diethyl Ether	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
Di-isopropyl ether	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Ethyl tertiary-butyl ether	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
Ethylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Hexachlorobutadiene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130			
Isopropylbenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130			
Methyl tert-Butyl Ether	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Methylene Chloride	0.0487	0.0250	mg/kg wet	0.05000		97	70-130			
Naphthalene	0.0412	0.0050	mg/kg wet	0.05000		82	70-130			
n-Butylbenzene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130			
n-Propylbenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
sec-Butylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Styrene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
tert-Butylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130			
Tertiary-amyl methyl ether	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Tetrachloroethene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Tetrahydrofuran	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
Toluene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
trans-1,2-Dichloroethene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
trans-1,3-Dichloropropene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
Trichloroethene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
Trichlorofluoromethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Vinyl Acetate	0.0383	0.0050	mg/kg wet	0.05000		77	70-130			
Vinyl Chloride	0.0447	0.0100	mg/kg wet	0.05000		89	70-130			
Xylene O	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Xylene P,M	0.111	0.0100	mg/kg wet	0.1000		111	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0458*		mg/kg wet	*0.05000*		*92*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0483*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0496*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Toluene-d8	*0.0496*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	5	25	
1,1,1-Trichloroethane	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	4	25	
1,1,2-Trichloroethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	4	25	
1,1-Dichloroethane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
1,1-Dichloroethene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	2	25	
1,1-Dichloropropene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	2	25	
1,2,3-Trichlorobenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	5	25	
1,2,3-Trichloropropane	0.0408	0.0050	mg/kg wet	0.05000		82	70-130	1	25	
1,2,4-Trichlorobenzene	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	3	25	
1,2,4-Trimethylbenzene	0.0605	0.0050	mg/kg wet	0.05000		121	70-130	5	25	
1,2-Dibromo-3-Chloropropane	0.0439	0.0050	mg/kg wet	0.05000		88	70-130	4	25	
1,2-Dibromoethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	4	25	
1,2-Dichlorobenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	5	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
1,2-Dichloroethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
1,2-Dichloropropane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	3	25	
1,3,5-Trimethylbenzene	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	6	25	
1,3-Dichlorobenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	5	25	
1,3-Dichloropropane	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	6	25	
1,4-Dichlorobenzene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	6	25	
1,4-Dioxane	0.822	0.100	mg/kg wet	1.000		82	70-130	13	20	
1-Chlorohexane	0.0593	0.0050	mg/kg wet	0.05000		119	70-130	5	25	
2,2-Dichloropropane	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	2	25	
2-Butanone	0.241	0.0500	mg/kg wet	0.2500		97	70-130	3	25	
2-Chlorotoluene	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	6	25	
2-Hexanone	0.225	0.0500	mg/kg wet	0.2500		90	70-130	5	25	
4-Chlorotoluene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
4-Isopropyltoluene	0.0577	0.0050	mg/kg wet	0.05000		115	70-130	3	25	
4-Methyl-2-Pentanone	0.203	0.0500	mg/kg wet	0.2500		81	70-130	6	25	
Acetone	0.207	0.0500	mg/kg wet	0.2500		83	70-130	3	25	
Benzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	2	25	
Bromobenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	3	25	
Bromochloromethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Bromodichloromethane	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	4	25	
Bromoform	0.0465	0.0050	mg/kg wet	0.05000		93	70-130	7	25	
Bromomethane	0.0437	0.0100	mg/kg wet	0.05000		87	70-130	2	25	
Carbon Disulfide	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	3	25	
Carbon Tetrachloride	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	2	25	
Chlorobenzene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	6	25	
Chloroethane	0.0470	0.0100	mg/kg wet	0.05000		94	70-130	0.9	25	
Chloroform	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
Chloromethane	0.0470	0.0100	mg/kg wet	0.05000		94	70-130	3	25	
cis-1,2-Dichloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
cis-1,3-Dichloropropene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	4	25	
Dibromochloromethane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
Dibromomethane	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
Dichlorodifluoromethane	0.0392	0.0100	mg/kg wet	0.05000		78	70-130	2	25	
Diethyl Ether	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	5	25	
Di-isopropyl ether	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	3	25	
Ethyl tertiary-butyl ether	0.0476	0.0050	mg/kg wet	0.05000		95	70-130	0.3	25	
Ethylbenzene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	7	25	
Hexachlorobutadiene	0.0599	0.0050	mg/kg wet	0.05000		120	70-130	3	25	
Isopropylbenzene	0.0580	0.0050	mg/kg wet	0.05000		116	70-130	4	25	
Methyl tert-Butyl Ether	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	4	25	
Methylene Chloride	0.0503	0.0250	mg/kg wet	0.05000		101	70-130	3	25	
Naphthalene	0.0420	0.0050	mg/kg wet	0.05000		84	70-130	2	25	
n-Butylbenzene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	2	25	
n-Propylbenzene	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	4	25	
sec-Butylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	3	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91403 - 5035										
Styrene	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
tert-Butylbenzene	0.0584	0.0050	mg/kg wet	0.05000		117	70-130	4	25	
Tertiary-amyl methyl ether	0.0475	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
Tetrachloroethene	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
Tetrahydrofuran	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	5	25	
Toluene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	4	25	
trans-1,2-Dichloroethene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	3	25	
trans-1,3-Dichloropropene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130	3	25	
Trichloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	4	25	
Trichlorofluoromethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
Vinyl Acetate	0.0399	0.0050	mg/kg wet	0.05000		80	70-130	4	25	
Vinyl Chloride	0.0457	0.0100	mg/kg wet	0.05000		91	70-130	2	25	
Xylene O	0.0582	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
Xylene P,M	0.119	0.0100	mg/kg wet	0.1000		119	70-130	7	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0456*		mg/kg wet	*0.05000*		*91*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Toluene-d8	*0.0515*		mg/kg wet	*0.05000*		*103*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91216 - 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	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0229*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0167*		mg/kg wet	*0.02500*		*67*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0195*		mg/kg wet	*0.02500*		*78*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91216 - 3540C										
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		98	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		84	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		102	40-140			
Surrogate: Decachlorobiphenyl	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0188*		mg/kg wet	*0.02500*		*75*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0198*		mg/kg wet	*0.02500*		*79*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		96	40-140	3	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		105	40-140	6	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		83	40-140	1	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0239*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0207*		mg/kg wet	*0.02500*		*83*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL91227 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.52*		mg/kg wet	*5.000*		*90*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		68	40-140			
Docosane (C22)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		72	40-140			
Eicosane (C20)	2.0	0.2	mg/kg wet	2.500		80	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL91227 - 3546										
Hexacosane (C26)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		61	30-140			
Octacosane (C28)	2.0	0.2	mg/kg wet	2.500		82	40-140			
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Tetracosane (C24)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Total Petroleum Hydrocarbons	27.5	37.5	mg/kg wet	35.00		79	40-140			
Triacontane (C30)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Surrogate: O-Terphenyl	*4.50*		mg/kg wet	*5.000*		*90*	*40-140*			
LCS Dup										
Decane (C10)	1.5	0.2	mg/kg wet	2.500		61	40-140	11	25	
Docosane (C22)	2.0	0.2	mg/kg wet	2.500		80	40-140	1	25	
Dodecane (C12)	1.7	0.2	mg/kg wet	2.500		67	40-140	8	25	
Eicosane (C20)	2.0	0.2	mg/kg wet	2.500		79	40-140	2	25	
Hexacosane (C26)	2.0	0.2	mg/kg wet	2.500		80	40-140	1	25	
Hexadecane (C16)	1.8	0.2	mg/kg wet	2.500		73	40-140	5	25	
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		90	40-140	3	25	
Nonane (C9)	1.3	0.2	mg/kg wet	2.500		54	30-140	13	25	
Octacosane (C28)	2.0	0.2	mg/kg wet	2.500		81	40-140	1	25	
Octadecane (C18)	1.9	0.2	mg/kg wet	2.500		76	40-140	4	25	
Tetracosane (C24)	2.0	0.2	mg/kg wet	2.500		80	40-140	1	25	
Tetradecane (C14)	1.8	0.2	mg/kg wet	2.500		71	40-140	7	25	
Total Petroleum Hydrocarbons	26.5	37.5	mg/kg wet	35.00		76	40-140	4	25	
Triacontane (C30)	2.0	0.2	mg/kg wet	2.500		82	40-140	0.8	25	
Surrogate: O-Terphenyl	*4.22*		mg/kg wet	*5.000*		*84*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.03*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.50*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.13*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2-Fluorophenol	*3.53*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.33*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: Phenol-d6	*3.59*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.62*		mg/kg wet	*3.333*		*78*	*30-130*			
LCS										
1,1-Biphenyl	2.20	0.333	mg/kg wet	3.333		66	40-140			
1,2,4-Trichlorobenzene	2.13	0.333	mg/kg wet	3.333		64	40-140			
1,2-Dichlorobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140			
1,3-Dichlorobenzene	2.09	0.333	mg/kg wet	3.333		63	40-140			
1,4-Dichlorobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140			
2,3,4,6-Tetrachlorophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
2,4,5-Trichlorophenol	2.78	0.333	mg/kg wet	3.333		83	30-130			
2,4,6-Trichlorophenol	2.64	0.333	mg/kg wet	3.333		79	30-130			
2,4-Dichlorophenol	2.51	0.333	mg/kg wet	3.333		75	30-130			
2,4-Dimethylphenol	2.45	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dinitrophenol	3.46	1.67	mg/kg wet	3.333		104	30-130			
2,4-Dinitrotoluene	3.01	0.333	mg/kg wet	3.333		90	40-140			
2,6-Dinitrotoluene	2.74	0.333	mg/kg wet	3.333		82	40-140			
2-Chloronaphthalene	2.15	0.333	mg/kg wet	3.333		65	40-140			
2-Chlorophenol	2.31	0.333	mg/kg wet	3.333		69	30-130			
2-Methylnaphthalene	2.22	0.333	mg/kg wet	3.333		67	40-140			
2-Methylphenol	2.39	0.333	mg/kg wet	3.333		72	30-130			
2-Nitroaniline	2.84	0.333	mg/kg wet	3.333		85	40-140			
2-Nitrophenol	2.24	0.333	mg/kg wet	3.333		67	30-130			
3,3´-Dichlorobenzidine	2.01	0.667	mg/kg wet	3.333		60	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
3+4-Methylphenol	4.92	0.667	mg/kg wet	6.667		74	30-130			
3-Nitroaniline	2.48	0.333	mg/kg wet	3.333		74	40-140			
4,6-Dinitro-2-Methylphenol	3.31	1.67	mg/kg wet	3.333		99	30-130			
4-Bromophenyl-phenylether	2.67	0.333	mg/kg wet	3.333		80	40-140			
4-Chloro-3-Methylphenol	2.89	0.333	mg/kg wet	3.333		87	30-130			
4-Chloroaniline	1.32	0.667	mg/kg wet	3.333		40	40-140			
4-Chloro-phenyl-phenyl ether	2.63	0.333	mg/kg wet	3.333		79	40-140			
4-Nitroaniline	2.44	0.333	mg/kg wet	3.333		73	40-140			
4-Nitrophenol	3.02	1.67	mg/kg wet	3.333		90	30-130			
Acenaphthene	2.35	0.333	mg/kg wet	3.333		71	40-140			
Acenaphthylene	2.38	0.333	mg/kg wet	3.333		71	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.62	0.667	mg/kg wet	3.333		48	40-140			
Anthracene	2.65	0.333	mg/kg wet	3.333		79	40-140			
Azobenzene	2.51	0.333	mg/kg wet	3.333		75	40-140			
Benzo(a)anthracene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Benzo(a)pyrene	2.69	0.167	mg/kg wet	3.333		81	40-140			
Benzo(b)fluoranthene	2.99	0.333	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	3.03	0.333	mg/kg wet	3.333		91	40-140			
Benzo(k)fluoranthene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Benzoic Acid	3.24	1.67	mg/kg wet	3.333		97	40-140			
Benzyl Alcohol	1.95	0.333	mg/kg wet	3.333		58	40-140			
bis(2-Chloroethoxy)methane	2.19	0.333	mg/kg wet	3.333		66	40-140			
bis(2-Chloroethyl)ether	2.19	0.333	mg/kg wet	3.333		66	40-140			
bis(2-chloroisopropyl)Ether	2.16	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Ethylhexyl)phthalate	2.81	0.333	mg/kg wet	3.333		84	40-140			
Butylbenzylphthalate	2.64	0.333	mg/kg wet	3.333		79	40-140			
Carbazole	2.75	0.333	mg/kg wet	3.333		83	40-140			
Chrysene	2.69	0.167	mg/kg wet	3.333		81	40-140			
Dibenzo(a,h)Anthracene	3.04	0.167	mg/kg wet	3.333		91	40-140			
Dibenzofuran	2.51	0.333	mg/kg wet	3.333		75	40-140			
Diethylphthalate	2.88	0.333	mg/kg wet	3.333		86	40-140			
Dimethylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Di-n-butylphthalate	2.88	0.333	mg/kg wet	3.333		86	40-140			
Di-n-octylphthalate	2.85	0.333	mg/kg wet	3.333		86	40-140			
Fluoranthene	2.75	0.333	mg/kg wet	3.333		82	40-140			
Fluorene	2.75	0.333	mg/kg wet	3.333		83	40-140			
Hexachlorobenzene	2.71	0.167	mg/kg wet	3.333		81	40-140			
Hexachlorobutadiene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Hexachlorocyclopentadiene	1.65	1.67	mg/kg wet	3.333		50	40-140			
Hexachloroethane	2.08	0.333	mg/kg wet	3.333		62	40-140			
Indeno(1,2,3-cd)Pyrene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Isophorone	2.03	0.333	mg/kg wet	3.333		61	40-140			
Naphthalene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Nitrobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
N-Nitrosodimethylamine	2.09	0.333	mg/kg wet	3.333		63	40-140			
N-Nitroso-Di-n-Propylamine	2.31	0.333	mg/kg wet	3.333		69	40-140			
N-nitrosodiphenylamine	2.74	0.333	mg/kg wet	3.333		82	40-140			
Pentachlorophenol	3.42	1.67	mg/kg wet	3.333		103	30-130			
Phenanthrene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Phenol	2.35	0.333	mg/kg wet	3.333		70	30-130			
Pyrene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Pyridine	2.13	1.67	mg/kg wet	3.333		64	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.19*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.44*		mg/kg wet	*5.000*		*89*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.61*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.30*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2-Fluorophenol	*3.58*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.33*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: Phenol-d6	*3.68*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.80*		mg/kg wet	*3.333*		*84*	*30-130*			
LCS Dup										
1,1-Biphenyl	1.85	0.333	mg/kg wet	3.333		55	40-140	17	30	
1,2,4-Trichlorobenzene	1.84	0.333	mg/kg wet	3.333		55	40-140	14	30	
1,2-Dichlorobenzene	1.81	0.333	mg/kg wet	3.333		54	40-140	16	30	
1,3-Dichlorobenzene	1.77	0.333	mg/kg wet	3.333		53	40-140	16	30	
1,4-Dichlorobenzene	1.79	0.333	mg/kg wet	3.333		54	40-140	14	30	
2,3,4,6-Tetrachlorophenol	2.34	1.67	mg/kg wet	3.333		70	30-130	19	30	
2,4,5-Trichlorophenol	2.29	0.333	mg/kg wet	3.333		69	30-130	19	30	
2,4,6-Trichlorophenol	2.16	0.333	mg/kg wet	3.333		65	30-130	20	30	
2,4-Dichlorophenol	2.06	0.333	mg/kg wet	3.333		62	30-130	20	30	
2,4-Dimethylphenol	2.03	0.333	mg/kg wet	3.333		61	30-130	19	30	
2,4-Dinitrophenol	2.87	1.67	mg/kg wet	3.333		86	30-130	19	30	
2,4-Dinitrotoluene	2.55	0.333	mg/kg wet	3.333		77	40-140	16	30	
2,6-Dinitrotoluene	2.28	0.333	mg/kg wet	3.333		68	40-140	18	30	
2-Chloronaphthalene	1.79	0.333	mg/kg wet	3.333		54	40-140	18	30	
2-Chlorophenol	1.98	0.333	mg/kg wet	3.333		60	30-130	15	30	
2-Methylnaphthalene	1.87	0.333	mg/kg wet	3.333		56	40-140	17	30	
2-Methylphenol	2.00	0.333	mg/kg wet	3.333		60	30-130	18	30	
2-Nitroaniline	2.30	0.333	mg/kg wet	3.333		69	40-140	21	30	
2-Nitrophenol	1.93	0.333	mg/kg wet	3.333		58	30-130	15	30	
3,3´-Dichlorobenzidine	1.65	0.667	mg/kg wet	3.333		50	40-140	20	30	
3+4-Methylphenol	4.10	0.667	mg/kg wet	6.667		62	30-130	18	30	
3-Nitroaniline	2.02	0.333	mg/kg wet	3.333		61	40-140	21	30	
4,6-Dinitro-2-Methylphenol	2.84	1.67	mg/kg wet	3.333		85	30-130	15	30	
4-Bromophenyl-phenylether	2.23	0.333	mg/kg wet	3.333		67	40-140	18	30	
4-Chloro-3-Methylphenol	2.33	0.333	mg/kg wet	3.333		70	30-130	21	30	
4-Chloroaniline	1.12	0.667	mg/kg wet	3.333		34	40-140	17	30	B-
4-Chloro-phenyl-phenyl ether	2.17	0.333	mg/kg wet	3.333		65	40-140	19	30	
4-Nitroaniline	2.09	0.333	mg/kg wet	3.333		63	40-140	16	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
4-Nitrophenol	2.51	1.67	mg/kg wet	3.333		75	30-130	18	30	
Acenaphthene	1.94	0.333	mg/kg wet	3.333		58	40-140	19	30	
Acenaphthylene	1.92	0.333	mg/kg wet	3.333		58	40-140	21	30	
Acetophenone	1.96	0.667	mg/kg wet	3.333		59	40-140	14	30	
Aniline	1.32	0.667	mg/kg wet	3.333		40	40-140	20	30	
Anthracene	2.25	0.333	mg/kg wet	3.333		67	40-140	16	30	
Azobenzene	2.09	0.333	mg/kg wet	3.333		63	40-140	18	30	
Benzo(a)anthracene	2.37	0.333	mg/kg wet	3.333		71	40-140	17	30	
Benzo(a)pyrene	2.30	0.167	mg/kg wet	3.333		69	40-140	16	30	
Benzo(b)fluoranthene	2.38	0.333	mg/kg wet	3.333		71	40-140	23	30	
Benzo(g,h,i)perylene	2.52	0.333	mg/kg wet	3.333		75	40-140	19	30	
Benzo(k)fluoranthene	2.34	0.333	mg/kg wet	3.333		70	40-140	11	30	
Benzoic Acid	2.71	1.67	mg/kg wet	3.333		81	40-140	18	30	
Benzyl Alcohol	1.66	0.333	mg/kg wet	3.333		50	40-140	16	30	
bis(2-Chloroethoxy)methane	1.86	0.333	mg/kg wet	3.333		56	40-140	16	30	
bis(2-Chloroethyl)ether	1.86	0.333	mg/kg wet	3.333		56	40-140	16	30	
bis(2-chloroisopropyl)Ether	1.86	0.333	mg/kg wet	3.333		56	40-140	15	30	
bis(2-Ethylhexyl)phthalate	2.43	0.333	mg/kg wet	3.333		73	40-140	14	30	
Butylbenzylphthalate	2.27	0.333	mg/kg wet	3.333		68	40-140	15	30	
Carbazole	2.36	0.333	mg/kg wet	3.333		71	40-140	16	30	
Chrysene	2.28	0.167	mg/kg wet	3.333		68	40-140	16	30	
Dibenzo(a,h)Anthracene	2.52	0.167	mg/kg wet	3.333		76	40-140	19	30	
Dibenzofuran	2.04	0.333	mg/kg wet	3.333		61	40-140	21	30	
Diethylphthalate	2.42	0.333	mg/kg wet	3.333		73	40-140	17	30	
Dimethylphthalate	2.29	0.333	mg/kg wet	3.333		69	40-140	19	30	
Di-n-butylphthalate	2.60	0.333	mg/kg wet	3.333		78	40-140	10	30	
Di-n-octylphthalate	2.44	0.333	mg/kg wet	3.333		73	40-140	15	30	
Fluoranthene	2.35	0.333	mg/kg wet	3.333		70	40-140	16	30	
Fluorene	2.23	0.333	mg/kg wet	3.333		67	40-140	21	30	
Hexachlorobenzene	2.25	0.167	mg/kg wet	3.333		68	40-140	19	30	
Hexachlorobutadiene	1.86	0.333	mg/kg wet	3.333		56	40-140	13	30	
Hexachlorocyclopentadiene	1.45	1.67	mg/kg wet	3.333		43	40-140	13	30	
Hexachloroethane	1.81	0.333	mg/kg wet	3.333		54	40-140	14	30	
Indeno(1,2,3-cd)Pyrene	2.47	0.333	mg/kg wet	3.333		74	40-140	18	30	
Isophorone	1.69	0.333	mg/kg wet	3.333		51	40-140	18	30	
Naphthalene	1.81	0.333	mg/kg wet	3.333		54	40-140	16	30	
Nitrobenzene	1.88	0.333	mg/kg wet	3.333		56	40-140	15	30	
N-Nitrosodimethylamine	1.77	0.333	mg/kg wet	3.333		53	40-140	17	30	
N-Nitroso-Di-n-Propylamine	1.93	0.333	mg/kg wet	3.333		58	40-140	18	30	
N-nitrosodiphenylamine	2.31	0.333	mg/kg wet	3.333		69	40-140	17	30	
Pentachlorophenol	2.95	1.67	mg/kg wet	3.333		89	30-130	15	30	
Phenanthrene	2.20	0.333	mg/kg wet	3.333		66	40-140	17	30	
Phenol	1.99	0.333	mg/kg wet	3.333		60	30-130	16	30	
Pyrene	2.22	0.333	mg/kg wet	3.333		66	40-140	16	30	
Pyridine	1.79	1.67	mg/kg wet	3.333		54	40-140	17	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91229 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*1.84*		mg/kg wet	*3.333*		*55*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.71*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.05*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.91*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: 2-Fluorophenol	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.99*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: Phenol-d6	*3.07*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0368

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV-	Initial Calibration Verification recovery is below lower control limit (ICV-).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0368

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: Client

ESS Project ID: 19L0368
Date Received: 12/12/2019
Project Due Date: 12/19/2019
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: 5.4 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: 12/12/19 Time: 1329 By: MW

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	420717	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	420718	Yes	NA	Yes	VOA Vial - Other	Other	
01	420719	Yes	NA	Yes	VOA Vial - Other	Other	
01	420720	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	420721	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/12/19 1323
Reviewed By: Date & Time: 12/12/19 1329
Delivered By: 12/12/19 1329

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 # 19L0368

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/12/19	600	Grab/Compo	Soil	20191212-001 (Pile 6)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

	GV	GV	AG	AG	AG
	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: ✓

Seals Intact: ____

Cooler Temperature: 5.4 °C RCP

Sampled by : H Stern

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen ____/____/2019 at ____ (Time) ____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/12/19 1153	12/12/19 1153		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0446

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 2:06 pm, Dec 20, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

SAMPLE RECEIPT

The following samples were received on December 13, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
19L0446-01	20191213-001	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0446

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

C9L0237-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
1,4-Dioxane (31% @ 30%)

CL91502-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,4-Dioxane (69% @ 70-130%), Tetrahydrofuran (68% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C9L0228-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (124% @ 80-120%), 4,6-Dinitro-2-Methylphenol (118% @ 80-120%), Benzoic Acid (120% @ 80-120%), Pentachlorophenol (118% @ 80-120%)

C9L0228-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrophenol (24% @ 20%)

C9L0228-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Aniline

C9L0272-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (114% @ 80-120%), 4,6-Dinitro-2-Methylphenol (113% @ 80-120%), Benzoic Acid (124% @ 80-120%), Pentachlorophenol (113% @ 80-120%)

C9L0272-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Benzoic Acid (24% @ 20%)

C9L0272-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Aniline

CL91630-BS1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (34% @ 40-140%), Aniline (36% @ 40-140%), Hexachlorocyclopentadiene (39% @ 40-140%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.03)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Arsenic	ND (2.52)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Barium	**17.4** (2.52)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Beryllium	**0.14** (0.11)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Cadmium	ND (0.50)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Chromium	**11.4** (1.01)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Copper	**82.1** (2.52)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Lead	**1930** (5.03)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Mercury	**0.067** (0.033)		7471B		1	MKS	12/17/19 12:45	0.65	40	CL91650
Nickel	**5.57** (2.52)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Selenium	ND (5.03)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Silver	**0.96** (0.50)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Thallium	ND (5.03)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649
Zinc	**39.6** (2.52)		6010C		1	BJV	12/17/19 2:44	2.13	100	CL91649

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,1,1-Trichloroethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,1,2,2-Tetrachloroethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,1,2-Trichloroethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,1-Dichloroethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,1-Dichloroethene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,1-Dichloropropene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2,3-Trichlorobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2,3-Trichloropropane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2,4-Trichlorobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2,4-Trimethylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2-Dibromo-3-Chloropropane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2-Dibromoethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2-Dichlorobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2-Dichloroethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,2-Dichloropropane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,3,5-Trimethylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,3-Dichlorobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,3-Dichloropropane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,4-Dichlorobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1,4-Dioxane	ND (0.0878)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
1-Chlorohexane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
2,2-Dichloropropane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
2-Butanone	ND (0.0439)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
2-Chlorotoluene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
2-Hexanone	ND (0.0439)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
4-Chlorotoluene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
4-Isopropyltoluene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
4-Methyl-2-Pentanone	ND (0.0439)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Acetone	ND (0.0439)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Benzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Bromobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Bromodichloromethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Bromoform	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Bromomethane	ND (0.0088)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Carbon Disulfide	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Carbon Tetrachloride	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Chlorobenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Chloroethane	ND (0.0088)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Chloroform	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Chloromethane	ND (0.0088)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
cis-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
cis-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Dibromochloromethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Dibromomethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Dichlorodifluoromethane	ND (0.0088)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Diethyl Ether	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Di-isopropyl ether	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Ethyl tertiary-butyl ether	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Ethylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Hexachlorobutadiene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Isopropylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Methyl tert-Butyl Ether	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Methylene Chloride	ND (0.0220)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Naphthalene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
n-Butylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
n-Propylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
sec-Butylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Styrene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
tert-Butylbenzene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Tertiary-amyl methyl ether	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Tetrachloroethene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Tetrahydrofuran	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 6.1
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
trans-1,2-Dichloroethene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
trans-1,3-Dichloropropene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Trichloroethene	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Trichlorofluoromethane	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Vinyl Acetate	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Vinyl Chloride	ND (0.0088)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Xylene O	ND (0.0044)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Xylene P,M	ND (0.0088)		8260B Low		1	12/16/19 1:02	C9L0237	CL91502
Xylenes (Total)	ND (0.00878)		8260B Low		1	12/16/19 1:02		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*106 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*89 %*		*70-130*
Surrogate: Dibromofluoromethane	*107 %*		*70-130*
Surrogate: Toluene-d8	*107 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 19.3
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/16/19 15:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1221	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1232	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1242	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1248	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1254	**0.2** (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1260	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1262	ND (0.06)		8082A		1	12/18/19 16:32		CL91619
Aroclor 1268	ND (0.06)		8082A		1	12/18/19 16:32		CL91619

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*77 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*68 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*84 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*87 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 20
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/16/19 12:45

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**320** (40.2)		8100M		1	12/17/19 2:42	C9L0249	CL91636

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*99 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/16/19 12:27

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
1,2,4-Trichlorobenzene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
1,2-Dichlorobenzene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
1,3-Dichlorobenzene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
1,4-Dichlorobenzene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,3,4,6-Tetrachlorophenol	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,4,5-Trichlorophenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,4,6-Trichlorophenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,4-Dichlorophenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,4-Dimethylphenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,4-Dinitrophenol	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,4-Dinitrotoluene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2,6-Dinitrotoluene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2-Chloronaphthalene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2-Chlorophenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2-Methylnaphthalene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2-Methylphenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2-Nitroaniline	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
2-Nitrophenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
3,3′-Dichlorobenzidine	ND (0.734)		8270D		1	12/18/19 1:30	C9L0272	CL91630
3+4-Methylphenol	ND (0.734)		8270D		1	12/18/19 1:30	C9L0272	CL91630
3-Nitroaniline	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4,6-Dinitro-2-Methylphenol	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4-Bromophenyl-phenylether	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4-Chloro-3-Methylphenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4-Chloroaniline	ND (0.734)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4-Chloro-phenyl-phenyl ether	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4-Nitroaniline	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
4-Nitrophenol	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Acenaphthene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Acenaphthylene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Acetophenone	ND (0.734)		8270D		1	12/18/19 1:30	C9L0272	CL91630

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/16/19 12:27

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.734)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Anthracene	**0.881** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Azobenzene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzo(a)anthracene	**2.56** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzo(a)pyrene	**2.34** (0.184)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzo(b)fluoranthene	**2.20** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzo(g,h,i)perylene	**1.42** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzo(k)fluoranthene	**1.91** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzoic Acid	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Benzyl Alcohol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
bis(2-Chloroethoxy)methane	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
bis(2-Chloroethyl)ether	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
bis(2-chloroisopropyl)Ether	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
bis(2-Ethylhexyl)phthalate	**0.869** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Butylbenzylphthalate	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Carbazole	**0.471** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Chrysene	**2.51** (0.184)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Dibenzo(a,h)Anthracene	**0.512** (0.184)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Dibenzofuran	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Diethylphthalate	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Dimethylphthalate	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Di-n-butylphthalate	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Di-n-octylphthalate	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Fluoranthene	**5.68** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Fluorene	**0.478** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Hexachlorobenzene	ND (0.184)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Hexachlorobutadiene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Hexachlorocyclopentadiene	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Hexachloroethane	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Indeno(1,2,3-cd)Pyrene	**1.30** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Isophorone	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Naphthalene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191213-001
Date Sampled: 12/13/19 16:00
Percent Solids: 93
Initial Volume: 14.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0446
ESS Laboratory Sample ID: 19L0446-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/16/19 12:27

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
N-Nitrosodimethylamine	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
N-Nitroso-Di-n-Propylamine	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
N-nitrosodiphenylamine	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Pentachlorophenol	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Phenanthrene	**4.32** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Phenol	ND (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Pyrene	**5.26** (0.367)		8270D		1	12/18/19 1:30	C9L0272	CL91630
Pyridine	ND (1.84)		8270D		1	12/18/19 1:30	C9L0272	CL91630

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*66 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*83 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*80 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*70 %*		*30-130*
Surrogate: 2-Fluorophenol	*78 %*		*30-130*
Surrogate: Nitrobenzene-d5	*80 %*		*30-130*
Surrogate: Phenol-d6	*87 %*		*30-130*
Surrogate: p-Terphenyl-d14	*92 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL91649 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	42.3	15.2	mg/kg wet	51.30		82	80-120			
Arsenic	184	7.58	mg/kg wet	202.0		91	80-120			
Barium	299	7.58	mg/kg wet	343.0		87	80-120			
Beryllium	46.4	0.33	mg/kg wet	52.10		89	80-120			
Chromium	165	3.03	mg/kg wet	182.0		91	80-120			
Copper	220	7.58	mg/kg wet	225.0		98	80-120			
Lead	304	15.2	mg/kg wet	333.0		91	80-120			
Nickel	152	7.58	mg/kg wet	167.0		91	80-120			
Selenium	154	15.2	mg/kg wet	169.0		91	80-120			
Silver	43.2	1.52	mg/kg wet	48.90		88	80-120			
Thallium	66.4	15.2	mg/kg wet	82.30		81	62-139			
Zinc	398	7.58	mg/kg wet	459.0		87	80-120			
LCS										
Cadmium	51.9	1.39	mg/kg wet	61.50		84	80-120			
LCS Dup										
Antimony	41.5	14.5	mg/kg wet	51.30		81	80-120	2	20	
Arsenic	173	7.25	mg/kg wet	202.0		86	80-120	7	20	
Barium	333	7.25	mg/kg wet	343.0		97	80-120	11	20	
Beryllium	43.3	0.32	mg/kg wet	52.10		83	80-120	7	20	
Chromium	158	2.90	mg/kg wet	182.0		87	80-120	5	20	
Copper	206	7.25	mg/kg wet	225.0		92	80-120	7	20	
Lead	285	14.5	mg/kg wet	333.0		86	80-120	6	20	
Nickel	144	7.25	mg/kg wet	167.0		86	80-120	5	20	
Selenium	148	14.5	mg/kg wet	169.0		88	80-120	4	20	
Silver	41.2	1.45	mg/kg wet	48.90		84	80-120	5	20	
Thallium	62.0	14.5	mg/kg wet	82.30		75	62-139	7	20	
Zinc	380	7.25	mg/kg wet	459.0		83	80-120	5	20	
LCS Dup										
Cadmium	49.5	1.56	mg/kg wet	61.50		81	80-120	5	20	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL91650 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.63	0.600	mg/kg wet	7.760		111	80-120			
LCS Dup										
Mercury	8.49	0.609	mg/kg wet	7.760		109	80-120	2	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91502 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91502 - 5035										
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0521*		mg/kg wet	*0.05000*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0475*		mg/kg wet	*0.05000*		*95*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0508*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: Toluene-d8	*0.0507*		mg/kg wet	*0.05000*		*101*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL91502 - 5035										
1,1,1-Trichloroethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
1,1,2,2-Tetrachloroethane	0.0437	0.0050	mg/kg wet	0.05000		87	70-130			
1,1,2-Trichloroethane	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
1,1-Dichloroethane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
1,1-Dichloroethene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloropropene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
1,2,3-Trichlorobenzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
1,2,3-Trichloropropane	0.0376	0.0050	mg/kg wet	0.05000		75	70-130			
1,2,4-Trichlorobenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130			
1,2,4-Trimethylbenzene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
1,2-Dibromo-3-Chloropropane	0.0421	0.0050	mg/kg wet	0.05000		84	70-130			
1,2-Dibromoethane	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dichlorobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichloroethane	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichloropropane	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
1,3,5-Trimethylbenzene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130			
1,3-Dichlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
1,3-Dichloropropane	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
1,4-Dichlorobenzene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
1,4-Dioxane	0.694	0.100	mg/kg wet	1.000		69	70-130			B-
1-Chlorohexane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
2,2-Dichloropropane	0.0553	0.0050	mg/kg wet	0.05000		111	70-130			
2-Butanone	0.229	0.0500	mg/kg wet	0.2500		91	70-130			
2-Chlorotoluene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
2-Hexanone	0.200	0.0500	mg/kg wet	0.2500		80	70-130			
4-Chlorotoluene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
4-Isopropyltoluene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
4-Methyl-2-Pentanone	0.178	0.0500	mg/kg wet	0.2500		71	70-130			
Acetone	0.181	0.0500	mg/kg wet	0.2500		72	70-130			
Benzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Bromobenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
Bromochloromethane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
Bromodichloromethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Bromoform	0.0421	0.0050	mg/kg wet	0.05000		84	70-130			
Bromomethane	0.0454	0.0100	mg/kg wet	0.05000		91	70-130			
Carbon Disulfide	0.0520	0.0050	mg/kg wet	0.05000		104	70-130			
Carbon Tetrachloride	0.0594	0.0050	mg/kg wet	0.05000		119	70-130			
Chlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Chloroethane	0.0448	0.0100	mg/kg wet	0.05000		90	70-130			
Chloroform	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Chloromethane	0.0463	0.0100	mg/kg wet	0.05000		93	70-130			
cis-1,2-Dichloroethene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
cis-1,3-Dichloropropene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Dibromochloromethane	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
Dibromomethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91502 - 5035										
Dichlorodifluoromethane	0.0407	0.0100	mg/kg wet	0.05000		81	70-130			
Diethyl Ether	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
Di-isopropyl ether	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Ethyl tertiary-butyl ether	0.0439	0.0050	mg/kg wet	0.05000		88	70-130			
Ethylbenzene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Hexachlorobutadiene	0.0582	0.0050	mg/kg wet	0.05000		116	70-130			
Isopropylbenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Methyl tert-Butyl Ether	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
Methylene Chloride	0.0464	0.0250	mg/kg wet	0.05000		93	70-130			
Naphthalene	0.0393	0.0050	mg/kg wet	0.05000		79	70-130			
n-Butylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
n-Propylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
sec-Butylbenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
Styrene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
tert-Butylbenzene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130			
Tertiary-amyl methyl ether	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
Tetrachloroethene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
Tetrahydrofuran	0.0338	0.0050	mg/kg wet	0.05000		68	70-130			B-
Toluene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
trans-1,2-Dichloroethene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
trans-1,3-Dichloropropene	0.0428	0.0050	mg/kg wet	0.05000		86	70-130			
Trichloroethene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
Trichlorofluoromethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130			
Vinyl Acetate	0.0350	0.0050	mg/kg wet	0.05000		70	70-130			
Vinyl Chloride	0.0458	0.0100	mg/kg wet	0.05000		92	70-130			
Xylene O	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
Xylene P,M	0.106	0.0100	mg/kg wet	0.1000		106	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0472*		mg/kg wet	*0.05000*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0483*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0497*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Toluene-d8	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	11	25	
1,1,1-Trichloroethane	0.0597	0.0050	mg/kg wet	0.05000		119	70-130	8	25	
1,1,2,2-Tetrachloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,1,2-Trichloroethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	8	25	
1,1-Dichloroethane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	9	25	
1,1-Dichloroethene	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	11	25	
1,1-Dichloropropene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	8	25	
1,2,3-Trichlorobenzene	0.0563	0.0050	mg/kg wet	0.05000		113	70-130	11	25	
1,2,3-Trichloropropane	0.0414	0.0050	mg/kg wet	0.05000		83	70-130	9	25	
1,2,4-Trichlorobenzene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	8	25	
1,2,4-Trimethylbenzene	0.0607	0.0050	mg/kg wet	0.05000		121	70-130	8	25	
1,2-Dibromo-3-Chloropropane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	12	25	
1,2-Dibromoethane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	11	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91502 - 5035										
1,2-Dichlorobenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
1,2-Dichloroethane	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
1,2-Dichloropropane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	10	25	
1,3,5-Trimethylbenzene	0.0595	0.0050	mg/kg wet	0.05000		119	70-130	7	25	
1,3-Dichlorobenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
1,3-Dichloropropane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	10	25	
1,4-Dichlorobenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
1,4-Dioxane	0.770	0.100	mg/kg wet	1.000		77	70-130	10	20	
1-Chlorohexane	0.0593	0.0050	mg/kg wet	0.05000		119	70-130	10	25	
2,2-Dichloropropane	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	8	25	
2-Butanone	0.247	0.0500	mg/kg wet	0.2500		99	70-130	8	25	
2-Chlorotoluene	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	7	25	
2-Hexanone	0.226	0.0500	mg/kg wet	0.2500		90	70-130	12	25	
4-Chlorotoluene	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	9	25	
4-Isopropyltoluene	0.0588	0.0050	mg/kg wet	0.05000		118	70-130	8	25	
4-Methyl-2-Pentanone	0.199	0.0500	mg/kg wet	0.2500		79	70-130	11	25	
Acetone	0.220	0.0500	mg/kg wet	0.2500		88	70-130	20	25	
Benzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
Bromobenzene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
Bromochloromethane	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	11	25	
Bromodichloromethane	0.0587	0.0050	mg/kg wet	0.05000		117	70-130	9	25	
Bromoform	0.0455	0.0050	mg/kg wet	0.05000		91	70-130	8	25	
Bromomethane	0.0481	0.0100	mg/kg wet	0.05000		96	70-130	6	25	
Carbon Disulfide	0.0571	0.0050	mg/kg wet	0.05000		114	70-130	9	25	
Carbon Tetrachloride	0.0650	0.0050	mg/kg wet	0.05000		130	70-130	9	25	
Chlorobenzene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	9	25	
Chloroethane	0.0493	0.0100	mg/kg wet	0.05000		99	70-130	10	25	
Chloroform	0.0572	0.0050	mg/kg wet	0.05000		114	70-130	9	25	
Chloromethane	0.0501	0.0100	mg/kg wet	0.05000		100	70-130	8	25	
cis-1,2-Dichloroethene	0.0552	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
cis-1,3-Dichloropropene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	10	25	
Dibromochloromethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	10	25	
Dibromomethane	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Dichlorodifluoromethane	0.0434	0.0100	mg/kg wet	0.05000		87	70-130	6	25	
Diethyl Ether	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	12	25	
Di-isopropyl ether	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	10	25	
Ethyl tertiary-butyl ether	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	11	25	
Ethylbenzene	0.0592	0.0050	mg/kg wet	0.05000		118	70-130	10	25	
Hexachlorobutadiene	0.0633	0.0050	mg/kg wet	0.05000		127	70-130	8	25	
Isopropylbenzene	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	8	25	
Methyl tert-Butyl Ether	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	11	25	
Methylene Chloride	0.0508	0.0250	mg/kg wet	0.05000		102	70-130	9	25	
Naphthalene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	11	25	
n-Butylbenzene	0.0615	0.0050	mg/kg wet	0.05000		123	70-130	9	25	
n-Propylbenzene	0.0583	0.0050	mg/kg wet	0.05000		117	70-130	8	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91502 - 5035										
sec-Butylbenzene	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	8	25	
Styrene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	12	25	
tert-Butylbenzene	0.0597	0.0050	mg/kg wet	0.05000		119	70-130	8	25	
Tertiary-amyl methyl ether	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	10	25	
Tetrachloroethene	0.0587	0.0050	mg/kg wet	0.05000		117	70-130	9	25	
Tetrahydrofuran	0.0396	0.0050	mg/kg wet	0.05000		79	70-130	16	25	
Toluene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	8	25	
trans-1,2-Dichloroethene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	9	25	
trans-1,3-Dichloropropene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130	9	25	
Trichloroethene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	10	25	
Trichlorofluoromethane	0.0610	0.0050	mg/kg wet	0.05000		122	70-130	7	25	
Vinyl Acetate	0.0394	0.0050	mg/kg wet	0.05000		79	70-130	12	25	
Vinyl Chloride	0.0493	0.0100	mg/kg wet	0.05000		99	70-130	7	25	
Xylene O	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	9	25	
Xylene P,M	0.117	0.0100	mg/kg wet	0.1000		117	70-130	10	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0471*		mg/kg wet	*0.05000*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0488*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0499*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Toluene-d8	*0.0494*		mg/kg wet	*0.05000*		*99*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91619 - 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	*0.0292*		mg/kg wet	*0.02500*		*117*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0252*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91619 - 3540C										
Surrogate: Tetrachloro-m-xylene [2C]	*0.0258*		mg/kg wet	*0.02500*		*103*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140			
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		111	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Surrogate: Decachlorobiphenyl	*0.0296*		mg/kg wet	*0.02500*		*118*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0265*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0265*		mg/kg wet	*0.02500*		*106*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140	0.9	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140	3	30	
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		117	40-140	5	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140	5	30	
Surrogate: Decachlorobiphenyl	*0.0297*		mg/kg wet	*0.02500*		*119*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0262*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0259*		mg/kg wet	*0.02500*		*104*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL91636 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.43*		mg/kg wet	*5.000*		*89*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		70	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		90	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL91636 - 3546										
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		73	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		78	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	1.4	0.2	mg/kg wet	2.500		57	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Total Petroleum Hydrocarbons	29.2	37.5	mg/kg wet	35.00		84	40-140			
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Surrogate: O-Terphenyl	*4.44*		mg/kg wet	*5.000*		*89*	*40-140*			
LCS Dup										
Decane (C10)	1.6	0.2	mg/kg wet	2.500		66	40-140	6	25	
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		89	40-140	1	25	
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		70	40-140	4	25	
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		88	40-140	1	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		78	40-140	1	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		98	40-140	3	25	
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		58	30-140	2	25	
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140	3	25	
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.3	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		89	40-140	1	25	
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		75	40-140	1	25	
Total Petroleum Hydrocarbons	28.7	37.5	mg/kg wet	35.00		82	40-140	2	25	
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		86	40-140	3	25	
Surrogate: O-Terphenyl	*4.33*		mg/kg wet	*5.000*		*87*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*1.99*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.79*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.24*		mg/kg wet	*5.000*		*65*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.99*		mg/kg wet	*3.333*		*60*	*30-130*			
Surrogate: 2-Fluorophenol	*3.22*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.15*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: Phenol-d6	*3.34*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.04*		mg/kg wet	*3.333*		*91*	*30-130*			
LCS										
1,1-Biphenyl	1.95	0.333	mg/kg wet	3.333		59	40-140			
1,2,4-Trichlorobenzene	1.60	0.333	mg/kg wet	3.333		48	40-140			
1,2-Dichlorobenzene	1.56	0.333	mg/kg wet	3.333		47	40-140			
1,3-Dichlorobenzene	1.55	0.333	mg/kg wet	3.333		47	40-140			
1,4-Dichlorobenzene	1.54	0.333	mg/kg wet	3.333		46	40-140			
2,3,4,6-Tetrachlorophenol	2.64	1.67	mg/kg wet	3.333		79	30-130			
2,4,5-Trichlorophenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2,4,6-Trichlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.09	0.333	mg/kg wet	3.333		63	30-130			
2,4-Dimethylphenol	2.08	0.333	mg/kg wet	3.333		62	30-130			
2,4-Dinitrophenol	3.49	1.67	mg/kg wet	3.333		105	30-130			
2,4-Dinitrotoluene	2.89	0.333	mg/kg wet	3.333		87	40-140			
2,6-Dinitrotoluene	2.56	0.333	mg/kg wet	3.333		77	40-140			
2-Chloronaphthalene	1.86	0.333	mg/kg wet	3.333		56	40-140			
2-Chlorophenol	1.74	0.333	mg/kg wet	3.333		52	30-130			
2-Methylnaphthalene	1.83	0.333	mg/kg wet	3.333		55	40-140			
2-Methylphenol	1.91	0.333	mg/kg wet	3.333		57	30-130			
2-Nitroaniline	2.72	0.333	mg/kg wet	3.333		82	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
2-Nitrophenol	1.76	0.333	mg/kg wet	3.333		53	30-130			
3,3´-Dichlorobenzidine	1.90	0.667	mg/kg wet	3.333		57	40-140			
3+4-Methylphenol	4.07	0.667	mg/kg wet	6.667		61	30-130			
3-Nitroaniline	2.41	0.333	mg/kg wet	3.333		72	40-140			
4,6-Dinitro-2-Methylphenol	3.34	1.67	mg/kg wet	3.333		100	30-130			
4-Bromophenyl-phenylether	2.53	0.333	mg/kg wet	3.333		76	40-140			
4-Chloro-3-Methylphenol	2.62	0.333	mg/kg wet	3.333		79	30-130			
4-Chloroaniline	1.15	0.667	mg/kg wet	3.333		34	40-140			B-
4-Chloro-phenyl-phenyl ether	2.42	0.333	mg/kg wet	3.333		73	40-140			
4-Nitroaniline	2.47	0.333	mg/kg wet	3.333		74	40-140			
4-Nitrophenol	2.97	1.67	mg/kg wet	3.333		89	30-130			
Acenaphthene	2.15	0.333	mg/kg wet	3.333		64	40-140			
Acenaphthylene	2.13	0.333	mg/kg wet	3.333		64	40-140			
Acetophenone	1.77	0.667	mg/kg wet	3.333		53	40-140			
Aniline	1.20	0.667	mg/kg wet	3.333		36	40-140			B-
Anthracene	2.58	0.333	mg/kg wet	3.333		77	40-140			
Azobenzene	2.42	0.333	mg/kg wet	3.333		73	40-140			
Benzo(a)anthracene	2.80	0.333	mg/kg wet	3.333		84	40-140			
Benzo(a)pyrene	2.65	0.167	mg/kg wet	3.333		80	40-140			
Benzo(b)fluoranthene	2.83	0.333	mg/kg wet	3.333		85	40-140			
Benzo(g,h,i)perylene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(k)fluoranthene	2.60	0.333	mg/kg wet	3.333		78	40-140			
Benzoic Acid	2.99	1.67	mg/kg wet	3.333		90	40-140			
Benzyl Alcohol	1.52	0.333	mg/kg wet	3.333		45	40-140			
bis(2-Chloroethoxy)methane	1.77	0.333	mg/kg wet	3.333		53	40-140			
bis(2-Chloroethyl)ether	1.61	0.333	mg/kg wet	3.333		48	40-140			
bis(2-chloroisopropyl)Ether	1.60	0.333	mg/kg wet	3.333		48	40-140			
bis(2-Ethylhexyl)phthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Butylbenzylphthalate	2.72	0.333	mg/kg wet	3.333		81	40-140			
Carbazole	2.77	0.333	mg/kg wet	3.333		83	40-140			
Chrysene	2.65	0.167	mg/kg wet	3.333		79	40-140			
Dibenzo(a,h)Anthracene	2.91	0.167	mg/kg wet	3.333		87	40-140			
Dibenzofuran	2.26	0.333	mg/kg wet	3.333		68	40-140			
Diethylphthalate	2.75	0.333	mg/kg wet	3.333		82	40-140			
Dimethylphthalate	2.62	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140			
Di-n-octylphthalate	2.80	0.333	mg/kg wet	3.333		84	40-140			
Fluoranthene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Fluorene	2.52	0.333	mg/kg wet	3.333		76	40-140			
Hexachlorobenzene	2.54	0.167	mg/kg wet	3.333		76	40-140			
Hexachlorobutadiene	1.59	0.333	mg/kg wet	3.333		48	40-140			
Hexachlorocyclopentadiene	1.30	1.67	mg/kg wet	3.333		39	40-140			B-
Hexachloroethane	1.56	0.333	mg/kg wet	3.333		47	40-140			
Indeno(1,2,3-cd)Pyrene	2.85	0.333	mg/kg wet	3.333		85	40-140			
Isophorone	1.71	0.333	mg/kg wet	3.333		51	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
Naphthalene	1.62	0.333	mg/kg wet	3.333		48	40-140			
Nitrobenzene	1.69	0.333	mg/kg wet	3.333		51	40-140			
N-Nitrosodimethylamine	1.58	0.333	mg/kg wet	3.333		47	40-140			
N-Nitroso-Di-n-Propylamine	1.89	0.333	mg/kg wet	3.333		57	40-140			
N-nitrosodiphenylamine	2.63	0.333	mg/kg wet	3.333		79	40-140			
Pentachlorophenol	3.29	1.67	mg/kg wet	3.333		99	30-130			
Phenanthrene	2.54	0.333	mg/kg wet	3.333		76	40-140			
Phenol	1.83	0.333	mg/kg wet	3.333		55	30-130			
Pyrene	2.56	0.333	mg/kg wet	3.333		77	40-140			
Pyridine	1.44	1.67	mg/kg wet	3.333		43	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*1.68*		mg/kg wet	*3.333*		*50*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.45*		mg/kg wet	*5.000*		*89*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*2.83*		mg/kg wet	*5.000*		*57*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.07*		mg/kg wet	*3.333*		*62*	*30-130*			
Surrogate: 2-Fluorophenol	*2.78*		mg/kg wet	*5.000*		*56*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.89*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: Phenol-d6	*3.00*		mg/kg wet	*5.000*		*60*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.87*		mg/kg wet	*3.333*		*86*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.11	0.333	mg/kg wet	3.333		63	40-140	8	30	
1,2,4-Trichlorobenzene	1.97	0.333	mg/kg wet	3.333		59	40-140	21	30	
1,2-Dichlorobenzene	1.87	0.333	mg/kg wet	3.333		56	40-140	18	30	
1,3-Dichlorobenzene	1.86	0.333	mg/kg wet	3.333		56	40-140	18	30	
1,4-Dichlorobenzene	1.85	0.333	mg/kg wet	3.333		56	40-140	18	30	
2,3,4,6-Tetrachlorophenol	2.68	1.67	mg/kg wet	3.333		80	30-130	2	30	
2,4,5-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	2	30	
2,4,6-Trichlorophenol	2.50	0.333	mg/kg wet	3.333		75	30-130	3	30	
2,4-Dichlorophenol	2.40	0.333	mg/kg wet	3.333		72	30-130	14	30	
2,4-Dimethylphenol	2.36	0.333	mg/kg wet	3.333		71	30-130	13	30	
2,4-Dinitrophenol	3.62	1.67	mg/kg wet	3.333		109	30-130	4	30	
2,4-Dinitrotoluene	2.91	0.333	mg/kg wet	3.333		87	40-140	0.5	30	
2,6-Dinitrotoluene	2.64	0.333	mg/kg wet	3.333		79	40-140	3	30	
2-Chloronaphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	10	30	
2-Chlorophenol	2.14	0.333	mg/kg wet	3.333		64	30-130	21	30	
2-Methylnaphthalene	2.10	0.333	mg/kg wet	3.333		63	40-140	14	30	
2-Methylphenol	2.28	0.333	mg/kg wet	3.333		68	30-130	18	30	
2-Nitroaniline	2.75	0.333	mg/kg wet	3.333		83	40-140	1	30	
2-Nitrophenol	2.13	0.333	mg/kg wet	3.333		64	30-130	19	30	
3,3´-Dichlorobenzidine	2.07	0.667	mg/kg wet	3.333		62	40-140	9	30	
3+4-Methylphenol	4.71	0.667	mg/kg wet	6.667		71	30-130	15	30	
3-Nitroaniline	2.56	0.333	mg/kg wet	3.333		77	40-140	6	30	
4,6-Dinitro-2-Methylphenol	3.40	1.67	mg/kg wet	3.333		102	30-130	2	30	
4-Bromophenyl-phenylether	2.60	0.333	mg/kg wet	3.333		78	40-140	3	30	
4-Chloro-3-Methylphenol	2.71	0.333	mg/kg wet	3.333		81	30-130	3	30	
4-Chloroaniline	1.51	0.667	mg/kg wet	3.333		45	40-140	27	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
4-Chloro-phenyl-phenyl ether	2.50	0.333	mg/kg wet	3.333		75	40-140	3	30	
4-Nitroaniline	2.50	0.333	mg/kg wet	3.333		75	40-140	1	30	
4-Nitrophenol	2.92	1.67	mg/kg wet	3.333		88	30-130	2	30	
Acenaphthene	2.23	0.333	mg/kg wet	3.333		67	40-140	4	30	
Acenaphthylene	2.22	0.333	mg/kg wet	3.333		67	40-140	4	30	
Acetophenone	2.13	0.667	mg/kg wet	3.333		64	40-140	19	30	
Aniline	1.62	0.667	mg/kg wet	3.333		49	40-140	30	30	
Anthracene	2.61	0.333	mg/kg wet	3.333		78	40-140	1	30	
Azobenzene	2.50	0.333	mg/kg wet	3.333		75	40-140	3	30	
Benzo(a)anthracene	2.79	0.333	mg/kg wet	3.333		84	40-140	0.4	30	
Benzo(a)pyrene	2.64	0.167	mg/kg wet	3.333		79	40-140	0.5	30	
Benzo(b)fluoranthene	2.84	0.333	mg/kg wet	3.333		85	40-140	0.4	30	
Benzo(g,h,i)perylene	2.85	0.333	mg/kg wet	3.333		85	40-140	1	30	
Benzo(k)fluoranthene	2.56	0.333	mg/kg wet	3.333		77	40-140	1	30	
Benzoic Acid	3.38	1.67	mg/kg wet	3.333		102	40-140	12	30	
Benzyl Alcohol	2.03	0.333	mg/kg wet	3.333		61	40-140	29	30	
bis(2-Chloroethoxy)methane	2.12	0.333	mg/kg wet	3.333		64	40-140	18	30	
bis(2-Chloroethyl)ether	2.00	0.333	mg/kg wet	3.333		60	40-140	22	30	
bis(2-chloroisopropyl)Ether	1.97	0.333	mg/kg wet	3.333		59	40-140	21	30	
bis(2-Ethylhexyl)phthalate	2.80	0.333	mg/kg wet	3.333		84	40-140	1	30	
Butylbenzylphthalate	2.74	0.333	mg/kg wet	3.333		82	40-140	0.9	30	
Carbazole	2.71	0.333	mg/kg wet	3.333		81	40-140	2	30	
Chrysene	2.60	0.167	mg/kg wet	3.333		78	40-140	2	30	
Dibenzo(a,h)Anthracene	2.88	0.167	mg/kg wet	3.333		87	40-140	0.9	30	
Dibenzofuran	2.34	0.333	mg/kg wet	3.333		70	40-140	3	30	
Diethylphthalate	2.77	0.333	mg/kg wet	3.333		83	40-140	1	30	
Dimethylphthalate	2.65	0.333	mg/kg wet	3.333		80	40-140	1	30	
Di-n-butylphthalate	2.96	0.333	mg/kg wet	3.333		89	40-140	0.2	30	
Di-n-octylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	0.5	30	
Fluoranthene	2.74	0.333	mg/kg wet	3.333		82	40-140	2	30	
Fluorene	2.55	0.333	mg/kg wet	3.333		77	40-140	1	30	
Hexachlorobenzene	2.63	0.167	mg/kg wet	3.333		79	40-140	3	30	
Hexachlorobutadiene	1.96	0.333	mg/kg wet	3.333		59	40-140	21	30	
Hexachlorocyclopentadiene	1.62	1.67	mg/kg wet	3.333		48	40-140	21	30	
Hexachloroethane	1.89	0.333	mg/kg wet	3.333		57	40-140	19	30	
Indeno(1,2,3-cd)Pyrene	2.81	0.333	mg/kg wet	3.333		84	40-140	1	30	
Isophorone	1.98	0.333	mg/kg wet	3.333		59	40-140	15	30	
Naphthalene	1.98	0.333	mg/kg wet	3.333		59	40-140	20	30	
Nitrobenzene	2.05	0.333	mg/kg wet	3.333		62	40-140	19	30	
N-Nitrosodimethylamine	1.83	0.333	mg/kg wet	3.333		55	40-140	15	30	
N-Nitroso-Di-n-Propylamine	2.25	0.333	mg/kg wet	3.333		68	40-140	18	30	
N-nitrosodiphenylamine	2.67	0.333	mg/kg wet	3.333		80	40-140	2	30	
Pentachlorophenol	3.31	1.67	mg/kg wet	3.333		99	30-130	0.6	30	
Phenanthrene	2.55	0.333	mg/kg wet	3.333		76	40-140	0.4	30	
Phenol	2.23	0.333	mg/kg wet	3.333		67	30-130	20	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91630 - 3546										
Pyrene	2.65	0.333	mg/kg wet	3.333		79	40-140	3	30	
Pyridine	1.83	1.67	mg/kg wet	3.333		55	40-140	24	30	
Surrogate: 1,2-Dichlorobenzene-d4	*1.96*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.39*		mg/kg wet	*5.000*		*88*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.40*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2-Fluorophenol	*3.30*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.22*		mg/kg wet	*3.333*		*67*	*30-130*			
Surrogate: Phenol-d6	*3.54*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.86*		mg/kg wet	*3.333*		*86*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0446

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV-	Initial Calibration Verification recovery is below lower control limit (ICV-).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0446

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: Client

ESS Project ID: 19L0446
Date Received: 12/13/2019
Project Due Date: 12/20/2019
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: 1.1 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: 12/13/19 Time: 2045 By: JA

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	422487	Yes	NA	Yes	VOA Vial - Other	Other	
01	422488	Yes	NA	Yes	VOA Vial - Other	Other	
01	422489	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	422490	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	422491	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / (NA)
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? Yes / No / (NA)
Are VOA stickers attached if bubbles noted? Yes / No / (NA)

Completed By: Date & Time: 12/13/19 1916
Reviewed By: Date & Time: ~~12/14/19~~ 12/13/19 OEL 2020
Delivered By: 12-13-19 2020

ESS Laboratory
Division of Thielsch Engineering, Inc.
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www.esslaboratory.com

CHAIN OF CUSTODY

ESS Lab # 19L0446

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/13	1600	Grab/Compo	Soil	20191213-001	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

	GV	GV	AG	AG	AG
	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: 1.1 °C

Sampled by : M. Stone

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen ____/____/2019 at _____(Time)_____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/13 437	12/13/19 1640		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0462

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 2:03 pm, Dec 23, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

SAMPLE RECEIPT

The following samples were received on December 16, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Lab Number	Sample Name	Matrix	Analysis
19L0462-01	20191216-001 Pile 8	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0462

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CL91731-BSD1 **Blank Spike recovery is above upper control limit (B+).**
Carbon Tetrachloride (131% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C9L0272-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (114% @ 80-120%), 4,6-Dinitro-2-Methylphenol (113% @ 80-120%), Benzoic Acid (124% @ 80-120%), Pentachlorophenol (113% @ 80-120%)

C9L0272-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Benzoic Acid (24% @ 20%)

C9L0272-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Aniline

C9L0296-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (111% @ 80-120%), 4,6-Dinitro-2-Methylphenol (114% @ 80-120%), Benzoic Acid (108% @ 80-120%), Pentachlorophenol (110% @ 80-120%)

C9L0296-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2-Nitroaniline (22% @ 20%), 4-Nitrophenol (22% @ 20%), Aniline (23% @ 20%), Benzyl Alcohol (21% @ 20%), N-Nitroso-Di-n-Propylamine (21% @ 20%)

C9L0296-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Aniline

CL91709-BS1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (35% @ 40-140%)

CL91709-BSD1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (36% @ 40-140%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.14)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Arsenic	ND (2.57)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Barium	**17.1** (2.57)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Beryllium	**0.18** (0.11)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Cadmium	ND (0.51)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Chromium	**12.6** (1.03)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Copper	**19.4** (2.57)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Lead	**52.7** (5.14)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Mercury	**0.052** (0.030)		7471B		1	MKS	12/19/19 9:18	0.8	40	CL91734
Nickel	**6.59** (2.57)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Selenium	ND (5.14)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Silver	ND (0.51)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Thallium	ND (5.14)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652
Zinc	**62.0** (2.57)		6010C		1	KJK	12/17/19 18:47	2.39	100	CL91652

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,1,1-Trichloroethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,1,2,2-Tetrachloroethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,1,2-Trichloroethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,1-Dichloroethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,1-Dichloroethene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,1-Dichloropropene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2,3-Trichlorobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2,3-Trichloropropane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2,4-Trichlorobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2,4-Trimethylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2-Dibromo-3-Chloropropane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2-Dibromoethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2-Dichlorobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2-Dichloroethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,2-Dichloropropane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,3,5-Trimethylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,3-Dichlorobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,3-Dichloropropane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,4-Dichlorobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1,4-Dioxane	ND (0.0682)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
1-Chlorohexane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
2,2-Dichloropropane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
2-Butanone	ND (0.0341)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
2-Chlorotoluene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
2-Hexanone	ND (0.0341)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
4-Chlorotoluene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
4-Isopropyltoluene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
4-Methyl-2-Pentanone	ND (0.0341)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Acetone	ND (0.0341)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Benzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Bromobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Bromodichloromethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Bromoform	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Bromomethane	ND (0.0068)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Carbon Disulfide	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Carbon Tetrachloride	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Chlorobenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Chloroethane	ND (0.0068)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Chloroform	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Chloromethane	ND (0.0068)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
cis-1,2-Dichloroethene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
cis-1,3-Dichloropropene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Dibromochloromethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Dibromomethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Dichlorodifluoromethane	ND (0.0068)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Diethyl Ether	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Di-isopropyl ether	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Ethyl tertiary-butyl ether	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Ethylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Hexachlorobutadiene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Isopropylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Methyl tert-Butyl Ether	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Methylene Chloride	ND (0.0171)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Naphthalene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
n-Butylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
n-Propylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
sec-Butylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Styrene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
tert-Butylbenzene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Tertiary-amyl methyl ether	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Tetrachloroethene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Tetrahydrofuran	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
trans-1,2-Dichloroethene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
trans-1,3-Dichloropropene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Trichloroethene	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Trichlorofluoromethane	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Vinyl Acetate	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Vinyl Chloride	ND (0.0068)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Xylene O	ND (0.0034)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Xylene P,M	ND (0.0068)		8260B Low		1	12/17/19 18:31	C9L0264	CL91731
Xylenes (Total)	ND (0.00682)		8260B Low		1	12/17/19 18:31		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*113 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*90 %*		*70-130*
Surrogate: Dibromofluoromethane	*108 %*		*70-130*
Surrogate: Toluene-d8	*102 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 20.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/17/19 12:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1221	ND (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1232	ND (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1242	ND (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1248	ND (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1254 [2C]	**0.2** (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1260 [2C]	**0.08** (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1262	ND (0.06)		8082A		1	12/19/19 14:51		CL91619
Aroclor 1268	ND (0.06)		8082A		1	12/19/19 14:51		CL91619

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*61 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*63 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*80 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 19.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/17/19 9:35

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**536** (46.8)		8100M		1	12/17/19 15:25	C9L0249	CL91636

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*109 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/17/19 13:45

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
1,2,4-Trichlorobenzene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
1,2-Dichlorobenzene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
1,3-Dichlorobenzene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
1,4-Dichlorobenzene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,3,4,6-Tetrachlorophenol	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,4,5-Trichlorophenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,4,6-Trichlorophenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,4-Dichlorophenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,4-Dimethylphenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,4-Dinitrophenol	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,4-Dinitrotoluene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2,6-Dinitrotoluene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2-Chloronaphthalene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2-Chlorophenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2-Methylnaphthalene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2-Methylphenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2-Nitroaniline	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
2-Nitrophenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
3,3′-Dichlorobenzidine	ND (0.878)		8270D		1	12/18/19 20:28	C9L0296	CL91709
3+4-Methylphenol	ND (0.878)		8270D		1	12/18/19 20:28	C9L0296	CL91709
3-Nitroaniline	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4,6-Dinitro-2-Methylphenol	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4-Bromophenyl-phenylether	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4-Chloro-3-Methylphenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4-Chloroaniline	ND (0.878)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4-Chloro-phenyl-phenyl ether	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4-Nitroaniline	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
4-Nitrophenol	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Acenaphthene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Acenaphthylene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Acetophenone	ND (0.878)		8270D		1	12/18/19 20:28	C9L0296	CL91709

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/17/19 13:45

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.878)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Anthracene	**0.793** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Azobenzene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzo(a)anthracene	**2.50** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzo(a)pyrene	**2.08** (0.220)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzo(b)fluoranthene	**2.13** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzo(g,h,i)perylene	**1.21** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzo(k)fluoranthene	**1.78** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzoic Acid	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Benzyl Alcohol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
bis(2-Chloroethoxy)methane	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
bis(2-Chloroethyl)ether	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
bis(2-chloroisopropyl)Ether	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
bis(2-Ethylhexyl)phthalate	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Butylbenzylphthalate	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Carbazole	**0.572** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Chrysene	**2.43** (0.220)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Dibenzo(a,h)Anthracene	**0.413** (0.220)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Dibenzofuran	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Diethylphthalate	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Dimethylphthalate	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Di-n-butylphthalate	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Di-n-octylphthalate	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Fluoranthene	**6.20** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Fluorene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Hexachlorobenzene	ND (0.220)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Hexachlorobutadiene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Hexachlorocyclopentadiene	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Hexachloroethane	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Indeno(1,2,3-cd)Pyrene	**1.12** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Isophorone	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Naphthalene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191216-001 Pile 8
Date Sampled: 12/16/19 06:00
Percent Solids: 81
Initial Volume: 14
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0462
ESS Laboratory Sample ID: 19L0462-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/17/19 13:45

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
N-Nitrosodimethylamine	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
N-Nitroso-Di-n-Propylamine	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
N-nitrosodiphenylamine	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Pentachlorophenol	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Phenanthrene	**4.48** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Phenol	ND (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Pyrene	**5.20** (0.438)		8270D		1	12/18/19 20:28	C9L0296	CL91709
Pyridine	ND (2.20)		8270D		1	12/18/19 20:28	C9L0296	CL91709

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*57 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*73 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*69 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*62 %*		*30-130*
Surrogate: 2-Fluorophenol	*67 %*		*30-130*
Surrogate: Nitrobenzene-d5	*70 %*		*30-130*
Surrogate: Phenol-d6	*78 %*		*30-130*
Surrogate: p-Terphenyl-d14	*84 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL91652 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	35.8	15.6	mg/kg wet	51.30		70	40-160			
Arsenic	177	7.81	mg/kg wet	202.0		88	80-120			
Barium	302	7.81	mg/kg wet	343.0		88	80-120			
Beryllium	45.0	0.34	mg/kg wet	52.10		86	80-120			
Cadmium	119	1.56	mg/kg wet	149.0		80	80-120			
Chromium	160	3.12	mg/kg wet	182.0		88	80-120			
Copper	215	7.81	mg/kg wet	225.0		96	80-120			
Lead	290	15.6	mg/kg wet	333.0		87	80-120			
Nickel	149	7.81	mg/kg wet	167.0		89	80-120			
Selenium	148	15.6	mg/kg wet	169.0		87	80-120			
Silver	42.2	1.56	mg/kg wet	48.90		86	80-120			
Thallium	62.6	15.6	mg/kg wet	82.30		76	62-139			
Zinc	388	7.81	mg/kg wet	459.0		85	80-120			
LCS Dup										
Antimony	34.8	15.4	mg/kg wet	51.30		68	40-160	3	20	
Arsenic	177	7.69	mg/kg wet	202.0		88	80-120	0.2	20	
Barium	333	7.69	mg/kg wet	343.0		97	80-120	10	20	
Beryllium	45.0	0.34	mg/kg wet	52.10		86	80-120	0.02	20	
Cadmium	120	1.54	mg/kg wet	149.0		81	80-120	1	20	
Chromium	163	3.08	mg/kg wet	182.0		89	80-120	2	20	
Copper	206	7.69	mg/kg wet	225.0		92	80-120	4	20	
Lead	294	15.4	mg/kg wet	333.0		88	80-120	1	20	
Nickel	147	7.69	mg/kg wet	167.0		88	80-120	1	20	
Selenium	152	15.4	mg/kg wet	169.0		90	80-120	3	20	
Silver	42.8	1.54	mg/kg wet	48.90		88	80-120	1	20	
Thallium	65.6	15.4	mg/kg wet	82.30		80	62-139	5	20	
Zinc	392	7.69	mg/kg wet	459.0		85	80-120	0.9	20	
Batch CL91734 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL91734 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.37	0.550	mg/kg wet	7.760		108	80-120			
LCS Dup										
Mercury	8.52	0.609	mg/kg wet	7.760		110	80-120	2	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91731 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91731 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0567*		mg/kg wet	*0.05000*		*113*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0477*		mg/kg wet	*0.05000*		*95*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0536*		mg/kg wet	*0.05000*		*107*	*70-130*			
Surrogate: Toluene-d8	*0.0493*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0560	0.0050	mg/kg wet	0.05000		112	70-130			
1,1,1-Trichloroethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91731 - 5035										
1,1,2,2-Tetrachloroethane	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			
1,1,2-Trichloroethane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
1,1-Dichloroethane	0.0520	0.0050	mg/kg wet	0.05000		104	70-130			
1,1-Dichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloropropene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
1,2,3-Trichlorobenzene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
1,2,3-Trichloropropane	0.0405	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trichlorobenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
1,2,4-Trimethylbenzene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
1,2-Dibromo-3-Chloropropane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
1,2-Dibromoethane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichlorobenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloroethane	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
1,2-Dichloropropane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
1,3,5-Trimethylbenzene	0.0540	0.0050	mg/kg wet	0.05000		108	70-130			
1,3-Dichlorobenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,3-Dichloropropane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
1,4-Dichlorobenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
1,4-Dioxane	0.780	0.100	mg/kg wet	1.000		78	70-130			
1-Chlorohexane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
2,2-Dichloropropane	0.0558	0.0050	mg/kg wet	0.05000		112	70-130			
2-Butanone	0.241	0.0500	mg/kg wet	0.2500		96	70-130			
2-Chlorotoluene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
2-Hexanone	0.221	0.0500	mg/kg wet	0.2500		88	70-130			
4-Chlorotoluene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
4-Isopropyltoluene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
4-Methyl-2-Pentanone	0.199	0.0500	mg/kg wet	0.2500		80	70-130			
Acetone	0.223	0.0500	mg/kg wet	0.2500		89	70-130			
Benzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
Bromobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Bromochloromethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
Bromodichloromethane	0.0574	0.0050	mg/kg wet	0.05000		115	70-130			
Bromoform	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Bromomethane	0.0469	0.0100	mg/kg wet	0.05000		94	70-130			
Carbon Disulfide	0.0524	0.0050	mg/kg wet	0.05000		105	70-130			
Carbon Tetrachloride	0.0607	0.0050	mg/kg wet	0.05000		121	70-130			
Chlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Chloroethane	0.0455	0.0100	mg/kg wet	0.05000		91	70-130			
Chloroform	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Chloromethane	0.0470	0.0100	mg/kg wet	0.05000		94	70-130			
cis-1,2-Dichloroethene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
cis-1,3-Dichloropropene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Dibromochloromethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
Dibromomethane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
Dichlorodifluoromethane	0.0396	0.0100	mg/kg wet	0.05000		79	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91731 - 5035										
Diethyl Ether	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Di-isopropyl ether	0.0485	0.0050	mg/kg wet	0.05000		97	70-130			
Ethyl tertiary-butyl ether	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Ethylbenzene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
Hexachlorobutadiene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130			
Isopropylbenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Methyl tert-Butyl Ether	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Methylene Chloride	0.0537	0.0250	mg/kg wet	0.05000		107	70-130			
Naphthalene	0.0414	0.0050	mg/kg wet	0.05000		83	70-130			
n-Butylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
n-Propylbenzene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
sec-Butylbenzene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
Styrene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130			
tert-Butylbenzene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
Tertiary-amyl methyl ether	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Tetrachloroethene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
Tetrahydrofuran	0.0382	0.0050	mg/kg wet	0.05000		76	70-130			
Toluene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
trans-1,2-Dichloroethene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
trans-1,3-Dichloropropene	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
Trichloroethene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
Trichlorofluoromethane	0.0571	0.0050	mg/kg wet	0.05000		114	70-130			
Vinyl Acetate	0.0376	0.0050	mg/kg wet	0.05000		75	70-130			
Vinyl Chloride	0.0463	0.0100	mg/kg wet	0.05000		93	70-130			
Xylene O	0.0534	0.0050	mg/kg wet	0.05000		107	70-130			
Xylene P,M	0.107	0.0100	mg/kg wet	0.1000		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0505*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0506*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0521*		mg/kg wet	*0.05000*		*104*	*70-130*			
Surrogate: Toluene-d8	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0600	0.0050	mg/kg wet	0.05000		120	70-130	7	25	
1,1,1-Trichloroethane	0.0603	0.0050	mg/kg wet	0.05000		121	70-130	6	25	
1,1,2,2-Tetrachloroethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	7	25	
1,1,2-Trichloroethane	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
1,1-Dichloroethane	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	7	25	
1,1-Dichloroethene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	8	25	
1,1-Dichloropropene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
1,2,3-Trichlorobenzene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	7	25	
1,2,3-Trichloropropane	0.0428	0.0050	mg/kg wet	0.05000		86	70-130	6	25	
1,2,4-Trichlorobenzene	0.0572	0.0050	mg/kg wet	0.05000		114	70-130	7	25	
1,2,4-Trimethylbenzene	0.0588	0.0050	mg/kg wet	0.05000		118	70-130	7	25	
1,2-Dibromo-3-Chloropropane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	7	25	
1,2-Dibromoethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
1,2-Dichlorobenzene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	9	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91731 - 5035										
1,2-Dichloroethane	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	7	25	
1,2-Dichloropropane	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
1,3,5-Trimethylbenzene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
1,3-Dichlorobenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
1,3-Dichloropropane	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
1,4-Dichlorobenzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	7	25	
1,4-Dioxane	0.838	0.100	mg/kg wet	1.000		84	70-130	7	20	
1-Chlorohexane	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	10	25	
2,2-Dichloropropane	0.0592	0.0050	mg/kg wet	0.05000		118	70-130	6	25	
2-Butanone	0.256	0.0500	mg/kg wet	0.2500		102	70-130	6	25	
2-Chlorotoluene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	8	25	
2-Hexanone	0.235	0.0500	mg/kg wet	0.2500		94	70-130	6	25	
4-Chlorotoluene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
4-Isopropyltoluene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	8	25	
4-Methyl-2-Pentanone	0.211	0.0500	mg/kg wet	0.2500		85	70-130	6	25	
Acetone	0.218	0.0500	mg/kg wet	0.2500		87	70-130	2	25	
Benzene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
Bromobenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	8	25	
Bromochloromethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	6	25	
Bromodichloromethane	0.0610	0.0050	mg/kg wet	0.05000		122	70-130	6	25	
Bromoform	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	8	25	
Bromomethane	0.0494	0.0100	mg/kg wet	0.05000		99	70-130	5	25	
Carbon Disulfide	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	7	25	
Carbon Tetrachloride	0.0654	0.0050	mg/kg wet	0.05000		131	70-130	7	25	B+
Chlorobenzene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	8	25	
Chloroethane	0.0488	0.0100	mg/kg wet	0.05000		98	70-130	7	25	
Chloroform	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	7	25	
Chloromethane	0.0492	0.0100	mg/kg wet	0.05000		98	70-130	5	25	
cis-1,2-Dichloroethene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
Dibromochloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Dibromomethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	6	25	
Dichlorodifluoromethane	0.0401	0.0100	mg/kg wet	0.05000		80	70-130	1	25	
Diethyl Ether	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	11	25	
Di-isopropyl ether	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	8	25	
Ethyl tertiary-butyl ether	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	8	25	
Ethylbenzene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	8	25	
Hexachlorobutadiene	0.0602	0.0050	mg/kg wet	0.05000		120	70-130	7	25	
Isopropylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
Methyl tert-Butyl Ether	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	8	25	
Methylene Chloride	0.0572	0.0250	mg/kg wet	0.05000		114	70-130	6	25	
Naphthalene	0.0448	0.0050	mg/kg wet	0.05000		90	70-130	8	25	
n-Butylbenzene	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	7	25	
n-Propylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
sec-Butylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	7	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91731 - 5035										
Styrene	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	8	25	
tert-Butylbenzene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130	8	25	
Tertiary-amyl methyl ether	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
Tetrachloroethene	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	8	25	
Tetrahydrofuran	0.0392	0.0050	mg/kg wet	0.05000		78	70-130	3	25	
Toluene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
trans-1,2-Dichloroethene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
trans-1,3-Dichloropropene	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	7	25	
Trichloroethene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
Trichlorofluoromethane	0.0601	0.0050	mg/kg wet	0.05000		120	70-130	5	25	
Vinyl Acetate	0.0409	0.0050	mg/kg wet	0.05000		82	70-130	9	25	
Vinyl Chloride	0.0487	0.0100	mg/kg wet	0.05000		97	70-130	5	25	
Xylene O	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	7	25	
Xylene P,M	0.116	0.0100	mg/kg wet	0.1000		116	70-130	8	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0501*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0506*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0518*		mg/kg wet	*0.05000*		*104*	*70-130*			
Surrogate: Toluene-d8	*0.0498*		mg/kg wet	*0.05000*		*100*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91619 - 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	*0.0292*		mg/kg wet	*0.02500*		*117*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0252*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0258*		mg/kg wet	*0.02500*		*103*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL91619 - 3540C										
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140			
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		108	40-140			
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		111	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		106	40-140			
Surrogate: Decachlorobiphenyl	*0.0296*		mg/kg wet	*0.02500*		*118*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0265*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0265*		mg/kg wet	*0.02500*		*106*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		105	40-140	0.9	30	
Aroclor 1016 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140	3	30	
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		117	40-140	5	30	
Aroclor 1260 [2C]	0.6	0.05	mg/kg wet	0.5000		111	40-140	5	30	
Surrogate: Decachlorobiphenyl	*0.0297*		mg/kg wet	*0.02500*		*119*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0262*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0259*		mg/kg wet	*0.02500*		*104*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL91636 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.43*		mg/kg wet	*5.000*		*89*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		70	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		73	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
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ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL91636 - 3546										
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		78	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		100	40-140			
Nonane (C9)	1.4	0.2	mg/kg wet	2.500		57	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Total Petroleum Hydrocarbons	29.2	37.5	mg/kg wet	35.00		84	40-140			
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Surrogate: O-Terphenyl	*4.44*		mg/kg wet	*5.000*		*89*	*40-140*			
LCS Dup										
Decane (C10)	1.6	0.2	mg/kg wet	2.500		66	40-140	6	25	
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		89	40-140	1	25	
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		70	40-140	4	25	
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		88	40-140	1	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		87	40-140	2	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		78	40-140	1	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		98	40-140	3	25	
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		58	30-140	2	25	
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140	3	25	
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.3	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		89	40-140	1	25	
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		75	40-140	1	25	
Total Petroleum Hydrocarbons	28.7	37.5	mg/kg wet	35.00		82	40-140	2	25	
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		86	40-140	3	25	
Surrogate: O-Terphenyl	*4.33*		mg/kg wet	*5.000*		*87*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.22*		mg/kg wet	*3.333*		*67*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.97*		mg/kg wet	*5.000*		*79*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.63*		mg/kg wet	*5.000*		*73*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2-Fluorophenol	*3.68*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.45*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: Phenol-d6	*3.80*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.17*		mg/kg wet	*3.333*		*95*	*30-130*			
LCS										
1,1-Biphenyl	2.16	0.333	mg/kg wet	3.333		65	40-140			
1,2,4-Trichlorobenzene	2.00	0.333	mg/kg wet	3.333		60	40-140			
1,2-Dichlorobenzene	2.00	0.333	mg/kg wet	3.333		60	40-140			
1,3-Dichlorobenzene	1.93	0.333	mg/kg wet	3.333		58	40-140			
1,4-Dichlorobenzene	1.94	0.333	mg/kg wet	3.333		58	40-140			
2,3,4,6-Tetrachlorophenol	2.79	1.67	mg/kg wet	3.333		84	30-130			
2,4,5-Trichlorophenol	2.66	0.333	mg/kg wet	3.333		80	30-130			
2,4,6-Trichlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.46	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dimethylphenol	2.46	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dinitrophenol	3.62	1.67	mg/kg wet	3.333		108	30-130			
2,4-Dinitrotoluene	3.26	0.333	mg/kg wet	3.333		98	40-140			
2,6-Dinitrotoluene	2.74	0.333	mg/kg wet	3.333		82	40-140			
2-Chloronaphthalene	2.10	0.333	mg/kg wet	3.333		63	40-140			
2-Chlorophenol	2.29	0.333	mg/kg wet	3.333		69	30-130			
2-Methylnaphthalene	2.19	0.333	mg/kg wet	3.333		66	40-140			
2-Methylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2-Nitroaniline	2.96	0.333	mg/kg wet	3.333		89	40-140			
2-Nitrophenol	2.24	0.333	mg/kg wet	3.333		67	30-130			
3,3´-Dichlorobenzidine	2.03	0.667	mg/kg wet	3.333		61	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
3+4-Methylphenol	5.14	0.667	mg/kg wet	6.667		77	30-130			
3-Nitroaniline	2.64	0.333	mg/kg wet	3.333		79	40-140			
4,6-Dinitro-2-Methylphenol	3.54	1.67	mg/kg wet	3.333		106	30-130			
4-Bromophenyl-phenylether	2.52	0.333	mg/kg wet	3.333		76	40-140			
4-Chloro-3-Methylphenol	2.81	0.333	mg/kg wet	3.333		84	30-130			
4-Chloroaniline	1.18	0.667	mg/kg wet	3.333		35	40-140			B-
4-Chloro-phenyl-phenyl ether	2.48	0.333	mg/kg wet	3.333		74	40-140			
4-Nitroaniline	2.75	0.333	mg/kg wet	3.333		82	40-140			
4-Nitrophenol	3.47	1.67	mg/kg wet	3.333		104	30-130			
Acenaphthene	2.25	0.333	mg/kg wet	3.333		68	40-140			
Acenaphthylene	2.26	0.333	mg/kg wet	3.333		68	40-140			
Acetophenone	2.31	0.667	mg/kg wet	3.333		69	40-140			
Aniline	1.42	0.667	mg/kg wet	3.333		43	40-140			
Anthracene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Azobenzene	2.52	0.333	mg/kg wet	3.333		76	40-140			
Benzo(a)anthracene	3.09	0.333	mg/kg wet	3.333		93	40-140			
Benzo(a)pyrene	2.95	0.167	mg/kg wet	3.333		89	40-140			
Benzo(b)fluoranthene	3.53	0.333	mg/kg wet	3.333		106	40-140			
Benzo(g,h,i)perylene	3.18	0.333	mg/kg wet	3.333		96	40-140			
Benzo(k)fluoranthene	2.57	0.333	mg/kg wet	3.333		77	40-140			
Benzoic Acid	2.97	1.67	mg/kg wet	3.333		89	40-140			
Benzyl Alcohol	1.86	0.333	mg/kg wet	3.333		56	40-140			
bis(2-Chloroethoxy)methane	2.21	0.333	mg/kg wet	3.333		66	40-140			
bis(2-Chloroethyl)ether	2.13	0.333	mg/kg wet	3.333		64	40-140			
bis(2-chloroisopropyl)Ether	2.11	0.333	mg/kg wet	3.333		63	40-140			
bis(2-Ethylhexyl)phthalate	3.12	0.333	mg/kg wet	3.333		94	40-140			
Butylbenzylphthalate	3.11	0.333	mg/kg wet	3.333		93	40-140			
Carbazole	3.09	0.333	mg/kg wet	3.333		93	40-140			
Chrysene	2.92	0.167	mg/kg wet	3.333		88	40-140			
Dibenzo(a,h)Anthracene	3.24	0.167	mg/kg wet	3.333		97	40-140			
Dibenzofuran	2.35	0.333	mg/kg wet	3.333		71	40-140			
Diethylphthalate	2.97	0.333	mg/kg wet	3.333		89	40-140			
Dimethylphthalate	2.72	0.333	mg/kg wet	3.333		82	40-140			
Di-n-butylphthalate	3.32	0.333	mg/kg wet	3.333		99	40-140			
Di-n-octylphthalate	3.23	0.333	mg/kg wet	3.333		97	40-140			
Fluoranthene	3.09	0.333	mg/kg wet	3.333		93	40-140			
Fluorene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.57	0.167	mg/kg wet	3.333		77	40-140			
Hexachlorobutadiene	1.90	0.333	mg/kg wet	3.333		57	40-140			
Hexachlorocyclopentadiene	1.55	1.67	mg/kg wet	3.333		47	40-140			
Hexachloroethane	2.00	0.333	mg/kg wet	3.333		60	40-140			
Indeno(1,2,3-cd)Pyrene	3.16	0.333	mg/kg wet	3.333		95	40-140			
Isophorone	2.09	0.333	mg/kg wet	3.333		63	40-140			
Naphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140			
Nitrobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
N-Nitrosodimethylamine	2.02	0.333	mg/kg wet	3.333		61	40-140			
N-Nitroso-Di-n-Propylamine	2.49	0.333	mg/kg wet	3.333		75	40-140			
N-nitrosodiphenylamine	2.74	0.333	mg/kg wet	3.333		82	40-140			
Pentachlorophenol	3.39	1.67	mg/kg wet	3.333		102	30-130			
Phenanthrene	2.71	0.333	mg/kg wet	3.333		81	40-140			
Phenol	2.45	0.333	mg/kg wet	3.333		73	30-130			
Pyrene	2.87	0.333	mg/kg wet	3.333		86	40-140			
Pyridine	1.97	1.67	mg/kg wet	3.333		59	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.04*		mg/kg wet	*3.333*		*61*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.22*		mg/kg wet	*5.000*		*84*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.58*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2-Fluorophenol	*3.49*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.34*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: Phenol-d6	*3.82*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.03*		mg/kg wet	*3.333*		*91*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.13	0.333	mg/kg wet	3.333		64	40-140	1	30	
1,2,4-Trichlorobenzene	1.98	0.333	mg/kg wet	3.333		60	40-140	0.9	30	
1,2-Dichlorobenzene	2.03	0.333	mg/kg wet	3.333		61	40-140	1	30	
1,3-Dichlorobenzene	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
1,4-Dichlorobenzene	1.97	0.333	mg/kg wet	3.333		59	40-140	2	30	
2,3,4,6-Tetrachlorophenol	2.65	1.67	mg/kg wet	3.333		80	30-130	5	30	
2,4,5-Trichlorophenol	2.59	0.333	mg/kg wet	3.333		78	30-130	3	30	
2,4,6-Trichlorophenol	2.40	0.333	mg/kg wet	3.333		72	30-130	1	30	
2,4-Dichlorophenol	2.41	0.333	mg/kg wet	3.333		72	30-130	2	30	
2,4-Dimethylphenol	2.42	0.333	mg/kg wet	3.333		73	30-130	1	30	
2,4-Dinitrophenol	3.44	1.67	mg/kg wet	3.333		103	30-130	5	30	
2,4-Dinitrotoluene	3.09	0.333	mg/kg wet	3.333		93	40-140	5	30	
2,6-Dinitrotoluene	2.64	0.333	mg/kg wet	3.333		79	40-140	4	30	
2-Chloronaphthalene	2.08	0.333	mg/kg wet	3.333		62	40-140	1	30	
2-Chlorophenol	2.29	0.333	mg/kg wet	3.333		69	30-130	0.3	30	
2-Methylnaphthalene	2.15	0.333	mg/kg wet	3.333		64	40-140	2	30	
2-Methylphenol	2.43	0.333	mg/kg wet	3.333		73	30-130	0.5	30	
2-Nitroaniline	2.86	0.333	mg/kg wet	3.333		86	40-140	3	30	
2-Nitrophenol	2.23	0.333	mg/kg wet	3.333		67	30-130	0.2	30	
3,3´-Dichlorobenzidine	2.04	0.667	mg/kg wet	3.333		61	40-140	0.5	30	
3+4-Methylphenol	5.06	0.667	mg/kg wet	6.667		76	30-130	2	30	
3-Nitroaniline	2.48	0.333	mg/kg wet	3.333		74	40-140	6	30	
4,6-Dinitro-2-Methylphenol	3.50	1.67	mg/kg wet	3.333		105	30-130	1	30	
4-Bromophenyl-phenylether	2.48	0.333	mg/kg wet	3.333		74	40-140	2	30	
4-Chloro-3-Methylphenol	2.68	0.333	mg/kg wet	3.333		81	30-130	4	30	
4-Chloroaniline	1.21	0.667	mg/kg wet	3.333		36	40-140	3	30	B-
4-Chloro-phenyl-phenyl ether	2.38	0.333	mg/kg wet	3.333		71	40-140	4	30	
4-Nitroaniline	2.74	0.333	mg/kg wet	3.333		82	40-140	0.2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
4-Nitrophenol	3.25	1.67	mg/kg wet	3.333		98	30-130	7	30	
Acenaphthene	2.22	0.333	mg/kg wet	3.333		67	40-140	1	30	
Acenaphthylene	2.22	0.333	mg/kg wet	3.333		66	40-140	2	30	
Acetophenone	2.30	0.667	mg/kg wet	3.333		69	40-140	0.8	30	
Aniline	1.50	0.667	mg/kg wet	3.333		45	40-140	5	30	
Anthracene	2.73	0.333	mg/kg wet	3.333		82	40-140	2	30	
Azobenzene	2.54	0.333	mg/kg wet	3.333		76	40-140	1	30	
Benzo(a)anthracene	2.99	0.333	mg/kg wet	3.333		90	40-140	3	30	
Benzo(a)pyrene	2.91	0.167	mg/kg wet	3.333		87	40-140	1	30	
Benzo(b)fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140	13	30	
Benzo(g,h,i)perylene	3.13	0.333	mg/kg wet	3.333		94	40-140	2	30	
Benzo(k)fluoranthene	2.82	0.333	mg/kg wet	3.333		85	40-140	9	30	
Benzoic Acid	2.90	1.67	mg/kg wet	3.333		87	40-140	3	30	
Benzyl Alcohol	1.91	0.333	mg/kg wet	3.333		57	40-140	2	30	
bis(2-Chloroethoxy)methane	2.20	0.333	mg/kg wet	3.333		66	40-140	0.3	30	
bis(2-Chloroethyl)ether	2.13	0.333	mg/kg wet	3.333		64	40-140	0.2	30	
bis(2-chloroisopropyl)Ether	2.10	0.333	mg/kg wet	3.333		63	40-140	0.3	30	
bis(2-Ethylhexyl)phthalate	2.98	0.333	mg/kg wet	3.333		89	40-140	5	30	
Butylbenzylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	6	30	
Carbazole	3.00	0.333	mg/kg wet	3.333		90	40-140	3	30	
Chrysene	2.83	0.167	mg/kg wet	3.333		85	40-140	3	30	
Dibenzo(a,h)Anthracene	3.19	0.167	mg/kg wet	3.333		96	40-140	2	30	
Dibenzofuran	2.29	0.333	mg/kg wet	3.333		69	40-140	3	30	
Diethylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	6	30	
Dimethylphthalate	2.57	0.333	mg/kg wet	3.333		77	40-140	6	30	
Di-n-butylphthalate	3.22	0.333	mg/kg wet	3.333		97	40-140	3	30	
Di-n-octylphthalate	3.04	0.333	mg/kg wet	3.333		91	40-140	6	30	
Fluoranthene	3.00	0.333	mg/kg wet	3.333		90	40-140	3	30	
Fluorene	2.53	0.333	mg/kg wet	3.333		76	40-140	3	30	
Hexachlorobenzene	2.54	0.167	mg/kg wet	3.333		76	40-140	1	30	
Hexachlorobutadiene	1.89	0.333	mg/kg wet	3.333		57	40-140	0.4	30	
Hexachlorocyclopentadiene	1.54	1.67	mg/kg wet	3.333		46	40-140	0.8	30	
Hexachloroethane	2.03	0.333	mg/kg wet	3.333		61	40-140	2	30	
Indeno(1,2,3-cd)Pyrene	3.11	0.333	mg/kg wet	3.333		93	40-140	2	30	
Isophorone	2.06	0.333	mg/kg wet	3.333		62	40-140	1	30	
Naphthalene	2.06	0.333	mg/kg wet	3.333		62	40-140	0.3	30	
Nitrobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140	0.09	30	
N-Nitrosodimethylamine	2.04	0.333	mg/kg wet	3.333		61	40-140	0.9	30	
N-Nitroso-Di-n-Propylamine	2.46	0.333	mg/kg wet	3.333		74	40-140	1	30	
N-nitrosodiphenylamine	2.73	0.333	mg/kg wet	3.333		82	40-140	0.3	30	
Pentachlorophenol	3.31	1.67	mg/kg wet	3.333		99	30-130	2	30	
Phenanthrene	2.67	0.333	mg/kg wet	3.333		80	40-140	2	30	
Phenol	2.45	0.333	mg/kg wet	3.333		74	30-130	0.2	30	
Pyrene	2.76	0.333	mg/kg wet	3.333		83	40-140	4	30	
Pyridine	2.05	1.67	mg/kg wet	3.333		61	40-140	4	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91709 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.14*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.32*		mg/kg wet	*5.000*		*86*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.67*		mg/kg wet	*5.000*		*73*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.26*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.63*		mg/kg wet	*5.000*		*73*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.41*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: Phenol-d6	*3.92*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.03*		mg/kg wet	*3.333*		*91*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0462

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV-	Initial Calibration Verification recovery is below lower control limit (ICV-).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0462

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0462
Date Received: 12/16/2019
Project Due Date: 12/23/2019
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: .6 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: 12/16/19 Time: 1741 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	422694	Yes	NA	Yes	VOA Vial - Other	Other	
01	422695	Yes	NA	Yes	VOA Vial - Other	Other	
01	422696	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	422697	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	422961	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review

Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/16/19 1605
Reviewed By: MSlon Date & Time: 12/16/19 1707
Delivered By: 12/16/19 1741

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 # 1910462

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?:
☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/16	600	Grab/Compo	Soil	20191216-001 (Pile 8)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*	GV 6/10	GV 1	AG 1	AG 1	AG 1
											Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: ✓
Seals Intact: —
Cooler Temperature: 6 °C

Sampled by: R Stein

Comments: Please specify "Other" preservative and containers types In this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 12/16/2019 at 800 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
800	12/16/19	12-16-19 15:16	12/16/19
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0506

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 2:52 pm, Dec 24, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

SAMPLE RECEIPT

The following samples were received on December 17, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by Client on December 17, 2019 at 0800.

Lab Number	Sample Name	Matrix	Analysis
19L0506-01	20191217-001 Pile 9	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0506

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CL91917-BS1 **Blank Spike recovery is below lower control limit (B-).**
Dichlorodifluoromethane (62% @ 70-130%)

CL91917-BSD1 **Blank Spike recovery is below lower control limit (B-).**
Dichlorodifluoromethane (65% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C9L0323-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (114% @ 80-120%), Benzoic Acid (104% @ 80-120%), Pentachlorophenol (113% @ 80-120%)

C9L0323-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2-Nitroaniline (21% @ 20%), 4-Nitrophenol (21% @ 20%), N-Nitrosodimethylamine (30% @ 20%)

C9L0323-CCV1 **Initial Calibration Verification recovery is below lower control limit (ICV-).**
Aniline

C9L0325-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (109% @ 80-120%), 4,6-Dinitro-2-Methylphenol (106% @ 80-120%), Benzoic Acid (96% @ 80-120%)

C9L0325-CCV1 **Initial Calibration Verification recovery is above upper control limit (ICV+).**
Pyridine

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.10)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Arsenic	ND (2.05)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Barium	**12.9** (2.05)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Beryllium	**0.18** (0.09)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Cadmium	ND (0.41)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Chromium	**10.8** (0.82)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Copper	**23.5** (2.05)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Lead	**46.8** (4.10)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Mercury	**0.044** (0.034)		7471B		1	MKS	12/19/19 10:17	0.66	40	CL91857
Nickel	**5.81** (2.05)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Selenium	ND (4.10)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Silver	ND (0.41)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Thallium	ND (4.10)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755
Zinc	**43.8** (2.05)		6010C		1	KJK	12/19/19 0:58	2.75	100	CL91755

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 10.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,1,1-Trichloroethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,1,2,2-Tetrachloroethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,1,2-Trichloroethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,1-Dichloroethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,1-Dichloroethene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,1-Dichloropropene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2,3-Trichlorobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2,3-Trichloropropane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2,4-Trichlorobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2,4-Trimethylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2-Dibromo-3-Chloropropane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2-Dibromoethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2-Dichlorobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2-Dichloroethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,2-Dichloropropane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,3,5-Trimethylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,3-Dichlorobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,3-Dichloropropane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,4-Dichlorobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1,4-Dioxane	ND (0.0518)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
1-Chlorohexane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
2,2-Dichloropropane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
2-Butanone	ND (0.0259)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
2-Chlorotoluene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
2-Hexanone	ND (0.0259)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
4-Chlorotoluene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
4-Isopropyltoluene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
4-Methyl-2-Pentanone	ND (0.0259)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Acetone	ND (0.0259)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Benzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Bromobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 10.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Bromodichloromethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Bromoform	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Bromomethane	ND (0.0052)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Carbon Disulfide	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Carbon Tetrachloride	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Chlorobenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Chloroethane	ND (0.0052)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Chloroform	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Chloromethane	ND (0.0052)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
cis-1,2-Dichloroethene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
cis-1,3-Dichloropropene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Dibromochloromethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Dibromomethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Dichlorodifluoromethane	ND (0.0052)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Diethyl Ether	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Di-isopropyl ether	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Ethyl tertiary-butyl ether	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Ethylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Hexachlorobutadiene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Isopropylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Methyl tert-Butyl Ether	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Methylene Chloride	ND (0.0129)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Naphthalene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
n-Butylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
n-Propylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
sec-Butylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Styrene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
tert-Butylbenzene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Tertiary-amyl methyl ether	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Tetrachloroethene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Tetrahydrofuran	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 10.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
trans-1,2-Dichloroethene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
trans-1,3-Dichloropropene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Trichloroethene	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Trichlorofluoromethane	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Vinyl Acetate	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Vinyl Chloride	ND (0.0052)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Xylene O	ND (0.0026)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Xylene P,M	ND (0.0052)		8260B Low		1	12/19/19 15:46	C9L0305	CL91917
Xylenes (Total)	ND (0.00518)		8260B Low		1	12/19/19 15:46		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*107 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*93 %*		*70-130*
Surrogate: Dibromofluoromethane	*106 %*		*70-130*
Surrogate: Toluene-d8	*102 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 19.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/18/19 15:50

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1221	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1232	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1242	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1248	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1254 [2C]	**0.1** (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1260 [2C]	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1262	ND (0.06)		8082A		1	12/20/19 22:48		CL92026
Aroclor 1268	ND (0.06)		8082A		1	12/20/19 22:48		CL92026

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*84 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*90 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*81 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 19.6
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/18/19 10:46

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**346** (86.3)		8100M		2	12/19/19 0:27	C9L0279	CL91816

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*90 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/19/19 9:35

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
1,2,4-Trichlorobenzene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
1,2-Dichlorobenzene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
1,3-Dichlorobenzene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
1,4-Dichlorobenzene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,3,4,6-Tetrachlorophenol	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,4,5-Trichlorophenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,4,6-Trichlorophenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,4-Dichlorophenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,4-Dimethylphenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,4-Dinitrophenol	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,4-Dinitrotoluene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2,6-Dinitrotoluene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2-Chloronaphthalene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2-Chlorophenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2-Methylnaphthalene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2-Methylphenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2-Nitroaniline	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
2-Nitrophenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
3,3′-Dichlorobenzidine	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
3+4-Methylphenol	ND (1.60)		8270D		2	12/20/19 17:12	C9L0325	CL91817
3-Nitroaniline	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4,6-Dinitro-2-Methylphenol	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4-Bromophenyl-phenylether	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4-Chloro-3-Methylphenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4-Chloroaniline	ND (1.60)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4-Chloro-phenyl-phenyl ether	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4-Nitroaniline	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
4-Nitrophenol	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Acenaphthene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Acenaphthylene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Acetophenone	ND (1.60)		8270D		2	12/20/19 17:12	C9L0325	CL91817

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/19/19 9:35

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (1.60)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Anthracene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Azobenzene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzo(a)anthracene	**2.04** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzo(a)pyrene	**1.85** (0.192)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzo(b)fluoranthene	**1.59** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzo(g,h,i)perylene	**1.27** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzo(k)fluoranthene	**1.56** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzoic Acid	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Benzyl Alcohol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
bis(2-Chloroethoxy)methane	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
bis(2-Chloroethyl)ether	ND (0.401)		8270D		2	12/20/19 17:12	C9L0325	CL91817
bis(2-chloroisopropyl)Ether	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
bis(2-Ethylhexyl)phthalate	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Butylbenzylphthalate	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Carbazole	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Chrysene	**1.99** (0.192)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Dibenzo(a,h)Anthracene	**0.400** (0.192)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Dibenzofuran	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Diethylphthalate	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Dimethylphthalate	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Di-n-butylphthalate	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Di-n-octylphthalate	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Fluoranthene	**4.63** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Fluorene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Hexachlorobenzene	ND (0.192)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Hexachlorobutadiene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Hexachlorocyclopentadiene	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Hexachloroethane	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Indeno(1,2,3-cd)Pyrene	**1.09** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Isophorone	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Naphthalene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191217-001 Pile 9
Date Sampled: 12/17/19 07:00
Percent Solids: 89
Initial Volume: 14.1
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0506
ESS Laboratory Sample ID: 19L0506-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/19/19 9:35

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
N-Nitrosodimethylamine	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
N-Nitroso-Di-n-Propylamine	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
N-nitrosodiphenylamine	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Pentachlorophenol	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Phenanthrene	**3.08** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Phenol	ND (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Pyrene	**3.88** (0.799)		8270D		2	12/20/19 17:12	C9L0325	CL91817
Pyridine	ND (4.01)		8270D		2	12/20/19 17:12	C9L0325	CL91817

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*53 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*74 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*62 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*64 %*		*30-130*
Surrogate: 2-Fluorophenol	*60 %*		*30-130*
Surrogate: Nitrobenzene-d5	*60 %*		*30-130*
Surrogate: Phenol-d6	*64 %*		*30-130*
Surrogate: p-Terphenyl-d14	*80 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CL91755 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	43.8	16.1	mg/kg wet	51.30		85	80-120			
Arsenic	176	8.06	mg/kg wet	202.0		87	80-120			
Barium	314	8.06	mg/kg wet	343.0		92	80-120			
Beryllium	45.2	0.35	mg/kg wet	52.10		87	80-120			
Cadmium	121	1.61	mg/kg wet	149.0		81	80-120			
Chromium	158	3.23	mg/kg wet	182.0		87	80-120			
Copper	214	8.06	mg/kg wet	225.0		95	80-120			
Lead	297	16.1	mg/kg wet	333.0		89	80-120			
Nickel	152	8.06	mg/kg wet	167.0		91	80-120			
Selenium	149	16.1	mg/kg wet	169.0		88	80-120			
Silver	42.4	1.61	mg/kg wet	48.90		87	80-120			
Thallium	63.8	16.1	mg/kg wet	82.30		78	62-139			
Zinc	397	8.06	mg/kg wet	459.0		86	80-120			
LCS Dup										
Antimony	41.2	14.1	mg/kg wet	51.30		80	80-120	6	20	
Arsenic	176	7.04	mg/kg wet	202.0		87	80-120	0.05	20	
Barium	283	7.04	mg/kg wet	343.0		82	80-120	11	20	
Beryllium	45.7	0.31	mg/kg wet	52.10		88	80-120	1	20	
Cadmium	122	1.41	mg/kg wet	149.0		82	80-120	0.2	20	
Chromium	159	2.82	mg/kg wet	182.0		87	80-120	0.4	20	
Copper	212	7.04	mg/kg wet	225.0		94	80-120	0.9	20	
Lead	299	14.1	mg/kg wet	333.0		90	80-120	0.7	20	
Nickel	152	7.04	mg/kg wet	167.0		91	80-120	0.2	20	
Selenium	149	14.1	mg/kg wet	169.0		88	80-120	0.003	20	
Silver	42.9	1.41	mg/kg wet	48.90		88	80-120	1	20	
Thallium	63.1	14.1	mg/kg wet	82.30		77	62-139	1	20	
Zinc	399	7.04	mg/kg wet	459.0		87	80-120	0.6	20	
Batch CL91857 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL91857 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.40	0.629	mg/kg wet	7.760		108	80-120			
LCS Dup										
Mercury	8.70	0.609	mg/kg wet	7.760		112	80-120	3	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91917 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91917 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0474*		mg/kg wet	*0.05000*		*95*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0480*		mg/kg wet	*0.05000*		*96*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
1,1,1-Trichloroethane	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91917 - 5035										
1,1,2,2-Tetrachloroethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
1,1,2-Trichloroethane	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
1,1-Dichloroethane	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
1,1-Dichloroethene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130			
1,1-Dichloropropene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,2,3-Trichlorobenzene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
1,2,3-Trichloropropane	0.0415	0.0050	mg/kg wet	0.05000		83	70-130			
1,2,4-Trichlorobenzene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
1,2,4-Trimethylbenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dibromo-3-Chloropropane	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
1,2-Dibromoethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
1,2-Dichlorobenzene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichloroethane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
1,2-Dichloropropane	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
1,3,5-Trimethylbenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
1,3-Dichlorobenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,3-Dichloropropane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
1,4-Dichlorobenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dioxane	0.829	0.100	mg/kg wet	1.000		83	70-130			
1-Chlorohexane	0.0535	0.0050	mg/kg wet	0.05000		107	70-130			
2,2-Dichloropropane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
2-Butanone	0.234	0.0500	mg/kg wet	0.2500		94	70-130			
2-Chlorotoluene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
2-Hexanone	0.232	0.0500	mg/kg wet	0.2500		93	70-130			
4-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
4-Isopropyltoluene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
4-Methyl-2-Pentanone	0.213	0.0500	mg/kg wet	0.2500		85	70-130			
Acetone	0.201	0.0500	mg/kg wet	0.2500		80	70-130			
Benzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Bromobenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Bromochloromethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Bromodichloromethane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Bromoform	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
Bromomethane	0.0418	0.0100	mg/kg wet	0.05000		84	70-130			
Carbon Disulfide	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
Carbon Tetrachloride	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
Chlorobenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
Chloroethane	0.0433	0.0100	mg/kg wet	0.05000		87	70-130			
Chloroform	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Chloromethane	0.0410	0.0100	mg/kg wet	0.05000		82	70-130			
cis-1,2-Dichloroethene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130			
cis-1,3-Dichloropropene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Dibromochloromethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Dibromomethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Dichlorodifluoromethane	0.0309	0.0100	mg/kg wet	0.05000		62	70-130			B-

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91917 - 5035										
Diethyl Ether	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Di-isopropyl ether	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Ethyl tertiary-butyl ether	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
Ethylbenzene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Hexachlorobutadiene	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Isopropylbenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
Methyl tert-Butyl Ether	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
Methylene Chloride	0.0468	0.0250	mg/kg wet	0.05000		94	70-130			
Naphthalene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130			
n-Butylbenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
n-Propylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
sec-Butylbenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
Styrene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
tert-Butylbenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Tertiary-amyl methyl ether	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
Tetrachloroethene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Tetrahydrofuran	0.0423	0.0050	mg/kg wet	0.05000		85	70-130			
Toluene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
trans-1,2-Dichloroethene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
trans-1,3-Dichloropropene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130			
Trichloroethene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Trichlorofluoromethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Vinyl Acetate	0.0404	0.0050	mg/kg wet	0.05000		81	70-130			
Vinyl Chloride	0.0403	0.0100	mg/kg wet	0.05000		81	70-130			
Xylene O	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
Xylene P,M	0.107	0.0100	mg/kg wet	0.1000		107	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0453*		mg/kg wet	*0.05000*		*91*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Toluene-d8	*0.0506*		mg/kg wet	*0.05000*		*101*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	5	25	
1,1,1-Trichloroethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	7	25	
1,1,2,2-Tetrachloroethane	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	8	25	
1,1,2-Trichloroethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	7	25	
1,1-Dichloroethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
1,1-Dichloroethene	0.0573	0.0050	mg/kg wet	0.05000		115	70-130	9	25	
1,1-Dichloropropene	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
1,2,3-Trichlorobenzene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	10	25	
1,2,3-Trichloropropane	0.0448	0.0050	mg/kg wet	0.05000		90	70-130	8	25	
1,2,4-Trichlorobenzene	0.0593	0.0050	mg/kg wet	0.05000		119	70-130	10	25	
1,2,4-Trimethylbenzene	0.0579	0.0050	mg/kg wet	0.05000		116	70-130	9	25	
1,2-Dibromo-3-Chloropropane	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	16	25	
1,2-Dibromoethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	4	25	
1,2-Dichlorobenzene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	8	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91917 - 5035										
1,2-Dichloroethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
1,2-Dichloropropane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
1,3,5-Trimethylbenzene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
1,3-Dichlorobenzene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
1,3-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	4	25	
1,4-Dichlorobenzene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	9	25	
1,4-Dioxane	0.877	0.100	mg/kg wet	1.000		88	70-130	6	20	
1-Chlorohexane	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	7	25	
2,2-Dichloropropane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
2-Butanone	0.248	0.0500	mg/kg wet	0.2500		99	70-130	6	25	
2-Chlorotoluene	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
2-Hexanone	0.238	0.0500	mg/kg wet	0.2500		95	70-130	2	25	
4-Chlorotoluene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	8	25	
4-Isopropyltoluene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	9	25	
4-Methyl-2-Pentanone	0.220	0.0500	mg/kg wet	0.2500		88	70-130	3	25	
Acetone	0.234	0.0500	mg/kg wet	0.2500		94	70-130	15	25	
Benzene	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	7	25	
Bromobenzene	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	10	25	
Bromochloromethane	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	8	25	
Bromodichloromethane	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
Bromoform	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Bromomethane	0.0438	0.0100	mg/kg wet	0.05000		88	70-130	5	25	
Carbon Disulfide	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
Carbon Tetrachloride	0.0562	0.0050	mg/kg wet	0.05000		112	70-130	8	25	
Chlorobenzene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	6	25	
Chloroethane	0.0469	0.0100	mg/kg wet	0.05000		94	70-130	8	25	
Chloroform	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	6	25	
Chloromethane	0.0432	0.0100	mg/kg wet	0.05000		86	70-130	5	25	
cis-1,2-Dichloroethene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	7	25	
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
Dibromochloromethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	5	25	
Dibromomethane	0.0525	0.0050	mg/kg wet	0.05000		105	70-130	6	25	
Dichlorodifluoromethane	0.0323	0.0100	mg/kg wet	0.05000		65	70-130	4	25	B-
Diethyl Ether	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
Di-isopropyl ether	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	7	25	
Ethyl tertiary-butyl ether	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
Ethylbenzene	0.0557	0.0050	mg/kg wet	0.05000		111	70-130	5	25	
Hexachlorobutadiene	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	8	25	
Isopropylbenzene	0.0553	0.0050	mg/kg wet	0.05000		111	70-130	9	25	
Methyl tert-Butyl Ether	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	6	25	
Methylene Chloride	0.0498	0.0250	mg/kg wet	0.05000		100	70-130	6	25	
Naphthalene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	10	25	
n-Butylbenzene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	8	25	
n-Propylbenzene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
sec-Butylbenzene	0.0535	0.0050	mg/kg wet	0.05000		107	70-130	9	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL91917 - 5035										
Styrene	0.0572	0.0050	mg/kg wet	0.05000		114	70-130	7	25	
tert-Butylbenzene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	10	25	
Tertiary-amyl methyl ether	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	5	25	
Tetrachloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	5	25	
Tetrahydrofuran	0.0433	0.0050	mg/kg wet	0.05000		87	70-130	2	25	
Toluene	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	7	25	
trans-1,2-Dichloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
trans-1,3-Dichloropropene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
Trichloroethene	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
Trichlorofluoromethane	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
Vinyl Acetate	0.0431	0.0050	mg/kg wet	0.05000		86	70-130	6	25	
Vinyl Chloride	0.0432	0.0100	mg/kg wet	0.05000		86	70-130	7	25	
Xylene O	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	6	25	
Xylene P,M	0.113	0.0100	mg/kg wet	0.1000		113	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0436*		mg/kg wet	*0.05000*		*87*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0473*		mg/kg wet	*0.05000*		*95*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Toluene-d8	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL92026 - 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	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0246*		mg/kg wet	*0.02500*		*99*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0198*		mg/kg wet	*0.02500*		*79*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL92026 - 3540C										
LCS										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		88	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		86	40-140			
Surrogate: Decachlorobiphenyl	*0.0243*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0244*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0217*		mg/kg wet	*0.02500*		*87*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.05	mg/kg wet	0.5000		89	40-140	1	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140	1	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		89	40-140	2	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		87	40-140	1	30	
Surrogate: Decachlorobiphenyl	*0.0251*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0212*		mg/kg wet	*0.02500*		*85*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0223*		mg/kg wet	*0.02500*		*89*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL91816 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.41*		mg/kg wet	*5.000*		*88*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		69	40-140			
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		73	40-140			
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		84	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL91816 - 3546										
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		78	40-140			
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		62	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		82	40-140			
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Total Petroleum Hydrocarbons	28.7	37.5	mg/kg wet	35.00		82	40-140			
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Surrogate: O-Terphenyl	*4.33*		mg/kg wet	*5.000*		*87*	*40-140*			
LCS Dup										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		72	40-140	4	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		90	40-140	4	25	
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		78	40-140	7	25	
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140	5	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		90	40-140	4	25	
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		84	40-140	7	25	
Nonadecane (C19)	2.4	0.2	mg/kg wet	2.500		98	40-140	6	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		63	30-140	1	25	
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		91	40-140	4	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		87	40-140	7	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		90	40-140	4	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		81	40-140	7	25	
Total Petroleum Hydrocarbons	30.1	37.5	mg/kg wet	35.00		86	40-140	5	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		91	40-140	3	25	
Surrogate: O-Terphenyl	*4.55*		mg/kg wet	*5.000*		*91*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.333	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.080	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.167	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.080	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.080	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
Hexachlorobenzene	ND	0.080	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.75*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.41*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.14*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2-Fluorophenol	*3.40*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.44*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: Phenol-d6	*3.52*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.08*		mg/kg wet	*3.333*		*92*	*30-130*			
LCS										
1,1-Biphenyl	2.05	0.333	mg/kg wet	3.333		61	40-140			
1,2,4-Trichlorobenzene	1.83	0.333	mg/kg wet	3.333		55	40-140			
1,2-Dichlorobenzene	1.88	0.333	mg/kg wet	3.333		56	40-140			
1,3-Dichlorobenzene	1.88	0.333	mg/kg wet	3.333		56	40-140			
1,4-Dichlorobenzene	1.85	0.333	mg/kg wet	3.333		55	40-140			
2,3,4,6-Tetrachlorophenol	2.54	1.67	mg/kg wet	3.333		76	30-130			
2,4,5-Trichlorophenol	2.60	0.333	mg/kg wet	3.333		78	30-130			
2,4,6-Trichlorophenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dichlorophenol	2.25	0.333	mg/kg wet	3.333		67	30-130			
2,4-Dimethylphenol	2.29	0.333	mg/kg wet	3.333		69	30-130			
2,4-Dinitrophenol	3.50	1.67	mg/kg wet	3.333		105	30-130			
2,4-Dinitrotoluene	2.99	0.333	mg/kg wet	3.333		90	40-140			
2,6-Dinitrotoluene	2.69	0.333	mg/kg wet	3.333		81	40-140			
2-Chloronaphthalene	2.01	0.333	mg/kg wet	3.333		60	40-140			
2-Chlorophenol	2.02	0.333	mg/kg wet	3.333		61	30-130			
2-Methylnaphthalene	1.98	0.333	mg/kg wet	3.333		59	40-140			
2-Methylphenol	2.18	0.333	mg/kg wet	3.333		65	30-130			
2-Nitroaniline	3.23	0.333	mg/kg wet	3.333		97	40-140			
2-Nitrophenol	2.03	0.333	mg/kg wet	3.333		61	30-130			
3,3´-Dichlorobenzidine	2.05	0.333	mg/kg wet	3.333		61	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
3+4-Methylphenol	4.28	0.667	mg/kg wet	6.667		64	30-130			
3-Nitroaniline	2.55	0.333	mg/kg wet	3.333		77	40-140			
4,6-Dinitro-2-Methylphenol	3.41	1.67	mg/kg wet	3.333		102	30-130			
4-Bromophenyl-phenylether	2.47	0.333	mg/kg wet	3.333		74	40-140			
4-Chloro-3-Methylphenol	2.77	0.333	mg/kg wet	3.333		83	30-130			
4-Chloroaniline	1.47	0.667	mg/kg wet	3.333		44	40-140			
4-Chloro-phenyl-phenyl ether	2.37	0.333	mg/kg wet	3.333		71	40-140			
4-Nitroaniline	2.64	0.333	mg/kg wet	3.333		79	40-140			
4-Nitrophenol	3.51	1.67	mg/kg wet	3.333		105	30-130			
Acenaphthene	2.31	0.333	mg/kg wet	3.333		69	40-140			
Acenaphthylene	2.23	0.333	mg/kg wet	3.333		67	40-140			
Acetophenone	1.94	0.667	mg/kg wet	3.333		58	40-140			
Aniline	1.57	0.667	mg/kg wet	3.333		47	40-140			
Anthracene	2.69	0.333	mg/kg wet	3.333		81	40-140			
Azobenzene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzo(a)anthracene	2.87	0.333	mg/kg wet	3.333		86	40-140			
Benzo(a)pyrene	2.77	0.080	mg/kg wet	3.333		83	40-140			
Benzo(b)fluoranthene	3.00	0.333	mg/kg wet	3.333		90	40-140			
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.54	0.333	mg/kg wet	3.333		76	40-140			
Benzoic Acid	2.98	1.67	mg/kg wet	3.333		89	40-140			
Benzyl Alcohol	1.89	0.333	mg/kg wet	3.333		57	40-140			
bis(2-Chloroethoxy)methane	1.94	0.333	mg/kg wet	3.333		58	40-140			
bis(2-Chloroethyl)ether	1.92	0.167	mg/kg wet	3.333		58	40-140			
bis(2-chloroisopropyl)Ether	1.87	0.333	mg/kg wet	3.333		56	40-140			
bis(2-Ethylhexyl)phthalate	3.04	0.333	mg/kg wet	3.333		91	40-140			
Butylbenzylphthalate	2.99	0.333	mg/kg wet	3.333		90	40-140			
Carbazole	2.84	0.333	mg/kg wet	3.333		85	40-140			
Chrysene	2.76	0.080	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	2.98	0.080	mg/kg wet	3.333		89	40-140			
Dibenzofuran	2.38	0.333	mg/kg wet	3.333		71	40-140			
Diethylphthalate	2.83	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.69	0.333	mg/kg wet	3.333		81	40-140			
Di-n-butylphthalate	3.11	0.333	mg/kg wet	3.333		93	40-140			
Di-n-octylphthalate	3.19	0.333	mg/kg wet	3.333		96	40-140			
Fluoranthene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Fluorene	2.55	0.333	mg/kg wet	3.333		76	40-140			
Hexachlorobenzene	2.41	0.080	mg/kg wet	3.333		72	40-140			
Hexachlorobutadiene	1.75	0.333	mg/kg wet	3.333		53	40-140			
Hexachlorocyclopentadiene	1.31	1.67	mg/kg wet	3.333		39	40-140			
Hexachloroethane	1.92	0.333	mg/kg wet	3.333		58	40-140			
Indeno(1,2,3-cd)Pyrene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Isophorone	1.86	0.333	mg/kg wet	3.333		56	40-140			
Naphthalene	1.89	0.333	mg/kg wet	3.333		57	40-140			
Nitrobenzene	2.08	0.333	mg/kg wet	3.333		62	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
N-Nitrosodimethylamine	2.37	0.333	mg/kg wet	3.333		71	40-140			
N-Nitroso-Di-n-Propylamine	2.25	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.77	0.333	mg/kg wet	3.333		83	40-140			
Pentachlorophenol	3.10	1.67	mg/kg wet	3.333		93	30-130			
Phenanthrene	2.64	0.333	mg/kg wet	3.333		79	40-140			
Phenol	2.11	0.333	mg/kg wet	3.333		63	30-130			
Pyrene	2.78	0.333	mg/kg wet	3.333		83	40-140			
Pyridine	1.78	1.67	mg/kg wet	3.333		53	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.04*		mg/kg wet	*3.333*		*61*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.10*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.33*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.24*		mg/kg wet	*3.333*		*67*	*30-130*			
Surrogate: 2-Fluorophenol	*3.25*		mg/kg wet	*5.000*		*65*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.29*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: Phenol-d6	*3.43*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.99*		mg/kg wet	*3.333*		*90*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.04	0.333	mg/kg wet	3.333		61	40-140	0.2	30	
1,2,4-Trichlorobenzene	1.85	0.333	mg/kg wet	3.333		56	40-140	1	30	
1,2-Dichlorobenzene	1.91	0.333	mg/kg wet	3.333		57	40-140	2	30	
1,3-Dichlorobenzene	1.86	0.333	mg/kg wet	3.333		56	40-140	1	30	
1,4-Dichlorobenzene	1.86	0.333	mg/kg wet	3.333		56	40-140	1	30	
2,3,4,6-Tetrachlorophenol	2.59	1.67	mg/kg wet	3.333		78	30-130	2	30	
2,4,5-Trichlorophenol	2.65	0.333	mg/kg wet	3.333		79	30-130	2	30	
2,4,6-Trichlorophenol	2.45	0.333	mg/kg wet	3.333		74	30-130	2	30	
2,4-Dichlorophenol	2.26	0.333	mg/kg wet	3.333		68	30-130	0.8	30	
2,4-Dimethylphenol	2.33	0.333	mg/kg wet	3.333		70	30-130	2	30	
2,4-Dinitrophenol	3.65	1.67	mg/kg wet	3.333		109	30-130	4	30	
2,4-Dinitrotoluene	3.09	0.333	mg/kg wet	3.333		93	40-140	3	30	
2,6-Dinitrotoluene	2.78	0.333	mg/kg wet	3.333		83	40-140	3	30	
2-Chloronaphthalene	1.98	0.333	mg/kg wet	3.333		59	40-140	1	30	
2-Chlorophenol	2.08	0.333	mg/kg wet	3.333		62	30-130	3	30	
2-Methylnaphthalene	2.05	0.333	mg/kg wet	3.333		61	40-140	3	30	
2-Methylphenol	2.18	0.333	mg/kg wet	3.333		65	30-130	0.2	30	
2-Nitroaniline	3.28	0.333	mg/kg wet	3.333		98	40-140	1	30	
2-Nitrophenol	2.09	0.333	mg/kg wet	3.333		63	30-130	3	30	
3,3´-Dichlorobenzidine	2.26	0.333	mg/kg wet	3.333		68	40-140	10	30	
3+4-Methylphenol	4.39	0.667	mg/kg wet	6.667		66	30-130	2	30	
3-Nitroaniline	2.70	0.333	mg/kg wet	3.333		81	40-140	6	30	
4,6-Dinitro-2-Methylphenol	3.53	1.67	mg/kg wet	3.333		106	30-130	3	30	
4-Bromophenyl-phenylether	2.52	0.333	mg/kg wet	3.333		76	40-140	2	30	
4-Chloro-3-Methylphenol	2.83	0.333	mg/kg wet	3.333		85	30-130	2	30	
4-Chloroaniline	1.58	0.667	mg/kg wet	3.333		47	40-140	7	30	
4-Chloro-phenyl-phenyl ether	2.44	0.333	mg/kg wet	3.333		73	40-140	3	30	
4-Nitroaniline	2.70	0.333	mg/kg wet	3.333		81	40-140	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
4-Nitrophenol	3.58	1.67	mg/kg wet	3.333		107	30-130	2	30	
Acenaphthene	2.34	0.333	mg/kg wet	3.333		70	40-140	1	30	
Acenaphthylene	2.21	0.333	mg/kg wet	3.333		66	40-140	0.9	30	
Acetophenone	1.99	0.667	mg/kg wet	3.333		60	40-140	2	30	
Aniline	1.64	0.667	mg/kg wet	3.333		49	40-140	5	30	
Anthracene	2.76	0.333	mg/kg wet	3.333		83	40-140	2	30	
Azobenzene	2.83	0.333	mg/kg wet	3.333		85	40-140	2	30	
Benzo(a)anthracene	2.96	0.333	mg/kg wet	3.333		89	40-140	3	30	
Benzo(a)pyrene	2.82	0.080	mg/kg wet	3.333		85	40-140	2	30	
Benzo(b)fluoranthene	3.12	0.333	mg/kg wet	3.333		94	40-140	4	30	
Benzo(g,h,i)perylene	3.00	0.333	mg/kg wet	3.333		90	40-140	1	30	
Benzo(k)fluoranthene	2.58	0.333	mg/kg wet	3.333		77	40-140	2	30	
Benzoic Acid	3.08	1.67	mg/kg wet	3.333		92	40-140	3	30	
Benzyl Alcohol	2.01	0.333	mg/kg wet	3.333		60	40-140	6	30	
bis(2-Chloroethoxy)methane	1.96	0.333	mg/kg wet	3.333		59	40-140	1	30	
bis(2-Chloroethyl)ether	1.95	0.167	mg/kg wet	3.333		59	40-140	1	30	
bis(2-chloroisopropyl)Ether	2.00	0.333	mg/kg wet	3.333		60	40-140	6	30	
bis(2-Ethylhexyl)phthalate	3.19	0.333	mg/kg wet	3.333		96	40-140	5	30	
Butylbenzylphthalate	3.12	0.333	mg/kg wet	3.333		94	40-140	4	30	
Carbazole	2.94	0.333	mg/kg wet	3.333		88	40-140	3	30	
Chrysene	2.78	0.080	mg/kg wet	3.333		83	40-140	0.9	30	
Dibenzo(a,h)Anthracene	3.01	0.080	mg/kg wet	3.333		90	40-140	1	30	
Dibenzofuran	2.40	0.333	mg/kg wet	3.333		72	40-140	0.9	30	
Diethylphthalate	2.91	0.333	mg/kg wet	3.333		87	40-140	3	30	
Dimethylphthalate	2.73	0.333	mg/kg wet	3.333		82	40-140	1	30	
Di-n-butylphthalate	3.25	0.333	mg/kg wet	3.333		97	40-140	4	30	
Di-n-octylphthalate	3.39	0.333	mg/kg wet	3.333		102	40-140	6	30	
Fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140	4	30	
Fluorene	2.58	0.333	mg/kg wet	3.333		77	40-140	1	30	
Hexachlorobenzene	2.50	0.080	mg/kg wet	3.333		75	40-140	4	30	
Hexachlorobutadiene	1.75	0.333	mg/kg wet	3.333		52	40-140	0.02	30	
Hexachlorocyclopentadiene	1.34	1.67	mg/kg wet	3.333		40	40-140	3	30	
Hexachloroethane	1.96	0.333	mg/kg wet	3.333		59	40-140	2	30	
Indeno(1,2,3-cd)Pyrene	2.96	0.333	mg/kg wet	3.333		89	40-140	0.7	30	
Isophorone	1.94	0.333	mg/kg wet	3.333		58	40-140	4	30	
Naphthalene	1.89	0.333	mg/kg wet	3.333		57	40-140	0.2	30	
Nitrobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140	0.5	30	
N-Nitrosodimethylamine	2.44	0.333	mg/kg wet	3.333		73	40-140	3	30	
N-Nitroso-Di-n-Propylamine	2.35	0.333	mg/kg wet	3.333		71	40-140	4	30	
N-nitrosodiphenylamine	2.83	0.333	mg/kg wet	3.333		85	40-140	2	30	
Pentachlorophenol	3.20	1.67	mg/kg wet	3.333		96	30-130	3	30	
Phenanthrene	2.71	0.333	mg/kg wet	3.333		81	40-140	3	30	
Phenol	2.12	0.333	mg/kg wet	3.333		64	30-130	0.3	30	
Pyrene	2.85	0.333	mg/kg wet	3.333		85	40-140	3	30	
Pyridine	1.73	1.67	mg/kg wet	3.333		52	40-140	3	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL91817 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*1.97*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.09*		mg/kg wet	*5.000*		*82*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.25*		mg/kg wet	*5.000*		*65*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2-Fluorophenol	*3.14*		mg/kg wet	*5.000*		*63*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: Phenol-d6	*3.35*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.96*		mg/kg wet	*3.333*		*89*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0506

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV+	Initial Calibration Verification recovery is above upper control limit (ICV+).
ICV-	Initial Calibration Verification recovery is below lower control limit (ICV-).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0506

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0506
Date Received: 12/17/2019
Project Due Date: 12/24/2019
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: 0.2 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
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: 12/17/19 Time: 0500 By: Client
    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	423259	Yes	NA	Yes	VOA Vial - Other	Other	
01	423260	Yes	NA	Yes	VOA Vial - Other	Other	
01	423261	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	423262	Yes	NA	Yes	8 oz. Jar - Unpres	NP	
01	423840	Yes	NA	Yes	8 oz. Jar - Unpres	NP	

2nd Review

Initials

Were all containers scanned into storage/lab? Yes / No
Are barcode labels on correct containers? Yes / No / NA
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/17/19 2035
Reviewed By: Date & Time: 12/17/19 2058
Delivered By:

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 # 19L0506

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address		
Tom Saccoccio	172 Armistice Blvd		
City	**State**	**Zip Code**	**PO #**
Pawtucket	Rhode Island	02860	S3291A
Telephone Number	**FAX Number**	**Email Address**	
401-723-9900	401-723-9973	sage@sage-enviro.com	

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/17/19	700	Grab/Compo	Soil	20191217--001 (Pre?)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

	GV	GV	AG	AG	AG
	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: 0.2 °C

Sampled by: H Stern

Comments: **Please specify "Other" preservative and containers types in this space**

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen 12/17/2019 at 800 (Time)

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
H Stern 12/17 8:00	12-17-19 11:21	12-17-19 18:06	12/17/19 806
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 19L0653

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 1:38 pm, Dec 30, 2019

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

SAMPLE RECEIPT

The following samples were received on December 20, 2019 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on December 20, 2019 at 15:33.

Lab Number	Sample Name	Matrix	Analysis
19L0653-01	20191220-001 Pile 10	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0653

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

C9L0352-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
1,4-Dioxane (31% @ 30%), Naphthalene (33% @ 30%), Tetrahydrofuran (31% @ 30%), Vinyl Acetate (31% @ 30%)

CL92330-BS1 **Blank Spike recovery is above upper control limit (B+).**
Carbon Tetrachloride (131% @ 70-130%)

CL92330-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,4-Dioxane (66% @ 70-130%), 2-Hexanone (58% @ 70-130%), 4-Methyl-2-Pentanone (66% @ 70-130%), Tetrahydrofuran (61% @ 70-130%), Vinyl Acetate (66% @ 70-130%)

CL92330-BSD1 **Blank Spike recovery is below lower control limit (B-).**
1,4-Dioxane (67% @ 70-130%), Tetrahydrofuran (67% @ 70-130%)

CL92330-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**

8270D Semi-Volatile Organic Compounds

C9L0346-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (86% @ 80-120%), 4,6-Dinitro-2-Methylphenol (86% @ 80-120%), Benzoic Acid (86% @ 80-120%), Pentachlorophenol (85% @ 80-120%)

C9L0346-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2-Nitroaniline (23% @ 20%), 4-Nitrophenol (21% @ 20%), N-Nitrosodimethylamine (35% @ 20%), Phenol (21% @ 20%)

C9L0346-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
Hexachlorocyclopentadiene (27% @ 20%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.11)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Arsenic	ND (2.55)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Barium	**14.9** (2.55)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Beryllium	**0.16** (0.11)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Cadmium	ND (0.51)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Chromium	**10.6** (1.02)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Copper	**17.9** (2.55)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Lead	**46.2** (5.11)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Mercury	**0.125** (0.030)		7471B		1	MKS	12/26/19 9:17	0.75	40	CL92362
Nickel	**5.80** (2.55)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Selenium	ND (5.11)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Silver	**2.50** (0.51)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Thallium	ND (5.11)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361
Zinc	**39.0** (2.55)		6010C		1	KJK	12/24/19 6:35	2.21	100	CL92361

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 6.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,1,1-Trichloroethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,1,2,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,1,2-Trichloroethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,1-Dichloroethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,1-Dichloroethene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,1-Dichloropropene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2,3-Trichlorobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2,3-Trichloropropane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2,4-Trichlorobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2,4-Trimethylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2-Dibromo-3-Chloropropane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2-Dibromoethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2-Dichloroethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,2-Dichloropropane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,3,5-Trimethylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,3-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,3-Dichloropropane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,4-Dichlorobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1,4-Dioxane	ND (0.0818)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
1-Chlorohexane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
2,2-Dichloropropane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
2-Butanone	ND (0.0409)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
2-Chlorotoluene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
2-Hexanone	ND (0.0409)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
4-Chlorotoluene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
4-Isopropyltoluene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
4-Methyl-2-Pentanone	ND (0.0409)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Acetone	ND (0.0409)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Benzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Bromobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 6.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Bromodichloromethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Bromoform	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Bromomethane	ND (0.0082)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Carbon Disulfide	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Carbon Tetrachloride	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Chlorobenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Chloroethane	ND (0.0082)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Chloroform	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Chloromethane	ND (0.0082)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
cis-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
cis-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Dibromochloromethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Dibromomethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Dichlorodifluoromethane	ND (0.0082)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Diethyl Ether	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Di-isopropyl ether	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Ethyl tertiary-butyl ether	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Ethylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Hexachlorobutadiene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Isopropylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Methyl tert-Butyl Ether	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Methylene Chloride	ND (0.0205)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Naphthalene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
n-Butylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
n-Propylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
sec-Butylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Styrene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
tert-Butylbenzene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Tertiary-amyl methyl ether	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Tetrachloroethene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Tetrahydrofuran	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 6.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
trans-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
trans-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Trichloroethene	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Trichlorofluoromethane	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Vinyl Acetate	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Vinyl Chloride	ND (0.0082)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Xylene O	ND (0.0041)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Xylene P,M	ND (0.0082)		8260B Low		1	12/23/19 15:51	C9L0352	CL92330
Xylenes (Total)	ND (0.00818)		8260B Low		1	12/23/19 15:51		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*89 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*99 %*		*70-130*
Surrogate: Dibromofluoromethane	*97 %*		*70-130*
Surrogate: Toluene-d8	*99 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 12/23/19 16:00

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1221	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1232	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1242	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1248	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1254	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1260	**0.06** (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1262	ND (0.06)		8082A		1	12/26/19 12:44		CL92302
Aroclor 1268	ND (0.06)		8082A		1	12/26/19 12:44		CL92302

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*72 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 19.9
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 12/23/19 13:24

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**245** (42.5)		8100M		1	12/23/19 23:20	C9L0354	CL92307

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*96 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/23/19 13:24

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
1,2,4-Trichlorobenzene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
1,2-Dichlorobenzene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
1,3-Dichlorobenzene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
1,4-Dichlorobenzene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,3,4,6-Tetrachlorophenol	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,4,5-Trichlorophenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,4,6-Trichlorophenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,4-Dichlorophenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,4-Dimethylphenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,4-Dinitrophenol	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,4-Dinitrotoluene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2,6-Dinitrotoluene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2-Chloronaphthalene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2-Chlorophenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2-Methylnaphthalene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2-Methylphenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2-Nitroaniline	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
2-Nitrophenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
3,3´-Dichlorobenzidine	ND (0.758)		8270D		1	12/23/19 20:51	C9L0346	CL92306
3+4-Methylphenol	ND (0.758)		8270D		1	12/23/19 20:51	C9L0346	CL92306
3-Nitroaniline	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4,6-Dinitro-2-Methylphenol	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4-Bromophenyl-phenylether	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4-Chloro-3-Methylphenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4-Chloroaniline	ND (0.758)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4-Chloro-phenyl-phenyl ether	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4-Nitroaniline	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
4-Nitrophenol	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Acenaphthene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Acenaphthylene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Acetophenone	ND (0.758)		8270D		1	12/23/19 20:51	C9L0346	CL92306

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/23/19 13:24

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.758)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Anthracene	**0.383** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Azobenzene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzo(a)anthracene	**1.26** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzo(a)pyrene	**1.24** (0.190)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzo(b)fluoranthene	**1.27** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzo(g,h,i)perylene	**0.815** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzo(k)fluoranthene	**0.947** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzoic Acid	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Benzyl Alcohol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
bis(2-Chloroethoxy)methane	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
bis(2-Chloroethyl)ether	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
bis(2-chloroisopropyl)Ether	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
bis(2-Ethylhexyl)phthalate	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Butylbenzylphthalate	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Carbazole	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Chrysene	**1.22** (0.190)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Dibenzo(a,h)Anthracene	**0.327** (0.190)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Dibenzofuran	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Diethylphthalate	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Dimethylphthalate	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Di-n-butylphthalate	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Di-n-octylphthalate	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Fluoranthene	**2.66** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Fluorene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Hexachlorobenzene	ND (0.190)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Hexachlorobutadiene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Hexachlorocyclopentadiene	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Hexachloroethane	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Indeno(1,2,3-cd)Pyrene	**0.732** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Isophorone	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Naphthalene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20191220-001 Pile 10
Date Sampled: 12/20/19 10:35
Percent Solids: 89
Initial Volume: 14.9
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 19L0653
ESS Laboratory Sample ID: 19L0653-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 12/23/19 13:24

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
N-Nitrosodimethylamine	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
N-Nitroso-Di-n-Propylamine	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
N-nitrosodiphenylamine	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Pentachlorophenol	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Phenanthrene	**1.33** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Phenol	ND (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Pyrene	**2.53** (0.378)		8270D		1	12/23/19 20:51	C9L0346	CL92306
Pyridine	ND (1.90)		8270D		1	12/23/19 20:51	C9L0346	CL92306

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*56 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*75 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*67 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*62 %*		*30-130*
Surrogate: 2-Fluorophenol	*61 %*		*30-130*
Surrogate: Nitrobenzene-d5	*64 %*		*30-130*
Surrogate: Phenol-d6	*71 %*		*30-130*
Surrogate: p-Terphenyl-d14	*88 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL92361 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	34.1	14.1	mg/kg wet	51.30		67	0-302			
Arsenic	168	7.04	mg/kg wet	202.0		83	80-120			
Barium	312	7.04	mg/kg wet	343.0		91	80-120			
Beryllium	43.3	0.31	mg/kg wet	52.10		83	80-120			
Cadmium	120	1.41	mg/kg wet	149.0		81	80-120			
Chromium	156	2.82	mg/kg wet	182.0		86	80-120			
Copper	206	7.04	mg/kg wet	225.0		91	80-120			
Lead	294	14.1	mg/kg wet	333.0		88	80-120			
Nickel	141	7.04	mg/kg wet	167.0		84	80-120			
Selenium	144	14.1	mg/kg wet	169.0		85	80-120			
Silver	41.2	1.41	mg/kg wet	48.90		84	80-120			
Thallium	61.2	14.1	mg/kg wet	82.30		74	62-139			
Zinc	387	7.04	mg/kg wet	459.0		84	80-120			
LCS Dup										
Antimony	33.9	15.6	mg/kg wet	51.30		66	0-302	0.7	20	
Arsenic	168	7.81	mg/kg wet	202.0		83	80-120	0.03	20	
Barium	300	7.81	mg/kg wet	343.0		88	80-120	4	20	
Beryllium	44.2	0.34	mg/kg wet	52.10		85	80-120	2	20	
Cadmium	120	1.56	mg/kg wet	149.0		81	80-120	0.08	20	
Chromium	157	3.12	mg/kg wet	182.0		86	80-120	0.6	20	
Copper	206	7.81	mg/kg wet	225.0		92	80-120	0.09	20	
Lead	297	15.6	mg/kg wet	333.0		89	80-120	1	20	
Nickel	142	7.81	mg/kg wet	167.0		85	80-120	0.8	20	
Selenium	143	15.6	mg/kg wet	169.0		85	80-120	0.4	20	
Silver	41.3	1.56	mg/kg wet	48.90		85	80-120	0.3	20	
Thallium	62.6	15.6	mg/kg wet	82.30		76	62-139	2	20	
Zinc	386	7.81	mg/kg wet	459.0		84	80-120	0.004	20	
Batch CL92362 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CL92362 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.43	0.542	mg/kg wet	7.760		109	80-120			
LCS Dup										
Mercury	8.70	0.582	mg/kg wet	7.760		112	80-120	3	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL92330 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL92330 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0502*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0461*		mg/kg wet	*0.05000*		*92*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0513*		mg/kg wet	*0.05000*		*103*	*70-130*			
Surrogate: Toluene-d8	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0451	0.0050	mg/kg wet	0.05000		90	70-130			
1,1,1-Trichloroethane	0.0594	0.0050	mg/kg wet	0.05000		119	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL92330 - 5035										
1,1,2,2-Tetrachloroethane	0.0417	0.0050	mg/kg wet	0.05000		83	70-130			
1,1,2-Trichloroethane	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
1,1-Dichloroethane	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
1,1-Dichloroethene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130			
1,1-Dichloropropene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
1,2,3-Trichlorobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
1,2,3-Trichloropropane	0.0369	0.0050	mg/kg wet	0.05000		74	70-130			
1,2,4-Trichlorobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130			
1,2,4-Trimethylbenzene	0.0562	0.0050	mg/kg wet	0.05000		112	70-130			
1,2-Dibromo-3-Chloropropane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
1,2-Dibromoethane	0.0359	0.0050	mg/kg wet	0.05000		72	70-130			
1,2-Dichlorobenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,2-Dichloroethane	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
1,2-Dichloropropane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,3,5-Trimethylbenzene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130			
1,3-Dichlorobenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
1,3-Dichloropropane	0.0381	0.0050	mg/kg wet	0.05000		76	70-130			
1,4-Dichlorobenzene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
1,4-Dioxane	0.663	0.100	mg/kg wet	1.000		66	70-130			B-
1-Chlorohexane	0.0428	0.0050	mg/kg wet	0.05000		86	70-130			
2,2-Dichloropropane	0.0594	0.0050	mg/kg wet	0.05000		119	70-130			
2-Butanone	0.221	0.0500	mg/kg wet	0.2500		88	70-130			
2-Chlorotoluene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
2-Hexanone	0.145	0.0500	mg/kg wet	0.2500		58	70-130			B-
4-Chlorotoluene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130			
4-Isopropyltoluene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
4-Methyl-2-Pentanone	0.166	0.0500	mg/kg wet	0.2500		66	70-130			B-
Acetone	0.185	0.0500	mg/kg wet	0.2500		74	70-130			
Benzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Bromobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Bromochloromethane	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Bromodichloromethane	0.0563	0.0050	mg/kg wet	0.05000		113	70-130			
Bromoform	0.0371	0.0050	mg/kg wet	0.05000		74	70-130			
Bromomethane	0.0487	0.0100	mg/kg wet	0.05000		97	70-130			
Carbon Disulfide	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
Carbon Tetrachloride	0.0653	0.0050	mg/kg wet	0.05000		131	70-130			B+
Chlorobenzene	0.0398	0.0050	mg/kg wet	0.05000		80	70-130			
Chloroethane	0.0458	0.0100	mg/kg wet	0.05000		92	70-130			
Chloroform	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Chloromethane	0.0465	0.0100	mg/kg wet	0.05000		93	70-130			
cis-1,2-Dichloroethene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
cis-1,3-Dichloropropene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130			
Dibromochloromethane	0.0391	0.0050	mg/kg wet	0.05000		78	70-130			
Dibromomethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Dichlorodifluoromethane	0.0387	0.0100	mg/kg wet	0.05000		77	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL92330 - 5035										
Diethyl Ether	0.0436	0.0050	mg/kg wet	0.05000		87	70-130			
Di-isopropyl ether	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Ethyl tertiary-butyl ether	0.0425	0.0050	mg/kg wet	0.05000		85	70-130			
Ethylbenzene	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
Hexachlorobutadiene	0.0588	0.0050	mg/kg wet	0.05000		118	70-130			
Isopropylbenzene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Methyl tert-Butyl Ether	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
Methylene Chloride	0.0516	0.0250	mg/kg wet	0.05000		103	70-130			
Naphthalene	0.0369	0.0050	mg/kg wet	0.05000		74	70-130			
n-Butylbenzene	0.0574	0.0050	mg/kg wet	0.05000		115	70-130			
n-Propylbenzene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
sec-Butylbenzene	0.0541	0.0050	mg/kg wet	0.05000		108	70-130			
Styrene	0.0409	0.0050	mg/kg wet	0.05000		82	70-130			
tert-Butylbenzene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Tertiary-amyl methyl ether	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
Tetrachloroethene	0.0430	0.0050	mg/kg wet	0.05000		86	70-130			
Tetrahydrofuran	0.0307	0.0050	mg/kg wet	0.05000		61	70-130			B-
Toluene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
trans-1,2-Dichloroethene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130			
trans-1,3-Dichloropropene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130			
Trichloroethene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130			
Trichlorofluoromethane	0.0609	0.0050	mg/kg wet	0.05000		122	70-130			
Vinyl Acetate	0.0332	0.0050	mg/kg wet	0.05000		66	70-130			B-
Vinyl Chloride	0.0478	0.0100	mg/kg wet	0.05000		96	70-130			
Xylene O	0.0425	0.0050	mg/kg wet	0.05000		85	70-130			
Xylene P,M	0.0855	0.0100	mg/kg wet	0.1000		85	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0472*		mg/kg wet	*0.05000*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0393*		mg/kg wet	*0.05000*		*79*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0514*		mg/kg wet	*0.05000*		*103*	*70-130*			
Surrogate: Toluene-d8	*0.0398*		mg/kg wet	*0.05000*		*80*	*70-130*			
LCS Dup										**D+**
1,1,1,2-Tetrachloroethane	0.0578	0.0050	mg/kg wet	0.05000		116	70-130	25	25	
1,1,1-Trichloroethane	0.0591	0.0050	mg/kg wet	0.05000		118	70-130	0.6	25	
1,1,2,2-Tetrachloroethane	0.0433	0.0050	mg/kg wet	0.05000		87	70-130	4	25	
1,1,2-Trichloroethane	0.0454	0.0050	mg/kg wet	0.05000		91	70-130	5	25	
1,1-Dichloroethane	0.0528	0.0050	mg/kg wet	0.05000		106	70-130	0.5	25	
1,1-Dichloroethene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	2	25	
1,1-Dichloropropene	0.0559	0.0050	mg/kg wet	0.05000		112	70-130	0.5	25	
1,2,3-Trichlorobenzene	0.0521	0.0050	mg/kg wet	0.05000		104	70-130	4	25	
1,2,3-Trichloropropane	0.0385	0.0050	mg/kg wet	0.05000		77	70-130	4	25	
1,2,4-Trichlorobenzene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	3	25	
1,2,4-Trimethylbenzene	0.0570	0.0050	mg/kg wet	0.05000		114	70-130	1	25	
1,2-Dibromo-3-Chloropropane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	8	25	
1,2-Dibromoethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	29	25	
1,2-Dichlorobenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	2	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL92330 - 5035										
1,2-Dichloroethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	0.8	25	
1,2-Dichloropropane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130	2	25	
1,3,5-Trimethylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	0.9	25	
1,3-Dichlorobenzene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	0.5	25	
1,3-Dichloropropane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	27	25	
1,4-Dichlorobenzene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	0.9	25	
1,4-Dioxane	0.669	0.100	mg/kg wet	1.000		67	70-130	0.9	20	B-
1-Chlorohexane	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	27	25	
2,2-Dichloropropane	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	1	25	
2-Butanone	0.230	0.0500	mg/kg wet	0.2500		92	70-130	4	25	
2-Chlorotoluene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
2-Hexanone	0.197	0.0500	mg/kg wet	0.2500		79	70-130	30	25	
4-Chlorotoluene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	0.6	25	
4-Isopropyltoluene	0.0561	0.0050	mg/kg wet	0.05000		112	70-130	1	25	
4-Methyl-2-Pentanone	0.178	0.0500	mg/kg wet	0.2500		71	70-130	7	25	
Acetone	0.196	0.0500	mg/kg wet	0.2500		79	70-130	6	25	
Benzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	0.04	25	
Bromobenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	1	25	
Bromochloromethane	0.0481	0.0050	mg/kg wet	0.05000		96	70-130	0.7	25	
Bromodichloromethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	0.7	25	
Bromoform	0.0471	0.0050	mg/kg wet	0.05000		94	70-130	24	25	
Bromomethane	0.0483	0.0100	mg/kg wet	0.05000		97	70-130	0.8	25	
Carbon Disulfide	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	0.4	25	
Carbon Tetrachloride	0.0646	0.0050	mg/kg wet	0.05000		129	70-130	1	25	
Chlorobenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	27	25	
Chloroethane	0.0451	0.0100	mg/kg wet	0.05000		90	70-130	2	25	
Chloroform	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	0.07	25	
Chloromethane	0.0459	0.0100	mg/kg wet	0.05000		92	70-130	1	25	
cis-1,2-Dichloroethene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	2	25	
cis-1,3-Dichloropropene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	1	25	
Dibromochloromethane	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	24	25	
Dibromomethane	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
Dichlorodifluoromethane	0.0369	0.0100	mg/kg wet	0.05000		74	70-130	5	25	
Diethyl Ether	0.0455	0.0050	mg/kg wet	0.05000		91	70-130	4	25	
Di-isopropyl ether	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	3	25	
Ethyl tertiary-butyl ether	0.0447	0.0050	mg/kg wet	0.05000		89	70-130	5	25	
Ethylbenzene	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	26	25	
Hexachlorobutadiene	0.0594	0.0050	mg/kg wet	0.05000		119	70-130	1	25	
Isopropylbenzene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	0.7	25	
Methyl tert-Butyl Ether	0.0481	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
Methylene Chloride	0.0529	0.0250	mg/kg wet	0.05000		106	70-130	2	25	
Naphthalene	0.0397	0.0050	mg/kg wet	0.05000		79	70-130	7	25	
n-Butylbenzene	0.0581	0.0050	mg/kg wet	0.05000		116	70-130	1	25	
n-Propylbenzene	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	0.7	25	
sec-Butylbenzene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	0.4	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CL92330 - 5035										
Styrene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	26	25	
tert-Butylbenzene	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	2	25	
Tertiary-amyl methyl ether	0.0449	0.0050	mg/kg wet	0.05000		90	70-130	5	25	
Tetrachloroethene	0.0549	0.0050	mg/kg wet	0.05000		110	70-130	24	25	
Tetrahydrofuran	0.0333	0.0050	mg/kg wet	0.05000		67	70-130	8	25	B-
Toluene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	0.3	25	
trans-1,2-Dichloroethene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	0.2	25	
trans-1,3-Dichloropropene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130	2	25	
Trichloroethene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	1	25	
Trichlorofluoromethane	0.0605	0.0050	mg/kg wet	0.05000		121	70-130	0.7	25	
Vinyl Acetate	0.0350	0.0050	mg/kg wet	0.05000		70	70-130	5	25	
Vinyl Chloride	0.0478	0.0100	mg/kg wet	0.05000		96	70-130	0.08	25	
Xylene O	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	25	25	
Xylene P,M	0.111	0.0100	mg/kg wet	0.1000		111	70-130	26	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0470*		mg/kg wet	*0.05000*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0501*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0502*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Toluene-d8	*0.0505*		mg/kg wet	*0.05000*		*101*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CL92302 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0185*		mg/kg wet	*0.02500*		*74*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0193*		mg/kg wet	*0.02500*		*77*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CL92302 - 3540C										
LCS										
Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		86	40-140			
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		84	40-140			
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		85	40-140			
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		85	40-140			
Surrogate: Decachlorobiphenyl	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0218*		mg/kg wet	*0.02500*		*87*	*30-150*			
LCS Dup										
Aroclor 1016	0.4	0.02	mg/kg wet	0.5000		85	40-140	0.3	30	
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		83	40-140	0.6	30	
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		85	40-140	0.5	30	
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		85	40-140	0.3	30	
Surrogate: Decachlorobiphenyl	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0234*		mg/kg wet	*0.02500*		*93*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0210*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0219*		mg/kg wet	*0.02500*		*88*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CL92307 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.46*		mg/kg wet	*5.000*		*89*	*40-140*			
LCS										
Decane (C10)	1.6	0.2	mg/kg wet	2.500		62	40-140			
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		85	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CL92307 - 3546										
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		106	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		60	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		84	40-140			
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Total Petroleum Hydrocarbons	29.4	37.5	mg/kg wet	35.00		84	40-140			
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Surrogate: O-Terphenyl	*4.22*		mg/kg wet	*5.000*		*84*	*40-140*			
LCS Dup										
Decane (C10)	1.5	0.2	mg/kg wet	2.500		60	40-140	4	25	
Docosane (C22)	2.1	0.2	mg/kg wet	2.500		85	40-140	1	25	
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		79	40-140	2	25	
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		84	40-140	0.9	25	
Hexacosane (C26)	2.1	0.2	mg/kg wet	2.500		86	40-140	1	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		82	40-140	1	25	
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		105	40-140	0.6	25	
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		58	30-140	3	25	
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		87	40-140	0.7	25	
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		83	40-140	0.9	25	
Tetracosane (C24)	2.1	0.2	mg/kg wet	2.500		86	40-140	0.5	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		82	40-140	2	25	
Total Petroleum Hydrocarbons	29.0	37.5	mg/kg wet	35.00		83	40-140	1	25	
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		88	40-140	1	25	
Surrogate: O-Terphenyl	*4.13*		mg/kg wet	*5.000*		*83*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.71*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.75*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.68*		mg/kg wet	*5.000*		*94*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.79*		mg/kg wet	*3.333*		*84*	*30-130*			
Surrogate: 2-Fluorophenol	*4.81*		mg/kg wet	*5.000*		*96*	*30-130*			
Surrogate: Nitrobenzene-d5	*3.22*		mg/kg wet	*3.333*		*97*	*30-130*			
Surrogate: Phenol-d6	*4.86*		mg/kg wet	*5.000*		*97*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.98*		mg/kg wet	*3.333*		*89*	*30-130*			
LCS										
1,1-Biphenyl	2.51	0.333	mg/kg wet	3.333		75	40-140			
1,2,4-Trichlorobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.35	0.333	mg/kg wet	3.333		70	40-140			
1,3-Dichlorobenzene	2.29	0.333	mg/kg wet	3.333		69	40-140			
1,4-Dichlorobenzene	2.30	0.333	mg/kg wet	3.333		69	40-140			
2,3,4,6-Tetrachlorophenol	2.53	1.67	mg/kg wet	3.333		76	30-130			
2,4,5-Trichlorophenol	2.81	0.333	mg/kg wet	3.333		84	30-130			
2,4,6-Trichlorophenol	2.78	0.333	mg/kg wet	3.333		83	30-130			
2,4-Dichlorophenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
2,4-Dimethylphenol	2.85	0.333	mg/kg wet	3.333		86	30-130			
2,4-Dinitrophenol	2.80	1.67	mg/kg wet	3.333		84	30-130			
2,4-Dinitrotoluene	3.02	0.333	mg/kg wet	3.333		91	40-140			
2,6-Dinitrotoluene	2.75	0.333	mg/kg wet	3.333		82	40-140			
2-Chloronaphthalene	2.49	0.333	mg/kg wet	3.333		75	40-140			
2-Chlorophenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
2-Methylnaphthalene	2.47	0.333	mg/kg wet	3.333		74	40-140			
2-Methylphenol	2.69	0.333	mg/kg wet	3.333		81	30-130			
2-Nitroaniline	3.64	0.333	mg/kg wet	3.333		109	40-140			
2-Nitrophenol	2.53	0.333	mg/kg wet	3.333		76	30-130			
3,3´-Dichlorobenzidine	2.20	0.667	mg/kg wet	3.333		66	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
3+4-Methylphenol	5.49	0.667	mg/kg wet	6.667		82	30-130			
3-Nitroaniline	2.73	0.333	mg/kg wet	3.333		82	40-140			
4,6-Dinitro-2-Methylphenol	2.89	1.67	mg/kg wet	3.333		87	30-130			
4-Bromophenyl-phenylether	2.56	0.333	mg/kg wet	3.333		77	40-140			
4-Chloro-3-Methylphenol	3.09	0.333	mg/kg wet	3.333		93	30-130			
4-Chloroaniline	1.86	0.667	mg/kg wet	3.333		56	40-140			
4-Chloro-phenyl-phenyl ether	2.60	0.333	mg/kg wet	3.333		78	40-140			
4-Nitroaniline	2.70	0.333	mg/kg wet	3.333		81	40-140			
4-Nitrophenol	3.65	1.67	mg/kg wet	3.333		110	30-130			
Acenaphthene	2.71	0.333	mg/kg wet	3.333		81	40-140			
Acenaphthylene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Acetophenone	2.51	0.667	mg/kg wet	3.333		75	40-140			
Aniline	1.98	0.667	mg/kg wet	3.333		59	40-140			
Anthracene	2.86	0.333	mg/kg wet	3.333		86	40-140			
Azobenzene	3.29	0.333	mg/kg wet	3.333		99	40-140			
Benzo(a)anthracene	2.95	0.333	mg/kg wet	3.333		88	40-140			
Benzo(a)pyrene	2.78	0.167	mg/kg wet	3.333		84	40-140			
Benzo(b)fluoranthene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Benzo(g,h,i)perylene	2.96	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Benzoic Acid	2.56	1.67	mg/kg wet	3.333		77	40-140			
Benzyl Alcohol	2.21	0.333	mg/kg wet	3.333		66	40-140			
bis(2-Chloroethoxy)methane	2.54	0.333	mg/kg wet	3.333		76	40-140			
bis(2-Chloroethyl)ether	2.50	0.333	mg/kg wet	3.333		75	40-140			
bis(2-chloroisopropyl)Ether	2.46	0.333	mg/kg wet	3.333		74	40-140			
bis(2-Ethylhexyl)phthalate	3.23	0.333	mg/kg wet	3.333		97	40-140			
Butylbenzylphthalate	3.16	0.333	mg/kg wet	3.333		95	40-140			
Carbazole	2.98	0.333	mg/kg wet	3.333		89	40-140			
Chrysene	2.83	0.167	mg/kg wet	3.333		85	40-140			
Dibenzo(a,h)Anthracene	2.98	0.167	mg/kg wet	3.333		89	40-140			
Dibenzofuran	2.68	0.333	mg/kg wet	3.333		80	40-140			
Diethylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Dimethylphthalate	2.85	0.333	mg/kg wet	3.333		86	40-140			
Di-n-butylphthalate	3.30	0.333	mg/kg wet	3.333		99	40-140			
Di-n-octylphthalate	3.31	0.333	mg/kg wet	3.333		99	40-140			
Fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Fluorene	2.87	0.333	mg/kg wet	3.333		86	40-140			
Hexachlorobenzene	2.43	0.167	mg/kg wet	3.333		73	40-140			
Hexachlorobutadiene	2.08	0.333	mg/kg wet	3.333		62	40-140			
Hexachlorocyclopentadiene	1.53	1.67	mg/kg wet	3.333		46	40-140			
Hexachloroethane	2.44	0.333	mg/kg wet	3.333		73	40-140			
Indeno(1,2,3-cd)Pyrene	2.92	0.333	mg/kg wet	3.333		88	40-140			
Isophorone	2.43	0.333	mg/kg wet	3.333		73	40-140			
Naphthalene	2.37	0.333	mg/kg wet	3.333		71	40-140			
Nitrobenzene	2.68	0.333	mg/kg wet	3.333		81	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
N-Nitrosodimethylamine	3.08	0.333	mg/kg wet	3.333		92	40-140			
N-Nitroso-Di-n-Propylamine	2.95	0.333	mg/kg wet	3.333		89	40-140			
N-nitrosodiphenylamine	2.94	0.333	mg/kg wet	3.333		88	40-140			
Pentachlorophenol	2.61	1.67	mg/kg wet	3.333		78	30-130			
Phenanthrene	2.78	0.333	mg/kg wet	3.333		83	40-140			
Phenol	2.96	0.333	mg/kg wet	3.333		89	30-130			
Pyrene	2.87	0.333	mg/kg wet	3.333		86	40-140			
Pyridine	2.38	1.67	mg/kg wet	3.333		71	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.47*		mg/kg wet	*3.333*		*74*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.25*		mg/kg wet	*5.000*		*85*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*4.13*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.72*		mg/kg wet	*3.333*		*82*	*30-130*			
Surrogate: 2-Fluorophenol	*4.15*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.94*		mg/kg wet	*3.333*		*88*	*30-130*			
Surrogate: Phenol-d6	*4.38*		mg/kg wet	*5.000*		*88*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.00*		mg/kg wet	*3.333*		*90*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.90	0.333	mg/kg wet	3.333		87	40-140	14	30	
1,2,4-Trichlorobenzene	2.80	0.333	mg/kg wet	3.333		84	40-140	24	30	
1,2-Dichlorobenzene	2.90	0.333	mg/kg wet	3.333		87	40-140	21	30	
1,3-Dichlorobenzene	2.91	0.333	mg/kg wet	3.333		87	40-140	24	30	
1,4-Dichlorobenzene	2.88	0.333	mg/kg wet	3.333		86	40-140	22	30	
2,3,4,6-Tetrachlorophenol	2.83	1.67	mg/kg wet	3.333		85	30-130	11	30	
2,4,5-Trichlorophenol	3.08	0.333	mg/kg wet	3.333		92	30-130	9	30	
2,4,6-Trichlorophenol	3.01	0.333	mg/kg wet	3.333		90	30-130	8	30	
2,4-Dichlorophenol	3.19	0.333	mg/kg wet	3.333		96	30-130	17	30	
2,4-Dimethylphenol	3.32	0.333	mg/kg wet	3.333		100	30-130	15	30	
2,4-Dinitrophenol	3.04	1.67	mg/kg wet	3.333		91	30-130	8	30	
2,4-Dinitrotoluene	3.28	0.333	mg/kg wet	3.333		98	40-140	8	30	
2,6-Dinitrotoluene	3.09	0.333	mg/kg wet	3.333		93	40-140	12	30	
2-Chloronaphthalene	2.82	0.333	mg/kg wet	3.333		85	40-140	13	30	
2-Chlorophenol	3.18	0.333	mg/kg wet	3.333		96	30-130	21	30	
2-Methylnaphthalene	2.95	0.333	mg/kg wet	3.333		89	40-140	18	30	
2-Methylphenol	3.30	0.333	mg/kg wet	3.333		99	30-130	20	30	
2-Nitroaniline	3.96	0.333	mg/kg wet	3.333		119	40-140	9	30	
2-Nitrophenol	3.17	0.333	mg/kg wet	3.333		95	30-130	22	30	
3,3´-Dichlorobenzidine	2.46	0.667	mg/kg wet	3.333		74	40-140	11	30	
3+4-Methylphenol	6.43	0.667	mg/kg wet	6.667		96	30-130	16	30	
3-Nitroaniline	2.90	0.333	mg/kg wet	3.333		87	40-140	6	30	
4,6-Dinitro-2-Methylphenol	3.21	1.67	mg/kg wet	3.333		96	30-130	10	30	
4-Bromophenyl-phenylether	2.85	0.333	mg/kg wet	3.333		86	40-140	11	30	
4-Chloro-3-Methylphenol	3.39	0.333	mg/kg wet	3.333		102	30-130	9	30	
4-Chloroaniline	2.18	0.667	mg/kg wet	3.333		65	40-140	16	30	
4-Chloro-phenyl-phenyl ether	2.86	0.333	mg/kg wet	3.333		86	40-140	10	30	
4-Nitroaniline	2.92	0.333	mg/kg wet	3.333		88	40-140	8	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
4-Nitrophenol	3.94	1.67	mg/kg wet	3.333		118	30-130	8	30	
Acenaphthene	3.03	0.333	mg/kg wet	3.333		91	40-140	11	30	
Acenaphthylene	2.90	0.333	mg/kg wet	3.333		87	40-140	11	30	
Acetophenone	3.10	0.667	mg/kg wet	3.333		93	40-140	21	30	
Aniline	2.44	0.667	mg/kg wet	3.333		73	40-140	21	30	
Anthracene	3.06	0.333	mg/kg wet	3.333		92	40-140	7	30	
Azobenzene	3.56	0.333	mg/kg wet	3.333		107	40-140	8	30	
Benzo(a)anthracene	3.25	0.333	mg/kg wet	3.333		97	40-140	10	30	
Benzo(a)pyrene	3.15	0.167	mg/kg wet	3.333		95	40-140	12	30	
Benzo(b)fluoranthene	3.69	0.333	mg/kg wet	3.333		111	40-140	24	30	
Benzo(g,h,i)perylene	3.34	0.333	mg/kg wet	3.333		100	40-140	12	30	
Benzo(k)fluoranthene	2.83	0.333	mg/kg wet	3.333		85	40-140	2	30	
Benzoic Acid	2.96	1.67	mg/kg wet	3.333		89	40-140	14	30	
Benzyl Alcohol	2.83	0.333	mg/kg wet	3.333		85	40-140	25	30	
bis(2-Chloroethoxy)methane	3.09	0.333	mg/kg wet	3.333		93	40-140	19	30	
bis(2-Chloroethyl)ether	3.15	0.333	mg/kg wet	3.333		94	40-140	23	30	
bis(2-chloroisopropyl)Ether	3.11	0.333	mg/kg wet	3.333		93	40-140	23	30	
bis(2-Ethylhexyl)phthalate	3.68	0.333	mg/kg wet	3.333		110	40-140	13	30	
Butylbenzylphthalate	3.54	0.333	mg/kg wet	3.333		106	40-140	12	30	
Carbazole	3.21	0.333	mg/kg wet	3.333		96	40-140	8	30	
Chrysene	3.11	0.167	mg/kg wet	3.333		93	40-140	10	30	
Dibenzo(a,h)Anthracene	3.40	0.167	mg/kg wet	3.333		102	40-140	13	30	
Dibenzofuran	2.96	0.333	mg/kg wet	3.333		89	40-140	10	30	
Diethylphthalate	3.21	0.333	mg/kg wet	3.333		96	40-140	8	30	
Dimethylphthalate	3.10	0.333	mg/kg wet	3.333		93	40-140	8	30	
Di-n-butylphthalate	3.60	0.333	mg/kg wet	3.333		108	40-140	9	30	
Di-n-octylphthalate	3.89	0.333	mg/kg wet	3.333		117	40-140	16	30	
Fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140	7	30	
Fluorene	3.11	0.333	mg/kg wet	3.333		93	40-140	8	30	
Hexachlorobenzene	2.65	0.167	mg/kg wet	3.333		79	40-140	9	30	
Hexachlorobutadiene	2.66	0.333	mg/kg wet	3.333		80	40-140	24	30	
Hexachlorocyclopentadiene	1.89	1.67	mg/kg wet	3.333		57	40-140	21	30	
Hexachloroethane	3.00	0.333	mg/kg wet	3.333		90	40-140	21	30	
Indeno(1,2,3-cd)Pyrene	3.33	0.333	mg/kg wet	3.333		100	40-140	13	30	
Isophorone	2.91	0.333	mg/kg wet	3.333		87	40-140	18	30	
Naphthalene	2.95	0.333	mg/kg wet	3.333		89	40-140	22	30	
Nitrobenzene	3.34	0.333	mg/kg wet	3.333		100	40-140	22	30	
N-Nitrosodimethylamine	3.84	0.333	mg/kg wet	3.333		115	40-140	22	30	
N-Nitroso-Di-n-Propylamine	3.62	0.333	mg/kg wet	3.333		108	40-140	20	30	
N-nitrosodiphenylamine	3.23	0.333	mg/kg wet	3.333		97	40-140	9	30	
Pentachlorophenol	2.98	1.67	mg/kg wet	3.333		89	30-130	13	30	
Phenanthrene	3.02	0.333	mg/kg wet	3.333		91	40-140	8	30	
Phenol	3.58	0.333	mg/kg wet	3.333		107	30-130	19	30	
Pyrene	3.17	0.333	mg/kg wet	3.333		95	40-140	10	30	
Pyridine	2.88	1.67	mg/kg wet	3.333		86	40-140	19	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CL92306 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*3.01*		mg/kg wet	*3.333*		*90*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.58*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*5.09*		mg/kg wet	*5.000*		*102*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*3.13*		mg/kg wet	*3.333*		*94*	*30-130*			
Surrogate: 2-Fluorophenol	*5.11*		mg/kg wet	*5.000*		*102*	*30-130*			
Surrogate: Nitrobenzene-d5	*3.58*		mg/kg wet	*3.333*		*107*	*30-130*			
Surrogate: Phenol-d6	*5.27*		mg/kg wet	*5.000*		*105*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.30*		mg/kg wet	*3.333*		*99*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 19L0653

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B+	Blank Spike recovery is above upper control limit (B+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 19L0653

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: Sage Environmental, Inc. - ML/ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 19L0653
Date Received: 12/20/2019
Project Due Date: 12/30/2019
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: 3.3 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: 12/20/19 Time: 1533 By: JW

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	425055	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	425056	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	425057	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	425058	Yes	NA	Yes	4 oz. Jar - Unpres	NP	
01	425059	Yes	NA	Yes	VOA Vial - Methanol	MeOH	
01	425060	Yes	NA	Yes	VOA Vial - Other	Other	
01	425061	Yes	NA	Yes	VOA Vial - Other	Other	

2nd Review

Were all containers scanned into storage/lab? Initials

Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 12/20/19 15:28
Reviewed By: Date & Time: 12/20/19 1533
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Sage Environmental, Inc. - ML/ML

By: 12/20/19

ESS Project ID: 19L0653

Date Received: 12/20/2019

1533

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 # 1910653

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Reporting Limits: RIDEM Residential and Industrial/Commercial

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	12/20/19	1035	Grab/Compo	Soil	20191220-001 (Pile 10)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

	GV	GV	AG	AG	AG
	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: ✓

Seals Intact: —

Cooler Temperature: IR#3.3e °C

Sampled by: H. Stone

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and ~~two~~ 4 non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen ____/____/2019 at ____(Time) 402

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
12/20/19 11:00	12/20/19 11:06		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 20A0093

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 4:53 pm, Jan 14, 2020

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

SAMPLE RECEIPT

The following samples were received on January 07, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on January 7, 2019 at 1735.

Lab Number	Sample Name	Matrix	Analysis
20A0093-01	20200107-001	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0093

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

C0A0098-CCV1	**Calibration required quadratic regression (Q).**
	2,4-Dinitrophenol (99% @ 80-120%), Benzoic Acid (104% @ 80-120%)
C0A0098-CCV1	**Initial Calibration Verification recovery is above upper control limit (ICV+).**
	Pyridine
C0A0098-TUN1	**Pentachlorophenol tailing factor > 2.**
C0A0122-CCV1	**Calibration required quadratic regression (Q).**
	2,4-Dinitrophenol (82% @ 80-120%), Benzoic Acid (86% @ 80-120%)
C0A0122-CCV1	**Continuing Calibration %Diff/Drift is below control limit (CD-).**
	4,6-Dinitro-2-Methylphenol (22% @ 20%)
C0A0122-CCV1	**Initial Calibration Verification recovery is above upper control limit (ICV+).**
	Pyridine
C0A0122-TUN1	**Pentachlorophenol tailing factor > 2.**
CA00782-BSD1	**Relative percent difference for duplicate is outside of criteria (D+).**
	4-Chloroaniline (32% @ 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.31)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Arsenic	ND (2.65)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Barium	**15.8** (2.65)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Beryllium	**0.20** (0.12)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Cadmium	ND (0.53)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Chromium	**18.3** (1.06)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Copper	**32.7** (2.65)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Lead	**45.1** (5.31)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Mercury	**0.062** (0.032)		7471B		1	KJK	01/09/20 15:53	0.67	40	CA00863
Nickel	**6.57** (2.65)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Selenium	ND (5.31)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Silver	ND (0.42)		6010C		1	KJK	01/09/20 18:29	2.58	100	CA00865
Thallium	ND (5.31)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862
Zinc	**41.8** (2.65)		6010C		1	KJK	01/08/20 20:08	2.05	100	CA00862

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 9.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,1,1-Trichloroethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,1,2,2-Tetrachloroethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,1,2-Trichloroethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,1-Dichloroethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,1-Dichloroethene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,1-Dichloropropene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2,3-Trichlorobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2,3-Trichloropropane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2,4-Trichlorobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2,4-Trimethylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2-Dibromo-3-Chloropropane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2-Dibromoethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2-Dichlorobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2-Dichloroethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,2-Dichloropropane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,3,5-Trimethylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,3-Dichlorobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,3-Dichloropropane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,4-Dichlorobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1,4-Dioxane	ND (0.0549)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
1-Chlorohexane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
2,2-Dichloropropane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
2-Butanone	ND (0.0275)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
2-Chlorotoluene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
2-Hexanone	ND (0.0275)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
4-Chlorotoluene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
4-Isopropyltoluene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
4-Methyl-2-Pentanone	ND (0.0275)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Acetone	ND (0.0275)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Benzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Bromobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 9.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Bromodichloromethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Bromoform	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Bromomethane	ND (0.0055)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Carbon Disulfide	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Carbon Tetrachloride	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Chlorobenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Chloroethane	ND (0.0055)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Chloroform	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Chloromethane	ND (0.0055)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
cis-1,2-Dichloroethene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
cis-1,3-Dichloropropene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Dibromochloromethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Dibromomethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Dichlorodifluoromethane	ND (0.0055)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Diethyl Ether	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Di-isopropyl ether	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Ethyl tertiary-butyl ether	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Ethylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Hexachlorobutadiene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Isopropylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Methyl tert-Butyl Ether	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Methylene Chloride	ND (0.0137)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Naphthalene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
n-Butylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
n-Propylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
sec-Butylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Styrene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
tert-Butylbenzene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Tertiary-amyl methyl ether	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Tetrachloroethene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Tetrahydrofuran	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 9.9
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
trans-1,2-Dichloroethene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
trans-1,3-Dichloropropene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Trichloroethene	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Trichlorofluoromethane	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Vinyl Acetate	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Vinyl Chloride	ND (0.0055)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Xylene O	ND (0.0027)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Xylene P,M	ND (0.0055)		8260B Low		1	01/08/20 14:26	C0A0102	CA00831
Xylenes (Total)	ND (0.00549)		8260B Low		1	01/08/20 14:26		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*112 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*98 %*		*70-130*
Surrogate: Dibromofluoromethane	*103 %*		*70-130*
Surrogate: Toluene-d8	*100 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 20.2
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 1/8/20 15:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1221	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1232	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1242	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1248	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1254 [2C]	**0.1** (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1260 [2C]	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1262	ND (0.05)		8082A		1	01/10/20 14:40		CA00734
Aroclor 1268	ND (0.05)		8082A		1	01/10/20 14:40		CA00734

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*78 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*85 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*98 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 1/7/20 18:04

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**258** (41.8)		8100M		1	01/09/20 13:44	C0A0100	CA00783

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*93 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/7/20 18:28

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
1,2,4-Trichlorobenzene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
1,2-Dichlorobenzene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
1,3-Dichlorobenzene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
1,4-Dichlorobenzene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,3,4,6-Tetrachlorophenol	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,4,5-Trichlorophenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,4,6-Trichlorophenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,4-Dichlorophenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,4-Dimethylphenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,4-Dinitrophenol	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,4-Dinitrotoluene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2,6-Dinitrotoluene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2-Chloronaphthalene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2-Chlorophenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2-Methylnaphthalene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2-Methylphenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2-Nitroaniline	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
2-Nitrophenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
3,3′-Dichlorobenzidine	ND (0.702)		8270D		1	01/09/20 1:41	C0A0098	CA00782
3+4-Methylphenol	ND (0.702)		8270D		1	01/09/20 1:41	C0A0098	CA00782
3-Nitroaniline	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4,6-Dinitro-2-Methylphenol	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4-Bromophenyl-phenylether	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4-Chloro-3-Methylphenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4-Chloroaniline	ND (0.702)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4-Chloro-phenyl-phenyl ether	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4-Nitroaniline	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
4-Nitrophenol	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Acenaphthene	**0.524** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Acenaphthylene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Acetophenone	ND (0.702)		8270D		1	01/09/20 1:41	C0A0098	CA00782

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/7/20 18:28

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.702)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Anthracene	**1.25** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Azobenzene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzo(a)anthracene	**3.26** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzo(a)pyrene	**3.14** (0.176)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzo(b)fluoranthene	**3.56** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzo(g,h,i)perylene	**1.83** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzo(k)fluoranthene	**2.13** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzoic Acid	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Benzyl Alcohol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
bis(2-Chloroethoxy)methane	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
bis(2-Chloroethyl)ether	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
bis(2-chloroisopropyl)Ether	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
bis(2-Ethylhexyl)phthalate	**2.68** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Butylbenzylphthalate	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Carbazole	**0.860** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Chrysene	**3.08** (0.176)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Dibenzo(a,h)Anthracene	**0.798** (0.176)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Dibenzofuran	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Diethylphthalate	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Dimethylphthalate	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Di-n-butylphthalate	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Di-n-octylphthalate	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Fluoranthene	**6.02** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Fluorene	**0.591** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Hexachlorobenzene	ND (0.176)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Hexachlorobutadiene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Hexachlorocyclopentadiene	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Hexachloroethane	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Indeno(1,2,3-cd)Pyrene	**1.68** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Isophorone	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Naphthalene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200107-001
Date Sampled: 01/07/20 07:30
Percent Solids: 92
Initial Volume: 15.5
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0093
ESS Laboratory Sample ID: 20A0093-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/7/20 18:28

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
N-Nitrosodimethylamine	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
N-Nitroso-Di-n-Propylamine	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
N-nitrosodiphenylamine	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Pentachlorophenol	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Phenanthrene	**5.00** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Phenol	ND (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Pyrene	**6.44** (0.351)		8270D		1	01/09/20 1:41	C0A0098	CA00782
Pyridine	ND (1.76)		8270D		1	01/09/20 1:41	C0A0098	CA00782

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*67 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*74 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*75 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*63 %*		*30-130*
Surrogate: 2-Fluorophenol	*73 %*		*30-130*
Surrogate: Nitrobenzene-d5	*70 %*		*30-130*
Surrogate: Phenol-d6	*76 %*		*30-130*
Surrogate: p-Terphenyl-d14	*94 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA00862 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	42.3	15.4	mg/kg wet	51.30		82	40-160			
Arsenic	184	7.69	mg/kg wet	202.0		91	80-120			
Barium	343	7.69	mg/kg wet	343.0		100	80-120			
Beryllium	46.7	0.34	mg/kg wet	52.10		90	80-120			
Cadmium	125	1.54	mg/kg wet	149.0		84	80-120			
Chromium	170	3.08	mg/kg wet	182.0		93	80-120			
Copper	224	7.69	mg/kg wet	225.0		99	80-120			
Lead	309	15.4	mg/kg wet	333.0		93	80-120			
Nickel	161	7.69	mg/kg wet	167.0		96	80-120			
Selenium	155	15.4	mg/kg wet	169.0		91	80-120			
Thallium	67.1	15.4	mg/kg wet	82.30		82	80-120			
Zinc	412	7.69	mg/kg wet	459.0		90	80-120			
LCS Dup										
Antimony	40.0	15.2	mg/kg wet	51.30		78	40-160	6	20	
Arsenic	177	7.58	mg/kg wet	202.0		87	80-120	4	20	
Barium	346	7.58	mg/kg wet	343.0		101	80-120	0.9	20	
Beryllium	47.1	0.33	mg/kg wet	52.10		90	80-120	0.9	20	
Cadmium	122	1.52	mg/kg wet	149.0		82	80-120	3	20	
Chromium	165	3.03	mg/kg wet	182.0		91	80-120	3	20	
Copper	223	7.58	mg/kg wet	225.0		99	80-120	0.2	20	
Lead	299	15.2	mg/kg wet	333.0		90	80-120	3	20	
Nickel	155	7.58	mg/kg wet	167.0		93	80-120	3	20	
Selenium	146	15.2	mg/kg wet	169.0		87	80-120	5	20	
Thallium	67.0	15.2	mg/kg wet	82.30		81	80-120	0.1	20	
Zinc	404	7.58	mg/kg wet	459.0		88	80-120	2	20	
Batch CA00863 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	6.33	0.574	mg/kg wet	7.760		82	80-120			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CA00863 - 7471B										
LCS Dup										
Mercury	6.40	0.619	mg/kg wet	7.760		83	80-120	1	20	
Batch CA00865 - 3050B										
Blank										
Silver	ND	0.50	mg/kg wet							
LCS										
Silver	43.1	1.59	mg/kg wet	48.90		88	80-120			
LCS Dup										
Silver	41.9	1.47	mg/kg wet	48.90		86	80-120	3	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA00831 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA00831 - 5035										
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0529*		mg/kg wet	*0.05000*		*106*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0492*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0503*		mg/kg wet	*0.05000*		*101*	*70-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA00831 - 5035										
Surrogate: Toluene-d8	*0.0492*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
1,1,1-Trichloroethane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
1,1,2,2-Tetrachloroethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
1,1,2-Trichloroethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
1,1-Dichloroethane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
1,1-Dichloroethene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
1,1-Dichloropropene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
1,2,3-Trichlorobenzene	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
1,2,3-Trichloropropane	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
1,2,4-Trichlorobenzene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,2,4-Trimethylbenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
1,2-Dibromo-3-Chloropropane	0.0397	0.0050	mg/kg wet	0.05000		79	70-130			
1,2-Dibromoethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichlorobenzene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
1,2-Dichloroethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloropropane	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
1,3,5-Trimethylbenzene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
1,3-Dichlorobenzene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
1,3-Dichloropropane	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,4-Dichlorobenzene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
1,4-Dioxane	1.02	0.100	mg/kg wet	1.000		102	70-130			
1-Chlorohexane	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
2,2-Dichloropropane	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
2-Butanone	0.288	0.0500	mg/kg wet	0.2500		115	70-130			
2-Chlorotoluene	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
2-Hexanone	0.276	0.0500	mg/kg wet	0.2500		110	70-130			
4-Chlorotoluene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
4-Isopropyltoluene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130			
4-Methyl-2-Pentanone	0.282	0.0500	mg/kg wet	0.2500		113	70-130			
Acetone	0.261	0.0500	mg/kg wet	0.2500		104	70-130			
Benzene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Bromobenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
Bromochloromethane	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Bromodichloromethane	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Bromoform	0.0413	0.0050	mg/kg wet	0.05000		83	70-130			
Bromomethane	0.0458	0.0100	mg/kg wet	0.05000		92	70-130			
Carbon Disulfide	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
Carbon Tetrachloride	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
Chlorobenzene	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
Chloroethane	0.0446	0.0100	mg/kg wet	0.05000		89	70-130			
Chloroform	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Chloromethane	0.0414	0.0100	mg/kg wet	0.05000		83	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA00831 - 5035										
cis-1,2-Dichloroethene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
cis-1,3-Dichloropropene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
Dibromochloromethane	0.0442	0.0050	mg/kg wet	0.05000		88	70-130			
Dibromomethane	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Dichlorodifluoromethane	0.0396	0.0100	mg/kg wet	0.05000		79	70-130			
Diethyl Ether	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Di-isopropyl ether	0.0553	0.0050	mg/kg wet	0.05000		111	70-130			
Ethyl tertiary-butyl ether	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Ethylbenzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Hexachlorobutadiene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
Isopropylbenzene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
Methyl tert-Butyl Ether	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
Methylene Chloride	0.0469	0.0250	mg/kg wet	0.05000		94	70-130			
Naphthalene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
n-Butylbenzene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
n-Propylbenzene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
sec-Butylbenzene	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Styrene	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
tert-Butylbenzene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Tertiary-amyl methyl ether	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
Tetrachloroethene	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
Tetrahydrofuran	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Toluene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
trans-1,2-Dichloroethene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
trans-1,3-Dichloropropene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Trichloroethene	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
Trichlorofluoromethane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
Vinyl Acetate	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			
Vinyl Chloride	0.0421	0.0100	mg/kg wet	0.05000		84	70-130			
Xylene O	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
Xylene P,M	0.0947	0.0100	mg/kg wet	0.1000		95	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0534*		mg/kg wet	*0.05000*		*107*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0498*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0519*		mg/kg wet	*0.05000*		*104*	*70-130*			
Surrogate: Toluene-d8	*0.0504*		mg/kg wet	*0.05000*		*101*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	7	25	
1,1,1-Trichloroethane	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	8	25	
1,1,2,2-Tetrachloroethane	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	9	25	
1,1,2-Trichloroethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	11	25	
1,1-Dichloroethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130	9	25	
1,1-Dichloroethene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	7	25	
1,1-Dichloropropene	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	7	25	
1,2,3-Trichlorobenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	10	25	
1,2,3-Trichloropropane	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	9	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA00831 - 5035										
1,2,4-Trichlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	9	25	
1,2,4-Trimethylbenzene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
1,2-Dibromo-3-Chloropropane	0.0435	0.0050	mg/kg wet	0.05000		87	70-130	9	25	
1,2-Dibromoethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
1,2-Dichlorobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	7	25	
1,2-Dichloroethane	0.0556	0.0050	mg/kg wet	0.05000		111	70-130	11	25	
1,2-Dichloropropane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	10	25	
1,3,5-Trimethylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
1,3-Dichlorobenzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	5	25	
1,3-Dichloropropane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	6	25	
1,4-Dichlorobenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	8	25	
1,4-Dioxane	1.12	0.100	mg/kg wet	1.000		112	70-130	9	20	
1-Chlorohexane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	4	25	
2,2-Dichloropropane	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	8	25	
2-Butanone	0.319	0.0500	mg/kg wet	0.2500		128	70-130	10	25	
2-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
2-Hexanone	0.305	0.0500	mg/kg wet	0.2500		122	70-130	10	25	
4-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	7	25	
4-Isopropyltoluene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
4-Methyl-2-Pentanone	0.317	0.0500	mg/kg wet	0.2500		127	70-130	12	25	
Acetone	0.294	0.0500	mg/kg wet	0.2500		117	70-130	12	25	
Benzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	8	25	
Bromobenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
Bromochloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	11	25	
Bromodichloromethane	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	10	25	
Bromoform	0.0458	0.0050	mg/kg wet	0.05000		92	70-130	10	25	
Bromomethane	0.0491	0.0100	mg/kg wet	0.05000		98	70-130	7	25	
Carbon Disulfide	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
Carbon Tetrachloride	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	8	25	
Chlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	6	25	
Chloroethane	0.0483	0.0100	mg/kg wet	0.05000		97	70-130	8	25	
Chloroform	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	10	25	
Chloromethane	0.0450	0.0100	mg/kg wet	0.05000		90	70-130	9	25	
cis-1,2-Dichloroethene	0.0534	0.0050	mg/kg wet	0.05000		107	70-130	9	25	
cis-1,3-Dichloropropene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	11	25	
Dibromochloromethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	9	25	
Dibromomethane	0.0569	0.0050	mg/kg wet	0.05000		114	70-130	10	25	
Dichlorodifluoromethane	0.0423	0.0100	mg/kg wet	0.05000		85	70-130	6	25	
Diethyl Ether	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	11	25	
Di-isopropyl ether	0.0610	0.0050	mg/kg wet	0.05000		122	70-130	10	25	
Ethyl tertiary-butyl ether	0.0565	0.0050	mg/kg wet	0.05000		113	70-130	10	25	
Ethylbenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Hexachlorobutadiene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	6	25	
Isopropylbenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	5	25	
Methyl tert-Butyl Ether	0.0600	0.0050	mg/kg wet	0.05000		120	70-130	11	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA00831 - 5035										
Methylene Chloride	0.0516	0.0250	mg/kg wet	0.05000		103	70-130	9	25	
Naphthalene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	10	25	
n-Butylbenzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
n-Propylbenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	6	25	
sec-Butylbenzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
Styrene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	7	25	
tert-Butylbenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	5	25	
Tertiary-amyl methyl ether	0.0590	0.0050	mg/kg wet	0.05000		118	70-130	11	25	
Tetrachloroethene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	6	25	
Tetrahydrofuran	0.0560	0.0050	mg/kg wet	0.05000		112	70-130	11	25	
Toluene	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	8	25	
trans-1,2-Dichloroethene	0.0532	0.0050	mg/kg wet	0.05000		106	70-130	8	25	
trans-1,3-Dichloropropene	0.0539	0.0050	mg/kg wet	0.05000		108	70-130	11	25	
Trichloroethene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
Trichlorofluoromethane	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	6	25	
Vinyl Acetate	0.0575	0.0050	mg/kg wet	0.05000		115	70-130	11	25	
Vinyl Chloride	0.0452	0.0100	mg/kg wet	0.05000		90	70-130	7	25	
Xylene O	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	7	25	
Xylene P,M	0.0996	0.0100	mg/kg wet	0.1000		100	70-130	5	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0546*		mg/kg wet	*0.05000*		*109*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0527*		mg/kg wet	*0.05000*		*105*	*70-130*			
Surrogate: Toluene-d8	*0.0492*		mg/kg wet	*0.05000*		*98*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CA00734 - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CA00734 - 3540C										
Surrogate: Decachlorobiphenyl	*0.0203*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0206*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0209*		mg/kg wet	*0.02500*		*84*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		91	40-140			
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		81	40-140			
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		85	40-140			
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140			
Surrogate: Decachlorobiphenyl	*0.0202*		mg/kg wet	*0.02500*		*81*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0219*		mg/kg wet	*0.02500*		*87*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0227*		mg/kg wet	*0.02500*		*91*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		93	40-140	3	30	
Aroclor 1016 [2C]	0.4	0.05	mg/kg wet	0.5000		84	40-140	3	30	
Aroclor 1260	0.4	0.05	mg/kg wet	0.5000		85	40-140	0.1	30	
Aroclor 1260 [2C]	0.4	0.05	mg/kg wet	0.5000		83	40-140	0.0005	30	
Surrogate: Decachlorobiphenyl	*0.0192*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0194*		mg/kg wet	*0.02500*		*77*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0208*		mg/kg wet	*0.02500*		*83*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0221*		mg/kg wet	*0.02500*		*88*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CA00783 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.82*		mg/kg wet	*5.000*		*96*	*40-140*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CA00783 - 3546										
LCS										
Decane (C10)	1.9	0.2	mg/kg wet	2.500		75	40-140			
Docosane (C22)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Hexacosane (C26)	2.4	0.2	mg/kg wet	2.500		96	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		101	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		65	30-140			
Octacosane (C28)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Tetracosane (C24)	2.4	0.2	mg/kg wet	2.500		97	40-140			
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Total Petroleum Hydrocarbons	31.2	37.5	mg/kg wet	35.00		89	40-140			
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		95	40-140			
Surrogate: O-Terphenyl	*4.84*		mg/kg wet	*5.000*		*97*	*40-140*			
LCS Dup										
Decane (C10)	1.9	0.2	mg/kg wet	2.500		77	40-140	2	25	
Docosane (C22)	2.5	0.2	mg/kg wet	2.500		99	40-140	1	25	
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		82	40-140	3	25	
Eicosane (C20)	2.4	0.2	mg/kg wet	2.500		98	40-140	1	25	
Hexacosane (C26)	2.5	0.2	mg/kg wet	2.500		98	40-140	2	25	
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		86	40-140	0.6	25	
Nonadecane (C19)	2.5	0.2	mg/kg wet	2.500		101	40-140	0.4	25	
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		66	30-140	2	25	
Octacosane (C28)	2.5	0.2	mg/kg wet	2.500		99	40-140	2	25	
Octadecane (C18)	2.3	0.2	mg/kg wet	2.500		91	40-140	0.2	25	
Tetracosane (C24)	2.5	0.2	mg/kg wet	2.500		99	40-140	2	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		83	40-140	0.8	25	
Total Petroleum Hydrocarbons	31.6	37.5	mg/kg wet	35.00		90	40-140	2	25	
Triacontane (C30)	2.4	0.2	mg/kg wet	2.500		97	40-140	2	25	
Surrogate: O-Terphenyl	*4.79*		mg/kg wet	*5.000*		*96*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CA00782 - 3546										
Blank										
1,1-Biphenyl	ND	0.167	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA00782 - 3546										
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.167	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.167	mg/kg wet							
Benzo(a)pyrene	ND	0.055	mg/kg wet							
Benzo(b)fluoranthene	ND	0.167	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.167	mg/kg wet							
Benzo(k)fluoranthene	ND	0.167	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.090	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.055	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.051	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

8270D Semi-Volatile Organic Compounds

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA00782 - 3546										
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.056	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.167	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.167	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	0.667	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.10*		mg/kg wet	*3.333*		*63*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.78*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.46*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.12*		mg/kg wet	*3.333*		*64*	*30-130*			
Surrogate: 2-Fluorophenol	*3.47*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.17*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: Phenol-d6	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.82*		mg/kg wet	*3.333*		*85*	*30-130*			
LCS										
1,1-Biphenyl	2.29	0.167	mg/kg wet	3.333		69	40-140			
1,2,4-Trichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140			
1,2-Dichlorobenzene	2.01	0.333	mg/kg wet	3.333		60	40-140			
1,3-Dichlorobenzene	2.02	0.333	mg/kg wet	3.333		61	40-140			
1,4-Dichlorobenzene	1.94	0.333	mg/kg wet	3.333		58	40-140			
2,3,4,6-Tetrachlorophenol	2.86	1.67	mg/kg wet	3.333		86	30-130			
2,4,5-Trichlorophenol	2.89	0.333	mg/kg wet	3.333		87	30-130			
2,4,6-Trichlorophenol	2.64	0.333	mg/kg wet	3.333		79	30-130			
2,4-Dichlorophenol	2.47	0.333	mg/kg wet	3.333		74	30-130			
2,4-Dimethylphenol	2.50	0.333	mg/kg wet	3.333		75	30-130			
2,4-Dinitrophenol	3.05	1.67	mg/kg wet	3.333		92	30-130			
2,4-Dinitrotoluene	3.38	0.167	mg/kg wet	3.333		101	40-140			
2,6-Dinitrotoluene	2.98	0.333	mg/kg wet	3.333		89	40-140			
2-Chloronaphthalene	2.01	0.333	mg/kg wet	3.333		60	40-140			
2-Chlorophenol	2.20	0.333	mg/kg wet	3.333		66	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA00782 - 3546										
2-Methylnaphthalene	2.17	0.333	mg/kg wet	3.333		65	40-140			
2-Methylphenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
2-Nitroaniline	2.91	0.333	mg/kg wet	3.333		87	40-140			
2-Nitrophenol	2.17	0.333	mg/kg wet	3.333		65	30-130			
3,3´-Dichlorobenzidine	2.20	0.667	mg/kg wet	3.333		66	40-140			
3+4-Methylphenol	4.70	0.667	mg/kg wet	6.667		70	30-130			
3-Nitroaniline	2.66	0.333	mg/kg wet	3.333		80	40-140			
4,6-Dinitro-2-Methylphenol	2.71	1.67	mg/kg wet	3.333		81	30-130			
4-Bromophenyl-phenylether	2.68	0.333	mg/kg wet	3.333		80	40-140			
4-Chloro-3-Methylphenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
4-Chloroaniline	1.55	0.667	mg/kg wet	3.333		46	40-140			
4-Chloro-phenyl-phenyl ether	2.73	0.333	mg/kg wet	3.333		82	40-140			
4-Nitroaniline	2.79	0.333	mg/kg wet	3.333		84	40-140			
4-Nitrophenol	2.88	1.67	mg/kg wet	3.333		86	30-130			
Acenaphthene	2.37	0.333	mg/kg wet	3.333		71	40-140			
Acenaphthylene	2.33	0.333	mg/kg wet	3.333		70	40-140			
Acetophenone	2.22	0.667	mg/kg wet	3.333		67	40-140			
Aniline	1.47	0.667	mg/kg wet	3.333		44	40-140			
Anthracene	2.68	0.333	mg/kg wet	3.333		80	40-140			
Azobenzene	2.55	0.333	mg/kg wet	3.333		76	40-140			
Benzo(a)anthracene	2.74	0.167	mg/kg wet	3.333		82	40-140			
Benzo(a)pyrene	2.90	0.055	mg/kg wet	3.333		87	40-140			
Benzo(b)fluoranthene	3.50	0.167	mg/kg wet	3.333		105	40-140			
Benzo(g,h,i)perylene	2.69	0.167	mg/kg wet	3.333		81	40-140			
Benzo(k)fluoranthene	2.18	0.167	mg/kg wet	3.333		65	40-140			
Benzoic Acid	2.67	1.67	mg/kg wet	3.333		80	40-140			
Benzyl Alcohol	1.52	0.333	mg/kg wet	3.333		46	40-140			
bis(2-Chloroethoxy)methane	2.20	0.333	mg/kg wet	3.333		66	40-140			
bis(2-Chloroethyl)ether	2.28	0.090	mg/kg wet	3.333		68	40-140			
bis(2-chloroisopropyl)Ether	2.03	0.333	mg/kg wet	3.333		61	40-140			
bis(2-Ethylhexyl)phthalate	2.94	0.333	mg/kg wet	3.333		88	40-140			
Butylbenzylphthalate	2.91	0.333	mg/kg wet	3.333		87	40-140			
Carbazole	3.02	0.333	mg/kg wet	3.333		91	40-140			
Chrysene	2.69	0.055	mg/kg wet	3.333		81	40-140			
Dibenzo(a,h)Anthracene	2.84	0.051	mg/kg wet	3.333		85	40-140			
Dibenzofuran	2.39	0.333	mg/kg wet	3.333		72	40-140			
Diethylphthalate	2.95	0.333	mg/kg wet	3.333		88	40-140			
Dimethylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Di-n-butylphthalate	3.09	0.333	mg/kg wet	3.333		93	40-140			
Di-n-octylphthalate	3.08	0.333	mg/kg wet	3.333		92	40-140			
Fluoranthene	3.07	0.333	mg/kg wet	3.333		92	40-140			
Fluorene	2.73	0.333	mg/kg wet	3.333		82	40-140			
Hexachlorobenzene	2.89	0.056	mg/kg wet	3.333		87	40-140			
Hexachlorobutadiene	2.03	0.333	mg/kg wet	3.333		61	40-140			
Hexachlorocyclopentadiene	1.67	1.67	mg/kg wet	3.333		50	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA00782 - 3546										
Hexachloroethane	1.95	0.333	mg/kg wet	3.333		58	40-140			
Indeno(1,2,3-cd)Pyrene	2.78	0.167	mg/kg wet	3.333		83	40-140			
Isophorone	1.96	0.333	mg/kg wet	3.333		59	40-140			
Naphthalene	2.08	0.167	mg/kg wet	3.333		62	40-140			
Nitrobenzene	2.12	0.333	mg/kg wet	3.333		64	40-140			
N-Nitrosodimethylamine	2.02	0.333	mg/kg wet	3.333		60	40-140			
N-Nitroso-Di-n-Propylamine	2.24	0.333	mg/kg wet	3.333		67	40-140			
N-nitrosodiphenylamine	2.89	0.333	mg/kg wet	3.333		87	40-140			
Pentachlorophenol	3.02	0.667	mg/kg wet	3.333		91	30-130			
Phenanthrene	2.79	0.333	mg/kg wet	3.333		84	40-140			
Phenol	2.42	0.333	mg/kg wet	3.333		73	30-130			
Pyrene	2.58	0.333	mg/kg wet	3.333		77	40-140			
Pyridine	1.93	1.67	mg/kg wet	3.333		58	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.03*		mg/kg wet	*3.333*		*61*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.62*		mg/kg wet	*5.000*		*92*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.44*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.31*		mg/kg wet	*3.333*		*69*	*30-130*			
Surrogate: 2-Fluorophenol	*3.45*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.24*		mg/kg wet	*3.333*		*67*	*30-130*			
Surrogate: Phenol-d6	*3.47*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.88*		mg/kg wet	*3.333*		*86*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.32	0.167	mg/kg wet	3.333		69	40-140	1	30	
1,2,4-Trichlorobenzene	2.05	0.333	mg/kg wet	3.333		61	40-140	3	30	
1,2-Dichlorobenzene	2.00	0.333	mg/kg wet	3.333		60	40-140	0.7	30	
1,3-Dichlorobenzene	1.99	0.333	mg/kg wet	3.333		60	40-140	2	30	
1,4-Dichlorobenzene	1.95	0.333	mg/kg wet	3.333		59	40-140	0.4	30	
2,3,4,6-Tetrachlorophenol	2.91	1.67	mg/kg wet	3.333		87	30-130	2	30	
2,4,5-Trichlorophenol	2.87	0.333	mg/kg wet	3.333		86	30-130	0.7	30	
2,4,6-Trichlorophenol	2.63	0.333	mg/kg wet	3.333		79	30-130	0.5	30	
2,4-Dichlorophenol	2.41	0.333	mg/kg wet	3.333		72	30-130	2	30	
2,4-Dimethylphenol	2.41	0.333	mg/kg wet	3.333		72	30-130	3	30	
2,4-Dinitrophenol	3.15	1.67	mg/kg wet	3.333		94	30-130	3	30	
2,4-Dinitrotoluene	3.49	0.167	mg/kg wet	3.333		105	40-140	3	30	
2,6-Dinitrotoluene	3.00	0.333	mg/kg wet	3.333		90	40-140	0.8	30	
2-Chloronaphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140	3	30	
2-Chlorophenol	2.19	0.333	mg/kg wet	3.333		66	30-130	0.6	30	
2-Methylnaphthalene	2.14	0.333	mg/kg wet	3.333		64	40-140	1	30	
2-Methylphenol	2.21	0.333	mg/kg wet	3.333		66	30-130	2	30	
2-Nitroaniline	2.98	0.333	mg/kg wet	3.333		89	40-140	2	30	
2-Nitrophenol	2.11	0.333	mg/kg wet	3.333		63	30-130	2	30	
3,3´-Dichlorobenzidine	2.82	0.667	mg/kg wet	3.333		85	40-140	25	30	
3+4-Methylphenol	4.62	0.667	mg/kg wet	6.667		69	30-130	2	30	
3-Nitroaniline	3.06	0.333	mg/kg wet	3.333		92	40-140	14	30	
4,6-Dinitro-2-Methylphenol	2.77	1.67	mg/kg wet	3.333		83	30-130	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA00782 - 3546										
4-Bromophenyl-phenylether	2.65	0.333	mg/kg wet	3.333		80	40-140	1	30	
4-Chloro-3-Methylphenol	2.67	0.333	mg/kg wet	3.333		80	30-130	0.9	30	
4-Chloroaniline	2.15	0.667	mg/kg wet	3.333		64	40-140	32	30	D+
4-Chloro-phenyl-phenyl ether	2.79	0.333	mg/kg wet	3.333		84	40-140	2	30	
4-Nitroaniline	3.04	0.333	mg/kg wet	3.333		91	40-140	8	30	
4-Nitrophenol	2.96	1.67	mg/kg wet	3.333		89	30-130	3	30	
Acenaphthene	2.37	0.333	mg/kg wet	3.333		71	40-140	0.2	30	
Acenaphthylene	2.35	0.333	mg/kg wet	3.333		70	40-140	0.8	30	
Acetophenone	2.19	0.667	mg/kg wet	3.333		66	40-140	1	30	
Aniline	1.70	0.667	mg/kg wet	3.333		51	40-140	14	30	
Anthracene	2.75	0.333	mg/kg wet	3.333		83	40-140	3	30	
Azobenzene	2.56	0.333	mg/kg wet	3.333		77	40-140	0.5	30	
Benzo(a)anthracene	2.73	0.167	mg/kg wet	3.333		82	40-140	0.5	30	
Benzo(a)pyrene	2.95	0.055	mg/kg wet	3.333		89	40-140	2	30	
Benzo(b)fluoranthene	3.34	0.167	mg/kg wet	3.333		100	40-140	5	30	
Benzo(g,h,i)perylene	2.83	0.167	mg/kg wet	3.333		85	40-140	5	30	
Benzo(k)fluoranthene	2.44	0.167	mg/kg wet	3.333		73	40-140	11	30	
Benzoic Acid	2.68	1.67	mg/kg wet	3.333		80	40-140	0.3	30	
Benzyl Alcohol	2.00	0.333	mg/kg wet	3.333		60	40-140	27	30	
bis(2-Chloroethoxy)methane	2.13	0.333	mg/kg wet	3.333		64	40-140	3	30	
bis(2-Chloroethyl)ether	2.09	0.090	mg/kg wet	3.333		63	40-140	8	30	
bis(2-chloroisopropyl)Ether	2.02	0.333	mg/kg wet	3.333		61	40-140	0.6	30	
bis(2-Ethylhexyl)phthalate	3.01	0.333	mg/kg wet	3.333		90	40-140	2	30	
Butylbenzylphthalate	2.98	0.333	mg/kg wet	3.333		90	40-140	3	30	
Carbazole	3.10	0.333	mg/kg wet	3.333		93	40-140	3	30	
Chrysene	2.76	0.055	mg/kg wet	3.333		83	40-140	2	30	
Dibenzo(a,h)Anthracene	2.88	0.051	mg/kg wet	3.333		86	40-140	1	30	
Dibenzofuran	2.42	0.333	mg/kg wet	3.333		73	40-140	1	30	
Diethylphthalate	3.05	0.333	mg/kg wet	3.333		92	40-140	4	30	
Dimethylphthalate	2.81	0.333	mg/kg wet	3.333		84	40-140	2	30	
Di-n-butylphthalate	3.16	0.333	mg/kg wet	3.333		95	40-140	2	30	
Di-n-octylphthalate	3.11	0.333	mg/kg wet	3.333		93	40-140	1	30	
Fluoranthene	3.15	0.333	mg/kg wet	3.333		94	40-140	2	30	
Fluorene	2.77	0.333	mg/kg wet	3.333		83	40-140	2	30	
Hexachlorobenzene	2.90	0.056	mg/kg wet	3.333		87	40-140	0.4	30	
Hexachlorobutadiene	1.97	0.333	mg/kg wet	3.333		59	40-140	3	30	
Hexachlorocyclopentadiene	1.64	1.67	mg/kg wet	3.333		49	40-140	2	30	
Hexachloroethane	1.93	0.333	mg/kg wet	3.333		58	40-140	0.8	30	
Indeno(1,2,3-cd)Pyrene	2.88	0.167	mg/kg wet	3.333		86	40-140	3	30	
Isophorone	1.92	0.333	mg/kg wet	3.333		58	40-140	2	30	
Naphthalene	2.00	0.167	mg/kg wet	3.333		60	40-140	4	30	
Nitrobenzene	2.05	0.333	mg/kg wet	3.333		61	40-140	3	30	
N-Nitrosodimethylamine	1.99	0.333	mg/kg wet	3.333		60	40-140	1	30	
N-Nitroso-Di-n-Propylamine	2.20	0.333	mg/kg wet	3.333		66	40-140	2	30	
N-nitrosodiphenylamine	2.88	0.333	mg/kg wet	3.333		86	40-140	0.4	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA00782 - 3546										
Pentachlorophenol	3.12	0.667	mg/kg wet	3.333		94	30-130	3	30	
Phenanthrene	2.80	0.333	mg/kg wet	3.333		84	40-140	0.4	30	
Phenol	2.40	0.333	mg/kg wet	3.333		72	30-130	0.9	30	
Pyrene	2.61	0.333	mg/kg wet	3.333		78	40-140	1	30	
Pyridine	1.76	1.67	mg/kg wet	3.333		53	40-140	9	30	
Surrogate: 1,2-Dichlorobenzene-d4	*1.95*		mg/kg wet	*3.333*		*59*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.63*		mg/kg wet	*5.000*		*93*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.30*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.25*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.30*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.11*		mg/kg wet	*3.333*		*63*	*30-130*			
Surrogate: Phenol-d6	*3.37*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.87*		mg/kg wet	*3.333*		*86*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0093

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
PT	Pentachlorophenol tailing factor > 2.
ICV+	Initial Calibration Verification recovery is above upper control limit (ICV+).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0093

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: AECOM Environment - ENSR - KPB

Shipped/Delivered Via: ESS Courier

ESS Project ID: 20A0093
Date Received: 1/7/2020
Project Due Date: 1/13/2020
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: 1.1 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: 1/7/20 Time: 1735 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)
1	715	Yes	N/A	Yes	VOA Vial	MeOH	
1	716	Yes	N/A	Yes	VOA Vial	DI Water	
1	717	Yes	N/A	Yes	VOA Vial	DI Water	
1	718	Yes	N/A	Yes	8 oz jar	NP	
1	719	Yes	N/A	Yes	8 oz jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 1/7/2020 16:43
Reviewed By: Date & Time: 1/7/20 1732
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: AECOM Environment ENSR - KPB

By: 1/7/20 1737

ESS Project ID: 20A0093

Date Received: 1/7/2020

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 # 20A0093

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	1/7/20	730	Grab/Compo	Soil	20200107-001	X	X	X	XX	

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other — GV | GV | AG | AG | AG

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* — 6/10 | 1 | 1 | 1 | 1

Number of Containers: 3* | 1* | 1* | 1* | 1*

Laboratory Use Only

Cooler Present: ✓

Seals Intact: Tape

Cooler Temperature: 4.1 °C

Sampled by :

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen ____/____/2019 at ____ (Time) ____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
	1/7/20 18:53	1/7/20 15:24	1/7/2020 16:39
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 20A0189

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 3:08 pm, Jan 20, 2020

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

SAMPLE RECEIPT

The following samples were received on January 09, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on January 9, 2020 at 2108.

Revision 1 January 20, 2020: This report has been revised to include corrected Client Sample ID.

Lab Number	Sample Name	Matrix	Analysis
20A0189-01	20200109-001 - Pile 12	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0189

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

C0A0182-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
1,2-Dibromo-3-Chloropropane (35% @ 30%), 2,2-Dichloropropane (39% @ 30%), Vinyl Acetate (35% @ 30%)

CA01364-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (63% @ 70-130%)

CA01364-BSD1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (65% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C0A0190-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (102% @ 80-120%), 4,6-Dinitro-2-Methylphenol (91% @ 80-120%), Benzoic Acid (122% @ 80-120%), Pentachlorophenol (90% @ 80-120%)

C0A0190-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Benzoic Acid (22% @ 20%)

C0A0190-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
4-Nitroaniline (22% @ 20%), Azobenzene (28% @ 20%), Phenanthrene (21% @ 20%)

C0A0218-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (108% @ 80-120%), 4,6-Dinitro-2-Methylphenol (92% @ 80-120%), Benzoic Acid (101% @ 80-120%)

C0A0218-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrotoluene (21% @ 20%), 4-Chloro-3-Methylphenol (22% @ 20%), 4-Chloroaniline (21% @ 20%)

CA01347-BS1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (38% @ 40-140%)

CA01347-BSD1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (30% @ 40-140%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.84)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Arsenic	ND (2.42)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Barium	**13.8** (2.42)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Beryllium	**0.17** (0.11)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Cadmium	ND (0.48)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Chromium	**12.1** (0.97)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Copper	**28.1** (2.42)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Lead	**40.3** (4.84)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Mercury	**0.042** (0.028)		7471B		1	MKS	01/13/20 11:09	0.78	40	CA00948
Nickel	**7.04** (2.42)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Selenium	ND (4.84)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Silver	**0.68** (0.48)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Thallium	ND (4.84)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036
Zinc	**49.3** (2.42)		6010C		1	KJK	01/10/20 20:00	2.25	100	CA01036

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 6.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,1,1-Trichloroethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,1,2,2-Tetrachloroethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,1,2-Trichloroethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,1-Dichloroethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,1-Dichloroethene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,1-Dichloropropene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2,3-Trichlorobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2,3-Trichloropropane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2,4-Trichlorobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2,4-Trimethylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2-Dibromo-3-Chloropropane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2-Dibromoethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2-Dichlorobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2-Dichloroethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,2-Dichloropropane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,3,5-Trimethylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,3-Dichlorobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,3-Dichloropropane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,4-Dichlorobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1,4-Dioxane	ND (0.0826)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
1-Chlorohexane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
2,2-Dichloropropane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
2-Butanone	ND (0.0413)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
2-Chlorotoluene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
2-Hexanone	ND (0.0413)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
4-Chlorotoluene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
4-Isopropyltoluene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
4-Methyl-2-Pentanone	ND (0.0413)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Acetone	ND (0.0413)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Benzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Bromobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 6.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Bromodichloromethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Bromoform	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Bromomethane	ND (0.0083)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Carbon Disulfide	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Carbon Tetrachloride	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Chlorobenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Chloroethane	ND (0.0083)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Chloroform	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Chloromethane	ND (0.0083)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
cis-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
cis-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Dibromochloromethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Dibromomethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Dichlorodifluoromethane	ND (0.0083)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Diethyl Ether	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Di-isopropyl ether	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Ethyl tertiary-butyl ether	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Ethylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Hexachlorobutadiene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Isopropylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Methyl tert-Butyl Ether	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Methylene Chloride	ND (0.0206)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Naphthalene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
n-Butylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
n-Propylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
sec-Butylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Styrene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
tert-Butylbenzene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Tertiary-amyl methyl ether	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Tetrachloroethene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Tetrahydrofuran	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 6.6
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
trans-1,2-Dichloroethene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
trans-1,3-Dichloropropene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Trichloroethene	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Trichlorofluoromethane	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Vinyl Acetate	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Vinyl Chloride	ND (0.0083)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Xylene O	ND (0.0041)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Xylene P,M	ND (0.0083)		8260B Low		1	01/13/20 14:03	C0A0182	CA01364
Xylenes (Total)	ND (0.00826)		8260B Low		1	01/13/20 14:03		[CALC]

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichloroethane-d4	*110 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*97 %*		*70-130*
Surrogate: Dibromofluoromethane	*102 %*		*70-130*
Surrogate: Toluene-d8	*100 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 19
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 1/10/20 9:35

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1221	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1232	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1242	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1248	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1254 [2C]	**0.1** (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1260	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1262	ND (0.06)		8082A		1	01/14/20 15:50		CA00909
Aroclor 1268	ND (0.06)		8082A		1	01/14/20 15:50		CA00909

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*87 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*91 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*75 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*102 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 19.7
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 1/10/20 9:30

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**285** (41.5)		8100M		1	01/10/20 12:15	C0A0145	CA00914

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*78 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 15.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/13/20 14:45

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
1,2,4-Trichlorobenzene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
1,2-Dichlorobenzene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
1,3-Dichlorobenzene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
1,4-Dichlorobenzene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,3,4,6-Tetrachlorophenol	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,4,5-Trichlorophenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,4,6-Trichlorophenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,4-Dichlorophenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,4-Dimethylphenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,4-Dinitrophenol	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,4-Dinitrotoluene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2,6-Dinitrotoluene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2-Chloronaphthalene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2-Chlorophenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2-Methylnaphthalene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2-Methylphenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2-Nitroaniline	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
2-Nitrophenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
3,3′-Dichlorobenzidine	ND (0.699)		8270D		1	01/14/20 18:38	C0A0190	CA01347
3+4-Methylphenol	ND (0.699)		8270D		1	01/14/20 18:38	C0A0190	CA01347
3-Nitroaniline	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4,6-Dinitro-2-Methylphenol	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4-Bromophenyl-phenylether	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4-Chloro-3-Methylphenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4-Chloroaniline	ND (0.699)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4-Chloro-phenyl-phenyl ether	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4-Nitroaniline	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
4-Nitrophenol	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Acenaphthene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Acenaphthylene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Acetophenone	ND (0.699)		8270D		1	01/14/20 18:38	C0A0190	CA01347

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 15.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/13/20 14:45

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.699)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Anthracene	**0.874** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Azobenzene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzo(a)anthracene	**2.02** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzo(a)pyrene	**2.04** (0.175)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzo(b)fluoranthene	**2.07** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzo(g,h,i)perylene	**1.20** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzo(k)fluoranthene	**1.64** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzoic Acid	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Benzyl Alcohol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
bis(2-Chloroethoxy)methane	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
bis(2-Chloroethyl)ether	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
bis(2-chloroisopropyl)Ether	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
bis(2-Ethylhexyl)phthalate	**0.426** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Butylbenzylphthalate	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Carbazole	**0.464** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Chrysene	**1.93** (0.175)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Dibenzo(a,h)Anthracene	**0.540** (0.175)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Dibenzofuran	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Diethylphthalate	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Dimethylphthalate	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Di-n-butylphthalate	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Di-n-octylphthalate	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Fluoranthene	**3.91** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Fluorene	**0.440** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Hexachlorobenzene	ND (0.175)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Hexachlorobutadiene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Hexachlorocyclopentadiene	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Hexachloroethane	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Indeno(1,2,3-cd)Pyrene	**1.13** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Isophorone	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Naphthalene	**0.392** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200109-001 - Pile 12
Date Sampled: 01/09/20 07:00
Percent Solids: 92
Initial Volume: 15.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0189
ESS Laboratory Sample ID: 20A0189-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/13/20 14:45

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
N-Nitrosodimethylamine	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
N-Nitroso-Di-n-Propylamine	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
N-nitrosodiphenylamine	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Pentachlorophenol	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Phenanthrene	**2.71** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Phenol	ND (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Pyrene	**3.22** (0.349)		8270D		1	01/14/20 18:38	C0A0190	CA01347
Pyridine	ND (1.75)		8270D		1	01/14/20 18:38	C0A0190	CA01347

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*47 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*64 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*54 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*55 %*		*30-130*
Surrogate: 2-Fluorophenol	*50 %*		*30-130*
Surrogate: Nitrobenzene-d5	*48 %*		*30-130*
Surrogate: Phenol-d6	*52 %*		*30-130*
Surrogate: p-Terphenyl-d14	*63 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA00948 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.86	0.619	mg/kg wet	7.760		101	80-120			
LCS Dup										
Mercury	7.47	0.609	mg/kg wet	7.760		96	80-120	5	20	
Batch CA01036 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	37.8	15.9	mg/kg wet	51.30		74	40-160			
Arsenic	189	7.94	mg/kg wet	202.0		94	80-120			
Barium	317	7.94	mg/kg wet	343.0		92	80-120			
Beryllium	48.2	0.35	mg/kg wet	52.10		93	80-120			
Cadmium	125	1.59	mg/kg wet	149.0		84	80-120			
Chromium	169	3.17	mg/kg wet	182.0		93	80-120			
Copper	216	7.94	mg/kg wet	225.0		96	80-120			
Lead	318	15.9	mg/kg wet	333.0		96	80-120			
Nickel	158	7.94	mg/kg wet	167.0		94	80-120			
Selenium	159	15.9	mg/kg wet	169.0		94	80-120			
Silver	43.5	1.59	mg/kg wet	48.90		89	80-120			
Thallium	68.3	15.9	mg/kg wet	82.30		83	80-120			
Zinc	406	7.94	mg/kg wet	459.0		88	80-120			
LCS Dup										
Antimony	38.7	14.3	mg/kg wet	51.30		75	40-160	2	20	
Arsenic	188	7.14	mg/kg wet	202.0		93	80-120	0.5	20	
Barium	305	7.14	mg/kg wet	343.0		89	80-120	4	20	
Beryllium	46.8	0.31	mg/kg wet	52.10		90	80-120	3	20	
Cadmium	122	1.43	mg/kg wet	149.0		82	80-120	2	20	
Chromium	165	2.86	mg/kg wet	182.0		91	80-120	3	20	
Copper	213	7.14	mg/kg wet	225.0		95	80-120	2	20	
Lead	292	14.3	mg/kg wet	333.0		88	80-120	9	20	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CA01036 - 3050B										
Nickel	153	7.14	mg/kg wet	167.0		92	80-120	3	20	
Selenium	159	14.3	mg/kg wet	169.0		94	80-120	0.5	20	
Silver	42.6	1.43	mg/kg wet	48.90		87	80-120	2	20	
Thallium	68.5	14.3	mg/kg wet	82.30		83	80-120	0.4	20	
Zinc	396	7.14	mg/kg wet	459.0		86	80-120	2	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01364 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01364 - 5035										
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0498*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0478*		mg/kg wet	*0.05000*		*96*	*70-130*			
Surrogate: Toluene-d8	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
1,1,1-Trichloroethane	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
1,1,2,2-Tetrachloroethane	0.0453	0.0050	mg/kg wet	0.05000		91	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA01364 - 5035										
1,1,2-Trichloroethane	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
1,1-Dichloroethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
1,1-Dichloroethene	0.0538	0.0050	mg/kg wet	0.05000		108	70-130			
1,1-Dichloropropene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
1,2,3-Trichlorobenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
1,2,3-Trichloropropane	0.0406	0.0050	mg/kg wet	0.05000		81	70-130			
1,2,4-Trichlorobenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
1,2,4-Trimethylbenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
1,2-Dibromo-3-Chloropropane	0.0315	0.0050	mg/kg wet	0.05000		63	70-130			B-
1,2-Dibromoethane	0.0461	0.0050	mg/kg wet	0.05000		92	70-130			
1,2-Dichlorobenzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichloroethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
1,3,5-Trimethylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
1,3-Dichlorobenzene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
1,3-Dichloropropane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
1,4-Dichlorobenzene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,4-Dioxane	0.868	0.100	mg/kg wet	1.000		87	70-130			
1-Chlorohexane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
2,2-Dichloropropane	0.0365	0.0050	mg/kg wet	0.05000		73	70-130			
2-Butanone	0.259	0.0500	mg/kg wet	0.2500		104	70-130			
2-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.227	0.0500	mg/kg wet	0.2500		91	70-130			
4-Chlorotoluene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
4-Isopropyltoluene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
4-Methyl-2-Pentanone	0.240	0.0500	mg/kg wet	0.2500		96	70-130			
Acetone	0.216	0.0500	mg/kg wet	0.2500		86	70-130			
Benzene	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Bromobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
Bromochloromethane	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
Bromodichloromethane	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
Bromoform	0.0396	0.0050	mg/kg wet	0.05000		79	70-130			
Bromomethane	0.0602	0.0100	mg/kg wet	0.05000		120	70-130			
Carbon Disulfide	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Carbon Tetrachloride	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Chlorobenzene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
Chloroethane	0.0480	0.0100	mg/kg wet	0.05000		96	70-130			
Chloroform	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
Chloromethane	0.0454	0.0100	mg/kg wet	0.05000		91	70-130			
cis-1,2-Dichloroethene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
cis-1,3-Dichloropropene	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
Dibromochloromethane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
Dibromomethane	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Dichlorodifluoromethane	0.0421	0.0100	mg/kg wet	0.05000		84	70-130			
Diethyl Ether	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01364 - 5035										
Di-isopropyl ether	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
Ethyl tertiary-butyl ether	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
Ethylbenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
Hexachlorobutadiene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
Isopropylbenzene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
Methyl tert-Butyl Ether	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
Methylene Chloride	0.0482	0.0250	mg/kg wet	0.05000		96	70-130			
Naphthalene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
n-Butylbenzene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
n-Propylbenzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
sec-Butylbenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Styrene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
tert-Butylbenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Tertiary-amyl methyl ether	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
Tetrachloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Tetrahydrofuran	0.0409	0.0050	mg/kg wet	0.05000		82	70-130			
Toluene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130			
trans-1,2-Dichloroethene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130			
trans-1,3-Dichloropropene	0.0433	0.0050	mg/kg wet	0.05000		87	70-130			
Trichloroethene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130			
Trichlorofluoromethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			
Vinyl Acetate	0.0402	0.0050	mg/kg wet	0.05000		80	70-130			
Vinyl Chloride	0.0464	0.0100	mg/kg wet	0.05000		93	70-130			
Xylene O	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Xylene P,M	0.101	0.0100	mg/kg wet	0.1000		101	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0499*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Toluene-d8	*0.0485*		mg/kg wet	*0.05000*		*97*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130	4	25	
1,1,1-Trichloroethane	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	0.1	25	
1,1,2,2-Tetrachloroethane	0.0455	0.0050	mg/kg wet	0.05000		91	70-130	0.6	25	
1,1,2-Trichloroethane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	0.2	25	
1,1-Dichloroethane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
1,1-Dichloroethene	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	0.3	25	
1,1-Dichloropropene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	2	25	
1,2,3-Trichlorobenzene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130	2	25	
1,2,3-Trichloropropane	0.0409	0.0050	mg/kg wet	0.05000		82	70-130	0.7	25	
1,2,4-Trichlorobenzene	0.0469	0.0050	mg/kg wet	0.05000		94	70-130	2	25	
1,2,4-Trimethylbenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
1,2-Dibromo-3-Chloropropane	0.0324	0.0050	mg/kg wet	0.05000		65	70-130	3	25	B-
1,2-Dibromoethane	0.0482	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
1,2-Dichlorobenzene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
1,2-Dichloroethane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	2	25	

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01364 - 5035										
1,2-Dichloropropane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	1	25	
1,3,5-Trimethylbenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	2	25	
1,3-Dichlorobenzene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	0.6	25	
1,3-Dichloropropane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	3	25	
1,4-Dichlorobenzene	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	6	25	
1,4-Dioxane	0.891	0.100	mg/kg wet	1.000		89	70-130	3	20	
1-Chlorohexane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	3	25	
2,2-Dichloropropane	0.0371	0.0050	mg/kg wet	0.05000		74	70-130	2	25	
2-Butanone	0.261	0.0500	mg/kg wet	0.2500		105	70-130	1	25	
2-Chlorotoluene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
2-Hexanone	0.239	0.0500	mg/kg wet	0.2500		95	70-130	5	25	
4-Chlorotoluene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130	1	25	
4-Isopropyltoluene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	2	25	
4-Methyl-2-Pentanone	0.243	0.0500	mg/kg wet	0.2500		97	70-130	1	25	
Acetone	0.218	0.0500	mg/kg wet	0.2500		87	70-130	1	25	
Benzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
Bromobenzene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	1	25	
Bromochloromethane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	0.2	25	
Bromodichloromethane	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	0.1	25	
Bromoform	0.0410	0.0050	mg/kg wet	0.05000		82	70-130	4	25	
Bromomethane	0.0505	0.0100	mg/kg wet	0.05000		101	70-130	17	25	
Carbon Disulfide	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
Carbon Tetrachloride	0.0468	0.0050	mg/kg wet	0.05000		94	70-130	0.9	25	
Chlorobenzene	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	2	25	
Chloroethane	0.0470	0.0100	mg/kg wet	0.05000		94	70-130	2	25	
Chloroform	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	1	25	
Chloromethane	0.0449	0.0100	mg/kg wet	0.05000		90	70-130	1	25	
cis-1,2-Dichloroethene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	1	25	
cis-1,3-Dichloropropene	0.0460	0.0050	mg/kg wet	0.05000		92	70-130	0.6	25	
Dibromochloromethane	0.0457	0.0050	mg/kg wet	0.05000		91	70-130	4	25	
Dibromomethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	0.7	25	
Dichlorodifluoromethane	0.0414	0.0100	mg/kg wet	0.05000		83	70-130	2	25	
Diethyl Ether	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	0.08	25	
Di-isopropyl ether	0.0550	0.0050	mg/kg wet	0.05000		110	70-130	0.8	25	
Ethyl tertiary-butyl ether	0.0448	0.0050	mg/kg wet	0.05000		90	70-130	0.4	25	
Ethylbenzene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	3	25	
Hexachlorobutadiene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	2	25	
Isopropylbenzene	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	1	25	
Methyl tert-Butyl Ether	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	0.1	25	
Methylene Chloride	0.0475	0.0250	mg/kg wet	0.05000		95	70-130	2	25	
Naphthalene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130	1	25	
n-Butylbenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
n-Propylbenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	3	25	
sec-Butylbenzene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130	2	25	
Styrene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	2	25	

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01364 - 5035										
tert-Butylbenzene	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	2	25	
Tertiary-amyl methyl ether	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	0.1	25	
Tetrachloroethene	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
Tetrahydrofuran	0.0416	0.0050	mg/kg wet	0.05000		83	70-130	2	25	
Toluene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
trans-1,2-Dichloroethene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	1	25	
trans-1,3-Dichloropropene	0.0435	0.0050	mg/kg wet	0.05000		87	70-130	0.5	25	
Trichloroethene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	0.6	25	
Trichlorofluoromethane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	0.2	25	
Vinyl Acetate	0.0411	0.0050	mg/kg wet	0.05000		82	70-130	2	25	
Vinyl Chloride	0.0464	0.0100	mg/kg wet	0.05000		93	70-130	0.09	25	
Xylene O	0.0481	0.0050	mg/kg wet	0.05000		96	70-130	1	25	
Xylene P,M	0.103	0.0100	mg/kg wet	0.1000		103	70-130	2	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0489*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0511*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0494*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Toluene-d8	*0.0505*		mg/kg wet	*0.05000*		*101*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CA00909 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0270*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0278*		mg/kg wet	*0.02500*		*111*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0215*		mg/kg wet	*0.02500*		*86*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
LCS										

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CA00909 - 3540C										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		93	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		95	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		92	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		98	40-140			
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0277*		mg/kg wet	*0.02500*		*111*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0229*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0246*		mg/kg wet	*0.02500*		*98*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		97	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		96	40-140	1	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		94	40-140	2	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		100	40-140	2	30	
Surrogate: Decachlorobiphenyl	*0.0265*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0277*		mg/kg wet	*0.02500*		*111*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0242*		mg/kg wet	*0.02500*		*97*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CA00914 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.19*		mg/kg wet	*5.000*		*84*	*40-140*			
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		69	40-140			
Docosane (C22)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Dodecane (C12)	1.8	0.2	mg/kg wet	2.500		72	40-140			
Eicosane (C20)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Hexacosane (C26)	1.9	0.2	mg/kg wet	2.500		77	40-140			

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Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CA00914 - 3546										
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		87	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		63	30-140			
Octacosane (C28)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Octadecane (C18)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Tetracosane (C24)	1.9	0.2	mg/kg wet	2.500		78	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		74	40-140			
Total Petroleum Hydrocarbons	26.9	37.5	mg/kg wet	35.00		77	40-140			
Triacontane (C30)	2.0	0.2	mg/kg wet	2.500		79	40-140			
Surrogate: O-Terphenyl	*4.05*		mg/kg wet	*5.000*		*81*	*40-140*			
LCS Dup										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		72	40-140	4	25	
Docosane (C22)	2.0	0.2	mg/kg wet	2.500		80	40-140	4	25	
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		75	40-140	4	25	
Eicosane (C20)	2.0	0.2	mg/kg wet	2.500		79	40-140	3	25	
Hexacosane (C26)	2.0	0.2	mg/kg wet	2.500		81	40-140	4	25	
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		79	40-140	4	25	
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		90	40-140	4	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		66	30-140	4	25	
Octacosane (C28)	2.1	0.2	mg/kg wet	2.500		82	40-140	4	25	
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		79	40-140	3	25	
Tetracosane (C24)	2.0	0.2	mg/kg wet	2.500		80	40-140	3	25	
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		77	40-140	4	25	
Total Petroleum Hydrocarbons	28.0	37.5	mg/kg wet	35.00		80	40-140	4	25	
Triacontane (C30)	2.1	0.2	mg/kg wet	2.500		83	40-140	4	25	
Surrogate: O-Terphenyl	*4.10*		mg/kg wet	*5.000*		*82*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							

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ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.26*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.20*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.57*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.25*		mg/kg wet	*3.333*		*67*	*30-130*			
Surrogate: 2-Fluorophenol	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: Phenol-d6	*3.64*		mg/kg wet	*5.000*		*73*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.43*		mg/kg wet	*3.333*		*73*	*30-130*			
LCS										
1,1-Biphenyl	2.17	0.333	mg/kg wet	3.333		65	40-140			
1,2,4-Trichlorobenzene	2.18	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.27	0.333	mg/kg wet	3.333		68	40-140			
1,4-Dichlorobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140			
2,3,4,6-Tetrachlorophenol	2.81	1.67	mg/kg wet	3.333		84	30-130			
2,4,5-Trichlorophenol	2.68	0.333	mg/kg wet	3.333		81	30-130			
2,4,6-Trichlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dimethylphenol	2.33	0.333	mg/kg wet	3.333		70	30-130			
2,4-Dinitrophenol	3.19	1.67	mg/kg wet	3.333		96	30-130			
2,4-Dinitrotoluene	3.08	0.333	mg/kg wet	3.333		92	40-140			
2,6-Dinitrotoluene	2.76	0.333	mg/kg wet	3.333		83	40-140			
2-Chloronaphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140			
2-Chlorophenol	2.37	0.333	mg/kg wet	3.333		71	30-130			
2-Methylnaphthalene	2.16	0.333	mg/kg wet	3.333		65	40-140			
2-Methylphenol	2.46	0.333	mg/kg wet	3.333		74	30-130			
2-Nitroaniline	2.85	0.333	mg/kg wet	3.333		86	40-140			
2-Nitrophenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
3,3´-Dichlorobenzidine	2.10	0.667	mg/kg wet	3.333		63	40-140			
3+4-Methylphenol	4.71	0.667	mg/kg wet	6.667		71	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
3-Nitroaniline	2.26	0.333	mg/kg wet	3.333		68	40-140			
4,6-Dinitro-2-Methylphenol	3.24	1.67	mg/kg wet	3.333		97	30-130			
4-Bromophenyl-phenylether	2.54	0.333	mg/kg wet	3.333		76	40-140			
4-Chloro-3-Methylphenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
4-Chloroaniline	1.25	0.667	mg/kg wet	3.333		38	40-140			B-
4-Chloro-phenyl-phenyl ether	2.37	0.333	mg/kg wet	3.333		71	40-140			
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140			
4-Nitrophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
Acenaphthene	2.20	0.333	mg/kg wet	3.333		66	40-140			
Acenaphthylene	2.22	0.333	mg/kg wet	3.333		66	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.70	0.667	mg/kg wet	3.333		51	40-140			
Anthracene	2.56	0.333	mg/kg wet	3.333		77	40-140			
Azobenzene	2.49	0.333	mg/kg wet	3.333		75	40-140			
Benzo(a)anthracene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(a)pyrene	2.95	0.167	mg/kg wet	3.333		88	40-140			
Benzo(b)fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140			
Benzo(g,h,i)perylene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Benzo(k)fluoranthene	2.56	0.333	mg/kg wet	3.333		77	40-140			
Benzoic Acid	2.78	1.67	mg/kg wet	3.333		83	40-140			
Benzyl Alcohol	2.15	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethoxy)methane	2.20	0.333	mg/kg wet	3.333		66	40-140			
bis(2-Chloroethyl)ether	2.28	0.333	mg/kg wet	3.333		68	40-140			
bis(2-chloroisopropyl)Ether	2.31	0.333	mg/kg wet	3.333		69	40-140			
bis(2-Ethylhexyl)phthalate	2.73	0.333	mg/kg wet	3.333		82	40-140			
Butylbenzylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Carbazole	2.87	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.74	0.167	mg/kg wet	3.333		82	40-140			
Dibenzo(a,h)Anthracene	2.80	0.167	mg/kg wet	3.333		84	40-140			
Dibenzofuran	2.31	0.333	mg/kg wet	3.333		69	40-140			
Diethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Di-n-octylphthalate	3.02	0.333	mg/kg wet	3.333		91	40-140			
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Fluorene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Hexachlorobenzene	2.56	0.167	mg/kg wet	3.333		77	40-140			
Hexachlorobutadiene	2.24	0.333	mg/kg wet	3.333		67	40-140			
Hexachlorocyclopentadiene	1.77	1.67	mg/kg wet	3.333		53	40-140			
Hexachloroethane	2.12	0.333	mg/kg wet	3.333		64	40-140			
Indeno(1,2,3-cd)Pyrene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Isophorone	2.06	0.333	mg/kg wet	3.333		62	40-140			
Naphthalene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Nitrobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
N-Nitrosodimethylamine	2.17	0.333	mg/kg wet	3.333		65	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
N-Nitroso-Di-n-Propylamine	2.31	0.333	mg/kg wet	3.333		69	40-140			
N-nitrosodiphenylamine	2.71	0.333	mg/kg wet	3.333		81	40-140			
Pentachlorophenol	3.09	1.67	mg/kg wet	3.333		93	30-130			
Phenanthrene	2.62	0.333	mg/kg wet	3.333		78	40-140			
Phenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
Pyrene	2.73	0.333	mg/kg wet	3.333		82	40-140			
Pyridine	2.20	1.67	mg/kg wet	3.333		66	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.32*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.17*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.71*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.28*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.69*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.37*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: Phenol-d6	*3.84*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.82*		mg/kg wet	*3.333*		*85*	*30-130*			
LCS Dup										
1,1-Biphenyl	1.93	0.333	mg/kg wet	3.333		58	40-140	12	30	
1,2,4-Trichlorobenzene	1.85	0.333	mg/kg wet	3.333		55	40-140	17	30	
1,2-Dichlorobenzene	1.82	0.333	mg/kg wet	3.333		54	40-140	20	30	
1,3-Dichlorobenzene	1.90	0.333	mg/kg wet	3.333		57	40-140	18	30	
1,4-Dichlorobenzene	1.77	0.333	mg/kg wet	3.333		53	40-140	19	30	
2,3,4,6-Tetrachlorophenol	2.38	1.67	mg/kg wet	3.333		71	30-130	17	30	
2,4,5-Trichlorophenol	2.17	0.333	mg/kg wet	3.333		65	30-130	21	30	
2,4,6-Trichlorophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	16	30	
2,4-Dichlorophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	16	30	
2,4-Dimethylphenol	2.02	0.333	mg/kg wet	3.333		60	30-130	14	30	
2,4-Dinitrophenol	2.77	1.67	mg/kg wet	3.333		83	30-130	14	30	
2,4-Dinitrotoluene	2.70	0.333	mg/kg wet	3.333		81	40-140	13	30	
2,6-Dinitrotoluene	2.27	0.333	mg/kg wet	3.333		68	40-140	20	30	
2-Chloronaphthalene	1.83	0.333	mg/kg wet	3.333		55	40-140	12	30	
2-Chlorophenol	2.00	0.333	mg/kg wet	3.333		60	30-130	17	30	
2-Methylnaphthalene	1.84	0.333	mg/kg wet	3.333		55	40-140	16	30	
2-Methylphenol	2.08	0.333	mg/kg wet	3.333		63	30-130	16	30	
2-Nitroaniline	2.34	0.333	mg/kg wet	3.333		70	40-140	20	30	
2-Nitrophenol	1.89	0.333	mg/kg wet	3.333		57	30-130	18	30	
3,3´-Dichlorobenzidine	1.77	0.667	mg/kg wet	3.333		53	40-140	17	30	
3+4-Methylphenol	4.09	0.667	mg/kg wet	6.667		61	30-130	14	30	
3-Nitroaniline	1.93	0.333	mg/kg wet	3.333		58	40-140	16	30	
4,6-Dinitro-2-Methylphenol	2.71	1.67	mg/kg wet	3.333		81	30-130	18	30	
4-Bromophenyl-phenylether	1.99	0.333	mg/kg wet	3.333		60	40-140	24	30	
4-Chloro-3-Methylphenol	2.16	0.333	mg/kg wet	3.333		65	30-130	22	30	
4-Chloroaniline	0.987	0.667	mg/kg wet	3.333		30	40-140	24	30	B-
4-Chloro-phenyl-phenyl ether	1.97	0.333	mg/kg wet	3.333		59	40-140	18	30	
4-Nitroaniline	2.22	0.333	mg/kg wet	3.333		66	40-140	20	30	
4-Nitrophenol	2.41	1.67	mg/kg wet	3.333		72	30-130	16	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Acenaphthene	1.87	0.333	mg/kg wet	3.333		56	40-140	16	30	
Acenaphthylene	1.91	0.333	mg/kg wet	3.333		57	40-140	15	30	
Acetophenone	1.96	0.667	mg/kg wet	3.333		59	40-140	15	30	
Aniline	1.39	0.667	mg/kg wet	3.333		42	40-140	20	30	
Anthracene	2.14	0.333	mg/kg wet	3.333		64	40-140	18	30	
Azobenzene	1.95	0.333	mg/kg wet	3.333		59	40-140	24	30	
Benzo(a)anthracene	2.36	0.333	mg/kg wet	3.333		71	40-140	20	30	
Benzo(a)pyrene	2.44	0.167	mg/kg wet	3.333		73	40-140	19	30	
Benzo(b)fluoranthene	2.40	0.333	mg/kg wet	3.333		72	40-140	26	30	
Benzo(g,h,i)perylene	2.47	0.333	mg/kg wet	3.333		74	40-140	16	30	
Benzo(k)fluoranthene	2.24	0.333	mg/kg wet	3.333		67	40-140	13	30	
Benzoic Acid	2.14	1.67	mg/kg wet	3.333		64	40-140	26	30	
Benzyl Alcohol	1.91	0.333	mg/kg wet	3.333		57	40-140	12	30	
bis(2-Chloroethoxy)methane	1.86	0.333	mg/kg wet	3.333		56	40-140	16	30	
bis(2-Chloroethyl)ether	1.91	0.333	mg/kg wet	3.333		57	40-140	17	30	
bis(2-chloroisopropyl)Ether	1.86	0.333	mg/kg wet	3.333		56	40-140	22	30	
bis(2-Ethylhexyl)phthalate	2.21	0.333	mg/kg wet	3.333		66	40-140	21	30	
Butylbenzylphthalate	2.22	0.333	mg/kg wet	3.333		67	40-140	22	30	
Carbazole	2.44	0.333	mg/kg wet	3.333		73	40-140	16	30	
Chrysene	2.28	0.167	mg/kg wet	3.333		68	40-140	18	30	
Dibenzo(a,h)Anthracene	2.39	0.167	mg/kg wet	3.333		72	40-140	16	30	
Dibenzofuran	1.94	0.333	mg/kg wet	3.333		58	40-140	17	30	
Diethylphthalate	2.36	0.333	mg/kg wet	3.333		71	40-140	18	30	
Dimethylphthalate	2.17	0.333	mg/kg wet	3.333		65	40-140	18	30	
Di-n-butylphthalate	2.49	0.333	mg/kg wet	3.333		75	40-140	17	30	
Di-n-octylphthalate	2.33	0.333	mg/kg wet	3.333		70	40-140	26	30	
Fluoranthene	2.48	0.333	mg/kg wet	3.333		74	40-140	15	30	
Fluorene	2.10	0.333	mg/kg wet	3.333		63	40-140	16	30	
Hexachlorobenzene	2.09	0.167	mg/kg wet	3.333		63	40-140	20	30	
Hexachlorobutadiene	1.87	0.333	mg/kg wet	3.333		56	40-140	18	30	
Hexachlorocyclopentadiene	1.52	1.67	mg/kg wet	3.333		46	40-140	15	30	
Hexachloroethane	1.73	0.333	mg/kg wet	3.333		52	40-140	21	30	
Indeno(1,2,3-cd)Pyrene	2.39	0.333	mg/kg wet	3.333		72	40-140	15	30	
Isophorone	1.76	0.333	mg/kg wet	3.333		53	40-140	16	30	
Naphthalene	1.79	0.333	mg/kg wet	3.333		54	40-140	17	30	
Nitrobenzene	1.90	0.333	mg/kg wet	3.333		57	40-140	14	30	
N-Nitrosodimethylamine	1.75	0.333	mg/kg wet	3.333		52	40-140	21	30	
N-Nitroso-Di-n-Propylamine	1.95	0.333	mg/kg wet	3.333		58	40-140	17	30	
N-nitrosodiphenylamine	2.17	0.333	mg/kg wet	3.333		65	40-140	22	30	
Pentachlorophenol	2.54	1.67	mg/kg wet	3.333		76	30-130	19	30	
Phenanthrene	2.14	0.333	mg/kg wet	3.333		64	40-140	20	30	
Phenol	2.07	0.333	mg/kg wet	3.333		62	30-130	16	30	
Pyrene	2.21	0.333	mg/kg wet	3.333		66	40-140	21	30	
Pyridine	1.77	1.67	mg/kg wet	3.333		53	40-140	22	30	
Surrogate: 1,2-Dichlorobenzene-d4	*1.91*		mg/kg wet	*3.333*		*57*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Surrogate: 2,4,6-Tribromophenol	*3.31*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.94*		mg/kg wet	*3.333*		*58*	*30-130*			
Surrogate: 2-Fluorophenol	*3.10*		mg/kg wet	*5.000*		*62*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.94*		mg/kg wet	*3.333*		*58*	*30-130*			
Surrogate: Phenol-d6	*3.19*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.19*		mg/kg wet	*3.333*		*66*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0189

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0189

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: Sage Environmental, Inc. - ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 20A0189
Date Received: 1/9/2020
Project Due Date: 1/15/2020
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: 0.3 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: 1/9/20 Time: 2108 By: MA

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)
1	1752	Yes	N/A	Yes	8 oz jar	NP	
1	1753	Yes	N/A	Yes	VOA Vial	MeOH	
1	1754	Yes	N/A	Yes	VOA Vial	DI Water	
1	1755	Yes	N/A	Yes	VOA Vial	DI Water	
1	2082	Yes	N/A	Yes	8 oz jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials MA
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / (NA)
Are all Hex Chrome stickers attached? Yes / No / (NA)
Are all QC stickers attached? Yes / No / (NA)
Are VOA stickers attached if bubbles noted? Yes / No / (NA)

Completed By: Date & Time: 1/9/20 2013
Reviewed By: Date & Time: 01-9-20 2042
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Sage Environmental, Inc. - ML

ESS Project ID: 20A0189

Date Received: 1/9/2020

By: 01-9-20 2042

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 # 20A0189

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	1/9/20	700	Grab/Compo	Soil	20200109-001 (Pile 11)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

	VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
Preservation Code	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: ✓

Seals Intact: ✓

Cooler Temperature: 0.3 °C

Sampled by: H. Stone

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen _____/____/2019___at_____(Time)_____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
1/9/20 10:35	1/9/20 10:35		
1/9/20 1356	1/9/20 1356		

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 20A0289

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 1:02 pm, Jan 21, 2020

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

SAMPLE RECEIPT

The following samples were received on January 13, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on January 13, 2020 at 1810.

Lab Number	Sample Name	Matrix	Analysis
20A0289-01	20200113-001 Pile 13	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0289

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

CA01454-BS1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (66% @ 70-130%)

8270D Semi-Volatile Organic Compounds

C0A0190-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (102% @ 80-120%), 4,6-Dinitro-2-Methylphenol (91% @ 80-120%), Benzoic Acid (122% @ 80-120%), Pentachlorophenol (90% @ 80-120%)

C0A0190-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Benzoic Acid (22% @ 20%)

C0A0190-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
4-Nitroaniline (22% @ 20%), Azobenzene (28% @ 20%), Phenanthrene (21% @ 20%)

C0A0218-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (108% @ 80-120%), 4,6-Dinitro-2-Methylphenol (92% @ 80-120%), Benzoic Acid (101% @ 80-120%)

C0A0218-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrotoluene (21% @ 20%), 4-Chloro-3-Methylphenol (22% @ 20%), 4-Chloroaniline (21% @ 20%)

CA01347-BS1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (38% @ 40-140%)

CA01347-BSD1 **Blank Spike recovery is below lower control limit (B-).**
4-Chloroaniline (30% @ 40-140%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (4.70)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Arsenic	ND (2.35)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Barium	**12.1** (2.35)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Beryllium	**0.14** (0.10)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Cadmium	ND (0.47)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Chromium	**8.89** (0.94)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Copper	**44.7** (2.35)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Lead	**48.7** (4.70)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Mercury	**0.047** (0.032)		7471B		1	MKS	01/15/20 8:56	0.65	40	CA01379
Nickel	**6.22** (2.35)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Selenium	ND (4.70)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Silver	ND (0.47)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Thallium	ND (4.70)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378
Zinc	**43.8** (2.35)		6010C		1	KJK	01/14/20 18:23	2.25	100	CA01378

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 7.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,1,1-Trichloroethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,1,2,2-Tetrachloroethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,1,2-Trichloroethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,1-Dichloroethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,1-Dichloroethene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,1-Dichloropropene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2,3-Trichlorobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2,3-Trichloropropane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2,4-Trichlorobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2,4-Trimethylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2-Dibromo-3-Chloropropane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2-Dibromoethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2-Dichlorobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2-Dichloroethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,2-Dichloropropane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,3,5-Trimethylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,3-Dichlorobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,3-Dichloropropane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,4-Dichlorobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1,4-Dioxane	ND (0.0714)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
1-Chlorohexane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
2,2-Dichloropropane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
2-Butanone	ND (0.0357)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
2-Chlorotoluene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
2-Hexanone	ND (0.0357)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
4-Chlorotoluene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
4-Isopropyltoluene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
4-Methyl-2-Pentanone	ND (0.0357)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Acetone	ND (0.0357)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Benzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Bromobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 7.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Bromodichloromethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Bromoform	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Bromomethane	ND (0.0071)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Carbon Disulfide	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Carbon Tetrachloride	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Chlorobenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Chloroethane	ND (0.0071)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Chloroform	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Chloromethane	ND (0.0071)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
cis-1,2-Dichloroethene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
cis-1,3-Dichloropropene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Dibromochloromethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Dibromomethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Dichlorodifluoromethane	ND (0.0071)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Diethyl Ether	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Di-isopropyl ether	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Ethyl tertiary-butyl ether	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Ethylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Hexachlorobutadiene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Isopropylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Methyl tert-Butyl Ether	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Methylene Chloride	ND (0.0179)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Naphthalene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
n-Butylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
n-Propylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
sec-Butylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Styrene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
tert-Butylbenzene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Tertiary-amyl methyl ether	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Tetrachloroethene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Tetrahydrofuran	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 7.4
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
trans-1,2-Dichloroethene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
trans-1,3-Dichloropropene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Trichloroethene	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Trichlorofluoromethane	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Vinyl Acetate	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Vinyl Chloride	ND (0.0071)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Xylene O	ND (0.0036)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Xylene P,M	ND (0.0071)		8260B Low		1	01/14/20 14:01	C0A0209	CA01454
Xylenes (Total)	ND (0.00714)		8260B Low		1	01/14/20 14:01		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*110 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*98 %*		*70-130*
Surrogate: Dibromofluoromethane	*101 %*		*70-130*
Surrogate: Toluene-d8	*97 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 19.4
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 1/13/20 19:59

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1221	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1232	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1242	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1248	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1254 [2C]	**0.1** (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1260	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1262	ND (0.05)		8082A		1	01/14/20 15:32		CA01342
Aroclor 1268	ND (0.05)		8082A		1	01/14/20 15:32		CA01342

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*78 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*89 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*74 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*89 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 1/13/20 20:09

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**269** (40.7)		8100M		1	01/15/20 11:21	C0A0211	CA01348

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 15.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/13/20 20:01

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
1,2,4-Trichlorobenzene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
1,2-Dichlorobenzene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
1,3-Dichlorobenzene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
1,4-Dichlorobenzene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,3,4,6-Tetrachlorophenol	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,4,5-Trichlorophenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,4,6-Trichlorophenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,4-Dichlorophenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,4-Dimethylphenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,4-Dinitrophenol	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,4-Dinitrotoluene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2,6-Dinitrotoluene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2-Chloronaphthalene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2-Chlorophenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2-Methylnaphthalene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2-Methylphenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2-Nitroaniline	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
2-Nitrophenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
3,3′-Dichlorobenzidine	ND (0.678)		8270D		1	01/14/20 22:16	C0A0190	CA01347
3+4-Methylphenol	ND (0.678)		8270D		1	01/14/20 22:16	C0A0190	CA01347
3-Nitroaniline	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4,6-Dinitro-2-Methylphenol	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4-Bromophenyl-phenylether	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4-Chloro-3-Methylphenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4-Chloroaniline	ND (0.678)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4-Chloro-phenyl-phenyl ether	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4-Nitroaniline	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
4-Nitrophenol	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Acenaphthene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Acenaphthylene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Acetophenone	ND (0.678)		8270D		1	01/14/20 22:16	C0A0190	CA01347

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 15.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/13/20 20:01

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.678)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Anthracene	**0.549** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Azobenzene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzo(a)anthracene	**1.64** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzo(a)pyrene	**1.74** (0.170)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzo(b)fluoranthene	**1.59** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzo(g,h,i)perylene	**1.12** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzo(k)fluoranthene	**1.63** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzoic Acid	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Benzyl Alcohol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
bis(2-Chloroethoxy)methane	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
bis(2-Chloroethyl)ether	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
bis(2-chloroisopropyl)Ether	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
bis(2-Ethylhexyl)phthalate	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Butylbenzylphthalate	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Carbazole	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Chrysene	**1.71** (0.170)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Dibenzo(a,h)Anthracene	**0.447** (0.170)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Dibenzofuran	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Diethylphthalate	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Dimethylphthalate	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Di-n-butylphthalate	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Di-n-octylphthalate	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Fluoranthene	**3.62** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Fluorene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Hexachlorobenzene	ND (0.170)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Hexachlorobutadiene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Hexachlorocyclopentadiene	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Hexachloroethane	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Indeno(1,2,3-cd)Pyrene	**1.01** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Isophorone	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Naphthalene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200113-001 Pile 13
Date Sampled: 01/13/20 07:00
Percent Solids: 95
Initial Volume: 15.6
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0289
ESS Laboratory Sample ID: 20A0289-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/13/20 20:01

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
N-Nitrosodimethylamine	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
N-Nitroso-Di-n-Propylamine	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
N-nitrosodiphenylamine	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Pentachlorophenol	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Phenanthrene	**2.12** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Phenol	ND (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Pyrene	**3.36** (0.339)		8270D		1	01/14/20 22:16	C0A0190	CA01347
Pyridine	ND (1.70)		8270D		1	01/14/20 22:16	C0A0190	CA01347

	%Recovery	*Qualifier*	*Limits*
Surrogate: 1,2-Dichlorobenzene-d4	*82 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*98 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*89 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*85 %*		*30-130*
Surrogate: 2-Fluorophenol	*82 %*		*30-130*
Surrogate: Nitrobenzene-d5	*80 %*		*30-130*
Surrogate: Phenol-d6	*85 %*		*30-130*
Surrogate: p-Terphenyl-d14	*99 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA01378 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	44.6	14.3	mg/kg wet	51.30		87	40-160			
Arsenic	176	7.14	mg/kg wet	202.0		87	80-120			
Barium	291	7.14	mg/kg wet	343.0		85	80-120			
Beryllium	45.9	0.31	mg/kg wet	52.10		88	80-120			
Cadmium	119	1.43	mg/kg wet	149.0		80	80-120			
Chromium	161	2.86	mg/kg wet	182.0		88	80-120			
Copper	208	7.14	mg/kg wet	225.0		92	80-120			
Lead	296	14.3	mg/kg wet	333.0		89	80-120			
Nickel	148	7.14	mg/kg wet	167.0		88	80-120			
Selenium	147	14.3	mg/kg wet	169.0		87	80-120			
Silver	42.3	1.43	mg/kg wet	48.90		86	80-120			
Thallium	64.7	14.3	mg/kg wet	82.30		79	62-139			
Zinc	387	7.14	mg/kg wet	459.0		84	80-120			
LCS										
Cadmium	46.8	1.54	mg/kg wet	61.50		76	69-114			
LCS Dup										
Antimony	39.7	13.2	mg/kg wet	51.30		77	40-160	11	20	
Arsenic	176	6.58	mg/kg wet	202.0		87	80-120	0.1	20	
Barium	321	6.58	mg/kg wet	343.0		94	80-120	10	20	
Beryllium	44.9	0.29	mg/kg wet	52.10		86	80-120	2	20	
Cadmium	119	1.32	mg/kg wet	149.0		80	80-120	0.8	20	
Chromium	160	2.63	mg/kg wet	182.0		88	80-120	0.2	20	
Copper	210	6.58	mg/kg wet	225.0		93	80-120	1	20	
Lead	298	13.2	mg/kg wet	333.0		90	80-120	0.9	20	
Nickel	148	6.58	mg/kg wet	167.0		88	80-120	0.004	20	
Selenium	147	13.2	mg/kg wet	169.0		87	80-120	0.4	20	
Silver	42.6	1.32	mg/kg wet	48.90		87	80-120	0.8	20	
Thallium	66.2	13.2	mg/kg wet	82.30		80	62-139	2	20	
Zinc	389	6.58	mg/kg wet	459.0		85	80-120	0.5	20	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CA01378 - 3050B										
LCS Dup										
Cadmium	48.6	1.59	mg/kg wet	61.50		79	69-114	4	20	
Batch CA01379 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.08	0.558	mg/kg wet	7.760		104	80-120			
LCS Dup										
Mercury	8.09	0.639	mg/kg wet	7.760		104	80-120	0.1	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01454 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01454 - 5035										
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0520*		mg/kg wet	*0.05000*		*104*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0493*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0480*		mg/kg wet	*0.05000*		*96*	*70-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01454 - 5035										
Surrogate: Toluene-d8	*0.0481*		mg/kg wet	*0.05000*		*96*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
1,1,1-Trichloroethane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
1,1,2,2-Tetrachloroethane	0.0439	0.0050	mg/kg wet	0.05000		88	70-130			
1,1,2-Trichloroethane	0.0459	0.0050	mg/kg wet	0.05000		92	70-130			
1,1-Dichloroethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
1,1-Dichloroethene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
1,1-Dichloropropene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130			
1,2,3-Trichlorobenzene	0.0444	0.0050	mg/kg wet	0.05000		89	70-130			
1,2,3-Trichloropropane	0.0402	0.0050	mg/kg wet	0.05000		80	70-130			
1,2,4-Trichlorobenzene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
1,2,4-Trimethylbenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
1,2-Dibromo-3-Chloropropane	0.0330	0.0050	mg/kg wet	0.05000		66	70-130			B-
1,2-Dibromoethane	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
1,2-Dichlorobenzene	0.0456	0.0050	mg/kg wet	0.05000		91	70-130			
1,2-Dichloroethane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
1,2-Dichloropropane	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
1,3,5-Trimethylbenzene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
1,3-Dichlorobenzene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
1,3-Dichloropropane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130			
1,4-Dichlorobenzene	0.0450	0.0050	mg/kg wet	0.05000		90	70-130			
1,4-Dioxane	0.902	0.100	mg/kg wet	1.000		90	70-130			
1-Chlorohexane	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
2,2-Dichloropropane	0.0382	0.0050	mg/kg wet	0.05000		76	70-130			
2-Butanone	0.260	0.0500	mg/kg wet	0.2500		104	70-130			
2-Chlorotoluene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
2-Hexanone	0.245	0.0500	mg/kg wet	0.2500		98	70-130			
4-Chlorotoluene	0.0465	0.0050	mg/kg wet	0.05000		93	70-130			
4-Isopropyltoluene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
4-Methyl-2-Pentanone	0.247	0.0500	mg/kg wet	0.2500		99	70-130			
Acetone	0.226	0.0500	mg/kg wet	0.2500		90	70-130			
Benzene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
Bromobenzene	0.0455	0.0050	mg/kg wet	0.05000		91	70-130			
Bromochloromethane	0.0458	0.0050	mg/kg wet	0.05000		92	70-130			
Bromodichloromethane	0.0493	0.0050	mg/kg wet	0.05000		99	70-130			
Bromoform	0.0389	0.0050	mg/kg wet	0.05000		78	70-130			
Bromomethane	0.0568	0.0100	mg/kg wet	0.05000		114	70-130			
Carbon Disulfide	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
Carbon Tetrachloride	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
Chlorobenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Chloroethane	0.0458	0.0100	mg/kg wet	0.05000		92	70-130			
Chloroform	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
Chloromethane	0.0444	0.0100	mg/kg wet	0.05000		89	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01454 - 5035										
cis-1,2-Dichloroethene	0.0484	0.0050	mg/kg wet	0.05000		97	70-130			
cis-1,3-Dichloropropene	0.0434	0.0050	mg/kg wet	0.05000		87	70-130			
Dibromochloromethane	0.0426	0.0050	mg/kg wet	0.05000		85	70-130			
Dibromomethane	0.0469	0.0050	mg/kg wet	0.05000		94	70-130			
Dichlorodifluoromethane	0.0409	0.0100	mg/kg wet	0.05000		82	70-130			
Diethyl Ether	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
Di-isopropyl ether	0.0529	0.0050	mg/kg wet	0.05000		106	70-130			
Ethyl tertiary-butyl ether	0.0451	0.0050	mg/kg wet	0.05000		90	70-130			
Ethylbenzene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
Hexachlorobutadiene	0.0476	0.0050	mg/kg wet	0.05000		95	70-130			
Isopropylbenzene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
Methyl tert-Butyl Ether	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
Methylene Chloride	0.0462	0.0250	mg/kg wet	0.05000		92	70-130			
Naphthalene	0.0424	0.0050	mg/kg wet	0.05000		85	70-130			
n-Butylbenzene	0.0481	0.0050	mg/kg wet	0.05000		96	70-130			
n-Propylbenzene	0.0478	0.0050	mg/kg wet	0.05000		96	70-130			
sec-Butylbenzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Styrene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
tert-Butylbenzene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
Tertiary-amyl methyl ether	0.0471	0.0050	mg/kg wet	0.05000		94	70-130			
Tetrachloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Tetrahydrofuran	0.0425	0.0050	mg/kg wet	0.05000		85	70-130			
Toluene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130			
trans-1,2-Dichloroethene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130			
trans-1,3-Dichloropropene	0.0412	0.0050	mg/kg wet	0.05000		82	70-130			
Trichloroethene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130			
Trichlorofluoromethane	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Vinyl Acetate	0.0413	0.0050	mg/kg wet	0.05000		83	70-130			
Vinyl Chloride	0.0455	0.0100	mg/kg wet	0.05000		91	70-130			
Xylene O	0.0462	0.0050	mg/kg wet	0.05000		92	70-130			
Xylene P,M	0.0993	0.0100	mg/kg wet	0.1000		99	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0499*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0508*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Toluene-d8	*0.0501*		mg/kg wet	*0.05000*		*100*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	6	25	
1,1,1-Trichloroethane	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	5	25	
1,1,2,2-Tetrachloroethane	0.0445	0.0050	mg/kg wet	0.05000		89	70-130	1	25	
1,1,2-Trichloroethane	0.0473	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
1,1-Dichloroethane	0.0512	0.0050	mg/kg wet	0.05000		102	70-130	5	25	
1,1-Dichloroethene	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
1,1-Dichloropropene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	4	25	
1,2,3-Trichlorobenzene	0.0471	0.0050	mg/kg wet	0.05000		94	70-130	6	25	
1,2,3-Trichloropropane	0.0406	0.0050	mg/kg wet	0.05000		81	70-130	1	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01454 - 5035										
1,2,4-Trichlorobenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	7	25	
1,2,4-Trimethylbenzene	0.0522	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
1,2-Dibromo-3-Chloropropane	0.0358	0.0050	mg/kg wet	0.05000		72	70-130	8	25	
1,2-Dibromoethane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	2	25	
1,2-Dichlorobenzene	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	7	25	
1,2-Dichloroethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	4	25	
1,2-Dichloropropane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	6	25	
1,3,5-Trimethylbenzene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	9	25	
1,3-Dichlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	6	25	
1,3-Dichloropropane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
1,4-Dichlorobenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	11	25	
1,4-Dioxane	0.876	0.100	mg/kg wet	1.000		88	70-130	3	20	
1-Chlorohexane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	5	25	
2,2-Dichloropropane	0.0412	0.0050	mg/kg wet	0.05000		82	70-130	8	25	
2-Butanone	0.259	0.0500	mg/kg wet	0.2500		104	70-130	0.4	25	
2-Chlorotoluene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
2-Hexanone	0.231	0.0500	mg/kg wet	0.2500		92	70-130	6	25	
4-Chlorotoluene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	9	25	
4-Isopropyltoluene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
4-Methyl-2-Pentanone	0.237	0.0500	mg/kg wet	0.2500		95	70-130	4	25	
Acetone	0.213	0.0500	mg/kg wet	0.2500		85	70-130	6	25	
Benzene	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	5	25	
Bromobenzene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	8	25	
Bromochloromethane	0.0478	0.0050	mg/kg wet	0.05000		96	70-130	4	25	
Bromodichloromethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
Bromoform	0.0397	0.0050	mg/kg wet	0.05000		79	70-130	2	25	
Bromomethane	0.0555	0.0100	mg/kg wet	0.05000		111	70-130	2	25	
Carbon Disulfide	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	4	25	
Carbon Tetrachloride	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	5	25	
Chlorobenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	5	25	
Chloroethane	0.0478	0.0100	mg/kg wet	0.05000		96	70-130	4	25	
Chloroform	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	5	25	
Chloromethane	0.0458	0.0100	mg/kg wet	0.05000		92	70-130	3	25	
cis-1,2-Dichloroethene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	5	25	
cis-1,3-Dichloropropene	0.0461	0.0050	mg/kg wet	0.05000		92	70-130	6	25	
Dibromochloromethane	0.0450	0.0050	mg/kg wet	0.05000		90	70-130	5	25	
Dibromomethane	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Dichlorodifluoromethane	0.0423	0.0100	mg/kg wet	0.05000		85	70-130	4	25	
Diethyl Ether	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	3	25	
Di-isopropyl ether	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	5	25	
Ethyl tertiary-butyl ether	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	6	25	
Ethylbenzene	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	4	25	
Hexachlorobutadiene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	7	25	
Isopropylbenzene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
Methyl tert-Butyl Ether	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	3	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch CA01454 - 5035										
Methylene Chloride	0.0486	0.0250	mg/kg wet	0.05000		97	70-130	5	25	
Naphthalene	0.0437	0.0050	mg/kg wet	0.05000		87	70-130	3	25	
n-Butylbenzene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	9	25	
n-Propylbenzene	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
sec-Butylbenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	7	25	
Styrene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	6	25	
tert-Butylbenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	7	25	
Tertiary-amyl methyl ether	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	5	25	
Tetrachloroethene	0.0546	0.0050	mg/kg wet	0.05000		109	70-130	4	25	
Tetrahydrofuran	0.0405	0.0050	mg/kg wet	0.05000		81	70-130	5	25	
Toluene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130	5	25	
trans-1,2-Dichloroethene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
trans-1,3-Dichloropropene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130	6	25	
Trichloroethene	0.0505	0.0050	mg/kg wet	0.05000		101	70-130	3	25	
Trichlorofluoromethane	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
Vinyl Acetate	0.0427	0.0050	mg/kg wet	0.05000		85	70-130	3	25	
Vinyl Chloride	0.0469	0.0100	mg/kg wet	0.05000		94	70-130	3	25	
Xylene O	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
Xylene P,M	0.106	0.0100	mg/kg wet	0.1000		106	70-130	6	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0484*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0496*		mg/kg wet	*0.05000*		*99*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Toluene-d8	*0.0495*		mg/kg wet	*0.05000*		*99*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch CA01342 - 3540C										
Blank										
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch CA01342 - 3540C										
Surrogate: Decachlorobiphenyl	*0.0264*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0282*		mg/kg wet	*0.02500*		*113*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0220*		mg/kg wet	*0.02500*		*88*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
LCS										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		96	40-140			
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		94	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		93	40-140			
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		98	40-140			
Surrogate: Decachlorobiphenyl	*0.0273*		mg/kg wet	*0.02500*		*109*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0291*		mg/kg wet	*0.02500*		*117*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0236*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0255*		mg/kg wet	*0.02500*		*102*	*30-150*			
LCS Dup										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		92	40-140	4	30	
Aroclor 1016 [2C]	0.5	0.02	mg/kg wet	0.5000		91	40-140	4	30	
Aroclor 1260	0.4	0.02	mg/kg wet	0.5000		90	40-140	3	30	
Aroclor 1260 [2C]	0.5	0.02	mg/kg wet	0.5000		95	40-140	3	30	
Surrogate: Decachlorobiphenyl	*0.0260*		mg/kg wet	*0.02500*		*104*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0275*		mg/kg wet	*0.02500*		*110*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CA01348 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.71*		mg/kg wet	*5.000*		*94*	*40-140*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CA01348 - 3546										
LCS										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		69	40-140			
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		74	40-140			
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Hexadecane (C16)	2.0	0.2	mg/kg wet	2.500		81	40-140			
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		102	40-140			
Nonane (C9)	1.5	0.2	mg/kg wet	2.500		60	30-140			
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Tetradecane (C14)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Total Petroleum Hydrocarbons	29.7	37.5	mg/kg wet	35.00		85	40-140			
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		90	40-140			
Surrogate: O-Terphenyl	*4.52*		mg/kg wet	*5.000*		*90*	*40-140*			
LCS Dup										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		73	40-140	6	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		91	40-140	2	25	
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		78	40-140	5	25	
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		90	40-140	1	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		91	40-140	2	25	
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		84	40-140	4	25	
Nonadecane (C19)	2.6	0.2	mg/kg wet	2.500		105	40-140	2	25	
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		63	30-140	5	25	
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		88	40-140	2	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		91	40-140	2	25	
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		81	40-140	5	25	
Total Petroleum Hydrocarbons	30.5	37.5	mg/kg wet	35.00		87	40-140	3	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		92	40-140	2	25	
Surrogate: O-Terphenyl	*4.53*		mg/kg wet	*5.000*		*91*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

8270D Semi-Volatile Organic Compounds

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA01347 - 3546										
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.26*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.20*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.57*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.25*		mg/kg wet	*3.333*		*67*	*30-130*			
Surrogate: 2-Fluorophenol	*3.48*		mg/kg wet	*5.000*		*70*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: Phenol-d6	*3.64*		mg/kg wet	*5.000*		*73*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.43*		mg/kg wet	*3.333*		*73*	*30-130*			
LCS										
1,1-Biphenyl	2.17	0.333	mg/kg wet	3.333		65	40-140			
1,2,4-Trichlorobenzene	2.18	0.333	mg/kg wet	3.333		66	40-140			
1,2-Dichlorobenzene	2.22	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.27	0.333	mg/kg wet	3.333		68	40-140			
1,4-Dichlorobenzene	2.15	0.333	mg/kg wet	3.333		64	40-140			
2,3,4,6-Tetrachlorophenol	2.81	1.67	mg/kg wet	3.333		84	30-130			
2,4,5-Trichlorophenol	2.68	0.333	mg/kg wet	3.333		81	30-130			
2,4,6-Trichlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dichlorophenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
2,4-Dimethylphenol	2.33	0.333	mg/kg wet	3.333		70	30-130			
2,4-Dinitrophenol	3.19	1.67	mg/kg wet	3.333		96	30-130			
2,4-Dinitrotoluene	3.08	0.333	mg/kg wet	3.333		92	40-140			
2,6-Dinitrotoluene	2.76	0.333	mg/kg wet	3.333		83	40-140			
2-Chloronaphthalene	2.07	0.333	mg/kg wet	3.333		62	40-140			
2-Chlorophenol	2.37	0.333	mg/kg wet	3.333		71	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
2-Methylnaphthalene	2.16	0.333	mg/kg wet	3.333		65	40-140			
2-Methylphenol	2.46	0.333	mg/kg wet	3.333		74	30-130			
2-Nitroaniline	2.85	0.333	mg/kg wet	3.333		86	40-140			
2-Nitrophenol	2.26	0.333	mg/kg wet	3.333		68	30-130			
3,3´-Dichlorobenzidine	2.10	0.667	mg/kg wet	3.333		63	40-140			
3+4-Methylphenol	4.71	0.667	mg/kg wet	6.667		71	30-130			
3-Nitroaniline	2.26	0.333	mg/kg wet	3.333		68	40-140			
4,6-Dinitro-2-Methylphenol	3.24	1.67	mg/kg wet	3.333		97	30-130			
4-Bromophenyl-phenylether	2.54	0.333	mg/kg wet	3.333		76	40-140			
4-Chloro-3-Methylphenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
4-Chloroaniline	1.25	0.667	mg/kg wet	3.333		38	40-140			B-
4-Chloro-phenyl-phenyl ether	2.37	0.333	mg/kg wet	3.333		71	40-140			
4-Nitroaniline	2.71	0.333	mg/kg wet	3.333		81	40-140			
4-Nitrophenol	2.82	1.67	mg/kg wet	3.333		85	30-130			
Acenaphthene	2.20	0.333	mg/kg wet	3.333		66	40-140			
Acenaphthylene	2.22	0.333	mg/kg wet	3.333		66	40-140			
Acetophenone	2.27	0.667	mg/kg wet	3.333		68	40-140			
Aniline	1.70	0.667	mg/kg wet	3.333		51	40-140			
Anthracene	2.56	0.333	mg/kg wet	3.333		77	40-140			
Azobenzene	2.49	0.333	mg/kg wet	3.333		75	40-140			
Benzo(a)anthracene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(a)pyrene	2.95	0.167	mg/kg wet	3.333		88	40-140			
Benzo(b)fluoranthene	3.11	0.333	mg/kg wet	3.333		93	40-140			
Benzo(g,h,i)perylene	2.89	0.333	mg/kg wet	3.333		87	40-140			
Benzo(k)fluoranthene	2.56	0.333	mg/kg wet	3.333		77	40-140			
Benzoic Acid	2.78	1.67	mg/kg wet	3.333		83	40-140			
Benzyl Alcohol	2.15	0.333	mg/kg wet	3.333		65	40-140			
bis(2-Chloroethoxy)methane	2.20	0.333	mg/kg wet	3.333		66	40-140			
bis(2-Chloroethyl)ether	2.28	0.333	mg/kg wet	3.333		68	40-140			
bis(2-chloroisopropyl)Ether	2.31	0.333	mg/kg wet	3.333		69	40-140			
bis(2-Ethylhexyl)phthalate	2.73	0.333	mg/kg wet	3.333		82	40-140			
Butylbenzylphthalate	2.76	0.333	mg/kg wet	3.333		83	40-140			
Carbazole	2.87	0.333	mg/kg wet	3.333		86	40-140			
Chrysene	2.74	0.167	mg/kg wet	3.333		82	40-140			
Dibenzo(a,h)Anthracene	2.80	0.167	mg/kg wet	3.333		84	40-140			
Dibenzofuran	2.31	0.333	mg/kg wet	3.333		69	40-140			
Diethylphthalate	2.84	0.333	mg/kg wet	3.333		85	40-140			
Dimethylphthalate	2.61	0.333	mg/kg wet	3.333		78	40-140			
Di-n-butylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Di-n-octylphthalate	3.02	0.333	mg/kg wet	3.333		91	40-140			
Fluoranthene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Fluorene	2.47	0.333	mg/kg wet	3.333		74	40-140			
Hexachlorobenzene	2.56	0.167	mg/kg wet	3.333		77	40-140			
Hexachlorobutadiene	2.24	0.333	mg/kg wet	3.333		67	40-140			
Hexachlorocyclopentadiene	1.77	1.67	mg/kg wet	3.333		53	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Hexachloroethane	2.12	0.333	mg/kg wet	3.333		64	40-140			
Indeno(1,2,3-cd)Pyrene	2.77	0.333	mg/kg wet	3.333		83	40-140			
Isophorone	2.06	0.333	mg/kg wet	3.333		62	40-140			
Naphthalene	2.12	0.333	mg/kg wet	3.333		64	40-140			
Nitrobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
N-Nitrosodimethylamine	2.17	0.333	mg/kg wet	3.333		65	40-140			
N-Nitroso-Di-n-Propylamine	2.31	0.333	mg/kg wet	3.333		69	40-140			
N-nitrosodiphenylamine	2.71	0.333	mg/kg wet	3.333		81	40-140			
Pentachlorophenol	3.09	1.67	mg/kg wet	3.333		93	30-130			
Phenanthrene	2.62	0.333	mg/kg wet	3.333		78	40-140			
Phenol	2.43	0.333	mg/kg wet	3.333		73	30-130			
Pyrene	2.73	0.333	mg/kg wet	3.333		82	40-140			
Pyridine	2.20	1.67	mg/kg wet	3.333		66	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.32*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.17*		mg/kg wet	*5.000*		*83*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.71*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.28*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.69*		mg/kg wet	*5.000*		*74*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.37*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: Phenol-d6	*3.84*		mg/kg wet	*5.000*		*77*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.82*		mg/kg wet	*3.333*		*85*	*30-130*			
LCS Dup										
1,1-Biphenyl	1.93	0.333	mg/kg wet	3.333		58	40-140	12	30	
1,2,4-Trichlorobenzene	1.85	0.333	mg/kg wet	3.333		55	40-140	17	30	
1,2-Dichlorobenzene	1.82	0.333	mg/kg wet	3.333		54	40-140	20	30	
1,3-Dichlorobenzene	1.90	0.333	mg/kg wet	3.333		57	40-140	18	30	
1,4-Dichlorobenzene	1.77	0.333	mg/kg wet	3.333		53	40-140	19	30	
2,3,4,6-Tetrachlorophenol	2.38	1.67	mg/kg wet	3.333		71	30-130	17	30	
2,4,5-Trichlorophenol	2.17	0.333	mg/kg wet	3.333		65	30-130	21	30	
2,4,6-Trichlorophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	16	30	
2,4-Dichlorophenol	2.07	0.333	mg/kg wet	3.333		62	30-130	16	30	
2,4-Dimethylphenol	2.02	0.333	mg/kg wet	3.333		60	30-130	14	30	
2,4-Dinitrophenol	2.77	1.67	mg/kg wet	3.333		83	30-130	14	30	
2,4-Dinitrotoluene	2.70	0.333	mg/kg wet	3.333		81	40-140	13	30	
2,6-Dinitrotoluene	2.27	0.333	mg/kg wet	3.333		68	40-140	20	30	
2-Chloronaphthalene	1.83	0.333	mg/kg wet	3.333		55	40-140	12	30	
2-Chlorophenol	2.00	0.333	mg/kg wet	3.333		60	30-130	17	30	
2-Methylnaphthalene	1.84	0.333	mg/kg wet	3.333		55	40-140	16	30	
2-Methylphenol	2.08	0.333	mg/kg wet	3.333		63	30-130	16	30	
2-Nitroaniline	2.34	0.333	mg/kg wet	3.333		70	40-140	20	30	
2-Nitrophenol	1.89	0.333	mg/kg wet	3.333		57	30-130	18	30	
3,3´-Dichlorobenzidine	1.77	0.667	mg/kg wet	3.333		53	40-140	17	30	
3+4-Methylphenol	4.09	0.667	mg/kg wet	6.667		61	30-130	14	30	
3-Nitroaniline	1.93	0.333	mg/kg wet	3.333		58	40-140	16	30	
4,6-Dinitro-2-Methylphenol	2.71	1.67	mg/kg wet	3.333		81	30-130	18	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

8270D Semi-Volatile Organic Compounds

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch CA01347 - 3546										
4-Bromophenyl-phenylether	1.99	0.333	mg/kg wet	3.333		60	40-140	24	30	
4-Chloro-3-Methylphenol	2.16	0.333	mg/kg wet	3.333		65	30-130	22	30	
4-Chloroaniline	0.987	0.667	mg/kg wet	3.333		30	40-140	24	30	B-
4-Chloro-phenyl-phenyl ether	1.97	0.333	mg/kg wet	3.333		59	40-140	18	30	
4-Nitroaniline	2.22	0.333	mg/kg wet	3.333		66	40-140	20	30	
4-Nitrophenol	2.41	1.67	mg/kg wet	3.333		72	30-130	16	30	
Acenaphthene	1.87	0.333	mg/kg wet	3.333		56	40-140	16	30	
Acenaphthylene	1.91	0.333	mg/kg wet	3.333		57	40-140	15	30	
Acetophenone	1.96	0.667	mg/kg wet	3.333		59	40-140	15	30	
Aniline	1.39	0.667	mg/kg wet	3.333		42	40-140	20	30	
Anthracene	2.14	0.333	mg/kg wet	3.333		64	40-140	18	30	
Azobenzene	1.95	0.333	mg/kg wet	3.333		59	40-140	24	30	
Benzo(a)anthracene	2.36	0.333	mg/kg wet	3.333		71	40-140	20	30	
Benzo(a)pyrene	2.44	0.167	mg/kg wet	3.333		73	40-140	19	30	
Benzo(b)fluoranthene	2.40	0.333	mg/kg wet	3.333		72	40-140	26	30	
Benzo(g,h,i)perylene	2.47	0.333	mg/kg wet	3.333		74	40-140	16	30	
Benzo(k)fluoranthene	2.24	0.333	mg/kg wet	3.333		67	40-140	13	30	
Benzoic Acid	2.14	1.67	mg/kg wet	3.333		64	40-140	26	30	
Benzyl Alcohol	1.91	0.333	mg/kg wet	3.333		57	40-140	12	30	
bis(2-Chloroethoxy)methane	1.86	0.333	mg/kg wet	3.333		56	40-140	16	30	
bis(2-Chloroethyl)ether	1.91	0.333	mg/kg wet	3.333		57	40-140	17	30	
bis(2-chloroisopropyl)Ether	1.86	0.333	mg/kg wet	3.333		56	40-140	22	30	
bis(2-Ethylhexyl)phthalate	2.21	0.333	mg/kg wet	3.333		66	40-140	21	30	
Butylbenzylphthalate	2.22	0.333	mg/kg wet	3.333		67	40-140	22	30	
Carbazole	2.44	0.333	mg/kg wet	3.333		73	40-140	16	30	
Chrysene	2.28	0.167	mg/kg wet	3.333		68	40-140	18	30	
Dibenzo(a,h)Anthracene	2.39	0.167	mg/kg wet	3.333		72	40-140	16	30	
Dibenzofuran	1.94	0.333	mg/kg wet	3.333		58	40-140	17	30	
Diethylphthalate	2.36	0.333	mg/kg wet	3.333		71	40-140	18	30	
Dimethylphthalate	2.17	0.333	mg/kg wet	3.333		65	40-140	18	30	
Di-n-butylphthalate	2.49	0.333	mg/kg wet	3.333		75	40-140	17	30	
Di-n-octylphthalate	2.33	0.333	mg/kg wet	3.333		70	40-140	26	30	
Fluoranthene	2.48	0.333	mg/kg wet	3.333		74	40-140	15	30	
Fluorene	2.10	0.333	mg/kg wet	3.333		63	40-140	16	30	
Hexachlorobenzene	2.09	0.167	mg/kg wet	3.333		63	40-140	20	30	
Hexachlorobutadiene	1.87	0.333	mg/kg wet	3.333		56	40-140	18	30	
Hexachlorocyclopentadiene	1.52	1.67	mg/kg wet	3.333		46	40-140	15	30	
Hexachloroethane	1.73	0.333	mg/kg wet	3.333		52	40-140	21	30	
Indeno(1,2,3-cd)Pyrene	2.39	0.333	mg/kg wet	3.333		72	40-140	15	30	
Isophorone	1.76	0.333	mg/kg wet	3.333		53	40-140	16	30	
Naphthalene	1.79	0.333	mg/kg wet	3.333		54	40-140	17	30	
Nitrobenzene	1.90	0.333	mg/kg wet	3.333		57	40-140	14	30	
N-Nitrosodimethylamine	1.75	0.333	mg/kg wet	3.333		52	40-140	21	30	
N-Nitroso-Di-n-Propylamine	1.95	0.333	mg/kg wet	3.333		58	40-140	17	30	
N-nitrosodiphenylamine	2.17	0.333	mg/kg wet	3.333		65	40-140	22	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01347 - 3546										
Pentachlorophenol	2.54	1.67	mg/kg wet	3.333		76	30-130	19	30	
Phenanthrene	2.14	0.333	mg/kg wet	3.333		64	40-140	20	30	
Phenol	2.07	0.333	mg/kg wet	3.333		62	30-130	16	30	
Pyrene	2.21	0.333	mg/kg wet	3.333		66	40-140	21	30	
Pyridine	1.77	1.67	mg/kg wet	3.333		53	40-140	22	30	
Surrogate: 1,2-Dichlorobenzene-d4	*1.91*		mg/kg wet	*3.333*		*57*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.31*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.06*		mg/kg wet	*5.000*		*61*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*1.94*		mg/kg wet	*3.333*		*58*	*30-130*			
Surrogate: 2-Fluorophenol	*3.10*		mg/kg wet	*5.000*		*62*	*30-130*			
Surrogate: Nitrobenzene-d5	*1.94*		mg/kg wet	*3.333*		*58*	*30-130*			
Surrogate: Phenol-d6	*3.19*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: p-Terphenyl-d14	*2.19*		mg/kg wet	*3.333*		*66*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0289

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0289

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: Sage Environmental, Inc. - ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 20A0289
Date Received: 1/13/2020
Project Due Date: 1/19/2020
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: 0.6 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 1/13/20
    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: 1/13/20 Time: 1510 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)
1	2476	Yes	N/A	Yes	VOA Vial	MeOH	
1	2477	Yes	N/A	Yes	VOA Vial	DI Water	
1	2478	Yes	N/A	Yes	VOA Vial	DI Water	
1	2479	Yes	N/A	Yes	8 oz jar	NP	
1	2480	Yes	N/A	Yes	8 oz jar	NP	

2nd Review

Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? (Yes) / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 1/13/20 1801
Reviewed By: Date & Time: 1/13/20 1807
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Sage Environmental, Inc. - ML

By: 1/13/20 1807

ESS Project ID: 20A0289

Date Received: 1/13/2020

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 # 20A0289

Turn Time: 5-Day **Rush:**
Regulatory State: Rhode Island
Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits RIDEM Residential and Industrial/Commercial
Electonic Deliverables ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
	1/13/20	700	Grab/Compo	Soil	20200113-001 (Pile 19) 8.16.17	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-Other
GV GV AG AG AG

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*
6/10 1 1 1 1

Number of Containers: 3* 1* 1* 1* 1*

Laboratory Use Only
Cooler Present: _____
Seals Intact: _____
Cooler Temperature: .6 °C

Sampled by : M. Stone

Comments: Please specify "Other" preservative and containers types in this space
*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars.
40-ml vials with DI water/stir bars frozen ____/____/2019___at_____(Time)_____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
1/13/20 8:00	1/13/20 1200	1/13/20 16:47	1/13/20 1647
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 20A0376

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 4:41 pm, Jan 22, 2020

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

SAMPLE RECEIPT

The following samples were received on January 15, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on January 15, 2020 at 15:20.

Lab Number	Sample Name	Matrix	Analysis
20A0376-01	20200114-001 Pile 14	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0376

PROJECT NARRATIVE

5035/8260B Volatile Organic Compounds / Low Level

DA01616-BSD1 **Blank Spike recovery is below lower control limit (B-).**
1,2-Dibromo-3-Chloropropane (68% @ 70-130%)

DA01616-BSD1 **Relative percent difference for duplicate is outside of criteria (D+).**
1,4-Dioxane (21% @ 20%)

8270D Semi-Volatile Organic Compounds

C0A0248-CCV1 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (120% @ 80-120%), 4,6-Dinitro-2-Methylphenol (96% @ 80-120%), Benzoic Acid (143% @ 80-120%), Pentachlorophenol (87% @ 80-120%)

C0A0248-CCV1 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
Benzoic Acid (43% @ 20%)

C0A0248-CCV1 **Continuing Calibration %Diff/Drift is below control limit (CD-).**
4-Nitroaniline (25% @ 20%), Azobenzene (26% @ 20%), Carbazole (22% @ 20%), N-Nitrosodimethylamine (22% @ 20%)

D0A0011-CCV2 **Calibration required quadratic regression (Q).**
2,4-Dinitrophenol (132% @ 80-120%), 4,6-Dinitro-2-Methylphenol (138% @ 80-120%), Benzoic Acid (112% @ 80-120%), Pentachlorophenol (120% @ 80-120%)

D0A0011-CCV2 **Continuing Calibration %Diff/Drift is above control limit (CD+).**
2,4-Dinitrophenol (32% @ 20%), 2,4-Dinitrotoluene (26% @ 20%), 4,6-Dinitro-2-Methylphenol (38% @ 20%), Di-n-butylphthalate (22% @ 20%)

D0A0011-CCV2 **Initial Calibration Verification recovery is above upper control limit (ICV+).**
2,4-Dinitrophenol , 4,6-Dinitro-2-Methylphenol

No other observations noted.

End of Project Narrative.

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0376

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (3.92)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Arsenic	ND (1.96)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Barium	**12.7** (1.96)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Beryllium	**0.19** (0.09)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Cadmium	ND (0.39)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Chromium	**8.02** (0.78)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Copper	**27.1** (1.96)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Lead	**31.9** (3.92)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Mercury	**0.050** (0.029)		7471B		1	MKS	01/16/20 11:33	0.73	40	CA01580
Nickel	**6.75** (1.96)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Selenium	ND (3.92)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Silver	ND (0.39)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Thallium	ND (3.92)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581
Zinc	**47.3** (1.96)		6010C		1	KJK	01/16/20 4:08	2.72	100	CA01581

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 8.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,1,1-Trichloroethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,1,2,2-Tetrachloroethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,1,2-Trichloroethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,1-Dichloroethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,1-Dichloroethene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,1-Dichloropropene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2,3-Trichlorobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2,3-Trichloropropane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2,4-Trichlorobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2,4-Trimethylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2-Dibromo-3-Chloropropane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2-Dibromoethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2-Dichlorobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2-Dichloroethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,2-Dichloropropane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,3,5-Trimethylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,3-Dichlorobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,3-Dichloropropane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,4-Dichlorobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1,4-Dioxane	ND (0.0642)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
1-Chlorohexane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
2,2-Dichloropropane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
2-Butanone	ND (0.0321)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
2-Chlorotoluene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
2-Hexanone	ND (0.0321)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
4-Chlorotoluene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
4-Isopropyltoluene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
4-Methyl-2-Pentanone	ND (0.0321)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Acetone	ND (0.0321)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Benzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Bromobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 8.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Bromodichloromethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Bromoform	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Bromomethane	ND (0.0064)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Carbon Disulfide	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Carbon Tetrachloride	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Chlorobenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Chloroethane	ND (0.0064)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Chloroform	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Chloromethane	ND (0.0064)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
cis-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
cis-1,3-Dichloropropene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Dibromochloromethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Dibromomethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Dichlorodifluoromethane	ND (0.0064)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Diethyl Ether	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Di-isopropyl ether	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Ethyl tertiary-butyl ether	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Ethylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Hexachlorobutadiene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Isopropylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Methyl tert-Butyl Ether	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Methylene Chloride	ND (0.0160)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Naphthalene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
n-Butylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
n-Propylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
sec-Butylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Styrene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
tert-Butylbenzene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Tertiary-amyl methyl ether	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Tetrachloroethene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Tetrahydrofuran	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 8.3
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
trans-1,2-Dichloroethene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
trans-1,3-Dichloropropene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Trichloroethene	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Trichlorofluoromethane	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Vinyl Acetate	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Vinyl Chloride	ND (0.0064)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Xylene O	ND (0.0032)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Xylene P,M	ND (0.0064)		8260B Low		1	01/16/20 15:19	D0A0003	DA01616
Xylenes (Total)	ND (0.00642)		8260B Low		1	01/16/20 15:19		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*123 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*98 %*		*70-130*
Surrogate: Dibromofluoromethane	*107 %*		*70-130*
Surrogate: Toluene-d8	*95 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 20.1
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 1/16/20 16:08

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1221	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1232	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1242	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1248	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1254 [2C]	**0.07** (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1260	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1262	ND (0.05)		8082A		1	01/17/20 19:36		DA01604
Aroclor 1268	ND (0.05)		8082A		1	01/17/20 19:36		DA01604

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*75 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*76 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*72 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*90 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 20.4
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 1/15/20 17:30

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**221** (39.2)		8100M		1	01/18/20 20:59	C0A0211	CA01575

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*80 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/15/20 17:40

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
1,2,4-Trichlorobenzene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
1,2-Dichlorobenzene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
1,3-Dichlorobenzene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
1,4-Dichlorobenzene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,3,4,6-Tetrachlorophenol	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,4,5-Trichlorophenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,4,6-Trichlorophenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,4-Dichlorophenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,4-Dimethylphenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,4-Dinitrophenol	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,4-Dinitrotoluene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2,6-Dinitrotoluene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2-Chloronaphthalene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2-Chlorophenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2-Methylnaphthalene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2-Methylphenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2-Nitroaniline	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
2-Nitrophenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
3,3´-Dichlorobenzidine	ND (0.692)		8270D		1	01/16/20 16:56	D0A0011	CA01576
3+4-Methylphenol	ND (0.692)		8270D		1	01/16/20 16:56	D0A0011	CA01576
3-Nitroaniline	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4,6-Dinitro-2-Methylphenol	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4-Bromophenyl-phenylether	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4-Chloro-3-Methylphenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4-Chloroaniline	ND (0.692)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4-Chloro-phenyl-phenyl ether	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4-Nitroaniline	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
4-Nitrophenol	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Acenaphthene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Acenaphthylene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Acetophenone	ND (0.692)		8270D		1	01/16/20 16:56	D0A0011	CA01576

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/15/20 17:40

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.692)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Anthracene	**0.418** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Azobenzene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzo(a)anthracene	**1.38** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzo(a)pyrene	**1.48** (0.173)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzo(b)fluoranthene	**1.36** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzo(g,h,i)perylene	**0.915** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzo(k)fluoranthene	**1.19** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzoic Acid	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Benzyl Alcohol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
bis(2-Chloroethoxy)methane	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
bis(2-Chloroethyl)ether	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
bis(2-chloroisopropyl)Ether	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
bis(2-Ethylhexyl)phthalate	**0.739** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Butylbenzylphthalate	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Carbazole	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Chrysene	**1.43** (0.173)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Dibenzo(a,h)Anthracene	**0.270** (0.173)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Dibenzofuran	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Diethylphthalate	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Dimethylphthalate	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Di-n-butylphthalate	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Di-n-octylphthalate	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Fluoranthene	**2.69** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Fluorene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Hexachlorobenzene	ND (0.173)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Hexachlorobutadiene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Hexachlorocyclopentadiene	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Hexachloroethane	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Indeno(1,2,3-cd)Pyrene	**0.862** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Isophorone	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Naphthalene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200114-001 Pile 14
Date Sampled: 01/14/20 14:30
Percent Solids: 94
Initial Volume: 15.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0376
ESS Laboratory Sample ID: 20A0376-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/15/20 17:40

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
N-Nitrosodimethylamine	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
N-Nitroso-Di-n-Propylamine	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
N-nitrosodiphenylamine	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Pentachlorophenol	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Phenanthrene	**1.55** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Phenol	ND (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Pyrene	**2.99** (0.346)		8270D		1	01/16/20 16:56	D0A0011	CA01576
Pyridine	ND (1.73)		8270D		1	01/16/20 16:56	D0A0011	CA01576

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*54 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*74 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*58 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*60 %*		*30-130*
Surrogate: 2-Fluorophenol	*56 %*		*30-130*
Surrogate: Nitrobenzene-d5	*56 %*		*30-130*
Surrogate: Phenol-d6	*61 %*		*30-130*
Surrogate: p-Terphenyl-d14	*77 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CA01580 - 7471B										
Blank										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	7.09	0.558	mg/kg wet	7.760		91	80-120			
LCS Dup										
Mercury	7.97	0.609	mg/kg wet	7.760		103	80-120	12	20	
Batch CA01581 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	46.6	15.9	mg/kg wet	51.30		91	80-120			
Arsenic	189	7.94	mg/kg wet	202.0		94	80-120			
Barium	328	7.94	mg/kg wet	343.0		96	80-120			
Beryllium	48.5	0.35	mg/kg wet	52.10		93	80-120			
Cadmium	125	1.59	mg/kg wet	149.0		84	80-120			
Chromium	170	3.17	mg/kg wet	182.0		94	80-120			
Copper	217	7.94	mg/kg wet	225.0		97	80-120			
Lead	325	15.9	mg/kg wet	333.0		97	80-120			
Nickel	160	7.94	mg/kg wet	167.0		96	80-120			
Selenium	160	15.9	mg/kg wet	169.0		94	80-120			
Silver	44.8	1.59	mg/kg wet	48.90		92	80-120			
Thallium	70.3	15.9	mg/kg wet	82.30		85	80-120			
Zinc	413	7.94	mg/kg wet	459.0		90	80-120			
LCS Dup										
Antimony	43.9	13.5	mg/kg wet	51.30		85	80-120	6	20	
Arsenic	194	6.76	mg/kg wet	202.0		96	80-120	2	20	
Barium	350	6.76	mg/kg wet	343.0		102	80-120	7	20	
Beryllium	50.0	0.30	mg/kg wet	52.10		96	80-120	3	20	
Cadmium	131	1.35	mg/kg wet	149.0		88	80-120	5	20	
Chromium	179	2.70	mg/kg wet	182.0		99	80-120	5	20	
Copper	226	6.76	mg/kg wet	225.0		101	80-120	4	20	
Lead	314	13.5	mg/kg wet	333.0		94	80-120	3	20	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch CA01581 - 3050B										
Nickel	165	6.76	mg/kg wet	167.0		99	80-120	4	20	
Selenium	164	13.5	mg/kg wet	169.0		97	80-120	3	20	
Silver	46.6	1.35	mg/kg wet	48.90		95	80-120	4	20	
Thallium	70.5	13.5	mg/kg wet	82.30		86	80-120	0.3	20	
Zinc	435	6.76	mg/kg wet	459.0		95	80-120	5	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01616 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							
Bromomethane	ND	0.0100	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01616 - 5035										
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0548*		mg/kg wet	*0.05000*		*110*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0506*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Toluene-d8	*0.0482*		mg/kg wet	*0.05000*		*96*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0450	0.0050	mg/kg wet	0.05000		90	70-130			
1,1,1-Trichloroethane	0.0454	0.0050	mg/kg wet	0.05000		91	70-130			
1,1,2,2-Tetrachloroethane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01616 - 5035										
1,1,2-Trichloroethane	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
1,1-Dichloroethane	0.0488	0.0050	mg/kg wet	0.05000		98	70-130			
1,1-Dichloroethene	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
1,1-Dichloropropene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
1,2,3-Trichlorobenzene	0.0427	0.0050	mg/kg wet	0.05000		85	70-130			
1,2,3-Trichloropropane	0.0467	0.0050	mg/kg wet	0.05000		93	70-130			
1,2,4-Trichlorobenzene	0.0414	0.0050	mg/kg wet	0.05000		83	70-130			
1,2,4-Trimethylbenzene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
1,2-Dibromo-3-Chloropropane	0.0405	0.0050	mg/kg wet	0.05000		81	70-130			
1,2-Dibromoethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
1,2-Dichlorobenzene	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
1,2-Dichloroethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
1,2-Dichloropropane	0.0483	0.0050	mg/kg wet	0.05000		97	70-130			
1,3,5-Trimethylbenzene	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
1,3-Dichlorobenzene	0.0431	0.0050	mg/kg wet	0.05000		86	70-130			
1,3-Dichloropropane	0.0500	0.0050	mg/kg wet	0.05000		100	70-130			
1,4-Dichlorobenzene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
1,4-Dioxane	1.16	0.100	mg/kg wet	1.000		116	70-130			
1-Chlorohexane	0.0416	0.0050	mg/kg wet	0.05000		83	70-130			
2,2-Dichloropropane	0.0374	0.0050	mg/kg wet	0.05000		75	70-130			
2-Butanone	0.306	0.0500	mg/kg wet	0.2500		122	70-130			
2-Chlorotoluene	0.0438	0.0050	mg/kg wet	0.05000		88	70-130			
2-Hexanone	0.294	0.0500	mg/kg wet	0.2500		118	70-130			
4-Chlorotoluene	0.0441	0.0050	mg/kg wet	0.05000		88	70-130			
4-Isopropyltoluene	0.0425	0.0050	mg/kg wet	0.05000		85	70-130			
4-Methyl-2-Pentanone	0.305	0.0500	mg/kg wet	0.2500		122	70-130			
Acetone	0.289	0.0500	mg/kg wet	0.2500		116	70-130			
Benzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130			
Bromobenzene	0.0449	0.0050	mg/kg wet	0.05000		90	70-130			
Bromochloromethane	0.0486	0.0050	mg/kg wet	0.05000		97	70-130			
Bromodichloromethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Bromoform	0.0446	0.0050	mg/kg wet	0.05000		89	70-130			
Bromomethane	0.0505	0.0100	mg/kg wet	0.05000		101	70-130			
Carbon Disulfide	0.0463	0.0050	mg/kg wet	0.05000		93	70-130			
Carbon Tetrachloride	0.0473	0.0050	mg/kg wet	0.05000		95	70-130			
Chlorobenzene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
Chloroethane	0.0439	0.0100	mg/kg wet	0.05000		88	70-130			
Chloroform	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Chloromethane	0.0435	0.0100	mg/kg wet	0.05000		87	70-130			
cis-1,2-Dichloroethene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
cis-1,3-Dichloropropene	0.0464	0.0050	mg/kg wet	0.05000		93	70-130			
Dibromochloromethane	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
Dibromomethane	0.0533	0.0050	mg/kg wet	0.05000		107	70-130			
Dichlorodifluoromethane	0.0395	0.0100	mg/kg wet	0.05000		79	70-130			
Diethyl Ether	0.0514	0.0050	mg/kg wet	0.05000		103	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01616 - 5035										
Di-isopropyl ether	0.0553	0.0050	mg/kg wet	0.05000		111	70-130			
Ethyl tertiary-butyl ether	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Ethylbenzene	0.0452	0.0050	mg/kg wet	0.05000		90	70-130			
Hexachlorobutadiene	0.0419	0.0050	mg/kg wet	0.05000		84	70-130			
Isopropylbenzene	0.0433	0.0050	mg/kg wet	0.05000		87	70-130			
Methyl tert-Butyl Ether	0.0526	0.0050	mg/kg wet	0.05000		105	70-130			
Methylene Chloride	0.0465	0.0250	mg/kg wet	0.05000		93	70-130			
Naphthalene	0.0440	0.0050	mg/kg wet	0.05000		88	70-130			
n-Butylbenzene	0.0427	0.0050	mg/kg wet	0.05000		85	70-130			
n-Propylbenzene	0.0436	0.0050	mg/kg wet	0.05000		87	70-130			
sec-Butylbenzene	0.0426	0.0050	mg/kg wet	0.05000		85	70-130			
Styrene	0.0447	0.0050	mg/kg wet	0.05000		89	70-130			
tert-Butylbenzene	0.0430	0.0050	mg/kg wet	0.05000		86	70-130			
Tertiary-amyl methyl ether	0.0508	0.0050	mg/kg wet	0.05000		102	70-130			
Tetrachloroethene	0.0472	0.0050	mg/kg wet	0.05000		94	70-130			
Tetrahydrofuran	0.0522	0.0050	mg/kg wet	0.05000		104	70-130			
Toluene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
trans-1,2-Dichloroethene	0.0475	0.0050	mg/kg wet	0.05000		95	70-130			
trans-1,3-Dichloropropene	0.0466	0.0050	mg/kg wet	0.05000		93	70-130			
Trichloroethene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130			
Trichlorofluoromethane	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Vinyl Acetate	0.0492	0.0050	mg/kg wet	0.05000		98	70-130			
Vinyl Chloride	0.0413	0.0100	mg/kg wet	0.05000		83	70-130			
Xylene O	0.0429	0.0050	mg/kg wet	0.05000		86	70-130			
Xylene P,M	0.0901	0.0100	mg/kg wet	0.1000		90	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0559*		mg/kg wet	*0.05000*		*112*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0509*		mg/kg wet	*0.05000*		*102*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0528*		mg/kg wet	*0.05000*		*106*	*70-130*			
Surrogate: Toluene-d8	*0.0486*		mg/kg wet	*0.05000*		*97*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	9	25	
1,1,1-Trichloroethane	0.0491	0.0050	mg/kg wet	0.05000		98	70-130	8	25	
1,1,2,2-Tetrachloroethane	0.0472	0.0050	mg/kg wet	0.05000		94	70-130	6	25	
1,1,2-Trichloroethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	0.3	25	
1,1-Dichloroethane	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	7	25	
1,1-Dichloroethene	0.0527	0.0050	mg/kg wet	0.05000		105	70-130	7	25	
1,1-Dichloropropene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	8	25	
1,2,3-Trichlorobenzene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	9	25	
1,2,3-Trichloropropane	0.0424	0.0050	mg/kg wet	0.05000		85	70-130	10	25	
1,2,4-Trichlorobenzene	0.0459	0.0050	mg/kg wet	0.05000		92	70-130	10	25	
1,2,4-Trimethylbenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	12	25	
1,2-Dibromo-3-Chloropropane	0.0342	0.0050	mg/kg wet	0.05000		68	70-130	17	25	B-
1,2-Dibromoethane	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
1,2-Dichlorobenzene	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	8	25	
1,2-Dichloroethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	1	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01616 - 5035										
1,2-Dichloropropane	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
1,3,5-Trimethylbenzene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	12	25	
1,3-Dichlorobenzene	0.0479	0.0050	mg/kg wet	0.05000		96	70-130	11	25	
1,3-Dichloropropane	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	4	25	
1,4-Dichlorobenzene	0.0476	0.0050	mg/kg wet	0.05000		95	70-130	8	25	
1,4-Dioxane	0.937	0.100	mg/kg wet	1.000		94	70-130	21	20	D+
1-Chlorohexane	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	11	25	
2,2-Dichloropropane	0.0410	0.0050	mg/kg wet	0.05000		82	70-130	9	25	
2-Butanone	0.285	0.0500	mg/kg wet	0.2500		114	70-130	7	25	
2-Chlorotoluene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	10	25	
2-Hexanone	0.255	0.0500	mg/kg wet	0.2500		102	70-130	14	25	
4-Chlorotoluene	0.0486	0.0050	mg/kg wet	0.05000		97	70-130	10	25	
4-Isopropyltoluene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	12	25	
4-Methyl-2-Pentanone	0.264	0.0500	mg/kg wet	0.2500		106	70-130	14	25	
Acetone	0.246	0.0500	mg/kg wet	0.2500		98	70-130	16	25	
Benzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130	8	25	
Bromobenzene	0.0482	0.0050	mg/kg wet	0.05000		96	70-130	7	25	
Bromochloromethane	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	5	25	
Bromodichloromethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	6	25	
Bromoform	0.0442	0.0050	mg/kg wet	0.05000		88	70-130	0.9	25	
Bromomethane	0.0490	0.0100	mg/kg wet	0.05000		98	70-130	3	25	
Carbon Disulfide	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	8	25	
Carbon Tetrachloride	0.0519	0.0050	mg/kg wet	0.05000		104	70-130	9	25	
Chlorobenzene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	10	25	
Chloroethane	0.0472	0.0100	mg/kg wet	0.05000		94	70-130	7	25	
Chloroform	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	7	25	
Chloromethane	0.0441	0.0100	mg/kg wet	0.05000		88	70-130	1	25	
cis-1,2-Dichloroethene	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	6	25	
cis-1,3-Dichloropropene	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	4	25	
Dibromochloromethane	0.0490	0.0050	mg/kg wet	0.05000		98	70-130	5	25	
Dibromomethane	0.0536	0.0050	mg/kg wet	0.05000		107	70-130	0.4	25	
Dichlorodifluoromethane	0.0424	0.0100	mg/kg wet	0.05000		85	70-130	7	25	
Diethyl Ether	0.0523	0.0050	mg/kg wet	0.05000		105	70-130	2	25	
Di-isopropyl ether	0.0586	0.0050	mg/kg wet	0.05000		117	70-130	6	25	
Ethyl tertiary-butyl ether	0.0504	0.0050	mg/kg wet	0.05000		101	70-130	4	25	
Ethylbenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	11	25	
Hexachlorobutadiene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	12	25	
Isopropylbenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	10	25	
Methyl tert-Butyl Ether	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	0.08	25	
Methylene Chloride	0.0497	0.0250	mg/kg wet	0.05000		99	70-130	7	25	
Naphthalene	0.0443	0.0050	mg/kg wet	0.05000		89	70-130	0.7	25	
n-Butylbenzene	0.0488	0.0050	mg/kg wet	0.05000		98	70-130	13	25	
n-Propylbenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	11	25	
sec-Butylbenzene	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	11	25	
Styrene	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	10	25	

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Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01616 - 5035										
tert-Butylbenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	11	25	
Tertiary-amyl methyl ether	0.0516	0.0050	mg/kg wet	0.05000		103	70-130	2	25	
Tetrachloroethene	0.0526	0.0050	mg/kg wet	0.05000		105	70-130	11	25	
Tetrahydrofuran	0.0447	0.0050	mg/kg wet	0.05000		89	70-130	15	25	
Toluene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	9	25	
trans-1,2-Dichloroethene	0.0513	0.0050	mg/kg wet	0.05000		103	70-130	8	25	
trans-1,3-Dichloropropene	0.0467	0.0050	mg/kg wet	0.05000		93	70-130	0.2	25	
Trichloroethene	0.0517	0.0050	mg/kg wet	0.05000		103	70-130	7	25	
Trichlorofluoromethane	0.0551	0.0050	mg/kg wet	0.05000		110	70-130	8	25	
Vinyl Acetate	0.0477	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
Vinyl Chloride	0.0450	0.0100	mg/kg wet	0.05000		90	70-130	9	25	
Xylene O	0.0483	0.0050	mg/kg wet	0.05000		97	70-130	12	25	
Xylene P,M	0.102	0.0100	mg/kg wet	0.1000		102	70-130	12	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0526*		mg/kg wet	*0.05000*		*105*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0507*		mg/kg wet	*0.05000*		*101*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0518*		mg/kg wet	*0.05000*		*104*	*70-130*			
Surrogate: Toluene-d8	*0.0497*		mg/kg wet	*0.05000*		*99*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch DA01604 - 3540C										
Blank										**EL**
Aroclor 1016	ND	0.02	mg/kg wet							
Aroclor 1016 [2C]	ND	0.02	mg/kg wet							
Aroclor 1221	ND	0.02	mg/kg wet							
Aroclor 1221 [2C]	ND	0.02	mg/kg wet							
Aroclor 1232	ND	0.02	mg/kg wet							
Aroclor 1232 [2C]	ND	0.02	mg/kg wet							
Aroclor 1242	ND	0.02	mg/kg wet							
Aroclor 1242 [2C]	ND	0.02	mg/kg wet							
Aroclor 1248	ND	0.02	mg/kg wet							
Aroclor 1248 [2C]	ND	0.02	mg/kg wet							
Aroclor 1254	ND	0.02	mg/kg wet							
Aroclor 1254 [2C]	ND	0.02	mg/kg wet							
Aroclor 1260	ND	0.02	mg/kg wet							
Aroclor 1260 [2C]	ND	0.02	mg/kg wet							
Aroclor 1262	ND	0.02	mg/kg wet							
Aroclor 1262 [2C]	ND	0.02	mg/kg wet							
Aroclor 1268	ND	0.02	mg/kg wet							
Aroclor 1268 [2C]	ND	0.02	mg/kg wet							
Surrogate: Decachlorobiphenyl	*0.0222*		mg/kg wet	*0.02500*		*89*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0230*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0205*		mg/kg wet	*0.02500*		*82*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0236*		mg/kg wet	*0.02500*		*94*	*30-150*			
LCS										**EL**

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch DA01604 - 3540C										
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		97	40-140			
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		87	40-140			
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		91	40-140			
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		84	40-140			
Surrogate: Decachlorobiphenyl	*0.0253*		mg/kg wet	*0.02500*		*101*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0264*		mg/kg wet	*0.02500*		*106*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0237*		mg/kg wet	*0.02500*		*95*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0249*		mg/kg wet	*0.02500*		*100*	*30-150*			
LCS Dup										**EL**
Aroclor 1016	0.5	0.02	mg/kg wet	0.5000		96	40-140	0.5	30	
Aroclor 1016 [2C]	0.4	0.02	mg/kg wet	0.5000		88	40-140	1	30	
Aroclor 1260	0.5	0.02	mg/kg wet	0.5000		94	40-140	3	30	
Aroclor 1260 [2C]	0.4	0.02	mg/kg wet	0.5000		87	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0257*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0263*		mg/kg wet	*0.02500*		*105*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0229*		mg/kg wet	*0.02500*		*92*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0241*		mg/kg wet	*0.02500*		*96*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch CA01575 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*4.28*		mg/kg wet	*5.000*		*86*	*40-140*			
LCS										
Decane (C10)	1.8	0.2	mg/kg wet	2.500		74	40-140			
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Dodecane (C12)	1.9	0.2	mg/kg wet	2.500		77	40-140			
Eicosane (C20)	2.3	0.2	mg/kg wet	2.500		91	40-140			
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		92	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch CA01575 - 3546										
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		63	30-140			
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		94	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Total Petroleum Hydrocarbons	29.9	37.5	mg/kg wet	35.00		85	40-140			
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		92	40-140			
Surrogate: O-Terphenyl	*4.27*		mg/kg wet	*5.000*		*85*	*40-140*			
LCS Dup										
Decane (C10)	1.7	0.2	mg/kg wet	2.500		66	40-140	10	25	
Docosane (C22)	2.2	0.2	mg/kg wet	2.500		87	40-140	5	25	
Dodecane (C12)	1.7	0.2	mg/kg wet	2.500		70	40-140	10	25	
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		86	40-140	6	25	
Hexacosane (C26)	2.2	0.2	mg/kg wet	2.500		87	40-140	6	25	
Hexadecane (C16)	1.9	0.2	mg/kg wet	2.500		78	40-140	6	25	
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		88	40-140	6	25	
Nonane (C9)	1.4	0.2	mg/kg wet	2.500		58	30-140	9	25	
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		88	40-140	6	25	
Octadecane (C18)	2.0	0.2	mg/kg wet	2.500		80	40-140	6	25	
Tetracosane (C24)	2.2	0.2	mg/kg wet	2.500		87	40-140	6	25	
Tetradecane (C14)	1.8	0.2	mg/kg wet	2.500		73	40-140	9	25	
Total Petroleum Hydrocarbons	28.0	37.5	mg/kg wet	35.00		80	40-140	7	25	
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		87	40-140	6	25	
Surrogate: O-Terphenyl	*3.98*		mg/kg wet	*5.000*		*80*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							
Hexachlorobenzene	ND	0.167	mg/kg wet							

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Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.20*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*3.90*		mg/kg wet	*5.000*		*78*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.47*		mg/kg wet	*5.000*		*69*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.26*		mg/kg wet	*3.333*		*68*	*30-130*			
Surrogate: 2-Fluorophenol	*3.32*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.11*		mg/kg wet	*3.333*		*63*	*30-130*			
Surrogate: Phenol-d6	*3.22*		mg/kg wet	*5.000*		*64*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.02*		mg/kg wet	*3.333*		*91*	*30-130*			
LCS										
1,1-Biphenyl	2.51	0.333	mg/kg wet	3.333		75	40-140			
1,2,4-Trichlorobenzene	2.53	0.333	mg/kg wet	3.333		76	40-140			
1,2-Dichlorobenzene	2.41	0.333	mg/kg wet	3.333		72	40-140			
1,3-Dichlorobenzene	2.37	0.333	mg/kg wet	3.333		71	40-140			
1,4-Dichlorobenzene	2.33	0.333	mg/kg wet	3.333		70	40-140			
2,3,4,6-Tetrachlorophenol	2.86	1.67	mg/kg wet	3.333		86	30-130			
2,4,5-Trichlorophenol	2.84	0.333	mg/kg wet	3.333		85	30-130			
2,4,6-Trichlorophenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
2,4-Dichlorophenol	2.80	0.333	mg/kg wet	3.333		84	30-130			
2,4-Dimethylphenol	2.56	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dinitrophenol	3.80	1.67	mg/kg wet	3.333		114	30-130			
2,4-Dinitrotoluene	2.81	0.333	mg/kg wet	3.333		84	40-140			
2,6-Dinitrotoluene	2.66	0.333	mg/kg wet	3.333		80	40-140			
2-Chloronaphthalene	2.26	0.333	mg/kg wet	3.333		68	40-140			
2-Chlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2-Methylnaphthalene	2.49	0.333	mg/kg wet	3.333		75	40-140			
2-Methylphenol	2.44	0.333	mg/kg wet	3.333		73	30-130			
2-Nitroaniline	2.30	0.333	mg/kg wet	3.333		69	40-140			
2-Nitrophenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
3,3´-Dichlorobenzidine	2.15	0.667	mg/kg wet	3.333		64	40-140			
3+4-Methylphenol	5.22	0.667	mg/kg wet	6.667		78	30-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
3-Nitroaniline	2.22	0.333	mg/kg wet	3.333		67	40-140			
4,6-Dinitro-2-Methylphenol	3.65	1.67	mg/kg wet	3.333		109	30-130			
4-Bromophenyl-phenylether	2.89	0.333	mg/kg wet	3.333		87	40-140			
4-Chloro-3-Methylphenol	2.58	0.333	mg/kg wet	3.333		77	30-130			
4-Chloroaniline	1.68	0.667	mg/kg wet	3.333		50	40-140			
4-Chloro-phenyl-phenyl ether	2.74	0.333	mg/kg wet	3.333		82	40-140			
4-Nitroaniline	2.39	0.333	mg/kg wet	3.333		72	40-140			
4-Nitrophenol	2.37	1.67	mg/kg wet	3.333		71	30-130			
Acenaphthene	2.41	0.333	mg/kg wet	3.333		72	40-140			
Acenaphthylene	2.43	0.333	mg/kg wet	3.333		73	40-140			
Acetophenone	2.30	0.667	mg/kg wet	3.333		69	40-140			
Aniline	1.84	0.667	mg/kg wet	3.333		55	40-140			
Anthracene	2.64	0.333	mg/kg wet	3.333		79	40-140			
Azobenzene	2.43	0.333	mg/kg wet	3.333		73	40-140			
Benzo(a)anthracene	2.73	0.333	mg/kg wet	3.333		82	40-140			
Benzo(a)pyrene	2.87	0.167	mg/kg wet	3.333		86	40-140			
Benzo(b)fluoranthene	3.24	0.333	mg/kg wet	3.333		97	40-140			
Benzo(g,h,i)perylene	2.97	0.333	mg/kg wet	3.333		89	40-140			
Benzo(k)fluoranthene	2.69	0.333	mg/kg wet	3.333		81	40-140			
Benzoic Acid	3.90	1.67	mg/kg wet	3.333		117	40-140			
Benzyl Alcohol	1.71	0.333	mg/kg wet	3.333		51	40-140			
bis(2-Chloroethoxy)methane	2.36	0.333	mg/kg wet	3.333		71	40-140			
bis(2-Chloroethyl)ether	2.45	0.333	mg/kg wet	3.333		73	40-140			
bis(2-chloroisopropyl)Ether	2.45	0.333	mg/kg wet	3.333		73	40-140			
bis(2-Ethylhexyl)phthalate	2.92	0.333	mg/kg wet	3.333		88	40-140			
Butylbenzylphthalate	2.87	0.333	mg/kg wet	3.333		86	40-140			
Carbazole	2.69	0.333	mg/kg wet	3.333		81	40-140			
Chrysene	2.72	0.167	mg/kg wet	3.333		81	40-140			
Dibenzo(a,h)Anthracene	3.01	0.167	mg/kg wet	3.333		90	40-140			
Dibenzofuran	2.52	0.333	mg/kg wet	3.333		76	40-140			
Diethylphthalate	2.70	0.333	mg/kg wet	3.333		81	40-140			
Dimethylphthalate	2.67	0.333	mg/kg wet	3.333		80	40-140			
Di-n-butylphthalate	2.89	0.333	mg/kg wet	3.333		87	40-140			
Di-n-octylphthalate	3.01	0.333	mg/kg wet	3.333		90	40-140			
Fluoranthene	2.76	0.333	mg/kg wet	3.333		83	40-140			
Fluorene	2.65	0.333	mg/kg wet	3.333		79	40-140			
Hexachlorobenzene	2.86	0.167	mg/kg wet	3.333		86	40-140			
Hexachlorobutadiene	2.59	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorocyclopentadiene	2.21	1.67	mg/kg wet	3.333		66	40-140			
Hexachloroethane	2.33	0.333	mg/kg wet	3.333		70	40-140			
Indeno(1,2,3-cd)Pyrene	2.98	0.333	mg/kg wet	3.333		89	40-140			
Isophorone	2.04	0.333	mg/kg wet	3.333		61	40-140			
Naphthalene	2.33	0.333	mg/kg wet	3.333		70	40-140			
Nitrobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140			
N-Nitrosodimethylamine	1.80	0.333	mg/kg wet	3.333		54	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
N-Nitroso-Di-n-Propylamine	2.28	0.333	mg/kg wet	3.333		68	40-140			
N-nitrosodiphenylamine	2.91	0.333	mg/kg wet	3.333		87	40-140			
Pentachlorophenol	3.27	1.67	mg/kg wet	3.333		98	30-130			
Phenanthrene	2.70	0.333	mg/kg wet	3.333		81	40-140			
Phenol	2.38	0.333	mg/kg wet	3.333		71	30-130			
Pyrene	2.82	0.333	mg/kg wet	3.333		85	40-140			
Pyridine	1.86	1.67	mg/kg wet	3.333		56	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.43*		mg/kg wet	*3.333*		*73*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.83*		mg/kg wet	*5.000*		*97*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.93*		mg/kg wet	*5.000*		*79*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.71*		mg/kg wet	*3.333*		*81*	*30-130*			
Surrogate: 2-Fluorophenol	*3.76*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.40*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: Phenol-d6	*3.62*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.20*		mg/kg wet	*3.333*		*96*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.37	0.333	mg/kg wet	3.333		71	40-140	6	30	
1,2,4-Trichlorobenzene	2.29	0.333	mg/kg wet	3.333		69	40-140	10	30	
1,2-Dichlorobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140	12	30	
1,3-Dichlorobenzene	2.14	0.333	mg/kg wet	3.333		64	40-140	10	30	
1,4-Dichlorobenzene	2.11	0.333	mg/kg wet	3.333		63	40-140	10	30	
2,3,4,6-Tetrachlorophenol	2.84	1.67	mg/kg wet	3.333		85	30-130	0.6	30	
2,4,5-Trichlorophenol	2.68	0.333	mg/kg wet	3.333		80	30-130	6	30	
2,4,6-Trichlorophenol	2.44	0.333	mg/kg wet	3.333		73	30-130	10	30	
2,4-Dichlorophenol	2.52	0.333	mg/kg wet	3.333		76	30-130	10	30	
2,4-Dimethylphenol	2.30	0.333	mg/kg wet	3.333		69	30-130	11	30	
2,4-Dinitrophenol	3.34	1.67	mg/kg wet	3.333		100	30-130	13	30	
2,4-Dinitrotoluene	2.84	0.333	mg/kg wet	3.333		85	40-140	1	30	
2,6-Dinitrotoluene	2.57	0.333	mg/kg wet	3.333		77	40-140	3	30	
2-Chloronaphthalene	2.11	0.333	mg/kg wet	3.333		63	40-140	7	30	
2-Chlorophenol	2.13	0.333	mg/kg wet	3.333		64	30-130	13	30	
2-Methylnaphthalene	2.31	0.333	mg/kg wet	3.333		69	40-140	7	30	
2-Methylphenol	2.12	0.333	mg/kg wet	3.333		64	30-130	14	30	
2-Nitroaniline	2.15	0.333	mg/kg wet	3.333		64	40-140	7	30	
2-Nitrophenol	2.09	0.333	mg/kg wet	3.333		63	30-130	14	30	
3,3´-Dichlorobenzidine	2.37	0.667	mg/kg wet	3.333		71	40-140	10	30	
3+4-Methylphenol	4.54	0.667	mg/kg wet	6.667		68	30-130	14	30	
3-Nitroaniline	2.31	0.333	mg/kg wet	3.333		69	40-140	4	30	
4,6-Dinitro-2-Methylphenol	3.47	1.67	mg/kg wet	3.333		104	30-130	5	30	
4-Bromophenyl-phenylether	2.73	0.333	mg/kg wet	3.333		82	40-140	6	30	
4-Chloro-3-Methylphenol	2.40	0.333	mg/kg wet	3.333		72	30-130	7	30	
4-Chloroaniline	1.73	0.667	mg/kg wet	3.333		52	40-140	3	30	
4-Chloro-phenyl-phenyl ether	2.65	0.333	mg/kg wet	3.333		80	40-140	3	30	
4-Nitroaniline	2.42	0.333	mg/kg wet	3.333		73	40-140	1	30	
4-Nitrophenol	2.41	1.67	mg/kg wet	3.333		72	30-130	2	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
Acenaphthene	2.26	0.333	mg/kg wet	3.333		68	40-140	6	30	
Acenaphthylene	2.25	0.333	mg/kg wet	3.333		67	40-140	8	30	
Acetophenone	2.02	0.667	mg/kg wet	3.333		61	40-140	13	30	
Aniline	1.54	0.667	mg/kg wet	3.333		46	40-140	18	30	
Anthracene	2.72	0.333	mg/kg wet	3.333		82	40-140	3	30	
Azobenzene	2.26	0.333	mg/kg wet	3.333		68	40-140	7	30	
Benzo(a)anthracene	2.82	0.333	mg/kg wet	3.333		85	40-140	3	30	
Benzo(a)pyrene	2.87	0.167	mg/kg wet	3.333		86	40-140	0.2	30	
Benzo(b)fluoranthene	3.16	0.333	mg/kg wet	3.333		95	40-140	3	30	
Benzo(g,h,i)perylene	3.11	0.333	mg/kg wet	3.333		93	40-140	5	30	
Benzo(k)fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140	7	30	
Benzoic Acid	3.35	1.67	mg/kg wet	3.333		100	40-140	15	30	
Benzyl Alcohol	1.35	0.333	mg/kg wet	3.333		40	40-140	23	30	
bis(2-Chloroethoxy)methane	2.13	0.333	mg/kg wet	3.333		64	40-140	10	30	
bis(2-Chloroethyl)ether	2.23	0.333	mg/kg wet	3.333		67	40-140	9	30	
bis(2-chloroisopropyl)Ether	2.09	0.333	mg/kg wet	3.333		63	40-140	16	30	
bis(2-Ethylhexyl)phthalate	2.91	0.333	mg/kg wet	3.333		87	40-140	0.2	30	
Butylbenzylphthalate	2.82	0.333	mg/kg wet	3.333		85	40-140	2	30	
Carbazole	2.77	0.333	mg/kg wet	3.333		83	40-140	3	30	
Chrysene	2.76	0.167	mg/kg wet	3.333		83	40-140	2	30	
Dibenzo(a,h)Anthracene	3.16	0.167	mg/kg wet	3.333		95	40-140	5	30	
Dibenzofuran	2.39	0.333	mg/kg wet	3.333		72	40-140	5	30	
Diethylphthalate	2.75	0.333	mg/kg wet	3.333		83	40-140	2	30	
Dimethylphthalate	2.64	0.333	mg/kg wet	3.333		79	40-140	1	30	
Di-n-butylphthalate	2.94	0.333	mg/kg wet	3.333		88	40-140	2	30	
Di-n-octylphthalate	2.93	0.333	mg/kg wet	3.333		88	40-140	3	30	
Fluoranthene	2.89	0.333	mg/kg wet	3.333		87	40-140	5	30	
Fluorene	2.61	0.333	mg/kg wet	3.333		78	40-140	1	30	
Hexachlorobenzene	2.81	0.167	mg/kg wet	3.333		84	40-140	2	30	
Hexachlorobutadiene	2.31	0.333	mg/kg wet	3.333		69	40-140	11	30	
Hexachlorocyclopentadiene	1.88	1.67	mg/kg wet	3.333		56	40-140	16	30	
Hexachloroethane	2.11	0.333	mg/kg wet	3.333		63	40-140	10	30	
Indeno(1,2,3-cd)Pyrene	3.09	0.333	mg/kg wet	3.333		93	40-140	3	30	
Isophorone	1.86	0.333	mg/kg wet	3.333		56	40-140	9	30	
Naphthalene	2.13	0.333	mg/kg wet	3.333		64	40-140	9	30	
Nitrobenzene	1.98	0.333	mg/kg wet	3.333		59	40-140	11	30	
N-Nitrosodimethylamine	1.63	0.333	mg/kg wet	3.333		49	40-140	10	30	
N-Nitroso-Di-n-Propylamine	1.99	0.333	mg/kg wet	3.333		60	40-140	14	30	
N-nitrosodiphenylamine	2.76	0.333	mg/kg wet	3.333		83	40-140	5	30	
Pentachlorophenol	3.20	1.67	mg/kg wet	3.333		96	30-130	2	30	
Phenanthrene	2.69	0.333	mg/kg wet	3.333		81	40-140	0.2	30	
Phenol	2.09	0.333	mg/kg wet	3.333		63	30-130	13	30	
Pyrene	2.73	0.333	mg/kg wet	3.333		82	40-140	3	30	
Pyridine	1.79	1.67	mg/kg wet	3.333		54	40-140	4	30	
Surrogate: 1,2-Dichlorobenzene-d4	*2.12*		mg/kg wet	*3.333*		*63*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch CA01576 - 3546										
Surrogate: 2,4,6-Tribromophenol	*4.41*		mg/kg wet	*5.000*		*88*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.32*		mg/kg wet	*5.000*		*66*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.36*		mg/kg wet	*3.333*		*71*	*30-130*			
Surrogate: 2-Fluorophenol	*3.17*		mg/kg wet	*5.000*		*63*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.10*		mg/kg wet	*3.333*		*63*	*30-130*			
Surrogate: Phenol-d6	*3.01*		mg/kg wet	*5.000*		*60*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.01*		mg/kg wet	*3.333*		*90*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0376

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
ICV+	Initial Calibration Verification recovery is above upper control limit (ICV+).
EL	Elevated Method Reporting Limits due to sample matrix (EL).
D+	Relative percent difference for duplicate is outside of criteria (D+).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
CD-	Continuing Calibration %Diff/Drift is below control limit (CD-).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0376

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: Sage Environmental, Inc. - ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 20A0376
Date Received: 1/15/2020
Project Due Date: 1/21/2020
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: 0.6 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: 1/15/20 Time: 15:26 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)
1	3324	Yes	N/A	Yes	VOA Vial	MeOH	
1	3325	Yes	N/A	Yes	VOA Vial	DI Water	
1	3326	Yes	N/A	Yes	VOA Vial	DI Water	
1	3327	Yes	N/A	Yes	8 oz jar	NP	
1	3328	Yes	N/A	Yes	8 oz jar	NP	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 1/15/20 1427
Reviewed By: Date & Time: 1/15/20 15:30
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Sage Environmental, Inc. - ML

ESS Project ID: 20A0376

Date Received: 1/15/2020

By: [signature] 1/15/2020 15:32

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 # 20A0376

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project

Contact Person	Address
Tom Saccoccio	172 Armistice Blvd

City	State	Zip Code	PO #
Pawtucket	Rhode Island	02860	S3291A

Telephone Number	FAX Number	Email Address
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	1/14/20	230	Grab/Compo	Soil	20200114-001 (File 14)	X	X	X	X	X

Container Type:	AG-Amber Glass	B-BOD Bottle	G-Glass	P-Poly	S-Sterile	V-Vial	O-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*

	VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
Container Type:	GV	GV	AG	AG	AG
Preservation Code:	6/10	1	1	1	1
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: _____

Seals Intact: _____

Cooler Temperature: -0.6 °C

Sampled by: H. Stoll

Comments: Please specify "Other" preservative and containers types in this space

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen _____/____/2019___at_____(Time)_____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
1/14/20 330pm	1/15/20 10:30	1/15/20 11:08	1/15/20 11:15
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

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CERTIFICATE OF ANALYSIS

Tom Saccoccio
Sage Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

RE: South Key Dredge Project (S3291A)
ESS Laboratory Work Order Number: 20A0467

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 4:04 pm, Jan 27, 2020

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

SAMPLE RECEIPT

The following samples were received on January 17, 2020 for the analyses specified on the enclosed Chain of Custody Record.

Low Level VOA vials were frozen by ESS Laboratory on January 17, 2020 at 1326.

Lab Number	Sample Name	Matrix	Analysis
20A0467-01	20200116-001 Pile 15	Soil	6010C, 7471B, 8082A, 8100M, 8260B Low, 8270D

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

PROJECT NARRATIVE

8270D Semi-Volatile Organic Compounds

D0A0012-CCV2	**Calibration required quadratic regression (Q).**
	2,4-Dinitrophenol (157% @ 80-120%), 4,6-Dinitro-2-Methylphenol (125% @ 80-120%), Benzoic Acid (118% @ 80-120%), Pentachlorophenol (106% @ 80-120%)
D0A0012-CCV2	**Continuing Calibration %Diff/Drift is above control limit (CD+).**
	2,4-Dinitrophenol (57% @ 20%), 4,6-Dinitro-2-Methylphenol (25% @ 20%)
D0A0071-CCV2	**Calibration required quadratic regression (Q).**
	2,4-Dinitrophenol (111% @ 80-120%), 4,6-Dinitro-2-Methylphenol (113% @ 80-120%), Benzoic Acid (93% @ 80-120%), Pentachlorophenol (105% @ 80-120%)
D0A0071-CCV2	**Continuing Calibration %Diff/Drift is above control limit (CD+).**
	2-Nitroaniline (28% @ 20%), Azobenzene (34% @ 20%), Di-n-butylphthalate (23% @ 20%), N-Nitroso-Di-n-Propylamine (25% @ 20%), Pyridine (45% @ 20%)
DA01709-BS1	**Blank Spike recovery is below lower control limit (B-).**
	4-Chloroaniline (30% @ 40-140%)
DA01709-BSD1	**Blank Spike recovery is below lower control limit (B-).**
	4-Chloroaniline (28% @ 40-140%), Aniline (37% @ 40-140%)

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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

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
MADEP 18-2.1 - 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
5035A - 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: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry

Extraction Method: 3050B

Total Metals

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyst	Analyzed	I/V	F/V	Batch
Antimony	ND (5.01)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Arsenic	ND (2.50)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Barium	**12.0** (2.50)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Beryllium	**0.22** (0.11)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Cadmium	ND (0.50)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Chromium	**12.2** (1.00)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Copper	**32.7** (2.50)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Lead	**44.5** (5.01)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Mercury	**0.080** (0.027)		7471B		1	MKS	01/21/20 9:05	0.84	40	DA02044
Nickel	**7.21** (2.50)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Selenium	ND (5.01)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Silver	ND (0.50)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Thallium	ND (5.01)		6010C		1	BJV	01/21/20 1:30	2.27	100	DA02043
Zinc	**53.9** (2.50)		6010C		1	KJK	01/21/20 12:15	2.27	100	DA02043

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 7.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1,1,2-Tetrachloroethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,1,1-Trichloroethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,1,2,2-Tetrachloroethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,1,2-Trichloroethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,1-Dichloroethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,1-Dichloroethene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,1-Dichloropropene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2,3-Trichlorobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2,3-Trichloropropane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2,4-Trichlorobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2,4-Trimethylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2-Dibromo-3-Chloropropane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2-Dibromoethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2-Dichlorobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2-Dichloroethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,2-Dichloropropane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,3,5-Trimethylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,3-Dichlorobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,3-Dichloropropane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,4-Dichlorobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1,4-Dioxane	ND (0.0729)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
1-Chlorohexane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
2,2-Dichloropropane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
2-Butanone	ND (0.0364)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
2-Chlorotoluene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
2-Hexanone	ND (0.0364)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
4-Chlorotoluene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
4-Isopropyltoluene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
4-Methyl-2-Pentanone	ND (0.0364)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Acetone	ND (0.0364)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Benzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Bromobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 7.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Bromochloromethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Bromodichloromethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Bromoform	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Bromomethane	ND (0.0073)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Carbon Disulfide	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Carbon Tetrachloride	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Chlorobenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Chloroethane	ND (0.0073)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Chloroform	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Chloromethane	ND (0.0073)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
cis-1,2-Dichloroethene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
cis-1,3-Dichloropropene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Dibromochloromethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Dibromomethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Dichlorodifluoromethane	ND (0.0073)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Diethyl Ether	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Di-isopropyl ether	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Ethyl tertiary-butyl ether	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Ethylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Hexachlorobutadiene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Isopropylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Methyl tert-Butyl Ether	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Methylene Chloride	ND (0.0182)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Naphthalene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
n-Butylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
n-Propylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
sec-Butylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Styrene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
tert-Butylbenzene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Tertiary-amyl methyl ether	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Tetrachloroethene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Tetrahydrofuran	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 7.8
Final Volume: 10
Extraction Method: 5035

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MEK

5035/8260B Volatile Organic Compounds / Low Level

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Toluene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
trans-1,2-Dichloroethene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
trans-1,3-Dichloropropene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Trichloroethene	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Trichlorofluoromethane	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Vinyl Acetate	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Vinyl Chloride	ND (0.0073)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Xylene O	ND (0.0036)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Xylene P,M	ND (0.0073)		8260B Low		1	01/17/20 15:47	D0A0030	DA01737
Xylenes (Total)	ND (0.00729)		8260B Low		1	01/17/20 15:47		[CALC]

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichloroethane-d4	*125 %*		*70-130*
Surrogate: 4-Bromofluorobenzene	*100 %*		*70-130*
Surrogate: Dibromofluoromethane	*110 %*		*70-130*
Surrogate: Toluene-d8	*96 %*		*70-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 19.6
Final Volume: 10
Extraction Method: 3540C

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: MJV
Prepared: 1/17/20 16:30

8082A Polychlorinated Biphenyls (PCB)

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aroclor 1016	ND (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1221	ND (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1232	ND (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1242	ND (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1248	ND (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1254 [2C]	**0.1** (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1260	**0.08** (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1262	ND (0.06)		8082A		1	01/22/20 16:42		DA02346
Aroclor 1268	ND (0.06)		8082A		1	01/22/20 16:42		DA02346

	%Recovery	Qualifier	Limits
Surrogate: Decachlorobiphenyl	*76 %*		*30-150*
Surrogate: Decachlorobiphenyl [2C]	*80 %*		*30-150*
Surrogate: Tetrachloro-m-xylene	*83 %*		*30-150*
Surrogate: Tetrachloro-m-xylene [2C]	*60 %*		*30-150*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 19.5
Final Volume: 1
Extraction Method: 3546

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: CAD
Prepared: 1/17/20 16:39

8100M Total Petroleum Hydrocarbons

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Total Petroleum Hydrocarbons	**408** (43.7)		8100M		1	01/22/20 9:54	D0A0048	DA01710

	%Recovery	Qualifier	Limits
Surrogate: O-Terphenyl	*92 %*		*40-140*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 14.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/17/20 16:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
1,1-Biphenyl	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
1,2,4-Trichlorobenzene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
1,2-Dichlorobenzene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
1,3-Dichlorobenzene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
1,4-Dichlorobenzene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,3,4,6-Tetrachlorophenol	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,4,5-Trichlorophenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,4,6-Trichlorophenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,4-Dichlorophenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,4-Dimethylphenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,4-Dinitrophenol	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,4-Dinitrotoluene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2,6-Dinitrotoluene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2-Chloronaphthalene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2-Chlorophenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2-Methylnaphthalene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2-Methylphenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2-Nitroaniline	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
2-Nitrophenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
3,3′-Dichlorobenzidine	ND (0.790)		8270D		1	01/21/20 22:46	D0A0071	DA01709
3+4-Methylphenol	ND (0.790)		8270D		1	01/21/20 22:46	D0A0071	DA01709
3-Nitroaniline	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4,6-Dinitro-2-Methylphenol	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4-Bromophenyl-phenylether	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4-Chloro-3-Methylphenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4-Chloroaniline	ND (0.790)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4-Chloro-phenyl-phenyl ether	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4-Nitroaniline	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
4-Nitrophenol	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Acenaphthene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Acenaphthylene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Acetophenone	ND (0.790)		8270D		1	01/21/20 22:46	D0A0071	DA01709

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 14.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/17/20 16:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Aniline	ND (0.790)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Anthracene	**0.568** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Azobenzene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzo(a)anthracene	**1.64** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzo(a)pyrene	**1.77** (0.198)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzo(b)fluoranthene	**1.55** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzo(g,h,i)perylene	**0.947** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzo(k)fluoranthene	**1.41** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzoic Acid	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Benzyl Alcohol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
bis(2-Chloroethoxy)methane	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
bis(2-Chloroethyl)ether	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
bis(2-chloroisopropyl)Ether	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
bis(2-Ethylhexyl)phthalate	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Butylbenzylphthalate	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Carbazole	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Chrysene	**1.70** (0.198)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Dibenzo(a,h)Anthracene	**0.336** (0.198)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Dibenzofuran	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Diethylphthalate	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Dimethylphthalate	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Di-n-butylphthalate	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Di-n-octylphthalate	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Fluoranthene	**3.07** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Fluorene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Hexachlorobenzene	ND (0.198)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Hexachlorobutadiene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Hexachlorocyclopentadiene	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Hexachloroethane	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Indeno(1,2,3-cd)Pyrene	**0.898** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Isophorone	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Naphthalene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project
Client Sample ID: 20200116-001 Pile 15
Date Sampled: 01/16/20 12:00
Percent Solids: 88
Initial Volume: 14.4
Final Volume: 0.5
Extraction Method: 3546

ESS Laboratory Work Order: 20A0467
ESS Laboratory Sample ID: 20A0467-01
Sample Matrix: Soil
Units: mg/kg dry
Analyst: TJ
Prepared: 1/17/20 16:39

8270D Semi-Volatile Organic Compounds

Analyte	Results (MRL)	MDL	Method	Limit	DF	Analyzed	Sequence	Batch
Nitrobenzene	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
N-Nitrosodimethylamine	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
N-Nitroso-Di-n-Propylamine	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
N-nitrosodiphenylamine	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Pentachlorophenol	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Phenanthrene	**1.92** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Phenol	ND (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Pyrene	**3.37** (0.394)		8270D		1	01/21/20 22:46	D0A0071	DA01709
Pyridine	ND (1.98)		8270D		1	01/21/20 22:46	D0A0071	DA01709

	%Recovery	Qualifier	Limits
Surrogate: 1,2-Dichlorobenzene-d4	*51 %*		*30-130*
Surrogate: 2,4,6-Tribromophenol	*76 %*		*30-130*
Surrogate: 2-Chlorophenol-d4	*62 %*		*30-130*
Surrogate: 2-Fluorobiphenyl	*71 %*		*30-130*
Surrogate: 2-Fluorophenol	*66 %*		*30-130*
Surrogate: Nitrobenzene-d5	*65 %*		*30-130*
Surrogate: Phenol-d6	*73 %*		*30-130*
Surrogate: p-Terphenyl-d14	*77 %*		*30-130*

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Total Metals

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch DA02043 - 3050B										
Blank										
Antimony	ND	5.00	mg/kg wet							
Arsenic	ND	2.50	mg/kg wet							
Barium	ND	2.50	mg/kg wet							
Beryllium	ND	0.11	mg/kg wet							
Cadmium	ND	0.50	mg/kg wet							
Chromium	ND	1.00	mg/kg wet							
Copper	ND	2.50	mg/kg wet							
Lead	ND	5.00	mg/kg wet							
Nickel	ND	2.50	mg/kg wet							
Selenium	ND	5.00	mg/kg wet							
Silver	ND	0.50	mg/kg wet							
Thallium	ND	5.00	mg/kg wet							
Zinc	ND	2.50	mg/kg wet							
LCS										
Antimony	40.3	13.9	mg/kg wet	51.30		79	40-160			
Arsenic	188	6.94	mg/kg wet	202.0		93	80-120			
Barium	307	6.94	mg/kg wet	343.0		90	80-120			
Beryllium	48.0	0.31	mg/kg wet	52.10		92	80-120			
Cadmium	129	1.39	mg/kg wet	149.0		86	80-120			
Chromium	171	2.78	mg/kg wet	182.0		94	80-120			
Copper	221	6.94	mg/kg wet	225.0		98	80-120			
Lead	322	13.9	mg/kg wet	333.0		97	80-120			
Nickel	160	6.94	mg/kg wet	167.0		96	80-120			
Selenium	159	13.9	mg/kg wet	169.0		94	80-120			
Silver	44.9	1.39	mg/kg wet	48.90		92	80-120			
Thallium	69.0	13.9	mg/kg wet	82.30		84	80-120			
Zinc	425	6.94	mg/kg wet	459.0		93	80-120			
LCS Dup										
Antimony	42.9	14.1	mg/kg wet	51.30		84	40-160	6	20	
Arsenic	192	7.04	mg/kg wet	202.0		95	80-120	2	20	
Barium	326	7.04	mg/kg wet	343.0		95	80-120	6	20	
Beryllium	48.5	0.31	mg/kg wet	52.10		93	80-120	1	20	
Cadmium	126	1.41	mg/kg wet	149.0		85	80-120	2	20	
Chromium	169	2.82	mg/kg wet	182.0		93	80-120	1	20	
Copper	219	7.04	mg/kg wet	225.0		97	80-120	1	20	
Lead	324	14.1	mg/kg wet	333.0		97	80-120	0.8	20	
Nickel	157	7.04	mg/kg wet	167.0		94	80-120	2	20	
Selenium	161	14.1	mg/kg wet	169.0		95	80-120	1	20	
Silver	44.1	1.41	mg/kg wet	48.90		90	80-120	2	20	
Thallium	69.5	14.1	mg/kg wet	82.30		84	80-120	0.8	20	
Zinc	417	7.04	mg/kg wet	459.0		91	80-120	2	20	
Batch DA02044 - 7471B										
Blank										

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Total Metals										
Batch DA02044 - 7471B										
Mercury	ND	0.033	mg/kg wet							
LCS										
Mercury	8.57	0.600	mg/kg wet	7.760		110	80-120			
LCS Dup										
Mercury	8.07	0.591	mg/kg wet	7.760		104	80-120	6	20	
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01737 - 5035										
Blank										
1,1,1,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,1-Trichloroethane	ND	0.0050	mg/kg wet							
1,1,2,2-Tetrachloroethane	ND	0.0050	mg/kg wet							
1,1,2-Trichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethane	ND	0.0050	mg/kg wet							
1,1-Dichloroethene	ND	0.0050	mg/kg wet							
1,1-Dichloropropene	ND	0.0050	mg/kg wet							
1,2,3-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,3-Trichloropropane	ND	0.0050	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.0050	mg/kg wet							
1,2,4-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,2-Dibromo-3-Chloropropane	ND	0.0050	mg/kg wet							
1,2-Dibromoethane	ND	0.0050	mg/kg wet							
1,2-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,2-Dichloroethane	ND	0.0050	mg/kg wet							
1,2-Dichloropropane	ND	0.0050	mg/kg wet							
1,3,5-Trimethylbenzene	ND	0.0050	mg/kg wet							
1,3-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,3-Dichloropropane	ND	0.0050	mg/kg wet							
1,4-Dichlorobenzene	ND	0.0050	mg/kg wet							
1,4-Dioxane	ND	0.100	mg/kg wet							
1-Chlorohexane	ND	0.0050	mg/kg wet							
2,2-Dichloropropane	ND	0.0050	mg/kg wet							
2-Butanone	ND	0.0500	mg/kg wet							
2-Chlorotoluene	ND	0.0050	mg/kg wet							
2-Hexanone	ND	0.0500	mg/kg wet							
4-Chlorotoluene	ND	0.0050	mg/kg wet							
4-Isopropyltoluene	ND	0.0050	mg/kg wet							
4-Methyl-2-Pentanone	ND	0.0500	mg/kg wet							
Acetone	ND	0.0500	mg/kg wet							
Benzene	ND	0.0050	mg/kg wet							
Bromobenzene	ND	0.0050	mg/kg wet							
Bromochloromethane	ND	0.0050	mg/kg wet							
Bromodichloromethane	ND	0.0050	mg/kg wet							
Bromoform	ND	0.0050	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01737 - 5035										
Bromomethane	ND	0.0100	mg/kg wet							
Carbon Disulfide	ND	0.0050	mg/kg wet							
Carbon Tetrachloride	ND	0.0050	mg/kg wet							
Chlorobenzene	ND	0.0050	mg/kg wet							
Chloroethane	ND	0.0100	mg/kg wet							
Chloroform	ND	0.0050	mg/kg wet							
Chloromethane	ND	0.0100	mg/kg wet							
cis-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
cis-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Dibromochloromethane	ND	0.0050	mg/kg wet							
Dibromomethane	ND	0.0050	mg/kg wet							
Dichlorodifluoromethane	ND	0.0100	mg/kg wet							
Diethyl Ether	ND	0.0050	mg/kg wet							
Di-isopropyl ether	ND	0.0050	mg/kg wet							
Ethyl tertiary-butyl ether	ND	0.0050	mg/kg wet							
Ethylbenzene	ND	0.0050	mg/kg wet							
Hexachlorobutadiene	ND	0.0050	mg/kg wet							
Isopropylbenzene	ND	0.0050	mg/kg wet							
Methyl tert-Butyl Ether	ND	0.0050	mg/kg wet							
Methylene Chloride	ND	0.0250	mg/kg wet							
Naphthalene	ND	0.0050	mg/kg wet							
n-Butylbenzene	ND	0.0050	mg/kg wet							
n-Propylbenzene	ND	0.0050	mg/kg wet							
sec-Butylbenzene	ND	0.0050	mg/kg wet							
Styrene	ND	0.0050	mg/kg wet							
tert-Butylbenzene	ND	0.0050	mg/kg wet							
Tertiary-amyl methyl ether	ND	0.0050	mg/kg wet							
Tetrachloroethene	ND	0.0050	mg/kg wet							
Tetrahydrofuran	ND	0.0050	mg/kg wet							
Toluene	ND	0.0050	mg/kg wet							
trans-1,2-Dichloroethene	ND	0.0050	mg/kg wet							
trans-1,3-Dichloropropene	ND	0.0050	mg/kg wet							
Trichloroethene	ND	0.0050	mg/kg wet							
Trichlorofluoromethane	ND	0.0050	mg/kg wet							
Vinyl Acetate	ND	0.0050	mg/kg wet							
Vinyl Chloride	ND	0.0100	mg/kg wet							
Xylene O	ND	0.0050	mg/kg wet							
Xylene P,M	ND	0.0100	mg/kg wet							
Surrogate: 1,2-Dichloroethane-d4	*0.0576*		mg/kg wet	*0.05000*		*115*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0491*		mg/kg wet	*0.05000*		*98*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0526*		mg/kg wet	*0.05000*		*105*	*70-130*			
Surrogate: Toluene-d8	*0.0480*		mg/kg wet	*0.05000*		*96*	*70-130*			
LCS										
1,1,1,2-Tetrachloroethane	0.0513	0.0050	mg/kg wet	0.05000		103	70-130			
1,1,1-Trichloroethane	0.0542	0.0050	mg/kg wet	0.05000		108	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01737 - 5035										
1,1,2,2-Tetrachloroethane	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
1,1,2-Trichloroethane	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
1,1-Dichloroethane	0.0565	0.0050	mg/kg wet	0.05000		113	70-130			
1,1-Dichloroethene	0.0567	0.0050	mg/kg wet	0.05000		113	70-130			
1,1-Dichloropropene	0.0568	0.0050	mg/kg wet	0.05000		114	70-130			
1,2,3-Trichlorobenzene	0.0477	0.0050	mg/kg wet	0.05000		95	70-130			
1,2,3-Trichloropropane	0.0455	0.0050	mg/kg wet	0.05000		91	70-130			
1,2,4-Trichlorobenzene	0.0470	0.0050	mg/kg wet	0.05000		94	70-130			
1,2,4-Trimethylbenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130			
1,2-Dibromo-3-Chloropropane	0.0398	0.0050	mg/kg wet	0.05000		80	70-130			
1,2-Dibromoethane	0.0517	0.0050	mg/kg wet	0.05000		103	70-130			
1,2-Dichlorobenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
1,2-Dichloroethane	0.0582	0.0050	mg/kg wet	0.05000		116	70-130			
1,2-Dichloropropane	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
1,3,5-Trimethylbenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130			
1,3-Dichlorobenzene	0.0496	0.0050	mg/kg wet	0.05000		99	70-130			
1,3-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
1,4-Dichlorobenzene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
1,4-Dioxane	1.02	0.100	mg/kg wet	1.000		102	70-130			
1-Chlorohexane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130			
2,2-Dichloropropane	0.0457	0.0050	mg/kg wet	0.05000		91	70-130			
2-Butanone	0.312	0.0500	mg/kg wet	0.2500		125	70-130			
2-Chlorotoluene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130			
2-Hexanone	0.276	0.0500	mg/kg wet	0.2500		110	70-130			
4-Chlorotoluene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130			
4-Isopropyltoluene	0.0497	0.0050	mg/kg wet	0.05000		99	70-130			
4-Methyl-2-Pentanone	0.295	0.0500	mg/kg wet	0.2500		118	70-130			
Acetone	0.280	0.0500	mg/kg wet	0.2500		112	70-130			
Benzene	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Bromobenzene	0.0494	0.0050	mg/kg wet	0.05000		99	70-130			
Bromochloromethane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130			
Bromodichloromethane	0.0616	0.0050	mg/kg wet	0.05000		123	70-130			
Bromoform	0.0468	0.0050	mg/kg wet	0.05000		94	70-130			
Bromomethane	0.0534	0.0100	mg/kg wet	0.05000		107	70-130			
Carbon Disulfide	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
Carbon Tetrachloride	0.0575	0.0050	mg/kg wet	0.05000		115	70-130			
Chlorobenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
Chloroethane	0.0516	0.0100	mg/kg wet	0.05000		103	70-130			
Chloroform	0.0581	0.0050	mg/kg wet	0.05000		116	70-130			
Chloromethane	0.0483	0.0100	mg/kg wet	0.05000		97	70-130			
cis-1,2-Dichloroethene	0.0560	0.0050	mg/kg wet	0.05000		112	70-130			
cis-1,3-Dichloropropene	0.0523	0.0050	mg/kg wet	0.05000		105	70-130			
Dibromochloromethane	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
Dibromomethane	0.0583	0.0050	mg/kg wet	0.05000		117	70-130			
Dichlorodifluoromethane	0.0477	0.0100	mg/kg wet	0.05000		95	70-130			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01737 - 5035										
Diethyl Ether	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Di-isopropyl ether	0.0621	0.0050	mg/kg wet	0.05000		124	70-130			
Ethyl tertiary-butyl ether	0.0536	0.0050	mg/kg wet	0.05000		107	70-130			
Ethylbenzene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130			
Hexachlorobutadiene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130			
Isopropylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Methyl tert-Butyl Ether	0.0555	0.0050	mg/kg wet	0.05000		111	70-130			
Methylene Chloride	0.0539	0.0250	mg/kg wet	0.05000		108	70-130			
Naphthalene	0.0445	0.0050	mg/kg wet	0.05000		89	70-130			
n-Butylbenzene	0.0512	0.0050	mg/kg wet	0.05000		102	70-130			
n-Propylbenzene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130			
sec-Butylbenzene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130			
Styrene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130			
tert-Butylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130			
Tertiary-amyl methyl ether	0.0544	0.0050	mg/kg wet	0.05000		109	70-130			
Tetrachloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130			
Tetrahydrofuran	0.0491	0.0050	mg/kg wet	0.05000		98	70-130			
Toluene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130			
trans-1,2-Dichloroethene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130			
trans-1,3-Dichloropropene	0.0509	0.0050	mg/kg wet	0.05000		102	70-130			
Trichloroethene	0.0564	0.0050	mg/kg wet	0.05000		113	70-130			
Trichlorofluoromethane	0.0603	0.0050	mg/kg wet	0.05000		121	70-130			
Vinyl Acetate	0.0516	0.0050	mg/kg wet	0.05000		103	70-130			
Vinyl Chloride	0.0496	0.0100	mg/kg wet	0.05000		99	70-130			
Xylene O	0.0503	0.0050	mg/kg wet	0.05000		101	70-130			
Xylene P,M	0.105	0.0100	mg/kg wet	0.1000		105	70-130			
Surrogate: 1,2-Dichloroethane-d4	*0.0557*		mg/kg wet	*0.05000*		*111*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0514*		mg/kg wet	*0.05000*		*103*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0535*		mg/kg wet	*0.05000*		*107*	*70-130*			
Surrogate: Toluene-d8	*0.0490*		mg/kg wet	*0.05000*		*98*	*70-130*			
LCS Dup										
1,1,1,2-Tetrachloroethane	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
1,1,1-Trichloroethane	0.0529	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
1,1,2,2-Tetrachloroethane	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	3	25	
1,1,2-Trichloroethane	0.0541	0.0050	mg/kg wet	0.05000		108	70-130	2	25	
1,1-Dichloroethane	0.0555	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
1,1-Dichloroethene	0.0558	0.0050	mg/kg wet	0.05000		112	70-130	2	25	
1,1-Dichloropropene	0.0554	0.0050	mg/kg wet	0.05000		111	70-130	2	25	
1,2,3-Trichlorobenzene	0.0485	0.0050	mg/kg wet	0.05000		97	70-130	2	25	
1,2,3-Trichloropropane	0.0441	0.0050	mg/kg wet	0.05000		88	70-130	3	25	
1,2,4-Trichlorobenzene	0.0480	0.0050	mg/kg wet	0.05000		96	70-130	2	25	
1,2,4-Trimethylbenzene	0.0515	0.0050	mg/kg wet	0.05000		103	70-130	0	25	
1,2-Dibromo-3-Chloropropane	0.0366	0.0050	mg/kg wet	0.05000		73	70-130	9	25	
1,2-Dibromoethane	0.0489	0.0050	mg/kg wet	0.05000		98	70-130	6	25	
1,2-Dichlorobenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	0.2	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01737 - 5035										
1,2-Dichloroethane	0.0567	0.0050	mg/kg wet	0.05000		113	70-130	3	25	
1,2-Dichloropropane	0.0537	0.0050	mg/kg wet	0.05000		107	70-130	2	25	
1,3,5-Trimethylbenzene	0.0506	0.0050	mg/kg wet	0.05000		101	70-130	0.2	25	
1,3-Dichlorobenzene	0.0487	0.0050	mg/kg wet	0.05000		97	70-130	2	25	
1,3-Dichloropropane	0.0520	0.0050	mg/kg wet	0.05000		104	70-130	3	25	
1,4-Dichlorobenzene	0.0507	0.0050	mg/kg wet	0.05000		101	70-130	2	25	
1,4-Dioxane	0.983	0.100	mg/kg wet	1.000		98	70-130	4	20	
1-Chlorohexane	0.0474	0.0050	mg/kg wet	0.05000		95	70-130	3	25	
2,2-Dichloropropane	0.0452	0.0050	mg/kg wet	0.05000		90	70-130	1	25	
2-Butanone	0.300	0.0500	mg/kg wet	0.2500		120	70-130	4	25	
2-Chlorotoluene	0.0510	0.0050	mg/kg wet	0.05000		102	70-130	2	25	
2-Hexanone	0.254	0.0500	mg/kg wet	0.2500		102	70-130	8	25	
4-Chlorotoluene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
4-Isopropyltoluene	0.0502	0.0050	mg/kg wet	0.05000		100	70-130	1	25	
4-Methyl-2-Pentanone	0.277	0.0500	mg/kg wet	0.2500		111	70-130	6	25	
Acetone	0.261	0.0500	mg/kg wet	0.2500		104	70-130	7	25	
Benzene	0.0544	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
Bromobenzene	0.0492	0.0050	mg/kg wet	0.05000		98	70-130	0.2	25	
Bromochloromethane	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	1	25	
Bromodichloromethane	0.0596	0.0050	mg/kg wet	0.05000		119	70-130	3	25	
Bromoform	0.0454	0.0050	mg/kg wet	0.05000		91	70-130	3	25	
Bromomethane	0.0520	0.0100	mg/kg wet	0.05000		104	70-130	3	25	
Carbon Disulfide	0.0533	0.0050	mg/kg wet	0.05000		107	70-130	3	25	
Carbon Tetrachloride	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	2	25	
Chlorobenzene	0.0500	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
Chloroethane	0.0506	0.0100	mg/kg wet	0.05000		101	70-130	2	25	
Chloroform	0.0566	0.0050	mg/kg wet	0.05000		113	70-130	3	25	
Chloromethane	0.0477	0.0100	mg/kg wet	0.05000		95	70-130	1	25	
cis-1,2-Dichloroethene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
cis-1,3-Dichloropropene	0.0508	0.0050	mg/kg wet	0.05000		102	70-130	3	25	
Dibromochloromethane	0.0494	0.0050	mg/kg wet	0.05000		99	70-130	3	25	
Dibromomethane	0.0564	0.0050	mg/kg wet	0.05000		113	70-130	3	25	
Dichlorodifluoromethane	0.0464	0.0100	mg/kg wet	0.05000		93	70-130	3	25	
Diethyl Ether	0.0538	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
Di-isopropyl ether	0.0607	0.0050	mg/kg wet	0.05000		121	70-130	2	25	
Ethyl tertiary-butyl ether	0.0524	0.0050	mg/kg wet	0.05000		105	70-130	2	25	
Ethylbenzene	0.0518	0.0050	mg/kg wet	0.05000		104	70-130	2	25	
Hexachlorobutadiene	0.0495	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
Isopropylbenzene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	0.04	25	
Methyl tert-Butyl Ether	0.0540	0.0050	mg/kg wet	0.05000		108	70-130	3	25	
Methylene Chloride	0.0525	0.0250	mg/kg wet	0.05000		105	70-130	3	25	
Naphthalene	0.0450	0.0050	mg/kg wet	0.05000		90	70-130	1	25	
n-Butylbenzene	0.0514	0.0050	mg/kg wet	0.05000		103	70-130	0.5	25	
n-Propylbenzene	0.0511	0.0050	mg/kg wet	0.05000		102	70-130	0.1	25	
sec-Butylbenzene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	0.8	25	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
5035/8260B Volatile Organic Compounds / Low Level										
Batch DA01737 - 5035										
Styrene	0.0498	0.0050	mg/kg wet	0.05000		100	70-130	3	25	
tert-Butylbenzene	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	0.5	25	
Tertiary-amyl methyl ether	0.0531	0.0050	mg/kg wet	0.05000		106	70-130	2	25	
Tetrachloroethene	0.0530	0.0050	mg/kg wet	0.05000		106	70-130	3	25	
Tetrahydrofuran	0.0456	0.0050	mg/kg wet	0.05000		91	70-130	7	25	
Toluene	0.0545	0.0050	mg/kg wet	0.05000		109	70-130	2	25	
trans-1,2-Dichloroethene	0.0543	0.0050	mg/kg wet	0.05000		109	70-130	0.7	25	
trans-1,3-Dichloropropene	0.0499	0.0050	mg/kg wet	0.05000		100	70-130	2	25	
Trichloroethene	0.0547	0.0050	mg/kg wet	0.05000		109	70-130	3	25	
Trichlorofluoromethane	0.0589	0.0050	mg/kg wet	0.05000		118	70-130	2	25	
Vinyl Acetate	0.0501	0.0050	mg/kg wet	0.05000		100	70-130	3	25	
Vinyl Chloride	0.0485	0.0100	mg/kg wet	0.05000		97	70-130	2	25	
Xylene O	0.0493	0.0050	mg/kg wet	0.05000		99	70-130	2	25	
Xylene P,M	0.104	0.0100	mg/kg wet	0.1000		104	70-130	1	25	
Surrogate: 1,2-Dichloroethane-d4	*0.0539*		mg/kg wet	*0.05000*		*108*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*0.0498*		mg/kg wet	*0.05000*		*100*	*70-130*			
Surrogate: Dibromofluoromethane	*0.0525*		mg/kg wet	*0.05000*		*105*	*70-130*			
Surrogate: Toluene-d8	*0.0480*		mg/kg wet	*0.05000*		*96*	*70-130*			
8082A Polychlorinated Biphenyls (PCB)										
Batch DA02346 - 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	*0.0250*		mg/kg wet	*0.02500*		*100*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0258*		mg/kg wet	*0.02500*		*103*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0245*		mg/kg wet	*0.02500*		*98*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0135*		mg/kg wet	*0.02500*		*54*	*30-150*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8082A Polychlorinated Biphenyls (PCB)										
Batch DA02346 - 3540C										
LCS										
Aroclor 1016	0.5	0.05	mg/kg wet	0.5000		103	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		101	40-140			
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140			
Surrogate: Decachlorobiphenyl	*0.0240*		mg/kg wet	*0.02500*		*96*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0235*		mg/kg wet	*0.02500*		*94*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0244*		mg/kg wet	*0.02500*		*97*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0225*		mg/kg wet	*0.02500*		*90*	*30-150*			
LCS Dup										
Aroclor 1016	0.6	0.05	mg/kg wet	0.5000		118	40-140	14	30	
Aroclor 1016 [2C]	0.5	0.05	mg/kg wet	0.5000		97	40-140	3	30	
Aroclor 1260	0.6	0.05	mg/kg wet	0.5000		111	40-140	9	30	
Aroclor 1260 [2C]	0.5	0.05	mg/kg wet	0.5000		101	40-140	4	30	
Surrogate: Decachlorobiphenyl	*0.0269*		mg/kg wet	*0.02500*		*108*	*30-150*			
Surrogate: Decachlorobiphenyl [2C]	*0.0268*		mg/kg wet	*0.02500*		*107*	*30-150*			
Surrogate: Tetrachloro-m-xylene	*0.0256*		mg/kg wet	*0.02500*		*102*	*30-150*			
Surrogate: Tetrachloro-m-xylene [2C]	*0.0178*		mg/kg wet	*0.02500*		*71*	*30-150*			
8100M Total Petroleum Hydrocarbons										
Batch DA01710 - 3546										
Blank										
Decane (C10)	ND	0.2	mg/kg wet							
Docosane (C22)	ND	0.2	mg/kg wet							
Dodecane (C12)	ND	0.2	mg/kg wet							
Eicosane (C20)	ND	0.2	mg/kg wet							
Hexacosane (C26)	ND	0.2	mg/kg wet							
Hexadecane (C16)	ND	0.2	mg/kg wet							
Nonadecane (C19)	ND	0.2	mg/kg wet							
Nonane (C9)	ND	0.2	mg/kg wet							
Octacosane (C28)	ND	0.2	mg/kg wet							
Octadecane (C18)	ND	0.2	mg/kg wet							
Tetracosane (C24)	ND	0.2	mg/kg wet							
Tetradecane (C14)	ND	0.2	mg/kg wet							
Total Petroleum Hydrocarbons	ND	37.5	mg/kg wet							
Triacontane (C30)	ND	0.2	mg/kg wet							
Surrogate: O-Terphenyl	*3.96*		mg/kg wet	*5.000*		*79*	*40-140*			
LCS										
Decane (C10)	1.9	0.2	mg/kg wet	2.500		76	40-140			
Docosane (C22)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		78	40-140			
Eicosane (C20)	2.1	0.2	mg/kg wet	2.500		85	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
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ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8100M Total Petroleum Hydrocarbons										
Batch DA01710 - 3546										
Hexacosane (C26)	2.1	0.2	mg/kg wet	2.500		85	40-140			
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		82	40-140			
Nonadecane (C19)	2.2	0.2	mg/kg wet	2.500		89	40-140			
Nonane (C9)	1.6	0.2	mg/kg wet	2.500		64	30-140			
Octacosane (C28)	2.2	0.2	mg/kg wet	2.500		88	40-140			
Octadecane (C18)	2.1	0.2	mg/kg wet	2.500		83	40-140			
Tetracosane (C24)	2.1	0.2	mg/kg wet	2.500		86	40-140			
Tetradecane (C14)	2.0	0.2	mg/kg wet	2.500		80	40-140			
Total Petroleum Hydrocarbons	29.0	37.5	mg/kg wet	35.00		83	40-140			
Triacontane (C30)	2.2	0.2	mg/kg wet	2.500		86	40-140			
Surrogate: O-Terphenyl	*4.15*		mg/kg wet	*5.000*		*83*	*40-140*			
LCS Dup										
Decane (C10)	2.0	0.2	mg/kg wet	2.500		78	40-140	3	25	
Docosane (C22)	2.3	0.2	mg/kg wet	2.500		90	40-140	5	25	
Dodecane (C12)	2.0	0.2	mg/kg wet	2.500		81	40-140	4	25	
Eicosane (C20)	2.2	0.2	mg/kg wet	2.500		89	40-140	5	25	
Hexacosane (C26)	2.3	0.2	mg/kg wet	2.500		90	40-140	5	25	
Hexadecane (C16)	2.1	0.2	mg/kg wet	2.500		85	40-140	4	25	
Nonadecane (C19)	2.3	0.2	mg/kg wet	2.500		93	40-140	4	25	
Nonane (C9)	1.7	0.2	mg/kg wet	2.500		66	30-140	3	25	
Octacosane (C28)	2.3	0.2	mg/kg wet	2.500		92	40-140	5	25	
Octadecane (C18)	2.2	0.2	mg/kg wet	2.500		87	40-140	4	25	
Tetracosane (C24)	2.3	0.2	mg/kg wet	2.500		90	40-140	5	25	
Tetradecane (C14)	2.1	0.2	mg/kg wet	2.500		83	40-140	3	25	
Total Petroleum Hydrocarbons	30.3	37.5	mg/kg wet	35.00		87	40-140	4	25	
Triacontane (C30)	2.3	0.2	mg/kg wet	2.500		91	40-140	6	25	
Surrogate: O-Terphenyl	*4.28*		mg/kg wet	*5.000*		*86*	*40-140*			
8270D Semi-Volatile Organic Compounds										
Batch DA01709 - 3546										
Blank										
1,1-Biphenyl	ND	0.333	mg/kg wet							
1,2,4-Trichlorobenzene	ND	0.333	mg/kg wet							
1,2-Dichlorobenzene	ND	0.333	mg/kg wet							
1,3-Dichlorobenzene	ND	0.333	mg/kg wet							
1,4-Dichlorobenzene	ND	0.333	mg/kg wet							
2,3,4,6-Tetrachlorophenol	ND	1.67	mg/kg wet							
2,4,5-Trichlorophenol	ND	0.333	mg/kg wet							
2,4,6-Trichlorophenol	ND	0.333	mg/kg wet							
2,4-Dichlorophenol	ND	0.333	mg/kg wet							
2,4-Dimethylphenol	ND	0.333	mg/kg wet							
2,4-Dinitrophenol	ND	1.67	mg/kg wet							
2,4-Dinitrotoluene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DA01709 - 3546										
2,6-Dinitrotoluene	ND	0.333	mg/kg wet							
2-Chloronaphthalene	ND	0.333	mg/kg wet							
2-Chlorophenol	ND	0.333	mg/kg wet							
2-Methylnaphthalene	ND	0.333	mg/kg wet							
2-Methylphenol	ND	0.333	mg/kg wet							
2-Nitroaniline	ND	0.333	mg/kg wet							
2-Nitrophenol	ND	0.333	mg/kg wet							
3,3´-Dichlorobenzidine	ND	0.667	mg/kg wet							
3+4-Methylphenol	ND	0.667	mg/kg wet							
3-Nitroaniline	ND	0.333	mg/kg wet							
4,6-Dinitro-2-Methylphenol	ND	1.67	mg/kg wet							
4-Bromophenyl-phenylether	ND	0.333	mg/kg wet							
4-Chloro-3-Methylphenol	ND	0.333	mg/kg wet							
4-Chloroaniline	ND	0.667	mg/kg wet							
4-Chloro-phenyl-phenyl ether	ND	0.333	mg/kg wet							
4-Nitroaniline	ND	0.333	mg/kg wet							
4-Nitrophenol	ND	1.67	mg/kg wet							
Acenaphthene	ND	0.333	mg/kg wet							
Acenaphthylene	ND	0.333	mg/kg wet							
Acetophenone	ND	0.667	mg/kg wet							
Aniline	ND	0.667	mg/kg wet							
Anthracene	ND	0.333	mg/kg wet							
Azobenzene	ND	0.333	mg/kg wet							
Benzo(a)anthracene	ND	0.333	mg/kg wet							
Benzo(a)pyrene	ND	0.167	mg/kg wet							
Benzo(b)fluoranthene	ND	0.333	mg/kg wet							
Benzo(g,h,i)perylene	ND	0.333	mg/kg wet							
Benzo(k)fluoranthene	ND	0.333	mg/kg wet							
Benzoic Acid	ND	1.67	mg/kg wet							
Benzyl Alcohol	ND	0.333	mg/kg wet							
bis(2-Chloroethoxy)methane	ND	0.333	mg/kg wet							
bis(2-Chloroethyl)ether	ND	0.333	mg/kg wet							
bis(2-chloroisopropyl)Ether	ND	0.333	mg/kg wet							
bis(2-Ethylhexyl)phthalate	ND	0.333	mg/kg wet							
Butylbenzylphthalate	ND	0.333	mg/kg wet							
Carbazole	ND	0.333	mg/kg wet							
Chrysene	ND	0.167	mg/kg wet							
Dibenzo(a,h)Anthracene	ND	0.167	mg/kg wet							
Dibenzofuran	ND	0.333	mg/kg wet							
Diethylphthalate	ND	0.333	mg/kg wet							
Dimethylphthalate	ND	0.333	mg/kg wet							
Di-n-butylphthalate	ND	0.333	mg/kg wet							
Di-n-octylphthalate	ND	0.333	mg/kg wet							
Fluoranthene	ND	0.333	mg/kg wet							
Fluorene	ND	0.333	mg/kg wet							

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DA01709 - 3546										
Hexachlorobenzene	ND	0.167	mg/kg wet							
Hexachlorobutadiene	ND	0.333	mg/kg wet							
Hexachlorocyclopentadiene	ND	1.67	mg/kg wet							
Hexachloroethane	ND	0.333	mg/kg wet							
Indeno(1,2,3-cd)Pyrene	ND	0.333	mg/kg wet							
Isophorone	ND	0.333	mg/kg wet							
Naphthalene	ND	0.333	mg/kg wet							
Nitrobenzene	ND	0.333	mg/kg wet							
N-Nitrosodimethylamine	ND	0.333	mg/kg wet							
N-Nitroso-Di-n-Propylamine	ND	0.333	mg/kg wet							
N-nitrosodiphenylamine	ND	0.333	mg/kg wet							
Pentachlorophenol	ND	1.67	mg/kg wet							
Phenanthrene	ND	0.333	mg/kg wet							
Phenol	ND	0.333	mg/kg wet							
Pyrene	ND	0.333	mg/kg wet							
Pyridine	ND	1.67	mg/kg wet							
Surrogate: 1,2-Dichlorobenzene-d4	*2.54*		mg/kg wet	*3.333*		*76*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.04*		mg/kg wet	*5.000*		*81*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.77*		mg/kg wet	*5.000*		*75*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.64*		mg/kg wet	*3.333*		*79*	*30-130*			
Surrogate: 2-Fluorophenol	*3.82*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.51*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: Phenol-d6	*3.79*		mg/kg wet	*5.000*		*76*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.14*		mg/kg wet	*3.333*		*94*	*30-130*			
LCS										
1,1-Biphenyl	2.45	0.333	mg/kg wet	3.333		74	40-140			
1,2,4-Trichlorobenzene	2.37	0.333	mg/kg wet	3.333		71	40-140			
1,2-Dichlorobenzene	2.23	0.333	mg/kg wet	3.333		67	40-140			
1,3-Dichlorobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
1,4-Dichlorobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			
2,3,4,6-Tetrachlorophenol	2.75	1.67	mg/kg wet	3.333		82	30-130			
2,4,5-Trichlorophenol	2.87	0.333	mg/kg wet	3.333		86	30-130			
2,4,6-Trichlorophenol	2.70	0.333	mg/kg wet	3.333		81	30-130			
2,4-Dichlorophenol	2.56	0.333	mg/kg wet	3.333		77	30-130			
2,4-Dimethylphenol	2.41	0.333	mg/kg wet	3.333		72	30-130			
2,4-Dinitrophenol	3.77	1.67	mg/kg wet	3.333		113	30-130			
2,4-Dinitrotoluene	2.99	0.333	mg/kg wet	3.333		90	40-140			
2,6-Dinitrotoluene	2.70	0.333	mg/kg wet	3.333		81	40-140			
2-Chloronaphthalene	2.36	0.333	mg/kg wet	3.333		71	40-140			
2-Chlorophenol	2.24	0.333	mg/kg wet	3.333		67	30-130			
2-Methylnaphthalene	2.35	0.333	mg/kg wet	3.333		70	40-140			
2-Methylphenol	2.21	0.333	mg/kg wet	3.333		66	30-130			
2-Nitroaniline	2.61	0.333	mg/kg wet	3.333		78	40-140			
2-Nitrophenol	2.31	0.333	mg/kg wet	3.333		69	30-130			
3,3´-Dichlorobenzidine	1.88	0.667	mg/kg wet	3.333		56	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DA01709 - 3546										
3+4-Methylphenol	4.18	0.667	mg/kg wet	6.667		63	30-130			
3-Nitroaniline	1.95	0.333	mg/kg wet	3.333		58	40-140			
4,6-Dinitro-2-Methylphenol	3.81	1.67	mg/kg wet	3.333		114	30-130			
4-Bromophenyl-phenylether	3.03	0.333	mg/kg wet	3.333		91	40-140			
4-Chloro-3-Methylphenol	2.57	0.333	mg/kg wet	3.333		77	30-130			
4-Chloroaniline	0.991	0.667	mg/kg wet	3.333		30	40-140			B-
4-Chloro-phenyl-phenyl ether	2.56	0.333	mg/kg wet	3.333		77	40-140			
4-Nitroaniline	2.61	0.333	mg/kg wet	3.333		78	40-140			
4-Nitrophenol	2.38	1.67	mg/kg wet	3.333		71	30-130			
Acenaphthene	2.49	0.333	mg/kg wet	3.333		75	40-140			
Acenaphthylene	2.44	0.333	mg/kg wet	3.333		73	40-140			
Acetophenone	2.04	0.667	mg/kg wet	3.333		61	40-140			
Aniline	1.36	0.667	mg/kg wet	3.333		41	40-140			
Anthracene	2.74	0.333	mg/kg wet	3.333		82	40-140			
Azobenzene	2.61	0.333	mg/kg wet	3.333		78	40-140			
Benzo(a)anthracene	2.88	0.333	mg/kg wet	3.333		86	40-140			
Benzo(a)pyrene	3.10	0.167	mg/kg wet	3.333		93	40-140			
Benzo(b)fluoranthene	2.94	0.333	mg/kg wet	3.333		88	40-140			
Benzo(g,h,i)perylene	3.13	0.333	mg/kg wet	3.333		94	40-140			
Benzo(k)fluoranthene	2.63	0.333	mg/kg wet	3.333		79	40-140			
Benzoic Acid	3.06	1.67	mg/kg wet	3.333		92	40-140			
Benzyl Alcohol	1.55	0.333	mg/kg wet	3.333		46	40-140			
bis(2-Chloroethoxy)methane	2.32	0.333	mg/kg wet	3.333		69	40-140			
bis(2-Chloroethyl)ether	2.13	0.333	mg/kg wet	3.333		64	40-140			
bis(2-chloroisopropyl)Ether	2.15	0.333	mg/kg wet	3.333		64	40-140			
bis(2-Ethylhexyl)phthalate	2.71	0.333	mg/kg wet	3.333		81	40-140			
Butylbenzylphthalate	2.66	0.333	mg/kg wet	3.333		80	40-140			
Carbazole	2.89	0.333	mg/kg wet	3.333		87	40-140			
Chrysene	2.75	0.167	mg/kg wet	3.333		83	40-140			
Dibenzo(a,h)Anthracene	3.19	0.167	mg/kg wet	3.333		96	40-140			
Dibenzofuran	2.53	0.333	mg/kg wet	3.333		76	40-140			
Diethylphthalate	2.77	0.333	mg/kg wet	3.333		83	40-140			
Dimethylphthalate	2.68	0.333	mg/kg wet	3.333		80	40-140			
Di-n-butylphthalate	3.08	0.333	mg/kg wet	3.333		92	40-140			
Di-n-octylphthalate	2.95	0.333	mg/kg wet	3.333		89	40-140			
Fluoranthene	2.91	0.333	mg/kg wet	3.333		87	40-140			
Fluorene	2.62	0.333	mg/kg wet	3.333		78	40-140			
Hexachlorobenzene	2.97	0.167	mg/kg wet	3.333		89	40-140			
Hexachlorobutadiene	2.44	0.333	mg/kg wet	3.333		73	40-140			
Hexachlorocyclopentadiene	2.00	1.67	mg/kg wet	3.333		60	40-140			
Hexachloroethane	2.19	0.333	mg/kg wet	3.333		66	40-140			
Indeno(1,2,3-cd)Pyrene	3.15	0.333	mg/kg wet	3.333		95	40-140			
Isophorone	2.06	0.333	mg/kg wet	3.333		62	40-140			
Naphthalene	2.28	0.333	mg/kg wet	3.333		68	40-140			
Nitrobenzene	2.19	0.333	mg/kg wet	3.333		66	40-140			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DA01709 - 3546										
N-Nitrosodimethylamine	2.04	0.333	mg/kg wet	3.333		61	40-140			
N-Nitroso-Di-n-Propylamine	2.14	0.333	mg/kg wet	3.333		64	40-140			
N-nitrosodiphenylamine	2.95	0.333	mg/kg wet	3.333		89	40-140			
Pentachlorophenol	3.42	1.67	mg/kg wet	3.333		103	30-130			
Phenanthrene	2.75	0.333	mg/kg wet	3.333		83	40-140			
Phenol	2.15	0.333	mg/kg wet	3.333		65	30-130			
Pyrene	2.90	0.333	mg/kg wet	3.333		87	40-140			
Pyridine	1.90	1.67	mg/kg wet	3.333		57	40-140			
Surrogate: 1,2-Dichlorobenzene-d4	*2.32*		mg/kg wet	*3.333*		*70*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.77*		mg/kg wet	*5.000*		*95*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.54*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.61*		mg/kg wet	*3.333*		*78*	*30-130*			
Surrogate: 2-Fluorophenol	*3.58*		mg/kg wet	*5.000*		*72*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.39*		mg/kg wet	*3.333*		*72*	*30-130*			
Surrogate: Phenol-d6	*3.53*		mg/kg wet	*5.000*		*71*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.13*		mg/kg wet	*3.333*		*94*	*30-130*			
LCS Dup										
1,1-Biphenyl	2.40	0.333	mg/kg wet	3.333		72	40-140	2	30	
1,2,4-Trichlorobenzene	2.21	0.333	mg/kg wet	3.333		66	40-140	7	30	
1,2-Dichlorobenzene	2.09	0.333	mg/kg wet	3.333		63	40-140	6	30	
1,3-Dichlorobenzene	2.09	0.333	mg/kg wet	3.333		63	40-140	5	30	
1,4-Dichlorobenzene	2.08	0.333	mg/kg wet	3.333		63	40-140	5	30	
2,3,4,6-Tetrachlorophenol	2.82	1.67	mg/kg wet	3.333		85	30-130	3	30	
2,4,5-Trichlorophenol	2.94	0.333	mg/kg wet	3.333		88	30-130	3	30	
2,4,6-Trichlorophenol	2.70	0.333	mg/kg wet	3.333		81	30-130	0.2	30	
2,4-Dichlorophenol	2.52	0.333	mg/kg wet	3.333		75	30-130	2	30	
2,4-Dimethylphenol	2.33	0.333	mg/kg wet	3.333		70	30-130	3	30	
2,4-Dinitrophenol	4.10	1.67	mg/kg wet	3.333		123	30-130	8	30	
2,4-Dinitrotoluene	3.06	0.333	mg/kg wet	3.333		92	40-140	2	30	
2,6-Dinitrotoluene	2.77	0.333	mg/kg wet	3.333		83	40-140	3	30	
2-Chloronaphthalene	2.32	0.333	mg/kg wet	3.333		69	40-140	2	30	
2-Chlorophenol	2.20	0.333	mg/kg wet	3.333		66	30-130	2	30	
2-Methylnaphthalene	2.24	0.333	mg/kg wet	3.333		67	40-140	5	30	
2-Methylphenol	2.17	0.333	mg/kg wet	3.333		65	30-130	2	30	
2-Nitroaniline	2.61	0.333	mg/kg wet	3.333		78	40-140	0.01	30	
2-Nitrophenol	2.20	0.333	mg/kg wet	3.333		66	30-130	5	30	
3,3´-Dichlorobenzidine	1.85	0.667	mg/kg wet	3.333		55	40-140	2	30	
3+4-Methylphenol	4.16	0.667	mg/kg wet	6.667		62	30-130	0.5	30	
3-Nitroaniline	1.90	0.333	mg/kg wet	3.333		57	40-140	3	30	
4,6-Dinitro-2-Methylphenol	3.89	1.67	mg/kg wet	3.333		117	30-130	2	30	
4-Bromophenyl-phenylether	3.08	0.333	mg/kg wet	3.333		92	40-140	2	30	
4-Chloro-3-Methylphenol	2.56	0.333	mg/kg wet	3.333		77	30-130	0.6	30	
4-Chloroaniline	0.925	0.667	mg/kg wet	3.333		28	40-140	7	30	B-
4-Chloro-phenyl-phenyl ether	2.54	0.333	mg/kg wet	3.333		76	40-140	1	30	
4-Nitroaniline	2.68	0.333	mg/kg wet	3.333		80	40-140	3	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

8270D Semi-Volatile Organic Compounds

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch DA01709 - 3546										
4-Nitrophenol	2.43	1.67	mg/kg wet	3.333		73	30-130	2	30	
Acenaphthene	2.44	0.333	mg/kg wet	3.333		73	40-140	2	30	
Acenaphthylene	2.42	0.333	mg/kg wet	3.333		72	40-140	1	30	
Acetophenone	1.97	0.667	mg/kg wet	3.333		59	40-140	4	30	
Aniline	1.24	0.667	mg/kg wet	3.333		37	40-140	9	30	B-
Anthracene	2.79	0.333	mg/kg wet	3.333		84	40-140	2	30	
Azobenzene	2.57	0.333	mg/kg wet	3.333		77	40-140	2	30	
Benzo(a)anthracene	2.93	0.333	mg/kg wet	3.333		88	40-140	2	30	
Benzo(a)pyrene	3.13	0.167	mg/kg wet	3.333		94	40-140	1	30	
Benzo(b)fluoranthene	2.98	0.333	mg/kg wet	3.333		89	40-140	1	30	
Benzo(g,h,i)perylene	3.12	0.333	mg/kg wet	3.333		94	40-140	0.2	30	
Benzo(k)fluoranthene	2.64	0.333	mg/kg wet	3.333		79	40-140	0.2	30	
Benzoic Acid	3.24	1.67	mg/kg wet	3.333		97	40-140	6	30	
Benzyl Alcohol	1.52	0.333	mg/kg wet	3.333		46	40-140	2	30	
bis(2-Chloroethoxy)methane	2.20	0.333	mg/kg wet	3.333		66	40-140	5	30	
bis(2-Chloroethyl)ether	2.04	0.333	mg/kg wet	3.333		61	40-140	4	30	
bis(2-chloroisopropyl)Ether	2.01	0.333	mg/kg wet	3.333		60	40-140	7	30	
bis(2-Ethylhexyl)phthalate	2.75	0.333	mg/kg wet	3.333		82	40-140	1	30	
Butylbenzylphthalate	2.66	0.333	mg/kg wet	3.333		80	40-140	0.2	30	
Carbazole	2.95	0.333	mg/kg wet	3.333		88	40-140	2	30	
Chrysene	2.80	0.167	mg/kg wet	3.333		84	40-140	2	30	
Dibenzo(a,h)Anthracene	3.21	0.167	mg/kg wet	3.333		96	40-140	0.5	30	
Dibenzofuran	2.53	0.333	mg/kg wet	3.333		76	40-140	0.07	30	
Diethylphthalate	2.80	0.333	mg/kg wet	3.333		84	40-140	1	30	
Dimethylphthalate	2.71	0.333	mg/kg wet	3.333		81	40-140	1	30	
Di-n-butylphthalate	3.08	0.333	mg/kg wet	3.333		92	40-140	0.06	30	
Di-n-octylphthalate	2.96	0.333	mg/kg wet	3.333		89	40-140	0.4	30	
Fluoranthene	2.97	0.333	mg/kg wet	3.333		89	40-140	2	30	
Fluorene	2.64	0.333	mg/kg wet	3.333		79	40-140	0.8	30	
Hexachlorobenzene	3.01	0.167	mg/kg wet	3.333		90	40-140	2	30	
Hexachlorobutadiene	2.25	0.333	mg/kg wet	3.333		68	40-140	8	30	
Hexachlorocyclopentadiene	1.90	1.67	mg/kg wet	3.333		57	40-140	5	30	
Hexachloroethane	2.04	0.333	mg/kg wet	3.333		61	40-140	7	30	
Indeno(1,2,3-cd)Pyrene	3.14	0.333	mg/kg wet	3.333		94	40-140	0.5	30	
Isophorone	1.95	0.333	mg/kg wet	3.333		58	40-140	6	30	
Naphthalene	2.15	0.333	mg/kg wet	3.333		64	40-140	6	30	
Nitrobenzene	2.06	0.333	mg/kg wet	3.333		62	40-140	6	30	
N-Nitrosodimethylamine	1.91	0.333	mg/kg wet	3.333		57	40-140	6	30	
N-Nitroso-Di-n-Propylamine	2.10	0.333	mg/kg wet	3.333		63	40-140	2	30	
N-nitrosodiphenylamine	3.01	0.333	mg/kg wet	3.333		90	40-140	2	30	
Pentachlorophenol	3.49	1.67	mg/kg wet	3.333		105	30-130	2	30	
Phenanthrene	2.83	0.333	mg/kg wet	3.333		85	40-140	3	30	
Phenol	2.12	0.333	mg/kg wet	3.333		64	30-130	1	30	
Pyrene	2.92	0.333	mg/kg wet	3.333		88	40-140	0.7	30	
Pyridine	1.80	1.67	mg/kg wet	3.333		54	40-140	5	30	

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

Quality Control Data

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
8270D Semi-Volatile Organic Compounds										
Batch DA01709 - 3546										
Surrogate: 1,2-Dichlorobenzene-d4	*2.16*		mg/kg wet	*3.333*		*65*	*30-130*			
Surrogate: 2,4,6-Tribromophenol	*4.73*		mg/kg wet	*5.000*		*95*	*30-130*			
Surrogate: 2-Chlorophenol-d4	*3.34*		mg/kg wet	*5.000*		*67*	*30-130*			
Surrogate: 2-Fluorobiphenyl	*2.50*		mg/kg wet	*3.333*		*75*	*30-130*			
Surrogate: 2-Fluorophenol	*3.40*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: Nitrobenzene-d5	*2.21*		mg/kg wet	*3.333*		*66*	*30-130*			
Surrogate: Phenol-d6	*3.40*		mg/kg wet	*5.000*		*68*	*30-130*			
Surrogate: p-Terphenyl-d14	*3.07*		mg/kg wet	*3.333*		*92*	*30-130*			

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project ESS Laboratory Work Order: 20A0467

Notes and Definitions

U	Analyte included in the analysis, but not detected
Q	Calibration required quadratic regression (Q).
D	Diluted.
CD+	Continuing Calibration %Diff/Drift is above control limit (CD+).
B-	Blank Spike recovery is below lower control limit (B-).
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
MF	Membrane Filtration
MPN	Most Probably Number
TNTC	Too numerous to Count
CFU	Colony Forming Units

CERTIFICATE OF ANALYSIS

Client Name: Sage Environmental, Inc.
Client Project ID: South Key Dredge Project

ESS Laboratory Work Order: 20A0467

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: Sage Environmental, Inc. - ML

Shipped/Delivered Via: ESS Courier

ESS Project ID: 20A0467
Date Received: 1/17/2020
Project Due Date: 1/23/2020
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: 3.2 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)
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: 1/17/20 Time: 1326 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)
1	6126	Yes	N/A	Yes	8 oz jar	NP	
1	6127	Yes	N/A	Yes	8 oz jar	NP	
1	6128	Yes	N/A	Yes	VOA Vial	MeOH	
1	6129	Yes	N/A	Yes	VOA Vial	DI Water	
1	6130	Yes	N/A	Yes	VOA Vial	DI Water	

2nd Review
Were all containers scanned into storage/lab? Initials
Are barcode labels on correct containers? Yes / No
Are all Flashpoint stickers attached/container ID # circled? Yes / No / NA
Are all Hex Chrome stickers attached? Yes / No / NA
Are all QC stickers attached? Yes / No / NA
Are VOA stickers attached if bubbles noted? Yes / No / NA

Completed By: Date & Time: 1/17/2020 11:05
Reviewed By: Date & Time: 1/17/20 1326
Delivered

ESS Laboratory Sample and Cooler Receipt Checklist

Client: Sage Environmental, Inc. - ML

ESS Project ID: 20A0467

Date Received: 1/17/2020

By: 1/17/20 1326

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 # 20A0467

Turn Time: 5-Day Rush:

Regulatory State: Rhode Island

Is this project for any of the following?: ☐ MA-MCP ☐ CT-RCP ☐ RGP ☑ Remediation

Reporting Limits: RIDEM Residential and Industrial/Commercial

Electonic Deliverables: ☑ Limit Checker ☑ Excel ☑ Other (Please Specifiy) → pdf

Company Name	Project #	Project Name
SAGE Environmental Inc	S3291A	South Key Dredge Project
Contact Person	**Address**	
Tom Saccoccio	172 Armistice Blvd	
City	**State**	**Zip Code** / **PO #**
Pawtucket	Rhode Island	02860 / S3291A
Telephone Number	**FAX Number**	**Email Address**
401-723-9900	401-723-9973	sage@sage-enviro.com

ESS Lab ID	Collection Date	Collection Time	Sample Type	Sample Matrix	Sample ID	Analysis: VOCs	SVOCs	PP13 Metals + Barium	PCBs	TPH
1	1/16/20	1200	Grab/Compo	Soil	20A00116-001 (P.1e15)	X	X	X	X	X

Container Type: AG-Amber Glass B-BOD Bottle G-Glass P-Poly S-Sterile V-Vial O-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*

GV	GV	AG	AG	AG	
6/10	1	1	1	1	
Number of Containers:	3*	1*	1*	1*	1*

Laboratory Use Only

Cooler Present: ✓

Seals Intact: ✓

Cooler Temperature: Blue Ice 3.2C

Sampled by: H. Stan

Comments: **Please specify "Other" preservative and containers types in this space**

*Bottles include 1 40 ml vial with methanol, two 40-ml vials with stir bars & DI H2O, and two non-preserved 8 ounce jars. 40-ml vials with DI water/stir bars frozen ____/____/2019 at ____(Time)____

Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)
H. Stan 1/17/20 825	1/17/2020 8:26		
Relinquished by: (Signature, Date & Time)	Received By: (Signature, Date & Time)	Relinquished By: (Signature, Date & Time)	Received By: (Signature, Date & Time)

APPENDIX M

SAGE
ENVIRONMENTAL

July 2, 2019

Mr. Jeff Crawford
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, RI 02908

RE: Notification to Abutters
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Dear Mr. Crawford:

Attached is the Public Notice Document and copies of letters distributed to abutters of the above-referenced property via certified mail. A list of recipients noticed is provided in the following table.

Abutting Properties to
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Plat/Block/Lot	Property Address	Owner
Map 7, Block 1, Lot 1	0 Pier Road, East Providence, RI	Union Oil Co. of California Attn: Chevron Property Tax
Map 7, Block 1, Lot 1.1	0 Pier Road, East Providence, RI	Sprague Operating Resources, LLC
Map 6, Block 1, Lot 1	0 Tangent Street, East Providence, RI	Providence & Worcester Railroad Co.
Map 17, Block 1, Lot 2	0 Veterans Memorial Parkway, East Providence, RI	Providence & Worcester Railroad Co.
Map 17, Block 1, Lot 1	331 Veterans Memorial Parkway, East Providence, RI	Chevron Land & Development Co.
Map 18, Block 2, Lot 1	0 Veterans Memorial Parkway, East Providence, RI	Chevron Land & Development Co.
Map 17, Block 1, Lot 3	0 ZZ P & W Railroad, East Providence, RI	State of RI Dept of Transportation
Map 7, Block 1, Lot 2	0 Pier Road, East Providence, RI	Union Oil Co. of California Attn: Chevron Property Tax
Map 7, Block 1, Lot 4	0 ZZ Railroad, East Providence, RI	State of RI Dept of Transportation

Should you have any questions, comments or require further information, please contact this office.

Sincerely,
SAGE Environmental, Inc.

Rick Mandile

Rick Mandile
Principal

RM:sms

Attachments

SAGE
ENVIRONMENTAL

July 2, 2019

Union Oil Co. of California
Attn: Chevron Property Tax
6001 Bollinger Canyon Road
San Ramon, CA 94583

RE: Site Investigation Activities
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Dear Property Owner:

The attached Public Notice is being provided to inform you that Site Investigation activities will be initiated at the property located at Lot 3, Block 1, Map 7 in East Providence, Rhode Island.

Should you have any questions or comments concerning this correspondence, please do not hesitate to contact this office at (401) 723-9900 or the designated contact at the Rhode Island Department of Environmental Management, Office of Waste Management, stipulated in the Notice.

Sincerely,
SAGE Environmental, Inc.

Rick Mandile

Rick Mandile
Principal

RM/sms

Attachment

SAGE
ENVIRONMENTAL

July 2, 2019

Sprague Operating Resources, LLC
185 International Drive
Portsmouth, NH 03801

RE: Site Investigation Activities
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Dear Property Owner:

The attached Public Notice is being provided to inform you that Site Investigation activities will be initiated at the property located at Lot 3, Block 1, Map 7 in East Providence, Rhode Island.

Should you have any questions or comments concerning this correspondence, please do not hesitate to contact this office at (401) 723-9900 or the designated contact at the Rhode Island Department of Environmental Management, Office of Waste Management, stipulated in the Notice.

Sincerely,
SAGE Environmental, Inc.

Rick Mandile

Rick Mandile
Principal

RM/sms

Attachment

SAGE
ENVIRONMENTAL

July 2, 2019

Providence & Worcester Railroad Co.
20 West Avenue
Darien, Connecticut 06820

RE: Site Investigation Activities
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Dear Property Owner:

The attached Public Notice is being provided to inform you that Site Investigation activities will be initiated at the property located at Lot 3, Block 1, Map 7 in East Providence, Rhode Island.

Should you have any questions or comments concerning this correspondence, please do not hesitate to contact this office at (401) 723-9900 or the designated contact at the Rhode Island Department of Environmental Management, Office of Waste Management, stipulated in the Notice.

Sincerely,
SAGE Environmental, Inc.

Rick Mandile

Rick Mandile
Principal

RM/sms

Attachment

SAGE
ENVIRONMENTAL

July 2, 2019

Chevron Land & Development Co.
1500 Louisiana Street, Room 38138
Houston, Texas 77002

RE: Site Investigation Activities
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Dear Property Owner:

The attached Public Notice is being provided to inform you that Site Investigation activities will be initiated at the property located at Lot 3, Block 1, Map 7 in East Providence, Rhode Island.

Should you have any questions or comments concerning this correspondence, please do not hesitate to contact this office at (401) 723-9900 or the designated contact at the Rhode Island Department of Environmental Management, Office of Waste Management, stipulated in the Notice.

Sincerely,
SAGE Environmental, Inc.

Rick Mandile

Rick Mandile
Principal

RM/sms

Attachment

SAGE
ENVIRONMENTAL

July 2, 2019

State of RI Dept. of Transportation
2 Capitol Hill
Providence, RI 02906

RE: Site Investigation Activities
Map 7, Block 1, Lot 3
East Providence, Rhode Island

Dear Property Owner:

The attached Public Notice is being provided to inform you that Site Investigation activities will be initiated at the property located at Lot 3, Block 1, Map 7 in East Providence, Rhode Island.

Should you have any questions or comments concerning this correspondence, please do not hesitate to contact this office at (401) 723-9900 or the designated contact at the Rhode Island Department of Environmental Management, Office of Waste Management, stipulated in the Notice.

Sincerely,
SAGE Environmental, Inc.

Rick Mandile

Rick Mandile
Principal

RM/sms

Attachment

Notification to Abutters
Map 7, Block 1, Lot 3
East Providence, Rhode Island

July 1, 2019

In accordance with the Rhode Island Department of Environmental Management's (RIDEM's) Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (the Remediation Regulations), Orson & Brusini, Ltd. is providing notice to abutters of their intent to conduct a Site Investigation at Lot 3, Block 1, Map 7, East Providence, Rhode Island. The goal of this investigation is to determine if a release of hazardous materials has occurred on the property. The investigation will involve the sampling of environmental media (specifically soil, sediment, and groundwater) by SAGE Environmental, Inc. The property is designated as Map 7, Block 1, Lot 3 of the City of East Providence Tax Assessor's plat maps. RIDEM has determined that conducting this investigation is in the public interest.

The investigation is scheduled to be conducted in 2019-2020 and is expected to take approximately one year to complete. The results of the investigation should be available by 2021.

For more information regarding this notice or this investigation, or to make arrangements to review Department records pertaining to this property location, **contact Jeffrey Crawford at (401) 222-2797, extension 7102.**

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Tockwotton Foundation, Inc.
500 Waterfront Drive
East Providence, Rhode Island

9590 9402 3382 7227 1405 95

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6767

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Renee Duarte ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

City of East Providence
145 Taunton Avenue
East Providence, RI 02914

9590 9402 3382 7227 1415 09

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6958

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Joseph ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Providence & Worcester Railroad Co.
20 West Avenue
Darien, Connecticut 06820

9590 9402 3382 7227 1406 32

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6798

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Richard Hurdis Jr. & Linda Goldman
217 Burgess Avenue
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 23

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7269

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SEEKONK MA JUL 6 2019 02771

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Saeed Dariush-Hamedant
65-67 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1415 30

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7078

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Saeed Hamedan | C. Date of Delivery 7/9-19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Providence & Worcester Railroad Co.
20 West Avenue
Darien, Connecticut 06820

9590 9402 3382 7227 1407 00

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6873

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Red Bridge Properties Co.
c/o YRSM CPAs
242 Allens Avenue
Providence, Rhode Island 02905

9590 9402 3382 7227 1415 47

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7085

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

EAST PROVIDENCE POST OFFICE RI 02907

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

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- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

City of East Providence
145 Taunton Avenue
East Providence, RI 02914

9590 9402 3382 7227 1406 01

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6774

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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- Print your name and address on the reverse so that we can return the card to you.
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1. Article Addressed to:

Providence & Worcester Railroad Co.
20 West Avenue
Darien, Connecticut 06820

9590 9402 3382 7227 1415 54

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7092

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

USPS TRACKING #

9590 9402 3382 7227 1405 95

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

0-321901

USPS TRACKING #

9590 9402 3382 7227 1415 09

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1406 32

First-Class Mail
Postage & Fees Paid
USPS
Permit

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

-321901

USPS TRACKING #

9590 9402 3382 7227 1408 23

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1415 30

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1407 00

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

-328199

USPS TRACKING #

9590 9402 3382 7227 1415 47

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

0-328199

USPS TRACKING #

9590 9402 3382 7227 1406 01

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1415 54

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States
Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

-321901

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Maria Pilon
157 First Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1406 63

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6835

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Maria Pilon ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

State of RI Dept. of Transportation
2 Capitol Hill
Providence, RI 02906

9590 9402 3382 7227 1406 18

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6828

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Donna M Brown Declaration of Trust
35 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 62

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7054

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Donna Brown ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery
7/6/19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☒ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Mail
Mail Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

State of RI Dept. of Transportation
2 Capitol Hill
Providence, RI 02906

9590 9402 3382 7227 1405 88

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6743

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
Mail Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

State of RI Dept. of Transportation
2 Capitol Hill
Providence, Rhode Island 02903

9590 9402 3382 7227 1415 23

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6934

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Donna M Brown Declaration of Trust
27 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 55

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7047

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Donna Brown ☐ Agent ☒ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery
7/6/19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Mail
Mail Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Sprague Operating Resources, LLC
185 International Drive
Portsmouth, NH 03801

9590 9402 3382 7227 1406 49

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6781

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☒ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Megan Darnowski
66 Mercer Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1414 86

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6972

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Joanne M Silva Irrevocable Trust
69 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1425 06

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6989

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Mail Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

USPS TRACKING #

9590 9402 3382 7227 1406 63

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1406 18

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1414 62

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

3382 7227 1405 88

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

50-32819

USPS TRACKING #

9590 9402 3382 7227 1415 23

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1414 55

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1406 49

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1414 86

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1425 06

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

SAGE
ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS
PITNEY BOWES
US POSTAGE
02 1P $ 000.50⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Louis Grossi
155 First Street
East Providence, Rhode Island 02914

ANK
02860>328:

SAGE
ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS
PITNEY BOWES
US POSTAGE
02 1P $ 000.50⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

VAC
VAR

DEJ Realty, Inc.
21-25 Massasoit Avenue
East Providence, Rh

NIXIE 015 FE 1 0007/07/19
RETURN TO SENDER
ATTEMPTED - NOT KNOWN
UNABLE TO FORWARD
BC: 02860328199 *0269-01036-03-43

ANK
02860>3281

CERTIFIED MAIL®

7015 1660 0000 9816 7030

SAGE
ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS
PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

VAC
VAR

DEJ Realty, Inc.
21-25 Massasoit Avenue
East Providence,

NIXIE 015 FE 1 0007/07/19
RETURN TO SENDER
ATTEMPTED - NOT KNOWN
UNABLE TO FORWARD
BC: 02860328199 *0322-03963-03-41

ANK
02860>3281

CERTIFIED MAIL®

7015 1660 0000 9816 6842

SAGE
ENVIRONMENTAL

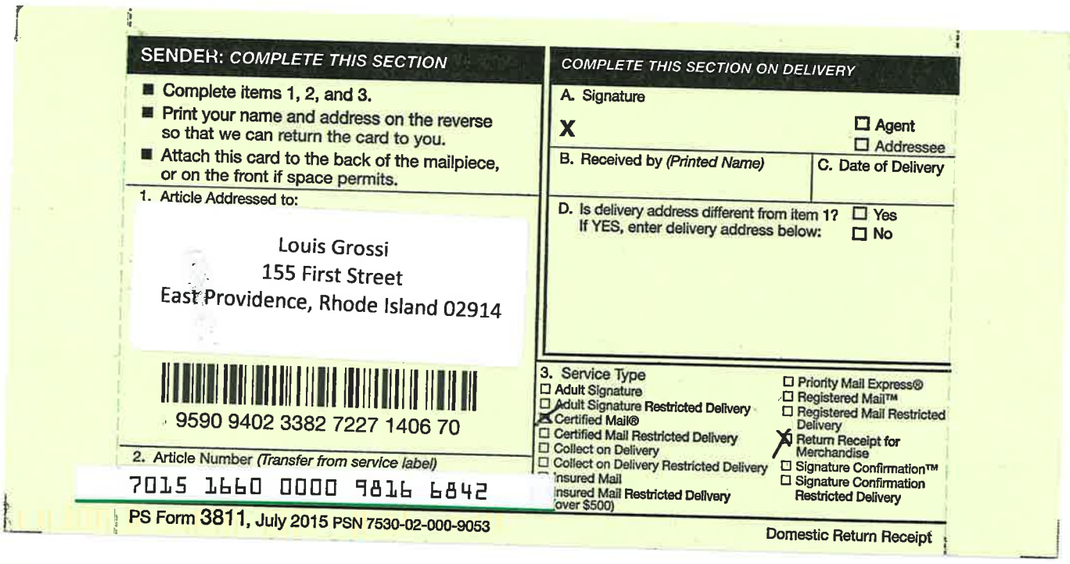
172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS
PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Louis Grossi
155 First Street
East Providence, Rhode Island 02914

* 015 N48 1 318I0107/04/19
FORWARD TIME EXP RTN TO SEND
GROSSI LOUIS V
3524 W SHORE RD APT 506
WARWICK RI 02886-5076
RETURN TO SENDER

02860>3281



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Louis Grossi
155 First Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1406 70

2. Article Number (Transfer from service label)

7015 1660 0000 9816 6842

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

DEJ Realty, Inc.
21-25 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 48

2. Article Number (Transfer from service label)

7015 1660 0000 9816 7030

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by (Printed Name) C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 53291 SMS Domestic Return Receipt

Environmental, Health & Safety Services
Massachusetts | Rhode Island | Connecticut

CERTIFIED MAIL®

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

7015 1660 0000 9816 7207

FIRST-CLASS

PITNEY BOWES US POSTAGE $ 006.80⁰
02 1P 0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

N.L
07.09
7-12
7-22

Darryl Rodewald & Christine Eldridge
27 Putnam Street
East Providence, Rhod

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03914-03-41

UNC
02860>5281 CO

OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

CERTIFIED MAIL®

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

7015 1660 0000 9816 6859

FIRST-CLASS

PITNEY BOWES US POSTAGE $ 006.80⁰
02 1P 0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Steven Smallwood & Amy Housley
108 Schuyler Street
East Providence, Rhode Island 02914

N.L
07-05
7-12
7-22

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-00928-04-00

UNC
02860>5281 CO

CERTIFIED MAIL®

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

7015 1660 0000 9816 7016

FIRST-CLASS

PITNEY BOWES US POSTAGE $ 006.80⁰
02 1P 0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

W.V.
7/5
7.12
7-23

Mario Visinho
79-85 Massasoit Avenue
East Providence, Rh

9400921669208150

NIXIE 015 DE 1 0007/27/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03951-03-41

UNC
02860>5281 CO

CERTIFIED MAIL®

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

7015 1660 0000 9816 7108

FIRST-CLASS

PITNEY BOWES US POSTAGE $ 006.80⁰
02 1P 0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

UTF

Greenberg Properties, LLC
25 Waterman Avenue
East Providence,

NIXIE 015 FE 1 0007/18/19
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
BC: 02860328199 *0322-03960-03-41

UTF
02860>5281 CC

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Greenberg Properties, LLC
25 Waterman Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1415 61

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7108

PS Form 3811, July 2015 PSN 7530-02-000-9053 S3291 SMS Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mario Visinho
79-85 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 24

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7016

PS Form 3811, July 2015 PSN 7530-02-000-9053 S3291 SMS Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Steven Smallwood & Amy Housley
108 Schuyler Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1406 87

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6859

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Darryl Rodewald & Christine Eldridge
27 Putnam Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 61

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7207

PS Form 3811, July 2015 PSN 7530-02-000-9053 S3291 SMS Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

CERTIFIED MAIL®

7015 1660 0000 9816 7122

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

7-12
7-22

N.L 7/2

Antonio & Maria Dias
15 Massasoit Avenue
East Providence, Rhode Island

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03964-03-41

NMRK1: 9333120543

UNC 02860328199 CO

CERTIFIED MAIL®

7015 1660 0000 9816 7238

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

N.L
07.05

7-10
7-22

Linda Cimini
210 Second Street
East Providence, Rh

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03919-03-41

UNC 02860328199 CO

CERTIFIED MAIL®

7015 1660 0000 9816 7115

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

N.L
7/5

7-10
7-22

Fernando E. Pereira
10-12 Birch Street
East Providence, Rh

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03962-03-41

UNC 02860328199 CO

CERTIFIED MAIL®

7015 1660 0000 9816 6866

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

SAGE ENVIRONMENTAL

172 Armistice Blvd., Pawtucket, RI 02860

N.L
07-09
7-11
7-22

Karen & Patrick Cahir
166 First Street
East Providence, Rhode Island 02914

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03928-03-41

NMRK1: 9333120543

UNC 02860328199 CO

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Karen & Patrick Cahir
166 First Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1406 94

2. Article Number *(Transfer from service label)*

7015 1660 0000 9816 6866

PS Form 3811, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Insured Mail
- ☐ Insured Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Fernando E. Pereira
10-12 Birch Street
East Providence, Rhode Island

9590 9402 3382 7227 1415 78

2. Article Number *(Transfer from service label)*

7015 1660 0000 9816 7115

PS Form 3811, July 2015 PSN 7530-02-000-9053 S3211 SMS Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Linda Cimini
210 Second Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 09

2. Article Number *(Transfer from service label)*

7015 1660 0000 9816 7238

PS Form 3811, July 2015 PSN 7530-02-000-9053 S3211 SMS Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Antonio & Maria Dias
15 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1415 85

2. Article Number *(Transfer from service label)*

7015 1660 0000 9816 7122

PS Form 3811, July 2015 PSN 7530-02-000-9053 S3211 SMS Domestic Return Receipt

COMPLETE THIS SECTION ON DELIVERY

A. Signature

X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
- ☒ Certified Mail®
- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
- ☐ Collect on Delivery Restricted Delivery
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☒ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

172 Armistice Blvd., Pawtucket, RI 02860

Benjamin Skrabak
149 First Street
East Providence, Rhode Island 02914

N.L
07-05
7-12
7-22

NMRK1: 9333120543

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03938-03-41

172 Armistice Blvd., Pawtucket, RI 02860

N.L
7/5
7-12
7-22

Kyltiff Investments & Consulting, LLC
73 Massasoit Avenue
East Providence

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03954-03-41

NMRK1: 9333120543

172 Armistice Blvd., Pawtucket, RI 02860

Bryan Amaral
4 Hamilton Street
East Providence, Rhode Island 02914

N.L
07-05
7-10
7-22

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03920-03-41

172 Armistice Blvd., Pawtucket, RI 02860

Heidi Edith Johnston
145 First Street
East Providence, Rhode Island 02914

N.L
07-05
7-12
7-22

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03929-03-41

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Heidi Edith Johnston
145 First Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1407 48

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6910

PS Form **3811**, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Bryan Amaral
4 Hamilton Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1407 93

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7221

PS Form **3811**, July 2015 PSN 7530-02-000-9053 S3291 SMS

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Kyltiff Investments & Consulting, LLC
73 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 00

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6996

PS Form **3811**, July 2015 PSN 7530-02-000-9053 S3291 SMS

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Benjamin Skrabak
149 First Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1407 55

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6927

PS Form **3811**, July 2015 PSN 7530-02-000-9053

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

Domestic Return Receipt

SAGE
ENVIRONMENTAL

172 Armistice Blvd. Pawtucket, RI 02860

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 000.50⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Greenberg Properties, LLC
25 Waterman Avenue
East Providence, Rhode Island

NIXIE 015 EE 1 7207/20/19
RETURN TO SENDER
NOT DELIVERABLE AS ADDRESSED
UNABLE TO FORWARD
MANUAL PROC REQ *0269-01041-03-43

UTF

CERTIFIED MAIL®

SAGE
ENVIRONMENTAL

7015 1660 0000 9816 6897

172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Arthur & Susete Sousa
72 Mercer Street
East Providence, Rhode Island 02914

N.L
07-09
7-12
7-23

9400921669208150

UNC

NIXIE 015 DE 1 0007/27/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03931-03-41

CERTIFIED MAIL®

SAGE
ENVIRONMENTAL

7015 1660 0000 9816 7252

172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Dennis & Rita Caraccia
222 Second Street
East Providence, Rhode Island 02914

N.L
07-05
7-12
7-23

UNC

NIXIE 015 DE 1 0007/27/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03918-03-41

CERTIFIED MAIL®

SAGE
ENVIRONMENTAL

7015 1660 0000 9816 7009

172 Armistice Blvd., Pawtucket, RI 02860

FIRST-CLASS

PITNEY BOWES
US POSTAGE
02 1P $ 006.80⁰
0001203602 JUL 02 2019
MAILED FROM ZIP CODE 02860

Robert Heckman
1, 5 Woodward Avenue
East Providence, R

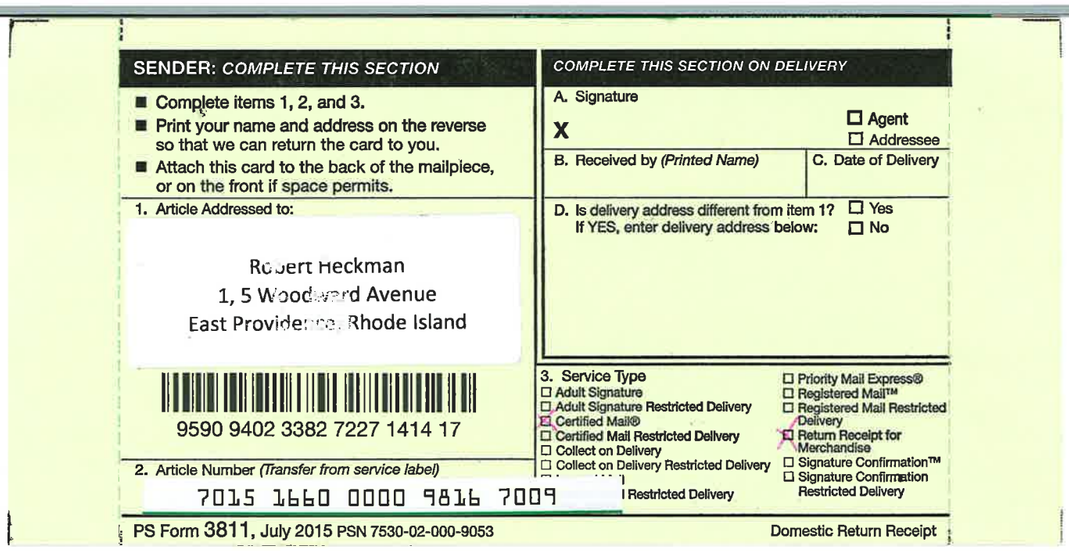
N.L
7-5

NIXIE 015 DE 1 0007/25/19
RETURN TO SENDER
UNCLAIMED
UNABLE TO FORWARD
BC: 02860328199 *0322-03950-03-41

NMRK1: 9333120243

7-10
7-22

UNC



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Robert Heckman
1, 5 Woodward Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 17

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7009

COMPLETE THIS SECTION ON DELIVERY

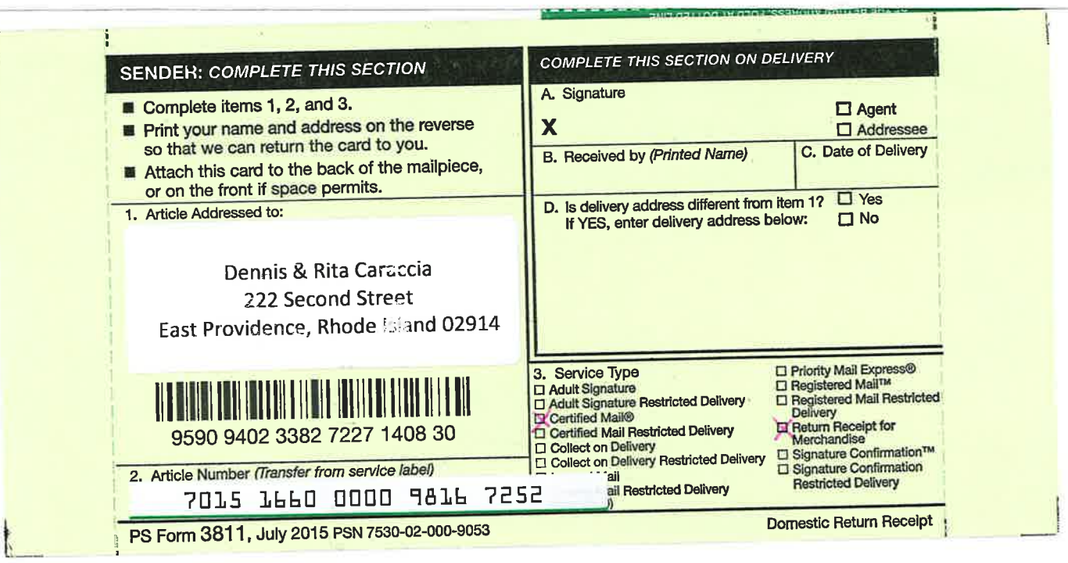
A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Dennis & Rita Caraccia
222 Second Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 30

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7252

COMPLETE THIS SECTION ON DELIVERY

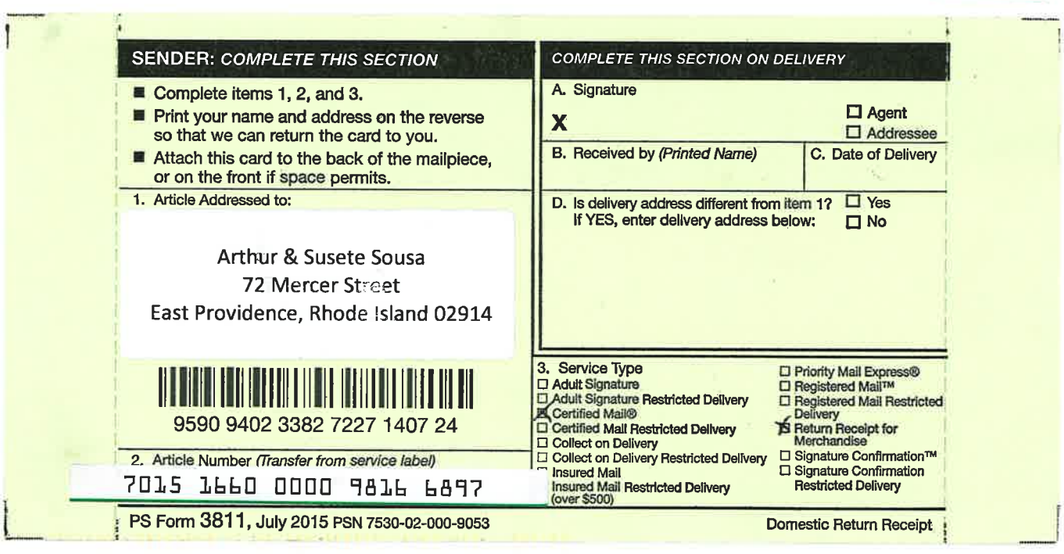
A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt



SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Arthur & Susete Sousa
72 Mercer Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1407 24

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6897

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Karl & Klara Benziger
214 Second Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 16

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7245

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Anthony Carlson ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

---

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Chevron Land & Development Co.
1500 Louisiana Street, Room 38138
Houston, Texas 77002

9590 9402 3382 7227 1415 16

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6941

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Amy Allen | C. Date of Delivery 6-8-19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SAM HOUSTON STATION HOUSTON, TX 77002 JUN - 8 2019

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Chevron Land & Development Co.
1500 Louisiana Street, Room 38138
Houston, Texas 77002

9590 9402 3382 7227 1406 25

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6804

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* Anthony Allen | C. Date of Delivery 6-8-19

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SAM HOUSTON STATION HOUSTON, TX 77002 JUN - 8 2019

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☒ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Insured Mail
☐ Insured Mail Restricted Delivery (over $500)
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

---

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Zachary Engstrom & Madalyn Fairbanks
197 Second Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 85

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7139

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Fleming Enterprises, LLC
55 Massasoit Avenue
East Providence, Rhode Island

9590 9402 3382 7227 1414 79

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7061

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Gerald Kashmanian ☑ Agent ☐ Addressee

B. Received by *(Printed Name)* GERALD KASHMANIAN | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

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SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Union Oil Co. of California
Attn: Chevron Property Tax
6001 Bollinger Canyon Road
San Ramon, CA 94583

9590 9402 3382 7227 1406 56

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6736

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

SAN RAMON JUL 8 2019 USPS 94583

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

---

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Providence & Worcester Railroad Co.
20 West Avenue
Darien, Connecticut 06820

9590 9402 3382 7227 1405 71

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6750

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

---

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Mary Doyle
1 Veterans Memorial Parkway
East Providence, Rhode Island

9590 9402 3382 7227 1414 93

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 6965

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Mary Doyle ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

---

SENDER: COMPLETE THIS SECTION

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Marie & Tobias Freitas
174-176 First Street
East Providence, Rhode Island 02914

9590 9402 3382 7227 1408 47

2. Article Number *(Transfer from service label)*
7015 1660 0000 9816 7184

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Tobias Freitas ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* | C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Adult Signature
☐ Adult Signature Restricted Delivery
☑ Certified Mail®
☐ Certified Mail Restricted Delivery
☐ Collect on Delivery
☐ Collect on Delivery Restricted Delivery
☐ Priority Mail Express®
☐ Registered Mail™
☐ Registered Mail Restricted Delivery
☒ Return Receipt for Merchandise
☐ Signature Confirmation™
☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 — Domestic Return Receipt

USPS TRACKING #

9590 9402 3382 7227 1408 16

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1415 16

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1406 25

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1408 85

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1414 79

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1406 56

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1405 71

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

-121901

USPS TRACKING #

9590 9402 3382 72 3414 93

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

USPS TRACKING #

9590 9402 3382 7227 1408 47

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

SAGE Environmental, Inc.
172 Armistice Boulevard
Pawtucket, RI 02860

ATTACHMENT F

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

November 3, 2022

Jacob H. Butterworth, MS, LSP
SAGE Environmental, Inc.
301 Friendship Street
Providence, RI 02903 Via email: Jbutterworth@Sage-Enviro.com

Re: Site-Specific Ecological Risk-Based Evaluation of Ecological Screening Benchmarks in the Providence River Marine Environment and Development of Soil Acceptance Criteria for Arsenic and Beryllium

Dear Mr. Butterworth:

It is my understanding that you are working with the Rhode Island Department of Environmental Management (RIDEM) to identify conservative concentration limits for arsenic and beryllium in potential soils proposed for reuse near (but not in) a marine environment of the Providence River at the property identified as The Key (aka South Key/Quay) located at 649 Waterfront Drive in East Providence, Rhode Island (hereinafter, the "Site"). The published marine ecological screening benchmarks for these two metals, an approach for calculating conservative soil acceptance criteria for the Site, and my proposed conservative Ecological Risk-Based Soil Acceptance Criteria (Acceptance Criteria) are presented within this report.

As you know, ecological screening benchmarks are utilized to identify concentrations of contaminants in environmental media which are unlikely to represent significant risk to environmental receptors. Benchmarks are designed to be conservative, and an exceedance of a benchmark does not necessarily mean that significant risk to the environment is present.

Please also note that the benchmarks discussed below are pertinent in evaluating potential concentrations in a marine environment that might result from either leaching of placed soils or incidental movement (e.g., by erosion) of placed soils into the Providence River. For sediment, movement of placed soils to the river is neither planned nor likely to occur accidentally to a substantial degree, and the effects of any such inputs would be diluted by native sediment and surface water concentrations. Therefore, I find it conservatively acceptable that for soils placed in the upland, Acceptance Criteria would be a factor significantly higher than the sediment benchmarks.

Evaluation of Available Ecological Screening Benchmarks

The NOAA Screening Quick Reference Tables ("SQuiRT") values are typically utilized as the industry-standard source of ecological screening benchmarks. Note, however, that the SQuiRTs

include a range of values with different meanings, calculated by different investigators and agencies. There is not a single generally accepted criterion for use as an ecological screening benchmark. For this Site-specific analysis, the following values are pertinent to consider:

SQuiRT Values for Possible Use as Ecological Screening Benchmarks (mg/Kg)

Benchmark	Arsenic	Beryllium	Comment
TEL = Threshold Effects Level	7.24	Not listed	Lowest value with observed effect
ERL = Effects Range Low	8.2	Not listed	Value below which negative effects are expected to be rare
T-50 = Toxicity 50% probability	20	Not listed	Use of a benchmark that indicates toxicity 50% of the time would generally not be appropriate
T-20 = Toxicity 20% probability	7.4	Not listed	Similar to TEL and ERL; indicative of unlikely risk
PEL = Probable Effects level	41.6	Not listed	Generally, a "probable" effects concentration is not suitable as a conservative screening benchmark without additional justification

Of note, there are no SQuiRT sediment values for beryllium. The United States Environmental Protection Agency (U.S. EPA) Region III has also developed ecological screening benchmarks which do not include beryllium. Additionally, the U.S. EPA Ecotox database (which contains information from more than 1 million references) was referenced related to beryllium toxicity in marine environments and very limited information was available for review.

Recommended Ecological Risk-Based Soil Acceptance Criteria

- Arsenic: Based upon a review of the SQuiRTs values above, the most conservative target concentration for the TEL of 7.24 mg/Kg is protective of the Site-specific Providence River flora and fauna. Therefore, assuming reasonable controls are in place to minimize the potential transport of placed soils to the Providence River, I recommend that a factor of 2 or more times the TEL, [i.e., **2 X 7.24 mg/Kg = 14.48 mg/Kg**] be utilized as the Soil Acceptance Criterion for arsenic, as this concentration in nearby placed soils would be conservatively protective of marine ecological receptors in the adjacent Providence River.
- Beryllium: Because there is no applicable sediment benchmark for beryllium, reasonable controls are assumed to be in place to minimize the potential transport of placed soils to the Providence River, and discharge of placed soils into the river should be minimal and diluted, I recommend that a factor of 2 times the Rhode Island background concentration of beryllium [i.e., **2 X 1.5 mg/Kg = 3 mg/Kg**] be utilized as the Soil Acceptance Criterion for beryllium, as this concentration in nearby placed soils would be

conservatively protective of marine ecological receptors in the adjacent Providence River.

I hope that this information is informative and helpful. Please feel free to reach out to me with any questions you may have.

Sincerely,

Paul J. McManus, LSP, PWS
President & Ecological Risk Assessor

EcoTec, Inc.

ENVIRONMENTAL CONSULTING SERVICES
102 Grove Street
Worcester, MA 01605-2629
508-752-9666 – Fax: 508-752-9494

Paul J. McManus, LSP, PWS
President

Paul McManus is the President and owner of EcoTec, Inc., which he founded in 1990. He is a certified Senior Professional Wetlands Scientist (SPWS) from the International Society of Wetlands Scientists (SWS), the leading professional organization in the field, where he served as President of the New England Chapter of SWS, representing the Chapter on the International Board of Directors for several years, and currently serves as Chapter Treasurer. Mr. McManus is also a Massachusetts Licensed Site Professional (LSP) with experience including a wide range of projects, focused on ecological risk assessment at sites with contaminated wetland resources. Prior to the founding of EcoTec, Mr. McManus was employed at other Massachusetts consulting firms and as an aquatic ecologist at the Massachusetts Division of Water Pollution Control. Mr. McManus brings a wide variety of environmental consulting experience to EcoTec, including oil and hazardous materials ecological risk assessment, wetland evaluation and delineation, lake and stream assessment, wildlife habitat evaluation, and a variety of other types of environmental impact assessment. He has conducted detailed wetland community surveys and impact restoration specifications in "Areas of Critical Environmental Concern" (ACECs), and led the local, state and federal wetland permitting, including vernal pool mitigation design and a Wetlands Protection Act Variance. He has directed thousands of other wetlands projects at sites including large and small residential and commercial developments and major utility infrastructure projects. He has completed all phases of environmental permitting work, including wetland delineation, replication and mitigation design, implementation, and monitoring in freshwater wetlands and salt marsh, as well as general wildlife and rare species assessments and trapping, including marbled salamander, 4-toed salamander, wood turtle, and eastern box turtle, under the MA Wetlands and Endangered Species Act Regulations. Permitting efforts regularly include federal, local and state permitting, including filings under the Massachusetts Environmental Policy Act (MEPA) regulations. Additional projects he has directed include major biological and chemical marine sampling programs; he has been involved in a variety of freshwater system evaluations, and conducted evaluations and sampling for proposed fresh water and marine dredging projects. He also has experience in large scale soil reuse projects, where he completed required environmental permitting and serves as the independent third-party monitor in accordance with voluntary Administrative Consent Orders for multiple sites. Mr. McManus serves as a consultant on behalf of government, business, private citizens, utility companies, the development community, conservation commissions, and concerned citizens' groups. He presently serves on a continual basis as technical wetlands consultant for the Town of Dover Conservation Commission, and works regularly for Boylston, Shrewsbury, and other Commissions providing peer review expertise for varied projects.

Education: Master of Science: Applied Marine Ecology - University of Massachusetts/Boston, 1988
Bachelor of Arts: Biology (Ecology emphasis) – College of the Holy Cross, Worcester, MA, 1984
U.S. Fish and Wildlife Service: Habitat Evaluation Procedure (HEP) Certification
Massachusetts Division of Water Pollution Control: Algal Assay (eutrophication) Short Course

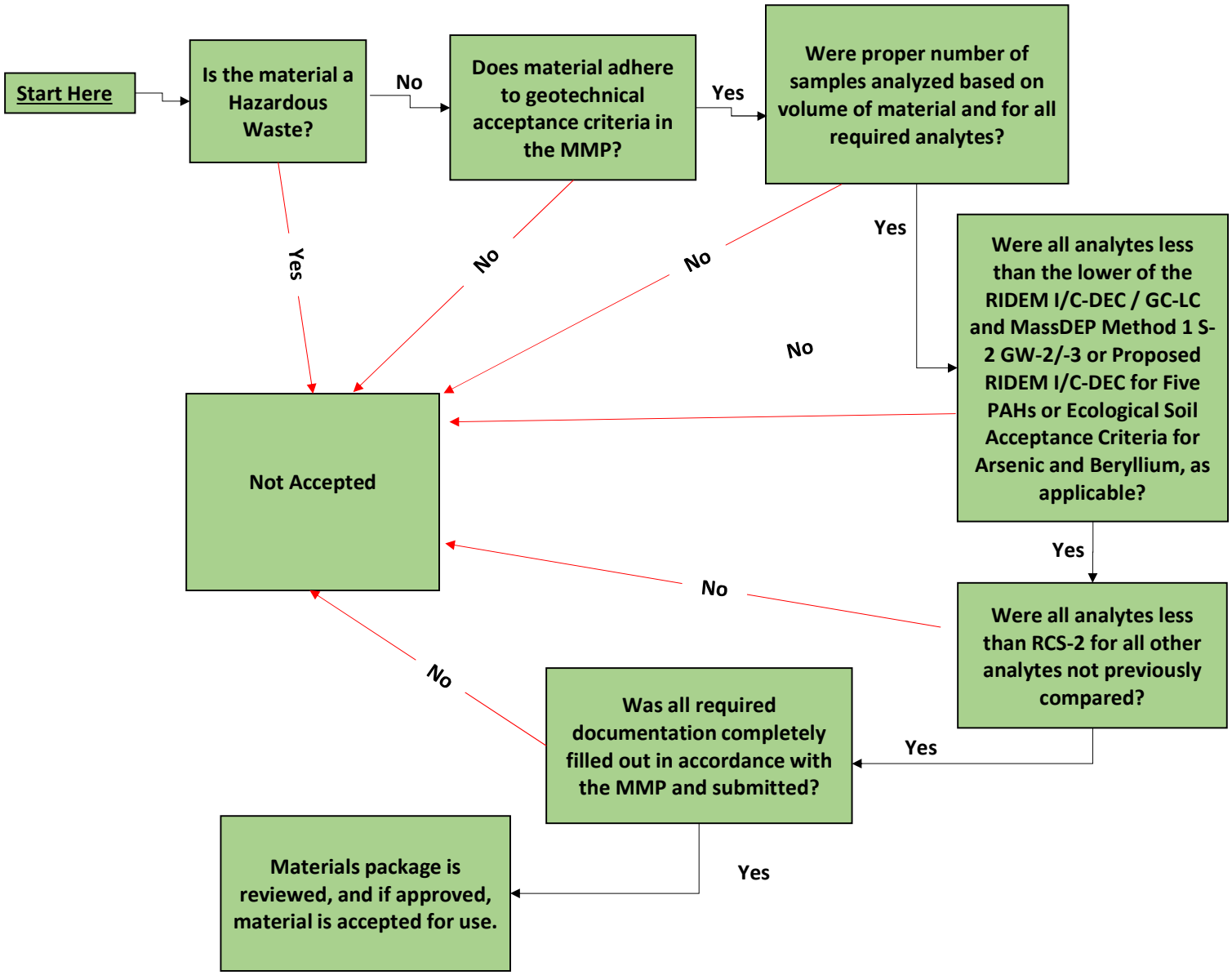
Professional Affiliations: Massachusetts Association of Conservation Commissioners (past Board of Directors)
(Partial list) Society of Wetland Scientists (Treasurer and former President of the New England Chapter)
Association of Massachusetts Wetlands Scientists
Licensed Site Professional Association

Certifications: Society of Wetlands Scientists: Senior Professional Wetlands Scientist # 962
Commonwealth of Massachusetts Licensed Site Professional # 5711
OSHA Health & Safety Hazardous Waste Safety Training, 29 CFR 1910.120 (40 hr & refresher)

ATTACHMENT G

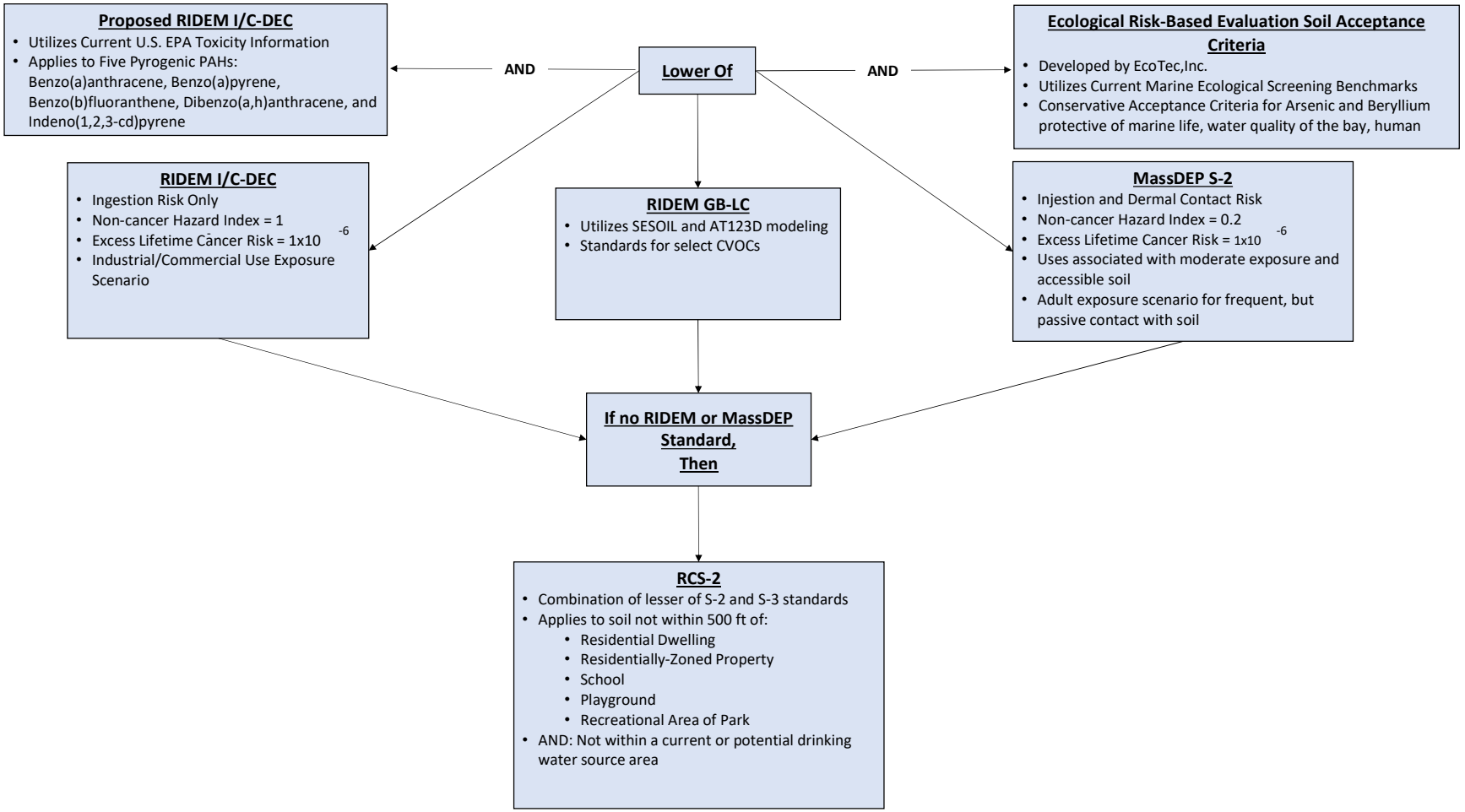
SAGE ENVIRONMENTAL

Material Acceptance



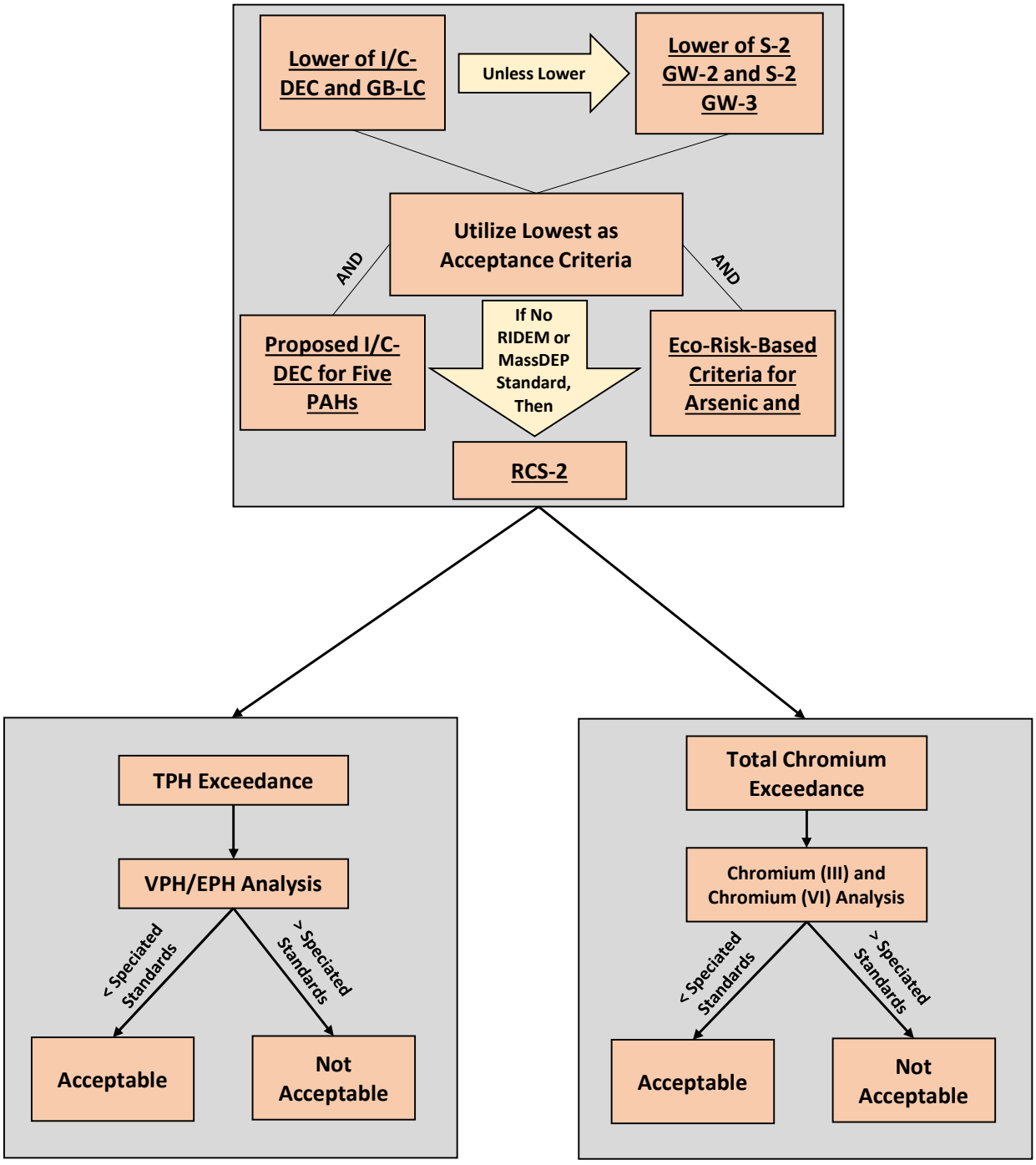
SAGE ENVIRONMENTAL

Material Reuse Acceptance Criteria Evaluation



SAGE ENVIRONMENTAL

Selection of Material Reuse Acceptance Criteria



ATTACHMENT H

LIMIT OF THE FEDERAL NAVIGATIONAL CHANNEL LINE (PER USACE COORDINATES)

APPROXIMATE LIMIT OF THE MARSH LINE

-18.570

-17.370

-19.900

Lloyd's Register

GZA Known for excellence. Built on trust.

PARE CORPORATION

MCALLISTER MARINE ENGINEERING

JOHN MCALLISTER
No. 11685
REGISTERED PROFESSIONAL ENGINEER
(CIVIL)

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RI WATERFRONT ENTERPRISES, LLC
564 SOUTH WATER STREET
PROVIDENCE, RI 02903

NO.	DATE	DESCRIPTION	BY
4	3/2/2022	REVISIONS FOR ASSENT	JBM
3	6/24 /2021	ASSENT PACKAGE	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 100'

GRAPHIC SCALE

SHEET TITLE

GRADING
AND DRAINAGE
PLAN

DRAWING NO.

GD-1

16 OF 33

PLOT SCALE 1/16"=1'-0"

C:\Users\Jobon\OneDrive\Documents\JBM\LR\RIWF\Plans\RIWF_SOUTH QUAY BASE PLAN MLLW REV7A recover.dwg

DOCK BULKHEAD DESIGN CRITERIA:

QUAY TOP ELEVATION: 19.5 FT. MLW

BERTH 1: INBOUND: 525 FT. X 97 FT.
BEARING CAPACITY: 2,000 PSF
DRAFT: 32 FT.

BERTH 2: OUTBOUND: 460 FT. X 127 FT.
BEARING CAPACITY: 6,144 PSF
DRAFT: 32 FT.

UNIFORM LOAD BEARING CAPACITY: 5,120 PSF

QUAYSIDE CRAWLER CRANE CORRIDOR: 180 FT. WIDE

BOLLARD CAPACITY: 150 TON

BOLLARD SPACING:

RORO RAMP WIDTH: 150 FT.

JACK-UP PAD WIDTH: 400 FT.

TOP OF DECK ELEVATION:

RORO WATERSIDE ELEVATION: 10.0 MLW

REMOVABLE CURB LOCATIONS:

DRAFT
SEPTEMBER 10, 2020

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PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	
CADD FILE	
DESIGNED BY	KWH
DRAWN BY	LMC
CHECKED BY	KWH
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 150'

GRAPHIC SCALE

Scale: 1"=100'
0 50' 100' 200'

SHEET TITLE

PROPOSED WATERFRONT PLAN

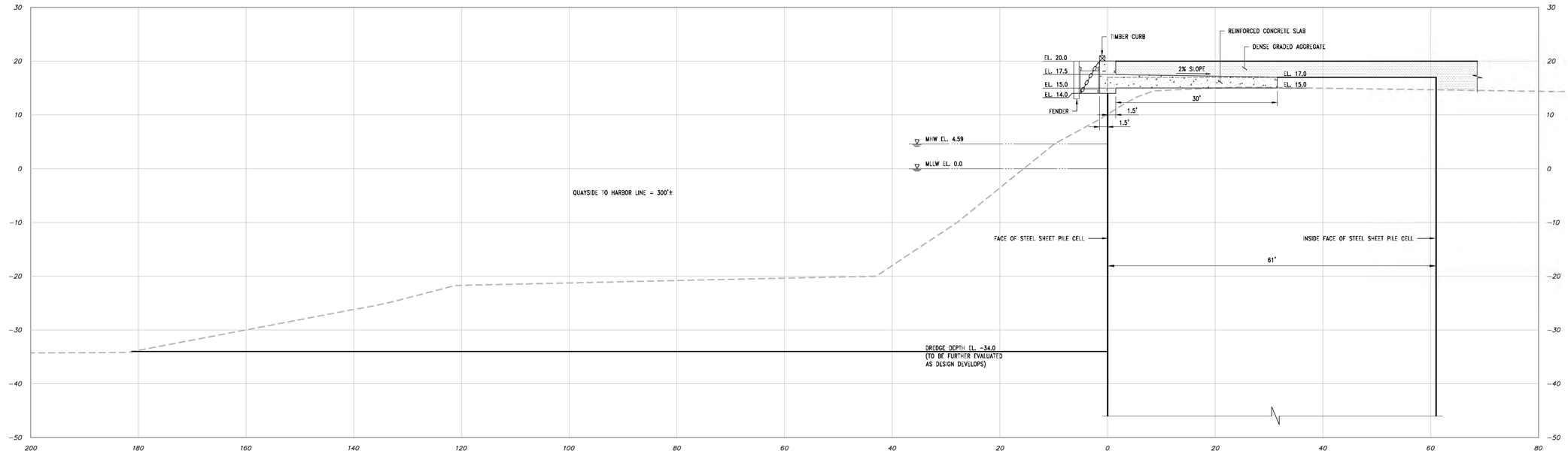
DRAWING NO.

W-1

22 □□□ 33

PLOT SCALE

C:\Users\jonnm\OneDrive\Documents\LR\RIWE\Plans\PARE\W-1 Proposed Waterfront Plan updated 11.18.20.dwg



Lloyd's Register

GZA Known for excellence. Built on trust.

PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	
CADD FILE	
DESIGNED BY	KWH
DRAWN BY	LMC
CHECKED BY	KWH
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 150'

GRAPHIC SCALE

Scale: 1"=10'
0 5' 10' 20'

SHEET TITLE

PROPOSED WATERFRONT SECTION

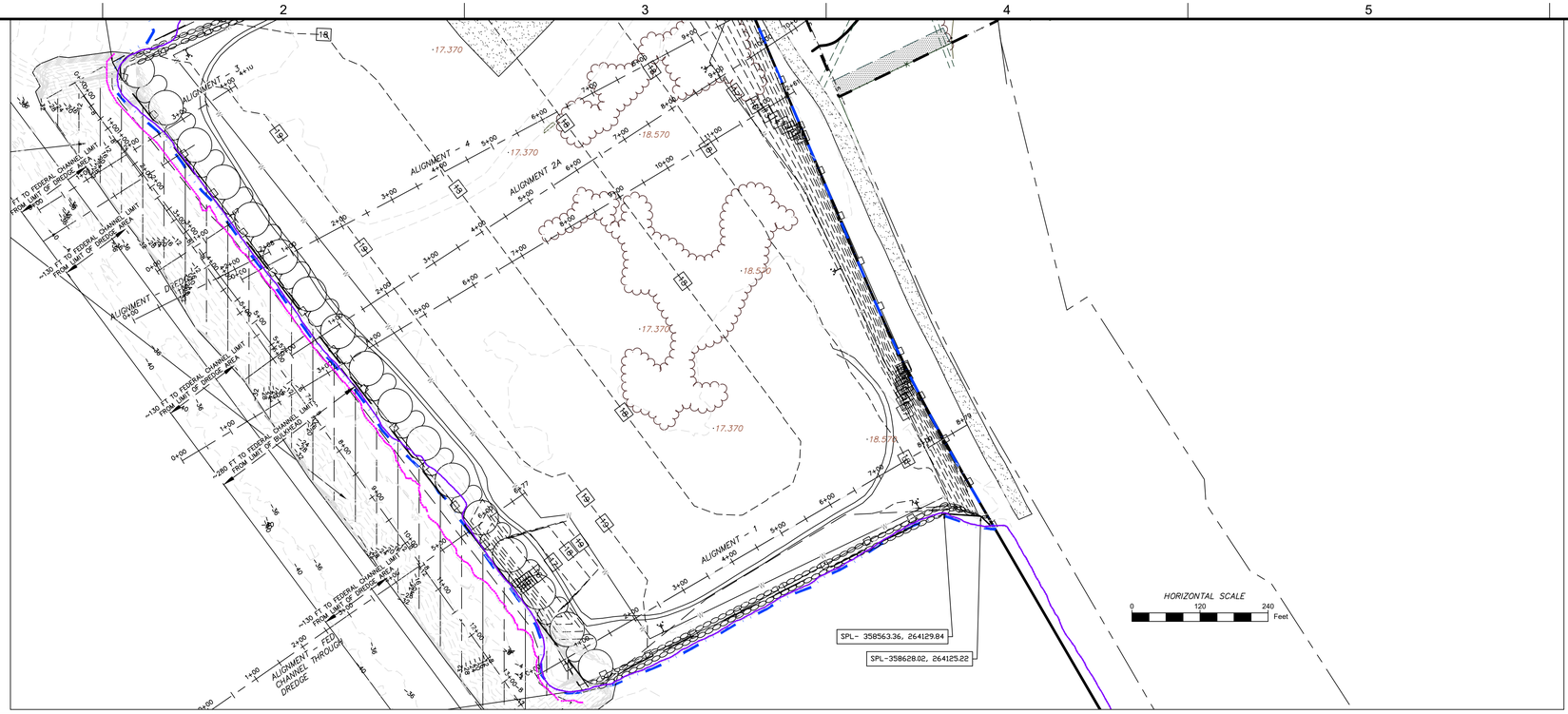
DRAWING NO.

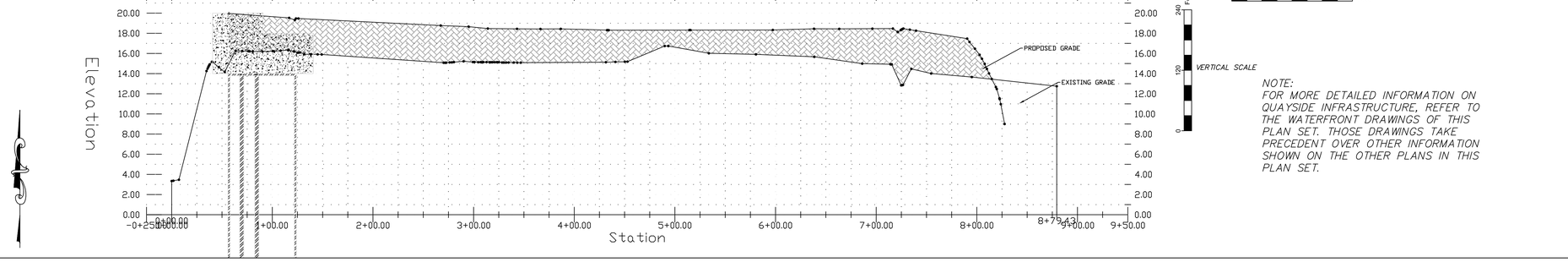
W-2

23 □□ 33

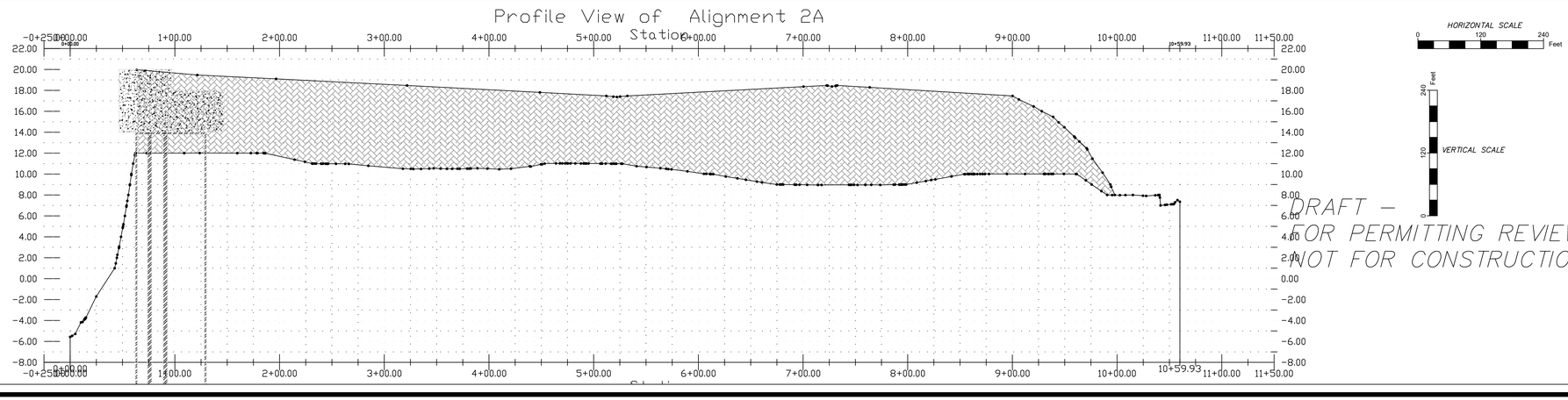
PLOT SCALE

C:\Users\lonnm\OneDrive\Documents\LR\RIWE\Plans\PARE\W-1 Proposed Waterfront Plan updated 11.18.20.dwg





NOTE:
FOR MORE DETAILED INFORMATION ON QUAYSIDE INFRASTRUCTURE, REFER TO THE WATERFRONT DRAWINGS OF THIS PLAN SET. THOSE DRAWINGS TAKE PRECEDENT OVER OTHER INFORMATION SHOWN ON THE OTHER PLANS IN THIS PLAN SET.



— DRAFT —
FOR PERMITTING REVIEW ONLY
NOT FOR CONSTRUCTION

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PARE CORPORATION

MCALLISTER MARINE ENGINEERING

JOHN MCALLISTER
No. 11685
REGISTERED PROFESSIONAL ENGINEER
CIVIL

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RI WATERFRONT ENTERPRISES, LLC
564 SOUTH WATER STREET
PROVIDENCE, RI 02903

NO.	DATE	DESCRIPTION	BY
4	3/2/2022	REVISIONS FOR ASSENT	JBM
3	6/24/2021	ASSENT PACKAGE	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	AS NOTED

GRAPHIC SCALE

SHEET TITLE
PROFILE
VIEW
CROSS-SECTIONS

DRAWING NO.
XC-1

15 OF 21

PLOT SCALE 1/16"=1'-0"

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DOCK BULKHEAD DESIGN CRITERIA:

QUAY TOP ELEVATION: 19.5 FT. MLW

BERTH 1: INBOUND: 525 FT. X 97 FT.
BEARING CAPACITY: 2,000 PSF
DRAFT: 32 FT.

BERTH 2: OUTBOUND: 460 FT. X 127 FT.
BEARING CAPACITY: 6,144 PSF
DRAFT: 32 FT.

UNIFORM LOAD BEARING CAPACITY: 5,120 PSF

QUAYSIDE CRAWLER CRANE CORRIDOR: 180 FT. WIDE

BOLLARD CAPACITY: 150 TON

BOLLARD SPACING:

RORO RAMP WIDTH: 150 FT.

JACK-UP PAD WIDTH: 400 FT.

TOP OF DECK ELEVATION:

RORO WATERSIDE ELEVATION: 10.0 MLW

REMOVABLE CURB LOCATIONS:

DRAFT
SEPTEMBER 10, 2020

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PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	
CADD FILE	
DESIGNED BY	KWH
DRAWN BY	LMC
CHECKED BY	KWH
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 150'

GRAPHIC SCALE

Scale: 1"=100'
0 50' 100' 200'

SHEET TITLE

PROPOSED WATERFRONT PLAN

DRAWING NO.

W-1

22 □□□ 33

PLOT SCALE

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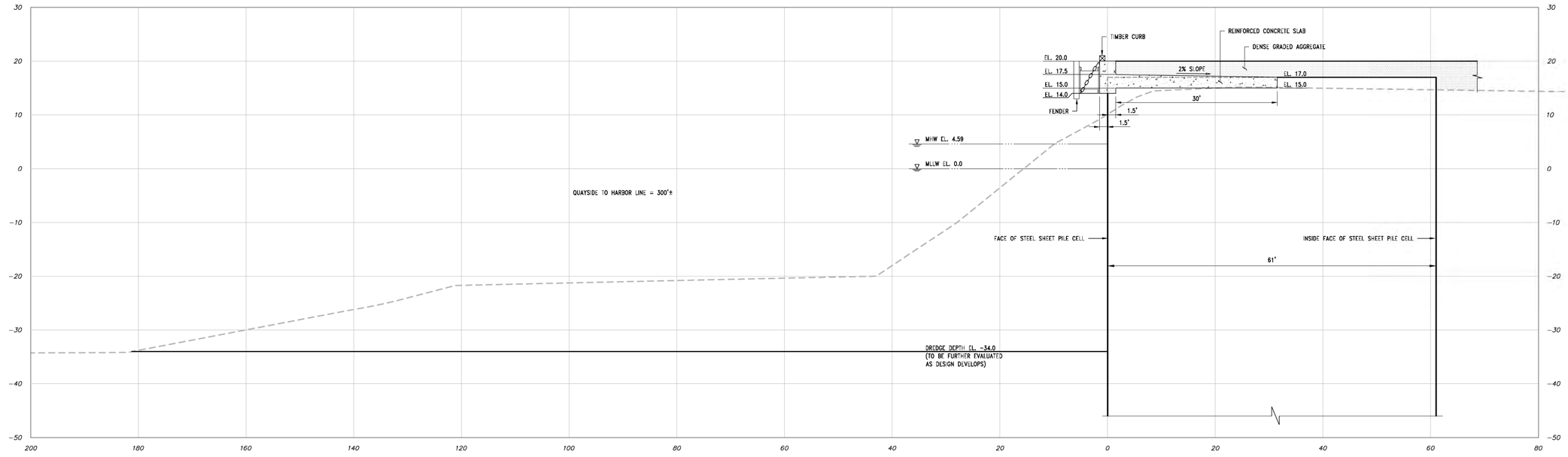

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PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	
CADD FILE	
DESIGNED BY	KWH
DRAWN BY	LMC
CHECKED BY	KWH
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 150'

GRAPHIC SCALE

Scale: 1"=10'
0 5' 10' 20'

SHEET TITLE

PROPOSED WATERFRONT SECTION

DRAWING NO.

W-2

23 □□ 33

PLOT SCALE

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ATTACHMENT I

DRAFT Soil Erosion and Sediment Control Plan

For:

South Quay Marine Terminal

649 Waterfront Drive

East Providence, RI

Parcel ID 007/01/003/00

Owner:	RI Waterfront Enterprises, LLC 1080 Main Street Pawtucket, RI 02860 T +1 508 965 3342 melissa@riwaterfrontevents.com,
Operator: *TO BE DETERMINED UPON CONTRACT AWARD*	Company Name Name Address City, State, Zip Code Telephone Number Email Address
Estimated Project Dates:	Start Date: December 2021 Completion Date: June 2023
SESC Plan Prepared By:	McAllister Marine Engineering, LLC John McAllister 16 Hoxie Avenue Charlestown, RI 02813 401-859-1839 jmcallister@mcallister-eng.com Professional Engineer – License 0011685

SESC Plan Preparation Date:	May 2021
SESC Plan Revision Date:	

OPERATOR CERTIFICATION

Upon contract award, the OPERATOR must sign this certification statement before construction may begin.

I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I am aware that it is the responsibility of the owner/operator to implement and amend the Soil Erosion and Sediment Control Plan as appropriate in accordance with the requirements of the RIPDES Construction General Permit.

_____

Operator Signature: Date

Contractor Representative: Name

Contractor Title: Title

Contractor Company Name: Company Name (if applicable)

Address: Mailing Address

Phone Number: Phone Number

Email Address: Email

TABLE OF CONTENTS

INTRODUCTION

This Construction Site Soil Erosion and Sediment Control Plan (SESC Plan) has been prepared for RI Waterfront Enterprises, LLC for the South Quay Marine Terminal. In accordance with the RIDEM Rhode Island Pollutant Discharge Elimination System (RIPDES) General Permit for Stormwater Discharge Associated with Construction Activity (RIPDES Construction General Permit ("CGP")), projects that disturb one (1) or more acres require the preparation of a SESC Plan. This SESC Plan provides guidance for complying with the terms and conditions of the RIPDES Construction General Permit and Minimum Standard 10 of the RI Stormwater Design and Installation Standards Manual. In addition, this SESC Plan is also consistent with Part D of the *RI SESC Handbook* entitled "Soil Erosion and Sediment Control Plans". This document does not negate or eliminate the need to understand and adhere to all applicable RIPDES regulations.

The purpose of erosion, runoff, and sedimentation control measures is to prevent pollutants from leaving the construction site and entering waterways or environmentally sensitive areas during and after construction. This SESC Plan has been prepared prior to the initiation of construction activities to address anticipated worksite conditions. The control measures depicted on the site plan and described in this narrative should be considered the minimum measures required to control erosion, sedimentation, and stormwater runoff at the site. Since construction is a dynamic process with changing site conditions, it is the operator's responsibility to manage the site during each construction phase so as to prevent pollutants from leaving the site. This may require the operator to revise and amend the SESC Plan during construction to address varying site and/or weather conditions, such as by adding or realigning erosion or sediment controls to ensure the SESC Plan remains compliant with the RIPDES Construction General Permit. Records of these changes must be added to the amendment log attached to the SESC Plan, and to the site plans as "red-lined" drawings. Please Note: **Even if practices are correctly installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site.**

It is the responsibility of the site owner and the site operator to maintain the SESC Plan at the site, including all attachments, amendments and inspection records, and to make all records available for inspection by RIDEM during and after construction. (RIPDES CGP - Part III.G)

The site owner, the site operator, and the designated site inspector are required to review the SESC Plan and sign the Party Certification pages (Section 8). The primary contractor (if different) and all subcontractors (if applicable) involved in earthwork or exterior construction activities are also required to review the SESC Plan and sign the certification pages before construction begins.

Any questions regarding the SESC Plan, control measures, inspection requirements, or any other facet of this document may be addressed to the RIDEM Office of Water Resources, at 401-222-4700 or via email: water@dem.ri.gov.

ADDITIONAL RESOURCES

Rhode Island Department of Environmental Management
Office of Water Resources
235 Promenade Street
Providence, RI 02908-5767
phone: 401-222-4700
email: water@dem.ri.gov

RIDEM *RI Stormwater Design and Installation Standards Manual* (RISDISM) (as amended)
http://www.dem.ri.gov/pubs/regs/regs/water/swmanual15.pdf

RI Soil Erosion and Sediment Control Handbook http://www.dem.ri.gov/soilerosion2014final.pdfRIDEM 2013 RIPDES Construction General Permit
http://www.dem.ri.gov/pubs/regs/regs/water/ripdesca.pdfRhode Island Department of Transportation *Standard Specifications for Road and Bridge Design and Other Specifications* and *Standard Details*
http://www.dot.ri.gov/business/bluebook.php

RIDEM Office of Water Resources Coordinated Stormwater Permitting website
http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/coordinated-stormwater-permitting.phpRIDEM RIPDES Stormwater website
http://www.dem.ri.gov/programs/water/permits/ripdes/stormwater/RIDEM Water Quality website (for 303(d) and TMDL listings)
http://www.dem.ri.gov/programs/water/quality/

RIDEM Rhode Island Natural Heritage Program mailto:plan@dem.ri.gov

RIDEM Geographic Data Viewer – Environmental Resource Map
http://www.dem.ri.gov/maps/

Natural Resources Conservation Service - Rhode Island Soil Survey Program
http://www.ri.nrcs.usda.gov/technical/soils.html

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: http://websoilsurvey.nrcs.usda.gov.

EPA NPDES – Stormwater Discharges from Construction Activities webpage:
http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Discharges-From-Construction-Activities.cfm

EPA Construction Site Stormwater Runoff Control BMP Menu
http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-Stormwater-Run-Off-Control.

SECTION 1: SITE DESCRIPTION

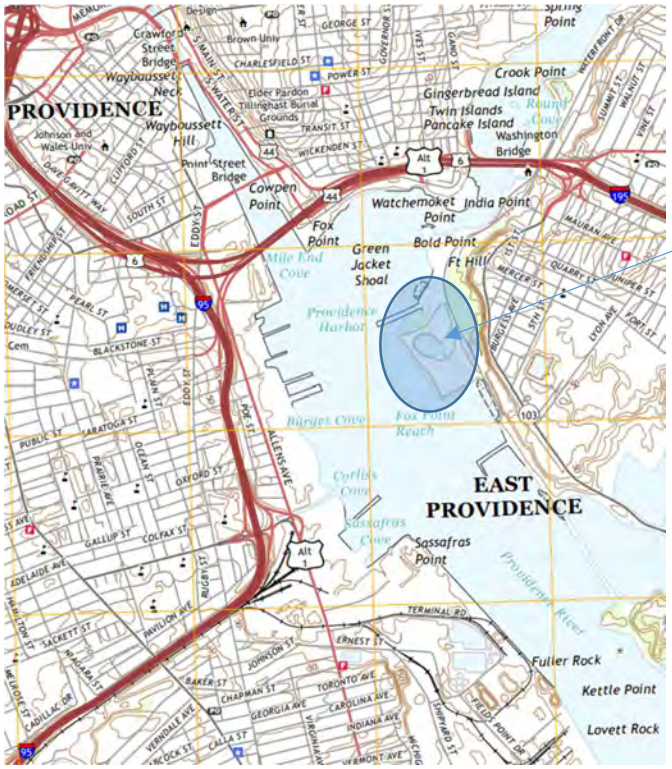
1.1 Project/Site Information

Project/Site Name: South Quay Marine Terminal

- The subject property is the 30+ acre South Quay site located along the east bank of the Providence River in East Providence, RI. The physical address is 649 Waterfront Drive.
- The South Quay project in Rhode Island will create a modern intermodal, state of the art, high capacity, high flexibility port that will be specially prepared to handle multiple types of cargo, including bulk, break bulk, container, heavy oversized, and the immense size and weights of equipment and components used for the growing offshore wind market. The SQMT is designed as a state-of-the-art port facility with access to deep water and high ground-bearing strength quay sides and uplands as required by the OSW industry. One of the primary goals of the project is to serve coaster vessels delivering heavy cargo consisting of large OSW components (e.g., foundation elements, towers, nacelles, blades, etc.).

Project Street/Location:

- 649 Waterfront Drive, East Providence, RI



Provide construction site estimates of the total area of the site and the total area of the site that is expected to undergo soil disturbance.

The following are estimates of the construction site area:

- Total Project Area 31.25 acres
- Total Project Area to be Disturbed 30.1 acres

1.3 Natural Heritage Area Information

RIPDES CGP - Part III.H
Each project authorized under the RIPDES Construction General Permit must determine if the site is within or directly discharges to a Natural Heritage Area (NHA). DEM Natural Heritage Areas include known occurrences of state and federal rare, threatened and endangered species. Review RIDEM NHA maps to determine if there are natural heritage areas on or near the construction site that may be impacted during construction. (See also the RIDEM Notice of Intent instructions which can be found at the following link:

http://www.dem.ri.gov/programs/benviron/water/permits/swcoord/pdf/maptutor.pdf)

Are there any Natural Heritage Areas being disturbed by the construction activity or will discharges be directed to the Natural Heritage Area as a result of the construction activity?

☐ Yes ☒ No

If yes, describe or refer to documentation which determines the likelihood of an impact on this area and the steps that will be taken to address any impacts.

- Not Applicable

1.4 Historic Preservation/Cultural Resources

The National Historic Preservation Act, and any state, local, and tribal historic preservation laws apply to construction activities. As with endangered species, some permits may specifically require you to assess the potential impact of your stormwater discharges on historic properties. However, whether or not this is stated as a condition for permit coverage, the National Historic Preservation Act and any applicable state or tribal laws apply to you. Contact the Rhode Island Historic Preservation Officer (http://www.preservation.ri.gov/) or your Tribal Historic Preservation Officer (http://grants.cr.nps.gov/THPO_Review/index.cfm) for more information.

Are there any historic properties, historic cemeteries or cultural resources on or near the construction site?

☐ Yes ☒ No

Describe how this determination was made and summarize state or tribal review comments:

- Search of RI Historical Commission Database

If yes, describe or refer to documentation which determines the likelihood of an impact on this historic property, historic cemetery or cultural resource and the steps taken to address that impact including any conditions or mitigation measures that were approved by other parties.

- N/A

SECTION 2: EROSION, RUNOFF, AND SEDIMENT CONTROL

RIPDES Construction General Permit – Part III.J.1

The purpose of erosion controls is to prevent sediment from being detached and moved by wind or the action of raindrop, sheet, rill, gully, and channel erosion. Properly installed and maintained erosion controls are the primary defense against sediment pollution.

Runoff controls are used to slow the velocity of concentrated water flows. By intercepting and diverting stormwater runoff to a stabilized outlet or treatment practice or by converting concentrated flows to sheet flow erosion and sedimentation are reduced.

Sediment controls are the last line of defense against moving sediment. The purpose is to prevent sediment from leaving the construction site and entering environmentally sensitive areas.

This section describes the set of control measures that will be installed before and during the construction project to avoid, mitigate, and reduce impacts associated with construction activity. Specific control measures and their applicability are contained in Section Four: Erosion Control Measures, Section Five: Runoff Control Measures, and Section Six: Sediment Control Measures of the *RI SESC Handbook*. The *RI SESC Handbook* can be found at the following address:

http://www.dem.ri.gov/soilerosion2014final.pdf

2.1 Avoid and Protect Sensitive Areas and Natural Features

Per RI Stormwater Design and Installation Standards Manual 3.3.7.1:

Areas of existing and remaining vegetation and areas that are to be protected as identified in the Section 1.6 of the SESC Plan must be clearly identified on the SESC Site Plans for each Phase of Construction. Prior to any land disturbance activities commencing on the site, the Contractor shall physically mark limits of disturbance (LOD) on the site and any areas to be protected within the site, so that workers can clearly identify the areas to be protected.

Constraints are identified to ensure a comprehensive understanding of the project and surrounding areas. The first goal in the low impact development (LID) site planning and design process is to avoid disturbance of natural features. This includes identification and preservation of natural areas that can be used in the protection of water resources. It is important to understand that minimizing the hydrologic alteration of a site is just as important as stormwater treatment for resource protection. Therefore, describe all site features and sensitive resources that exist at the site such as, view barriers,, steep slopes (>15%)that if disturbed will require additional erosion controls, areas with the potential to receive run-on from off-site areas, wetlands, surface waters, and their riparian buffers, specimen trees, natural vegetation, forest areas, stream crossings, historic properties, historic cemeteries or cultural resources that are to be preserved. ***This includes those site features that should be avoided within the designated limits of disturbance.*** *These areas are often identified on a constraints map or in a separate constraints report. For additional discussion on this topic refer to Appendix F. Site Constraint Map of the RI SESC Handbook.*

Note:

The *Soil Survey of Rhode Island*, issued in 1980 is no longer available or supported. More information on site-specific soil data and maps for Rhode Island is available from the Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture through the Web Soil Survey. This information is available online at: http://websoilsurvey.nrcs.usda.gov.

Describe and illustrate on SESC Site Plans Sensitive Areas and Natural Features and how each will be protected during construction activity. Examples of areas to be protected include vegetated buffers, forests, stands of trees on the perimeter and within the site, large diameter trees, areas designated for infiltration (QPAs), bioretention, rain gardens, and OWTS leachfields. Protection for stands of trees and individual trees to be preserved must be specified and such protection must comply with the RI SESC Handbook and extend to the drip line.

Describe and illustrate on SESC Site Plans based on Constraints Map, the areas that will be disturbed with each phase of construction and the control measures (signs, fences, etc.) that will be used to protect those areas that should not be disturbed. ***This includes marking for limits of disturbance at the perimeter and areas within the limits of disturbance.*** *Acceptable measures include but are not limited to construction fencing (plastic mesh, snow fence, chain link fence etc.) appropriate for the site, boundary markers using construction tape, flagged stakes, etc. for low density use, sediment barriers such as silt fence, compost socks with flagging where also required for sediment control, and signage. The narrative portion of the plan and SESC Site Plans must highlight measures to prevent soil compaction in areas designated as Qualified Pervious Areas (QPAs) and infiltration practices to protect infiltration capacity.*

Feature Requiring Protection	Construction Phase #	Method of Protection	Sheet #
Northern Salt Marsh	1	Flagging, Posts, Fencing	ESC-1
Southern Salt Marsh	2	Flagging Posts, Fencing	ESC-1
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text

2.2 Minimize Area of Disturbance

Per RI Stormwater Design and Installation Standards Manual 3.3.7.2:

Will >5 acres be disturbed in order to complete this project?

☒ Yes ☐ No

If yes, phasing must be utilized at this site.

Will <5 acres be disturbed or will disturbance activities be completed within a six (6) month window?

☐ Yes ☒ No

If yes, phasing is not required as long as all other performance criteria will be met and phasing is not necessary to protect sensitive or highly vulnerable areas.

Based on the answers to the above questions will phasing be required for this project?

☒ Yes ☐ No

If yes, and phasing is required, describe phasing plan as prompted below.
Phasing will be performed to the maximum extent possible with the first area being centered around the entrance to the site along the northern edge to the bulkhead area. The second phase of work will be performed along the bulkhead area. Then another phase will be the remaining interior of the site. It is likely and required that more than 5 acres will be disturbed at once, as the nature of filling the 30 site to achieve uniform bearing capacity strength will require uniform filling and compaction.

If No, provide substantive reasons why this was determined to be infeasible.
Insert Text Here

PHASING PLAN

For each phase of the construction project, provide site estimates of the total area of the project phase, and the total area of the project phase that is expected to undergo soil disturbance.

The following are estimates of each phase of the construction project:

(Copy and paste this section for projects with multiple phases)

Phase No. or Identifier	1
Total Area of Phase	12 acres
Area to be Disturbed	11 acres

Description of Construction Sequencing for Phase 1

Phase 1 will include an area of disturbance from the site entrance on Waterfront Drive, up along the northern edge of the site to and along the proposed bulkhead area along the entire western face of the embankment.

Erosion controls shall be set in place prior to the earthwork beginning and they shall be inspected by the Owner's engineer. All control measures shown on the ESC drawings of the plan set shall be implemented to protect the site and the resources.

As the site will have shallow sloped grades, we don't anticipate a risk of high runoff rates, however the site will be graded into itself and away from the bordering resources and graded towards the temporary sedimentation basins.

The areas that are disturbed will likely remain disturbed continually, however if there are areas disturbed that are not used for more than 14 days, then those areas will be stabilized using erosion control blankets or other non-vegetation stabilization measures. Non vegetative stabilization measures are preferred as they will prevent organic matter from gathering into the soil substrate, which will have a negative impact on the proposed fully developed use on the site, which requires heavy bearing capacity.

The contractor shall review stabilization measures and practices on a daily basis and the Owner's engineer will conduct a weekly documented inspection of the site and highlight any measures or areas that need to be addressed. These inspections will also occur after any rainfall event of 0.5" or greater.

Phase No. or Identifier	2
Total Area of Phase	10 acres
Area to be Disturbed	10 acres

Description of Construction Sequencing for Phase 2

Phase 2 will include an area of disturbance along the southern perimeter of the site, from the western face to the eastern end near the continuation of Waterfront Drive.

Erosion controls shall be set in place prior to the earthwork beginning and they shall be inspected by the Owner's engineer. All control measures shown on the ESC drawings of the plan set shall be implemented to protect the site and the resources.

As the site will have shallow sloped grades, we don't anticipate a risk of high runoff rates, however the site will be graded into itself and away from the bordering resources and graded towards the temporary sedimentation basins.

The areas that are disturbed will likely remain disturbed continually, however if there are areas disturbed that are not used for more than 14 days, then those areas will be stabilized using erosion control blankets or other non-vegetation stabilization measures. Non vegetative stabilization measures are preferred as they

will prevent organic matter from gathering into the soil substrate, which will have a negative impact on the proposed fully developed use on the site, which requires heavy bearing capacity.

The contractor shall review stabilization measures and practices on a daily basis and the Owner's engineer will conduct a weekly documented inspection of the site and highlight any measures or areas that need to be addressed. These inspections will also occur after any rainfall event of 0.5" or greater.

Phase No. or Identifier	3
Total Area of Phase	10 acres
Area to be Disturbed	10 acres

Description of Construction Sequencing for Phase 3

Phase 3 will include an area of disturbance for the remaining interior of the site.

Erosion controls shall be set in place prior to the earthwork beginning and they shall be inspected by the Owner's engineer. All control measures shown on the ESC drawings of the plan set shall be implemented to protect the site and the resources.

As the site will have shallow sloped grades, we don't anticipate a risk of high runoff rates, however the site will be graded into itself and away from the bordering resources and graded towards the temporary sedimentation basins.

The areas that are disturbed will likely remain disturbed continually, however if there are areas disturbed that are not used for more than 14 days, then those areas will be stabilized using erosion control blankets or other non-vegetation stabilization measures. Non vegetative stabilization measures are preferred as they will prevent organic matter from gathering into the soil substrate, which will have a negative impact on the proposed fully developed use on the site, which requires heavy bearing capacity.

The contractor shall review stabilization measures and practices on a daily basis and the Owner's engineer will conduct a weekly documented inspection of the site and highlight any measures or areas that need to be addressed. These inspections will also occur after any rainfall event of 0.5" or greater.

Final stabilization will occur at the end of Phase 3. This will include the placement of the upper layer of dense graded aggregate, compacted in place, with an average land slope of 0.005 ft/ft. Once the site has achieved final grade, the infiltration trenches can be excavated in and the piping and crushed stone placed, allowing for the discharge of the stormwater.

Proper sequencing of construction activities is essential to maximize the effectiveness of erosion, runoff, and sediment control measures. Construction sequencing of construction activities for each phase must address the following elements:

1. *Installation of control measures identifying limits of disturbance and areas internal to the site that require protection before start of land disturbance.*
2. *Installation of all erosion, runoff, and sediment controls and temporary pollution prevention measures that are required to be in place and functional before any earthwork begins. This shall be done in accordance with the RI SESC Handbook and/or the RI Department of Transportation Standard Specifications for Road and Bridge Construction (as amended). Upon acceptable completion of site preparation and installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, site construction activities may commence.*

3. *The phasing plan shall address the use of phasing to manage and limit increases in runoff rates and volumes during construction. Designated phases and timing of construction should also address the impacts to important or sensitive habitats.*
4. *Upon commencement of site construction activities, the operator shall initiate appropriate stabilization practices on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased. Such temporary or permanent soil stabilization measures must be installed prior to initiating land disturbance in subsequent phases.*
5. *Routine inspection and maintenance and/or modification of erosion, runoff, and sediment controls and temporary pollution prevention measures while earthwork is ongoing is required.*
6. *Final site stabilization of any disturbed areas after earthwork has been completed and removal of temporary erosion, runoff, and sediment controls and temporary pollution prevention measures.*
7. *Activation of post-construction stormwater treatment conveyances and practices.*

2.3 Minimize the Disturbance of Steep Slopes

Per RI Stormwater Design and Installation Standards Manual 3.3.7.3:

Are steep slopes (>15%) present within the proposed project area?

☒ Yes ☐ No

If yes, steep slopes must be identified on SESC Site Plans.

If yes, also list the specific control measures that will be used to control surface runoff and reduce erosion potential on steep slopes during construction including references to SESC Site Plans where the locations of such control measures are shown. Examples include limiting the number of steep slopes that are disturbed at one time, implementing land grading techniques such as reverse slope benches, diversions, stair steps, and terraced landforms, installation of retaining walls for stabilization of challenging slopes, prevention of soil movement, and slope protection, applying materials for temporary and permanent protection of slopes to prevent erosion such as stone aggregates, rip-rap, erosion control blankets, appropriate spacing of sediment barriers as a function of barrier size, slope, and slope length, geotextile, cellular confinement systems, mattresses (gabions and others), and articulating blocks.

Steep slopes exist along the edges of the embankment. The existing slopes are secured in place with rip rap stone and concrete block. The slopes that exist along the southern and northern edges of the site will remain in place and not be touched. The slope that exists along the western edge of the site will be altered to construct the site, however they will be protected and measures will be implemented to keep the slope from eroding into the Providence River.

In order to construct the bulkhead, the rip rap stone and concrete block armoring of the embankment will need to be removed in order to install the sheet pile bulkhead. These work will be phased and the armoring will be removed only in advance of driving the sheets and not more than 14 days prior to the start of the sheet pile work.

2.4 Preserve Topsoil

Per RI Stormwater Design and Installation Standards Manual 3.3.7.4:

Site owners and operators must preserve existing topsoil on the construction site to the maximum extent feasible and as necessary to support healthy vegetation, promote soil stabilization, and increase stormwater infiltration rates in the post-construction phase of the project.

Will existing topsoil be preserved at the site?

☐ Yes ☒ No

If Yes, describe how topsoil will be preserved at the site by describing the techniques that will be implemented to achieve appropriate depths of topsoil (4 inch minimum) and identify the locations where topsoil will be restored on SESC Site Plans.

Insert Text Here and references to SESC Site Plan Sheet Numbers

If No, provide substantive reasons why this was determined to be infeasible.

The site was created with backfill of dredge spoils, so no topsoil exists on site. Furthermore, the site requires several acres of filling with dense graded aggregate and it will need to be heavily compacted.

Soil compaction must be minimized by maintaining limits of disturbance throughout construction. In instances where site soils are compacted the site owner and operator must restore infiltration capacity of the compacted soils by tilling or scarifying compacted soils and amending soils as necessary to ensure a minimum depth of topsoil is available in these areas. In areas where infiltrating stormwater treatment practices are located compacted soils must be amended such that they will comply the design infiltration rates established in the *RI Stormwater Design and Installation Standards Manual*.

Identify the methods that will be used to restore and amend topsoil at the site. Include references to plan notes and SESC Site Plan sheet numbers where this information is made available for the site operator.

Topsoil will not be amended and restored on site, the terminal is being designed for industrial uses and requires a heavily compacted granular wearing surface to allow for free range of use for cranes and storage.

2.5 Stabilize Soils

Per RI Stormwater Design and Installation Standards Manual 3.3.7.5:

Upon completion and acceptance of site preparation and initial installation of erosion, runoff, and sediment controls and temporary pollution prevention measures, the operator shall initiate appropriate temporary or permanent stabilization practices during all phases of construction on all disturbed areas as soon as possible, but not more than fourteen (14) days after the construction activity in that area has temporarily or permanently ceased.

Any disturbed areas that will not have active construction activity occurring within 14 days must be stabilized using the control measures depicted in the SESC Site Plans, in accordance with the *RI SESC Handbook*, and per manufacturer product specifications.

Only areas that can be reasonably expected to have active construction work being performed within 14 days of disturbance will be cleared/grubbed at any one time. It is NOT acceptable to clear and grub the entire construction site if portions will not be active within the 14-day time frame. Proper phasing of clearing and grubbing activities shall include temporary stabilization techniques for areas cleared and grubbed that will not be active within the 14-day time frame.

All disturbed soils exposed prior to October 15 of any calendar year shall be seeded by that date if vegetative measures are the intended soil stabilization method. Any such areas that do not have adequate

vegetative stabilization, as determined by the site operator or designated inspector, by November 15, must be stabilized through the use of non-vegetative erosion control measures. If work continues within any of these areas during the period from October 15 through April 15, care must be taken to ensure that only the area required for that day's work is exposed, and all erodible soil must be restabilized within 5 working days. In limited circumstances, stabilization may not be required if the intended function of a specific area of the site necessitates that it remain disturbed (i.e. construction of a motocross track).

Describe controls (i.e., temporary seeding with native vegetation, hydroseeding, mulching, application of rolled erosion control products, etc.) including design specifications and details that will be implemented to stabilize exposed soils where construction activities have temporarily or permanently ceased.

Temporary Vegetative Control Measures

- Vegetative Control Measures will not be used due to the lack of organic matter that will be used on site and the final cover of granular material.

Temporary Non-Vegetative Control Measures

- Non-vegetative control measures will include minimize the use of soil stockpiles, (not necessitated by site operations), surrounding stockpiles with silt fence and erosion controls, and when needed covering stockpiles with poly sheeting anchored down and secured.

- No steep slope disturbance should occur outside of the western face and therefore no specific steep slope erosion controls should occur.

Permanent Vegetative Control Measures

- No permanent vegetative controls will be required as a result of the industrial nature of the property.

Permanent Non-Vegetative Control Measures

- The permanent control measures that will be applied to this site include:
    1. The use of shallow slopes , 0.005 ft/ft
    2. Heavy roller compaction of granular material
    3. Maintaining slope armoring on northern and southern ends of the site.

2.6 Protect Storm Drain Outlets

Per RI Stormwater Design and Installation Standards Manual 3.3.7.7:

Temporary or permanent outlet protection must be used to prevent scour and erosion at discharge points through the protection of the soil surface, reduction in discharge velocities, and through the promotion of infiltration. Outlets often have high velocity, high volume flows, and require strong materials that will withstand the forces of stormwater. Storm drain outlet control measures also offer a last line of protection against sediment entering environmentally sensitive areas.

All stormwater outlets that may discharge sediment-laden stormwater flow from the construction site must be protected using the control practices depicted on the approved plan set and in accordance with the *RI SESC Handbook*.

Describe controls, including design specifications and details, which will be implemented to protect outlets discharging stormwater from the project.

Will temporary or permanent point source discharges be generated at the site as the result of construction of sediment traps or basins, diversions, and conveyance channels?

☒ Yes ☐ No

If Yes, describe the method(s) of outlet protection specified for each instance where a point source discharge will be generated. In addition, specifically reference SESC Site Plan Sheet Numbers which identify where the outlets will be constructed at the site and the corresponding control measures that will be utilized for their protection including any associated specifications required for their installation and maintenance.

There will likely be temporary de-watering or stormwater basins constructed during the buildout phase. The basins will be appropriately sized to provide sufficient retention time for the anticipated stormflow volumes to allow sediment to settle out prior to discharge. Any point source discharge shall by monitored by the Owner's engineer for Turbidity .

Groundwater dewatering, if necessary, may be conducted by pumping through a frac tank or geo-bag that is appropriately sized to reduce the level of suspended solids in the water.

If No, discuss rationale for not including these elements in the SESC Plan.

Insert text

2.7 Establish Temporary Controls for the Protection of Post-Construction Stormwater Treatment Practices

Per RI Stormwater Design and Installation Standards Manual 3.3.7.8:

Temporary measures shall be installed to protect permanent or long-term stormwater control and treatment measures as they are installed and throughout the construction phase of the project so that they will function properly when they are brought online.

Examples of temporary control measures that can be used to protect permanent stormwater control measures include: establishing temporary sediment barriers around infiltrating practices, ensuring proper material staging areas and equipment routing (i.e. do not allow construction equipment to compact areas where infiltrating practices will be installed), and by conducting final cleaning of structural long term practices after construction is completed.

List and describe all post-construction stormwater treatment practices that will be installed during the construction process. Next, outline how these measures will be protected during the construction phase of the project to ensure that they will function appropriately once they are brought online.

Will long-term stormwater treatment practices be installed at the site?

☒ Yes ☐ No

If Yes, describe the specific long-term stormwater treatment practices that will require protection from sedimentation and compaction. In addition, specifically reference SESC Site Plan Sheet Numbers which identify the location of these practices and the corresponding control measures that will be utilized for their protection including any associated specifications required for their installation and maintenance.

The Site will be kept permeable and the stormwater will be managed through crushed stone infiltration trenches that contain a perforated underdrain pipe. The trenches will be lined with a geotextile fabric to prevent movement of smaller grained material into the trenches. The upper elevations of the crushed stone infiltration trenches can be removed and replaced if they become laden with sediment.

If No, discuss rationale for not including these elements in the SESC Plan.

Insert text

2.8 Divert or Manage Run-on from Up-gradient Areas

Per RI Stormwater Design and Installation Standards Manual 3.3.7.10:

Is stormwater from off-site areas anticipated to flow onto the project area or onto areas where soils will be disturbed?

☐ Yes ☒ No

If Yes, describe the specific runoff control measures (i.e., check dams, water bars, diversions, perimeter dikes, lined waterways, vegetated waterways, temporary line channels, sediment barriers, pipe slope drains, etc.) that will be utilized at the site including references to the SESC Site Plan Sheet Numbers, design specifications and details. See the RI SESC Handbook,Section Five: Runoff Control Measures for additional guidance.

Pre-Construction and Construction sub-watershed maps are included for each phase in this SESC Plan submittal.

Structural control measures will be used to limit stormwater flow from coming onto the project area, and to divert and slow on-site stormwater flow that is expected to impact exposed soils for the purpose of minimizing erosion, runoff, and the discharge of pollutants from the site.

Control measures shall be installed as depicted on the approved plan set and in accordance with the *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction*. **Run-on and Run-off Management**				
Construction Phase #	On-site or Off-site Run-on?	Control measure	Identified on Sheet #	Detail(s) is/are on Sheet #
1	Off - Site	Lined Waterway	3	11 of 12
Insert Text	Insert Text	Insert Text		Insert Text
Insert Text	Insert Text	Insert Text		Insert Text
Insert Text	Insert Text	Insert Text		Insert Text

If No, discuss rationale for not including these elements in the SESC Plan.

The site already sits several feet above the surrounding properties and it is being raised an additional five feet in elevation. Therefore, run-on coming from off-site onto the property is very unlikely.

2.9 Retain Sediment Onsite through Structural and Non-Structural Practices

Per RI Stormwater Design and Installation Standards Manual 3.3.7.12:

Once the erosion control measures and the run-on diversions are identified and located on the plans, the next step to site planning is sediment control and sediment management. Sediment barriers, inlet protection, construction entrances, stockpile containment, temporary sediment traps, and temporary sediment basins must be integrated into the SESC Plan if applicable. Refer to the RI SESC Handbook Section Six: Sediment Control Measures for additional guidance.

Per RI Stormwater Design and Installation Standards Manual 3.3.7.9:

SEDIMENT BARRIERS must be installed along the perimeter areas of the site that will receive stormwater from disturbed areas. This also may include the use of sediment barriers along the contour of disturbed slopes to maintain sheet flow and minimize rill and gully erosion during construction. Installation and maintenance of sediment barriers must be completed in accordance with the maintenance requirements specified by the product manufacturer or the *RI SESC Handbook*.

Will sediment barriers be utilized at the toe of slopes and other downgradient areas subject to stormwater impacts and erosion during construction?

☒ Yes ☐ No

If Yes, Describe the rationale for selecting control measures to serve as sediment barriers at the toe of slopes and other down gradient areas subject to stormwater impacts during construction. Describe the specific sediment barriers that will be used at the site in the table provided.

If No, discuss rationale for not including these elements in the SESC Plan.

Sediment barriers, in the form of straw wattles will be placed around the downgradient perimeter of the site. The straw wattles will be staked into place and backed up by a silt fence. These barriers shall be inspected every two weeks and after any rainfall event of .5 inches or more. Accumulated sediment and debris noted during those inspections shall be removed within 48 hours.

Describe rationale for whether or sediment barriers are required at regular intervals along slopes in order to minimize the creation of concentrated flow paths (i.e. rilling, gully erosion) and to encourage sheet flow. Keep in mind that sediment barriers can be placed at the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow. The description of the selected control measures must focus on sediment barrier spacing as a function of slope length and steepness. Refer to the RI SESC Handbook, Section Six: Sediment Control Measure, Straw Wattles, Compost Tubes, and Fiber Rolls Control Measure for additional information on acceptable spacing distances.

Will sediment barriers be utilized along the contour of slopes to maintain sheet flow and minimize rill and gully erosion during construction?

☐ Yes ☒ No

If Yes, list the specific sediment barriers that will be used at the site in the table provided. Describe the rationale for the locations and spacing frequency selected by the designer based on slope length and

steepness. For additional guidance refer to the RI SESC Handbook or sediment barrier manufacturer's specifications.

SEDIMENT BARRIERS			
Construction Phase #	Sediment Barrier Type	Sediment Barrier is Labeled on Sheet #	Detail is on Sheet #
1	20 inch dia. Fiber roll	5 of 12	11 of 12
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text

If No, discuss rationale for not including these elements in the SESC Plan.
The site is going to be graded at a very shallow slope, 0.005 ft/ft. This flattened slope will minimize runoff velocities, thereby minimizing erosive tendencies of the soil. Furthermore, the site will be actively fill and compacted, so the sediment barrier would need to be continually removed and replaced.

Per RI Stormwater Design and Installation Standards Manual 3.3.7.6:

INLET PROTECTION will be utilized to prevent soil and debris from entering storm drain inlets. These measures are usually temporary and are implemented before a site is disturbed. ALL stormwater inlets &/or catch basins that are operational during construction and have the potential to receive sediment-laden stormwater flow from the construction site must be protected using control measures outlined in the *RI SESC Handbook*.

For more information on inlet protection refer to the *RI SESC Handbook*, Inlet Protection control measure.

Maintenance

The operator must clean, or remove and replace the inlet protection measures as sediment accumulates, the filter becomes clogged, and/or as performance is compromised. Accumulated sediment adjacent to the inlet protection measures should be removed by the end of the same work day in which it is found or by the end of the following work day if removal by the same work day is not feasible.

Describe controls, including design specifications and details, which will be implemented to protect all inlets receiving stormwater from the project during the entire duration of the project. For more information on inlet protection refer to the RI SESC Handbook Inlet Protection control measure.

Do inlets exist adjacent to or within the project area that require temporary protection?

☐ Yes ☒ No

If Yes, describe the method(s) of inlet protection, including maintenance requirements and complete the table provided.

The following lists the proposed storm drain inlet types selected from Section Six of the *RI SESC Handbook*. Each row is unique for each phase and inlet protection type.

INLET PROTECTION			
Construction Phase #	Inlet Protection Type	Inlet Protection is labeled on Sheet #	Detail(s) is/are on Sheet #
1	Fabric Drop , Curb Drop	3 of 12	11 of 12
Insert Text	Insert Text	Insert Text	Insert Text
Insert Text	Insert Text	Insert Text	Insert Text

Insert Text	Insert Text	Insert Text	Insert Text

If No, discuss rationale for not including these elements in the SESC Plan.

The existing site is a permeable site, created with dredge spoils and there were no stormwater controls or inlet structures implemented during its creation. The site more or less drains into itself or discharges via overland flow into the Providence River.

CONSTRUCTION ENTRANCES will be used in conjunction with the stabilization of construction roads to reduce the amount of sediment tracking off the project. This project has avoided placing construction entrances on poorly drained soils where possible. Where poorly drained soils could not be eliminated, the detail includes subsurface drainage.

Any construction site access point must employ the control measures on the approved SESC site plans and in accordance with the *RI SESC Handbook*. Construction entrances shall be used in conjunction with the stabilization of construction roads to reduce the amount of mud picked up by construction vehicles. All construction access roads shall be constructed prior to any roadway accepting construction traffic.

The site owner and operator must:

1. Restrict vehicle use to properly designated exit points.

2. Use properly designed and constructed construction entrances at all points that exit onto paved roads so that sediment removal occurs prior to vehicle exit.

3. When and where necessary, use additional controls to remove sediment from vehicle tires prior to exit (i.e. wheel washing racks, rumble strips, and rattle plates).

4. Where sediment has been tracked out from the construction site onto the surface of off-site streets, other paved areas, and sidewalks, the deposited sediment must be removed by the end of the same work day in which the track out occurs. Track-out must be removed by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.

Will construction entrances be utilized at the proposed construction site?

☒ Yes ☐ No

If Yes, indicate location(s) of vehicle entrance(s) and exit(s), and stabilization practices used to prevent sediment from being tracked off-site in the table provided. See also RI SESC Handbook, Section Six, Construction Entrances Measure.

CONSTRUCTION ENTRANCE			
Construction Phase #	Soil Type at the Entrance	Entrance is located on Sheet #	Detail is on Sheet #
1	Crushed angular stone	ESC-1	D-3
2	Crushed angular stone	ESC-1	D-3
3	Crushed angular stone	ESC-1	D-3
Insert Text	Insert Text	Insert Text	Insert Text

If No, discuss rationale.

Insert text

STOCKPILE CONTAINMENT will be used onsite to minimize or eliminate the discharge of soil, topsoil, base material or rubble, from entering drainage systems or surface waters. All stockpiles must be located within the limit of disturbance, protected from run-on with the use of temporary sediment barriers and provided with cover or stabilization to avoid contact with precipitation and wind where and when practical.

Stock pile management consists of procedures and practices designed to minimize or eliminate the discharge of stockpiled material (soil, topsoil, base material, rubble) from entering drainage systems or surface waters.

For any stockpiles or land clearing debris composed, in whole or in part, of sediment or soil, you must comply with the following requirements:

1. Locate piles within the designated limits of disturbance.

2. Protect from contact with stormwater (including run-on) using a temporary perimeter sediment barrier.

3. Where practicable, provide cover or appropriate temporary vegetative or structural stabilization to avoid direct contact with precipitation or to minimize sediment discharge.

4. NEVER hose down or sweep soil or sediment accumulated on pavement or other impervious surfaces into any stormwater conveyance, storm drain inlet, or surface water.

5. To the maximum extent practicable, contain and securely protect from wind.

Describe materials expected to be stockpiled or stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater and to eliminate the discharge of stockpiled material from entering drainage systems and surface waters. Refer to the RI SESC Handbook, Stockpile and Staging Area Management Control Measure for additional guidance. Complete the table provided.

STOCKPILE CONTAINMENT				
Construction Phase #	Run-on measures necessary? (yes/no)	Stabilization or Cover Type	Stockpile Containment Measure	Sheet #
1	No	Poly	Silt fence/wattle	ESC-1
2	No	Poly	Silt fence/wattle	ESC-1
3	No	Poly	Silt fence/wattle	ESC-1
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

CONSTRUCTED SEDIMENT STRUCTURES

If each common drainage location receives water from an area with less than one (1) acre disturbed at a time, this section can be deleted and no sediment traps or basins are required. However, it is important to remember that there is still a requirement to retain sediment on-site. Therefore, if it is in the best professional judgment of the designer, that there is a condition or circumstance which may require structural controls (per Section 3.3.7.13 of the RI Stormwater Design and Installation Standards Manual), this section can be used.

TEMPORARY SEDIMENT TRAPS will be utilized onsite. There will be no disturbed drainage areas greater than one acre that will be exposed for longer than six months. Design and sizing calculations in accordance

with the *RI SESC Handbook*, Section Six are found in the appendix of this SESC Plan. A summary of the calculations are provided below:

For Disturbed Areas 1 to 5 Acres – Those areas with a common drainage location that serves an area between one (1) and five (5) acres disturbed at one time, a temporary sediment trap must be provided where attainable and where the sediment trap is only intended to be used for a period of six (6) months or less. For longer term projects with a common drainage location that serves between one (1) and five (5) acres disturbed at one time, a temporary sediment basin must be provided where attainable. Temporary sediment trapping practices must be designed in accordance with the RI SESC Handbook and must be sized to have a total storage volume capable of storing one (1) inch of runoff from the contributing area or one hundred and thirty four (134) cubic yards per acre of drainage area. A minimum of fifty percent (50%) of the total volume shall be storage below the outlet (wet storage). See RISDISM 3.3.7.12 for requirements and RI SESC Handbook, Section Six: Temporary Sediment Traps Measure for design details.

Are temporary sediment traps required at the site?

☒ Yes ☐ No

If Yes, complete the table provided. If an area greater than one acre will be exposed for longer than 6 months and a sediment trap is proposed, explain why the sediment basin was not attainable.

SEDIMENT TRAPS				
Construction Phase #	Exposed Area (acres)	Trap #	Sheet #	Detail found on Sheet#
1	11	1	ESC	D
2	10	2	ESC	D
3	10	3	ESC	D
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

Trap #	Wet Storage Volume (cu.ft)	Dry Storage Volume (cu.ft.)	Cleanout Depth (ft)	Provide Reference to Location of Supporting Design and Sizing Calculations
1	850	1650	2	See spreadsheet
2	765	1500	2	See spreadsheet
3	765	1500	2	See spreadsheet
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

All traps will be functional and installed prior to disturbance in the contributing drainage area. Access for sediment removal is provided on the plans with cleanout depth requirements. The removed sediment will be utilized onsite or disposed of properly off-site.

If No, discuss rationale.

Insert text

TEMPORARY SEDIMENT BASIN(S) will be utilized onsite. Every effort must be made to prevent erosion and control it near the source.

If the following criterion does not apply to your proposed construction project, then this section may be eliminated from the plan.

For Disturbed Areas of 1 to 5 Acres – Those areas with a common drainage location that serves an area between one (1) and five (5) acres disturbed at one time for longer than six (6) months.

For Disturbed Areas > 5 Acres – Those areas with a common drainage location that serves an area with greater than five (5) acres disturbed at one time, a temporary (or permanent) sediment basin must be provided where attainable until final stabilization of the site is complete. Temporary sediment basins must be designed in accordance with the RI SESC Handbook. The volume of wet storage shall be at least twice the sediment storage volume and shall have a minimum depth of two (2) feet. Sediment storage volume must accommodate a minimum of one year of predicted sediment load as calculated using the sediment volume formula in the RI SESC Handbook. In addition to sediment storage volume and wet storage volume, the sediment basin shall provide adequate residence storage volume to provide a minimum 10 hours residence time for a ten (10) -year frequency, twenty four (24) hour duration, Type III distribution storm. To the maximum extent practicable, outlet structures must be utilized that withdraw water from the surface of temporary sedimentation basins for the purpose of minimizing the discharge of pollutants. Exceptions may include periods of extended cold weather, where alternative outlets are required during frozen periods. If such a device is infeasible for portions of or the entire construction period justification must be made in the SESC Plan. Describe the reasons sediment basins are required for this project. They may include physical conditions, land ownership, construction operations etc. For design details see RI SESC Handbook Section Six: Temporary Sediment Basins Measure.

Are temporary sediment basins required at the site?

☒ Yes ☐ No

If No, discuss rationale.

Insert text

If Yes, complete the table provided.

There will be disturbed areas greater than 5 acres and/or disturbed areas greater than one acre but exposed for longer than six months. The basins have been located to intercept runoff only from disturbed areas and minimize interference with other construction activities and construction of utilities. They have been located outside of any natural buffers. The dam height is less than six feet and holds less than fifteen (15) acre-ft.

Modeling, Design and Sizing calculations in accordance with the *RI SESC Handbook*, Section Six are found in __the Appendix of this A___ of this SESC Plan. The designs were also prepared to satisfy Section 3.3.7.13 of the Stormwater Manual and will control Temporary Increases in Stormwater Velocity, Volume, and Peak Flows.

The temporary sediment basins were designed to provide sedimentation controls to the site. Full compliance with the sediment basin sizing requirements is not feasible, as it would require over 1/3 of the site. This is not feasible as the site will be graded at a very shallow slope, 0.005 ft/ft, reducing the velocity of runoff and therefore the potential to carry sediment in the runoff. Furthermore, the sedimentation basins are designed to not discharge offsite, so runoff of a large volume even if not contained in the sedimentation basin, will pool and remain on-site, effectively meeting the spirit of the regulation.

A summary of the assumptions and calculations are provided below:

TEMPORARY SEDIMENT BASINS				
Construction Phase #	Exposed Area (acres)	Basin #	Sheet #	Detail found on Sheet#
1	11	1	ESC-1	D-4
2	10	2	ESC-1	D-4

3	10	3	ESC-1	D-4
Insert Text	Insert Text	Insert Text	Insert Text	Insert Text

Provide the following tables for each temporary sediment basin. Each basin shall be designed to contain sediment and runoff from the 10-year Type III distribution storm.

SEDIMENT BASIN #1 Pre-Development					
Pre-Construction Cover Type	Contributing Area (acres)	Soil Type	Curve Number	Tc (minutes)	10- Year Type III (cfs, at time t, acre feet)
Gravel	11	B	85	16	30.95
				Total Pre-Construction Volume (cuft):	**30.95**
During Construction					
Construction Cover Type	Contributing Area	Erosion Rates	Curve Number	Tc (minutes)	10-Year Type III (cfs, at time t, acre feet)
Granular Gravel	11	50	76	42.4	15.06
				Total Runoff Volume During Construction (cuft):	**15.06**
Basin #1					
Pre-Construction Peak Discharge (cfs)	Wet Storage Volume (cuft)	Sediment Storage Volume (cuft)	Residence Storage Volume (cuft)	Outlet Max Discharge Rate (cfs)	Emergency Spillway Discharge Capacity (cfs)
30.95	14807	43420	51440	6.55	15.06 cfs

SEDIMENT BASIN #2 Pre-Development					
Pre-Construction Cover Type	Contributing Area (acres)	Soil Type	Curve Number	Tc (minutes)	10- Year Type III (cfs, at time t, acre feet)
Gravel	10	B	85	11	32.11
				Total Pre-Construction Volume (cuft):	**32.11**
During Construction					
Construction Cover Type	Contributing Area	Erosion Rates	Curve Number	Tc (minutes)	10-Year Type III (cfs, at time t, acre feet)

Granular Gravel	10	50	76	42.4	13.69
				Total Runoff Volume During Construction (cuft):	**13.69**
Basin #2					
Pre-Construction Peak Discharge (cfs)	Wet Storage Volume (cuft)	Sediment Storage Volume (cuft)	Residence Storage Volume (cuft)	Outlet Max Discharge Rate (cfs)	Emergency Spillway Discharge Capacity (cfs)
32.11	58089	170340	207496	6.55	13.69

SEDIMENT BASIN #3 Pre-Development					
Pre-Construction Cover Type	Contributing Area (acres)	Soil Type	Curve Number	Tc (minutes)	10- Year Type III (cfs, at time t, acre feet)
Gravel	10	B	85	11	32.11
				Total Pre-Construction Volume (cuft):	**32.11**
During Construction					
Construction Cover Type	Contributing Area	Erosion Rates	Curve Number	Tc (minutes)	10-Year Type III (cfs, at time t, acre feet)
Granular Gravel	10	50	76	42.4	13.69
				Total Runoff Volume During Construction (cuft):	**13.69**
Basin #3					
Pre-Construction Peak Discharge (cfs)	Wet Storage Volume (cuft)	Sediment Storage Volume (cuft)	Residence Storage Volume (cuft)	Outlet Max Discharge Rate (cfs)	Emergency Spillway Discharge Capacity (cfs)
32.11	25058	73480	86648	6.55	13.69

As noted above, the function and the need for these temporary sediment basins is not truly applicable to this project. While large areas of the site may be disturbed, the areas will be actively used and filled. Most importantly with respect to erosion and fill, the geotechnical design of the site requires that as materials are placed on the site, they are heavy compacted in place in shallow lifts as they are put down. Furthermore the function and need for the basins is reduced as the site is graded at such a shallow grade of 0.005 ft/ft.

The site will be raised evenly and continually as fill material is brought in and placed on site. Therefore the continual activity will leave very little “disturbed” area that would be vulnerable to erosion and sedimentation issues. These sedimentation basins may appear undersized based on the prescriptive manner from the guide book, however the reality of their implementation, based on previous experience, will show that there is more than sufficient capacity to control erosion and sedimentation that may occur on site.

All sediment basins will be functional and installed prior to disturbance in the contributing drainage area. Access for sediment removal is provided on the plans with cleanout depth specifications. The removed sediment will be utilized onsite or properly disposed of off-site.

The outlets for each basin described above will actually function as hydraulic connection between the basins, so that one may support the other. Given that the basins will prevent downstream and therefore offsite runoff, the overflow will occur by backing up and flooding the site, creating residual temporary storage to prevent overflow.

2.10 Properly Design Constructed Stormwater Conveyance Channels

Conveyances are required to be designed for inlets to temporary sediment basins. The construction site planner must use best professional judgment to determine if additional conveyance design is required for run-on control or in any other location where velocity control is required.

Are temporary stormwater conveyance practices required in order to properly manage runoff within the proposed construction project?

☒ Yes ☐ No

If Yes, describe the specific control measures that will be used at the site. Provide or attach design calculations associated with each proposed conveyance measure, demonstrating that each one is designed and sized to handle the peak flow from a 10-year, 24-hour, Type III design storm. Note where within the site plans each specified conveyance is depicted, including specifications and construction details.

The site will use crushed stone lined conveyance channels to transport runoff from disturbed areas to the temporary sedimentation basins. The channels will be underlain by a geotextile fabric.

The conveyance will be maintained as depicted on SESC Site Plans and in accordance with the *RI SESC Handbook* and if applicable.

If No, discuss rationale for not including conveyance measures in the SESC Plan.

Insert text

2.11 Erosion, Runoff, and Sediment Control Measure List

Complete the following table for each Phase of construction where Erosion, Runoff, and Sediment Control Measures are located. This table is to be used as part of the SESC Plan Inspection Report – please fill out accordingly.

It is expected that this table and corresponding Inspection Reports will be amended as needed throughout the construction project as control measures are added or modified.

Phase No. #1		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Northern Perimeter of Work Area	Straw wattles and silt fence combination	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed.

		Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Waterfront Drive Construction Entrance	Stone Stabilized Pad.	The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto pave surfaces. Provide periodic top dressing with additional stone or additional length as conditions demand. Roads adjacent to entrance shall be clean at the end of each day. If maintenance alone is not enough to prevent excessive track out, increase length of entrance, modify construction access road surface, or install washrack or mudrack.
Southern end of Phase 1	Conveyance channel	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Eastern end of Phase 1	Temporary Sedimentation Basin	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

Phase No. #2		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Southern Perimeter of Work Area	Straw wattles and silt fence combination	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

Southern end of Phase 2	Conveyance channel	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Eastern end of Phase 2	Temporary Sedimentation Basin	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

Phase No. #3		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Eastern Perimeter of Work Area	Straw wattles and silt fence combination	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Northern end of Phase 1	Conveyance channel	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.
Eastern end of Phase 3	Temporary Sedimentation Basin	Inspection should be made after each storm event or 1/week and repair or replacement should be made promptly as needed. Cleanout of accumulated sediment behind the wattle if sediment accumulates to at least ½ the distance between the top of wattle and ground surface.

SECTION 3: CONSTRUCTION ACTIVITY POLLUTION PREVENTION

Per RI Stormwater Design and Installation Standards Manual 3.3.7.14:

The purpose of construction activity pollution prevention is to prevent day to day construction activities from causing pollution.

This section describes the key pollution prevention measures that must be implemented to avoid and reduce the discharge of pollutants in stormwater. Example control measures include the proper management of waste, material handling and storage, and equipment/vehicle fueling/washing/maintenance operations.

Where applicable, include *RI SESC Handbook* or the *RI Department of Transportation Standard Specifications for Road and Bridge Construction* (as amended) specifications.

3.1 Existing Data of Known Discharges from Site

Per RIPDES Construction General Permit – Part III.I:

List and provide existing data (if available) on the quality of any known discharges from the site. Examples include discharges from existing stormwater collection systems, discharges from industrial areas of the site, etc.

Are there known discharges from the project area?

☐ Yes ☒ No

Describe how this determination was made:

- It is an un-used unimproved site.

If yes, list discharges and locations:

- INSERT TEXT HERE

Is there existing data on the quality of the known discharges?

☐ Yes ☒ No

If yes, provide data:

- INSERT TEXT HERE

3.2 Prohibited Discharges

Per RI SESC Handbook – Part D

The following discharges are prohibited at the construction site:

- Contaminated groundwater, unless specifically authorized by the DEM. These types of discharges may only be authorized under a separate DEM RIPDES permit.
- Wastewater from washout of concrete, unless the discharge is contained and managed by appropriate control measures.
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials.
- Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance. Proper storage and spill prevention practices must be utilized at all construction sites.
- Soaps or solvents used in vehicle and equipment washing.

- Toxic or hazardous substances from a spill or other release.

All types of waste generated at the site shall be disposed of in a manner consistent with State Law and/or regulations.

Will any of the above listed prohibited discharges be generated at the site?

☒ Yes ☐ No

If Yes, provide a list of those that will be generated at the site and provide a discussion of how they will be managed, including references to the specific SESC Site Plans where such control measures are specified.

Pollutant-Generating Activity	**Pollutants or Pollutant Constituents** (that could be discharged if exposed to stormwater)	**Location on Site** (or reference SWPPP site map where this is shown)
Fuel	Diesel/Gasoline	Approved Storage container no closer than 100' from wetlands
Equipment Maintenance	Hydraulic Oil, Grease, Oil	Approved Storage container no closer than 100' from wetlands
Site grading and excavation	Fugitive Dust	In areas of disturbance
Solid Waste	Solid waste	Use appropriate containers placed on level impervious surface
Concrete/Mortar cleaning	Cement, mortar	For foundations and building construction

Insert text and references to SESC Site Plan Sheet Numbers here.

If No, discuss rationale.

Insert text

3.3 Proper Waste Disposal

Per RI SESC Handbook – Part D

Building materials and other construction site wastes must be properly managed and disposed of in a manner consistent with State Law and/or regulations.

- A waste collection area shall be designated on the site that does not receive a substantial amount of runoff from upland areas and does not drain directly to a waterbody or storm drain.
- All waste containers shall be covered to avoid contact with wind and precipitation.
- Waste collection shall be scheduled frequently enough to prevent containers from overfilling.
- All construction site wastes shall be collected, removed, and disposed of in accordance with applicable regulatory requirements and only at authorized disposal sites.
- Equipment and containers shall be checked for leaks, corrosion, support or foundation failure, or other signs of deterioration. Those that are found to be defective shall be immediately repaired or replaced.

Is waste disposal a significant element of the proposed project?

☐ Yes ☒ No

If Yes, identify potential building materials and other construction wastes and document how these wastes will be properly managed and disposed of at the construction site (i.e., trash disposal, sanitary wastes, recycling, and proper material handling). Include references to the specific SESC Site Plans where such control measures are specified.

- Insert text and references to SESC Site Plan Sheet Numbers here.

If No, discuss rationale.

The project is mostly site work and there are limited building materials. Building materials to be used includes steel for the bulkhead, steel reinforcing bars, concrete for the relieving platform and electrical trenches, and then piping and conduit. The rest of the building materials will be fill with natural earthen materials. There are no significant hazardous building products that will be used as part of this project.

3.4 Spill Prevention and Control

Per RI SESC Handbook – Part D

All chemicals and/or hazardous waste material must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. All areas where potential spills can occur and their accompanying drainage points must be described. The owner and operator must establish spill prevention and control measures to reduce the chance of spills, stop the source of spills, contain and clean-up spills, and dispose of materials contaminated by spills. The operator must establish and make highly visible location(s) for the storage of spill prevention and control equipment and provide training for personnel responsible for spill prevention and control on the construction site.

Are spill prevention and control measures required for this particular project?

☒ Yes ☐ No

If Yes, describe all areas where potential spills can occur, and their accompanying drainage points, and describe the spill prevention and control plan to reduce the chance of spills, stop the source of spills, contain and clean up spills, dispose of materials contaminated by spills, and train personnel responsible for spill prevention and control. Provide the method of establishing and making highly visible the location(s) for the storage of spill prevention equipment. Refer to the RI SESC Handbook, Spill Prevention and Control Plan for guidance.

Oil containing materials are likely to be present in small quantities on site. When materials are transported on site using a forklift or heavy equipment, either a drum attachment is used or containers are strapped to pallets on the forklift to prevent the containers from falling during movement. If a barrel dolly is used, the operator will ensure that the barrel is compatible with the dolly and that the barrel is properly secured to the dolly. The following outlines delivery and transport procedures for small containers:

1. Containers are checked for damaged areas or signs of corrosion. If any is detected, the container contents are transferred to an appropriate container and labeled prior to moving.
2. Contractor's personnel ensure that containers are closed prior to moving.
3. Containers are secured on forks or pallets when using a forklift or heavy machinery or properly secured when using a dolly to prevent containers from falling during movement.

Discovery of a Release

The person discovering a release of material from a container, tank, or operating equipment should initiate certain actions immediately. These actions include the following:

First ensuring that no danger to human health exists, attempt to stop the release at its source. Simple procedures (turning valves, plugging leaks, etc.) may be attempted by the discoverer if there is no health or safety hazard and there is a reasonable certainty of the origin of the leak. All efforts to control leaks must be under the supervision of an appointed supervisor.

Extinguish any sources of ignition. Until the material is identified as nonflammable and noncombustible, all potential sources of ignition in the area should be removed. Vehicles should be turned off. If the ignition source is stationary, and cannot be extinguished, attempt to direct the spilled material away from the ignition source. Avoid sparks and movement creating static electricity.

Initiate spill notification and reporting procedures. Report the incident immediately to the Site Supervisor. If there is an immediate threat to human life (e.g., a fire in progress or fumes overcoming workers), an immediate alarm should be sounded to evacuate the building and the local Fire Department should be called. Request the assistance of a hazardous materials response contractor if an uncontrollable spill has occurred and/or if the spill has migrated beyond the site boundaries.

Containment of a Release

If a release should occur, all regulated oil at the facility can be safely contained within secondary containment structures or otherwise diverted to be retained onsite without impact to surface water if a release occurs. However, if material is released outside the containment areas, it is critical that the material is accurately identified and appropriate control measures are taken in the safest possible manner. Immediate containment measures can include the following:

Attempt to stop the release at the source. If the source of the release has not been found; if special protective equipment is necessary to approach the release area; or if assistance is required to stop the release, the local Fire Department and an emergency spill contractor should be called to halt the discharge at its source. Contractor personnel should be available to guide the Fire Department's efforts.

Contain the material released into the environment. Following proper safety procedures, the spill should be contained by absorbent materials and dikes using shovels and brooms.

Continue the notification procedures. Obtain assistance from a hazardous material contractor if necessary. The hazardous material contractor will be called for assistance if the spill exceeds 10 gallons, or if the Site Supervisor determines that outside help is necessary or desirable.

Spill Cleanup

Cleanup of spills of more than 10 gallons of oil will be conducted by a hazardous material contractor. The MCP requires responsible parties to retain a Licensed Site Professional (LSP) to direct cleanup activities for all spills which are reportable under the MCP. The LSP should be contacted as soon as possible after the spill occurs so that they can direct and observe cleanup activities and ensure compliance with the applicable regulations.

Cleanup of spills less than 10 gallons of oil may be conducted by the Contractor's personnel using the following procedures, or may be cleaned up by an outside contractor, as determined by the Site Supervisor. Appropriate personal protective equipment and cleanup procedures can be found on material safety data sheets. Care must be taken when cleaning up spills to minimize the quantity waste generated, which is regulated as a hazardous waste by MassDEP.

Keep material separated from water if possible. An important facet of an effective response procedure during an oil or petroleum product release incident is to keep the material separated from water to minimize migration and the resulting potential increase in human and environmental exposure. Every effort should be made to prevent spills and emphasize substance containment at the source rather than resort to separation of the material from expanded portions of the environment or downstream waters.

Recover or cleanup the material spilled. As much material as possible should be recovered and reused where appropriate. Material that cannot be reused must be declared waste. Liquids absorbed by solid materials shall be shoveled into an open top, 55-gallon drum. When a drum is filled after a cleanup, the drum lid shall be secured and the drum shall be appropriately labeled identifying the substance(s) (i.e., Waste Oil), the hazard of the material (i.e. ignitable), the date of the spill/cleanup, and the location of the spill.

Do not mix non-compatible materials. Note that combining non-compatible materials can cause potentially dangerous chemical and/or physical reactions or may severely limit disposal options. Compatibility information can be found on material safety data sheets.

Cleanup of the spill area. Surfaces that are contaminated by the release shall be cleaned up by using an appropriate cleaner or water. Cleanup water must be minimized, contained, and properly disposed. Occasionally, porous materials (such as wood, soil, or oil-dry) may be contaminated; such materials will require special handling for disposal.

Decontaminate tools and equipment used in cleanup. Even if dedicated to cleanup efforts, tools and equipment that have been used must be decontaminated before replacing them in the spill control kit. Tools which can't be decontaminated should be disposed of properly and replaced.

Post Cleanup Procedures

Notification and reports to outside agencies. The Site Supervisor shall determine if a reportable spill has occurred. A spill over 10 gallons of oil or other appropriate RQ in Massachusetts is a reportable spill under the MCP (See Section 6.2 for further information). Notifications to Fire Departments, MassDEP, the National Response Center, the EPA Regional Office, and internal contacts shall be executed if necessary.

Arrange for proper disposal of any waste material. The waste materials from the cleanup must be characterized. Representative sampling and analysis may be necessary to make this determination. In any case, the Site Supervisor shall assure that the waste is transported and disposed of in compliance with applicable laws and regulations. When manifests are needed, the Site Supervisor shall see that they are prepared and, when appropriate, returned in the allotted time by the disposal site.

Review the Contingency and Spill Plans. Management and operating personnel shall review spill response efforts, notification procedures and cleanup equipment usage to evaluate their adequacy during the episode. Where deficiencies are found, the Plan shall be revised and amended.

-

If No, discuss rationale.

Insert text

3.5 Control of Allowable Non-Stormwater Discharges

Per RIPDES Construction General Permit – Part III.J.2.e:

Discharges not comprised of stormwater are allowed under the RIPDES Construction General Permit but are limited to the following: discharges which result from the washdown of vehicles where no detergents are used; external building wash-down where no detergents are used; the use of water to control dust; firefighting activities; fire hydrant flushing; natural springs; uncontaminated groundwater; lawn watering; potable water sources including waterline flushing; irrigation drainage; pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled materials have been removed) and where detergents are not used; and foundation or footing drains where flows are not contaminated with process materials such as solvents, or contaminated by contact with soils where spills or leaks of toxic or hazardous materials has occurred. If any of these discharges may reasonably be expected to be present and to be mixed with stormwater discharges, they must be specifically listed here.

Are there allowable non-Stormwater discharges present on or near the project area?

☒ Yes ☐ No

If yes, list the sources of allowable non-Stormwater discharge(s) associated with construction activity. For each of the allowable non-stormwater discharge(s) identified, describe the controls and measures that will be implemented at those locations to minimize pollutant contamination of these discharges and to separate them from temporary discharges of stormwater during construction.

List of allowable non-stormwater discharge(s) and the associated control measure(s):

- Vehicle and Equipment Washing to be done on paved areas only, draining to sump area lined with poly sheeting
- The contractor will wet the soil surface as needed to suppress the creation of dust. The application may be done with a water truck or done with fire hoses at the site.
-

If any existing or proposed discharges consist of contaminated groundwater, such discharges are not authorized under the RIPDES Construction General Permit. These discharges must be permitted separately by seeking coverage to treat and discharge under a separate RIPDES individual permit or under the RIPDES Remediation General Permit. Contact the RIDEM Office of Water Resources RIPDES Permitting Program at 401-222-4700 for application requirements and additional information.

Are there any known or proposed contaminated discharges, including anticipated contaminated dewatering operations, planned on or near the project area?

☐ Yes ☒ No

If yes, list the discharge types and the RIPDES individual permit number(s) or RIPDES Remediation General Permit Authorization number(s) associated with these discharges.

- Discharge Type and RIPDES Individual Permit number : INSERT TEXT HERE
- Discharge Type and RIPDES Remediation General Permit Authorization number: INSERT TEXT HERE

3.6 Control Dewatering Practices

Per RI SESC Handbook – Part D

Site owners and operators are prohibited from discharging groundwater or accumulated stormwater that is removed from excavations, trenches, foundations, vaults, or other similar points of accumulation, unless such waters are first effectively managed by appropriate control measures.

Examples of appropriate control measures include, but are not limited to, temporary sediment basins or sediment traps, sediment socks, dewatering tanks and bags, or filtration systems (e.g. bag or sand filters) that are designed to remove sediment. Uncontaminated, non-turbid dewatering water can be discharged without being routed to a control.

At a minimum the following discharge requirements must be met for dewatering activities:

1. Do not discharge visible floating solids or foam.
2. To the extent feasible, utilize vegetated, upland areas of the site to infiltrate dewatering water before discharge. In no case will surface waters be considered part of the treatment area.
3. At all points where dewatering water is discharged, utilize velocity dissipation devices.
4. With filter backwash water, either haul it away for disposal or return it to the beginning of the treatment process.
5. Replace and clean the filter media used in dewatering devices when the pressure differential equals or exceeds the manufacturer's specifications.
6. Dewatering practices must involve the implementation of appropriate control measures as applicable (i.e. containment areas for dewatering earth materials, portable sediment tanks and bags, pumping settling basins, and pump intake protection.)

Is it at all likely that the site operator will need to implement construction dewatering in order to complete the proposed project?

☐ Yes ☒ No

If Yes, describe all areas where construction dewatering may be required and the proposed control measures that will be used to treat and manage dewatering fluids including all proposed discharge points. Proposed control measures must comply with the RI SESC Handbook. Include references to all relevant SESC Site Plans.

- Insert text and references to SESC Site Plan Sheet Numbers here.

If No, discuss rationale.

If needed, though not anticipated, water from excavations shall be pumped through a sedimentation filters such as a frac tank or geobag to reduce suspended solids, prior to discharge.

The majority of the site work will involve raising the grade on the site and the proposed utilities will mostly be installed in the raised grade features, therefore groundwater dewatering is not anticipated.

3.7 Establish Proper Building Material Staging Areas

Per RI SESC Handbook – Part D

All construction materials that have the potential to contaminate stormwater must be stored properly and legally in covered areas, with containment systems constructed in or around the storage areas. Areas must be designated for materials delivery and storage. Designated areas shall be approved by the site owner/engineer. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in the discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

Describe construction materials expected to be stored on-site and procedures for storage of materials to minimize exposure of the materials to stormwater. Include references to all relevant SESC Site Plans.

All construction material storage shall be done in the designated location shown on Sheet ESC-1 . All building materials shall covered or inside and protected from the elements

3.8 Minimize Dust

Per RI SESC Handbook – Part D

Dust control procedures and practices shall be used to suppress dust on a construction site during the construction process, as applicable. Precipitation, temperature, humidity, wind velocity and direction will determine amount and frequency of applications. However, the best method of controlling dust is to prevent dust production. This can best be accomplished by limiting the amount of bare soil exposed at one time. Dust Control measures outlined in the *RI SESC Handbook* shall be followed. Other dust control methods include watering, chemical application, surface roughening, wind barriers, walls, and covers.

Describe dust control practices that will be used to suppress dust and limit its generation (i.e. applying water, limiting the amount of bare soil exposed at one time etc.).

- The contractor will wet the soil surface as needed to suppress the creation of dust. The application may be done with a water truck or done with fire hoses at the site.

3.9 Designate Washout Areas

Per RI SESC Handbook – Part D

At no time shall any material (concrete, paint, chemicals) be washed into storm drains, open ditches, streets, streams, wetlands, or any environmentally sensitive area. The site operator must ensure that construction waste is properly disposed of, to avoid exposure to precipitation, at the end of each working day.

Will washout areas be required for the proposed project?

☒ Yes ☐ No

If Yes, describe location(s) and control measures that will be used to minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, washout areas for concrete mixers, paint, stucco, etc. The recommended location(s) of washout areas should be identified, or at a minimum the locations where these washout areas should not be sited should be called out.

The concrete washout shall be performed in the designated area, as shown on sheet ESC-1 and shall not be allowed to discharge off-site or into any stormwater receptors.

If No, discuss rationale.

Insert text

3.10 Establish Proper Equipment/Vehicle Fueling and Maintenance Practices

Per RI SESC Handbook – Part D

Vehicle fueling shall not take place within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Designated areas shall be depicted on the SESC Site Plans, or shall be approved by the site owner.

Vehicle maintenance and washing shall occur off-site, or in designated areas depicted on the SESC Site Plans or approved of by the site owner. Maintenance or washing areas shall not be within regulated wetlands or buffer zone areas, or within 50-feet of the storm drain system. Maintenance areas shall be clearly designated, and barriers shall be used around the perimeter of the maintenance area to prevent stormwater contamination.

Construction vehicles shall be inspected frequently for leaks. Repairs shall take place immediately. Disposal of all used oil, antifreeze, solvents and other automotive-related chemicals shall be according to applicable regulations; at no time shall any material be washed down the storm drain or in to any environmentally sensitive area.

Describe equipment/vehicle fueling and maintenance practices that will be implemented to prevent pollutants from mixing with stormwater (e.g., secondary containment, drip pans, spill kits, etc.) Provide recommended location(s) of fueling/maintenance areas, or, at minimum, locations where fueling/maintenance should be avoided.

Vehicle and Equipment Washing to be done in the designated areas only, draining to sump area lined with poly sheeting, as shown on the ESC plans

3.11 Chemical Treatment for Erosion and Sediment Control

Per RI SESC Handbook – Appendix J

Chemical stabilizers, polymers, and flocculants are readily available on the market and can be easily applied to construction sites for the purposes of enhancing the control of erosion, runoff, and sedimentation. The following guidelines should be adhered to for construction sites that plan to use treatment chemicals as part of their overall erosion, runoff, and sedimentation control strategy.

The U.S. Environmental Protection Agency has conducted research into the relative toxicity of chemicals commonly used for the treatment of construction stormwater discharges. The research conducted by the EPA focused on different formulations of chitosan, a cationic compound, and both cationic and anionic polyacrylamide (PAM). In summary, the studies found significant toxicity resulting from the use of chitosan and cationic PAM in laboratory conditions, and significantly less toxicity associated with using anionic PAM. EPA's research has led to the conclusion that the use of treatment chemicals for erosion, runoff, and sedimentation control requires proper operator training and appropriate usage to avoid risk to aquatic species. In the case of cationic treatment chemicals additional safeguards may be necessary.

Application/Installation Minimum Requirements

If a site operator plans to use polymers, flocculants, or other treatment chemicals during construction the SESC plan must address the following:

1. Treatment chemicals shall not be applied directly to or within 100 feet of any surface water body, wetland, or storm drain inlet.

2. Use conventional erosion, runoff, and sedimentation controls prior to and after the application of treatment chemicals. Use conventional erosion, runoff, and sedimentation controls prior to chemical addition to ensure effective treatment. Chemicals may only be applied where treated stormwater is directed to a sediment control (e.g. temporary sediment basin, temporary sediment trap or sediment barrier) prior to discharge.

3. Sites shall be stabilized as soon as possible using conventional measures to minimize the need to use chemical treatment.

4. Select appropriate treatment chemicals. Chemicals must be selected that are appropriately suited to the types of soils likely to be exposed during construction and to the expected turbidity, pH, and flow rate of stormwater flowing into the chemical treatment system or treatment area. **Soil testing is essential. Using the wrong form of chemical treatment will result in some form of performance failure and unnecessary environmental risk.**

5. Minimize discharge risk from stored chemicals. Store all treatment chemicals in leak-proof containers that are kept under storm-resistant cover and surrounded by secondary containment structures (e.g., spill berms, decks, spill containment pallets), or provide equivalent measures, designed and maintained to minimize the potential discharge of treatment chemicals in stormwater or by any other means (e.g., storing chemicals in covered areas or having a spill kit available on site).

6. Use chemicals in accordance with good engineering practices and specifications of the chemical provider/supplier. You must also use treatment chemicals and chemical treatment systems in accordance with good engineering practices, and with dosing specifications and sediment removal design specifications provided by the supplier of the applicable chemicals, or document specific departures from these practices or specifications and how they reflect good engineering practice.

Will chemical stabilizers, polymers, flocculants or other treatment chemicals be utilized on the proposed construction project?

☐ Yes ☒ No

If Yes, create a Treatment Chemical Application Plan and describe how the owner or SESC Plan preparer/designer intends to educate the designated operator prior to the application of such treatment chemicals.

Treatment Chemical Application Plan Required Elements

Insert information listed below:

1. *List Manufacturer's name and product name for each treatment chemical proposed for use at the site.*
2. *Attach a copy of applicable Material Safety Data Sheets (MSDSs) or Safety Data Sheets (SDS) for each proposed treatment chemical.*
3. *Provide the results of third party toxicity testing of the materials proposed for use at the site.*
4. *Provide a certification from the site owner and operator that all proposed treatment chemicals are the same as those used in the toxicity tests and will not be altered in any way.*
5. *Provide an explanation as to why conventional erosion, runoff, and sediment control measures, alone or in combination, will not be sufficient to prevent turbidity impacts and sedimentation in downstream receptors.*
6. *Provide a plan prepared in consultation with the chemical treatment manufacturer(s) or authorized manufacturer's representative which includes the following:*
    a. *Identification of the areas of the site where treatment chemicals will be applied and the name, location, and distance to all downstream receptors that have the potential to be impacted from the discharges from the treatment areas.*
    b. *List the expected start and end dates or specific phases of the project during which each treatment chemical will be applied.*
    c. *Provide test results for representative soils from the site, and any recommendations from the manufacturer based on the soil tests, indicating the type of treatment chemical and the recommended application rate.*
    d. *List the frequency, method, and rates of application which are designed to ensure that treatment chemical concentrations will not exceed 50% of the IC25 or NOEC toxicity values, whichever is less, for each treatment chemical proposed.*
    e. *Provide the frequency of inspection and maintenance of the treatment chemical application system.*
    f. *List the method proposed for the collection, removal, and disposal or stabilization of settled particles to prevent re-suspension.*
    g. *Describe the training that will be provided to all persons who will handle and use treatment chemicals at the construction site. Training must include appropriate, product-specific training and proper dosing requirements for each product.*

Treatment Chemical SESC Plan Weekly Inspection Report Documentation Requirements

1. Document the type and quantity of treatment chemicals applied.

2. List the date, duration of discharge, and estimated discharge rate.

3. Provide an estimate of the volume of water treated.

4. Provide an estimate of the concentration of treatment chemicals in the discharge, with supporting calculations.

3.12 Construction Activity Pollution Prevention Control Measure List

Complete the following table for each Phase of construction where Pollution Prevention Control Measures will be implemented. This table is to be used as part of the SESC Plan Inspection Report – please fill out accordingly.

It is expected that this table will be amended as needed throughout the construction project.

All Phases		
Location/Station	**Control Measure Description/Reference**	**Maintenance Requirement**
Staging Area	Controlled Fueling and Maintenance Activities	Using noted control measures and ensuring complete spill kits and absorbent pads are available.
Concrete Relieving Platform	Prefabricated Concrete Washout Container with Ramp. Used to contain concrete washout during concrete pouring operations.	Verify that concrete washout container(s) are in place prior to pouring concrete. Inspect daily to verify continued proper performance. Check remaining capacity during pouring operations. Check for leaks periodically.
Entire Site	Dust control watering	Have a water truck/trailer on site and water available.
INSERT TEXT	INSERT TEXT	INSERT TEXT

Insert a new table for each additional construction phase.

SECTION 4: CONTROL MEASURE INSTALLATION, INSPECTION, and MAINTENANCE

4.1 Installation

Per RI SESC Handbook – Part D:

Complete the installation of temporary erosion, runoff, sediment, and pollution prevention control measures by the time each phase of earth-disturbance has begun. All stormwater control measures must be installed in accordance with good judgment, including applicable design and manufacturer specifications. Installation techniques and maintenance requirements may be found in manufacturer specifications and/or the *RI SESC Handbook*.

Include references to SESC Site Plans where installation requirements are located.

All erosion control measures shall be installed as noted on the ESC plans and the details sheets D-2 and D-3.

4.2 Monitoring Weather Conditions

Per RI SESC Handbook – Part D:

Anticipating Weather Events - Care will be taken to the best of the operator's ability to avoid disturbing large areas prior to anticipated precipitation events. Weather forecasts must be routinely checked, and in the case of an expected precipitation event of over 0.25-inches over a 24-hour period, it is highly recommended that all control measures should be evaluated and maintained as necessary, prior to the weather event. In the case of an extreme weather forecast (greater than one-inch of rain over a 24-hour period), additional erosion/sediment controls may need to be installed.

Storm Event Monitoring For Inspections - At a minimum, storm events must be monitored and tracked in order to determine when post-storm event inspections must be conducted. Inspections must be conducted

and documented at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt.

In order for an operator to successfully satisfy this requirement list the weather gauge station that will be utilized to monitor weather conditions on the construction site. See www.wunderground.com or www.weather.gov for available stations.

The weather gauge station and website that will be utilized to monitor weather conditions on the construction site is as follows:

Weather monitoring shall be done at the National Weather Services station at TF Green Airport:
Providence, Theodore Francis Green State Airport (KPVD)
Lat: 41.72° N **Lon:** 71.43° W **Elev:** 49 ft.
https://www.wunderground.com/precipitation/us/ri/t-f-green-airport/02886

4.3 Inspections

Per RI SESC Handbook – Part D:

Minimum Frequency - Each of the following areas must be inspected by or under the supervision of the owner and operator at least once every seven (7) calendar days and within twenty-four (24) hours after any storm event, which generates at least 0.25 inches of rainfall per twenty-four (24) hour period and/or after a significant amount of runoff or snowmelt:

a. All areas that have been cleared, graded, or excavated and where permanent stabilization has not been achieved;

b. All stormwater erosion, runoff, and sediment control measures (including pollution prevention control measures) installed at the site;

c. Construction material, unstabilized soil stockpiles, waste, borrow, or equipment storage, and maintenance areas that are covered by this permit and are exposed to precipitation;

d. All areas where stormwater typically flows within the site, including temporary drainage ways designed to divert, convey, and/or treat stormwater;

e. All points of discharge from the site;

f. All locations where temporary soil stabilization measures have been implemented;

g. All locations where vehicles enter or exit the site.

Reductions in Inspection Frequency - If earth disturbing activities are suspended due to frozen conditions, inspections may be reduced to a frequency of once per month. The owner and operator must document the beginning and ending dates of these periods in an inspection report.

Qualified Personnel – The site owner and operator are responsible for designating personnel to conduct inspections and for ensuring that the personnel who are responsible for conducting the inspections are "qualified" to do so. A "qualified person" is a person knowledgeable in the principles and practices of erosion, runoff, sediment, and pollution prevention controls, who possesses the skills to assess conditions at the construction site that could impact stormwater quality, and the skills to assess the effectiveness of any stormwater controls selected and installed to meet the requirements of the permit.

Recordkeeping Requirements - All records of inspections, including records of maintenance and corrective actions must be maintained with the SESC Plan. Inspection records must include the date and time of the inspection, and the inspector's name, signature, and contact information.

General Notes

- A separate inspection report will be prepared for each inspection.
- The Inspection Reference Number shall be a combination of the RIPDES Construction General Permit No - consecutively numbered inspections. ex/ Inspection reference number for the **4**th inspection of a project would be: RIR10####-**4**
- Each report will be signed and dated by the Inspector and must be kept onsite.
- Each report will be signed and dated by the Site Operator.
- The corrective action log contained in each inspection report must be completed, signed, and dated by the site operator once all necessary repairs have been completed.
- It is the responsibility of the site operator to maintain a copy of the SESC Plan, copies of all completed inspection reports, and amendments as part of the SESC Plan documentation at the site during construction.

Failure to make and provide documentation of inspections and corrective actions under this part constitutes a violation of your permit and enforcement actions under 46-12 of R.I. General Laws may result.

4.4 Maintenance

Per RI SESC Handbook – Part D:

Maintenance procedures for erosion and sedimentation controls and stormwater management structures/facilities are described on the SESC Site Plans and in the *RI SESC Handbook*.

Site owners and operators must ensure that all erosion, runoff, sediment, and pollution prevention controls remain in effective operating condition and are protected from activities that would reduce their effectiveness. Erosion, runoff, sedimentation, and pollution prevention control measures must be maintained throughout the course of the project.

Note: It is recommended that the site operator designates a full-time, on-site contact person responsible for working with the site owner to resolve SESC Plan-related issues.

4.5 Corrective Actions

Per RI SESC Handbook – Part D:

If, in the opinion of the designated site inspector, corrective action is required, the inspector shall note it on the inspection report and shall inform the site operator that corrective action is necessary. The site operator must make all necessary repairs whenever maintenance of any of the control measures instituted at the site is required.

In accordance with the *RI SESC Handbook*, the site operator shall initiate work to fix the problem immediately after its discovery, and complete such work by the close of the next work day, if the problem

does not require significant repair or replacement, or if the problem can be corrected through routine maintenance.

When installation of a new control or a significant repair is needed, site owners and operators must ensure that the new or modified control measure is installed and made operational by no later than seven (7) calendar days from the time of discovery where feasible. If it is infeasible to complete the installation or repair within seven (7) calendar days, the reasons why it is infeasible must be documented in the SESC Plan along with the schedule for installing the control measures and making it operational as soon as practicable after the 7-day timeframe. Such documentation of these maintenance procedures and timeframes should be described in the inspection report in which the issue was first documented. If these actions result in changes to any of the control measures outlined in the SESC Plan, site owners and operators must also modify the SESC Plan accordingly within seven (7) calendar days of completing this work.

SECTION 5: AMENDMENTS

Per RIPDES Construction General Permit – Part III.F:

This SESC Plan is intended to be a working document. It is expected that amendments will be required throughout the active construction phase of the project. **Even if practices are installed on a site according to the approved plan, the site is only in compliance when erosion, runoff, and sedimentation are effectively controlled throughout the entire site for the entire duration of the project.**

The SESC Plan shall be amended within seven (7) days whenever there is a change in design, construction, operation, maintenance or other procedure which has a significant effect on the potential for the discharge of pollutants, or if the SESC Plan proves to be ineffective in achieving its objectives (i.e. the selected control measures are not effective in controlling erosion or sedimentation).

In addition, the SESC Plan shall be amended to identify any new operator that will implement a component of the SESC Plan.

All revisions must be recorded in the Record of Amendments Log Sheet, which is contained in Attachment G of this SESC Plan, and dated red-lined drawings and/or a detailed written description must be appended to the SESC Plan. Inspection Forms must be revised to reflect all amendments. Update the Revision Date and the Version # in the footer of the Report to reflect amendments made.

All SESC Plan Amendments, except minor non-technical revisions, must be approved by the site owner and operator. Any amendments to control measures that involve the practice of engineering must be reviewed, signed, and stamped by a Professional Engineer registered in the State of RI.

The amended SESC plan must be kept on file at the site while construction is ongoing and any modifications must be documented.

Attach a copy of the Amendment Log.

Reference RI Model SESC Plan ATTACHMENT G

SECTION 6: RECORDKEEPING

RIPDES Construction General Permit – Parts III.D, III.G, III.J.3.b.iii, & V.O

It is the site owner and site operator's responsibility to have the following documents available at the construction site and immediately available for RIDEM review upon request:

- A copy of the fully signed and dated SESC Plan, which includes:
  - A copy of the General Location Map
    INCLUDED AS ATTACHMENT A
  - A copy of all SESC Site Plans
    INCLUDED AS ATTACHMENT B
  - A copy of the RIPDES Construction General Permit *(To save paper and file space, do not include in DEM/CRMC submittal, for operator copy only)*
    INCLUDED AS ATTACHMENT C
  - A copy of any regulatory permits (RIDEM Freshwater Wetlands Permit, CRMC Assent, RIDEM Water Quality Certification, RIDEM Groundwater Discharge Permit, RIDEM RIPDES Construction General Permit authorization letter, etc.)
    INCLUDED AS ATTACHMENT D
  - The signed and certified NOI form or permit application form *(if required as part of the application, see RIPDES Construction General Permit for applicability)*
    INCLUDED AS ATTACHMENT E
  - Completed Inspection Reports w/Completed Corrective Action Logs
    INCLUDED AS ATTACHMENT F
  - SESC Plan Amendment Log
    INCLUDED AS ATTACHMENT G

SECTION 7: PARTY CERTIFICATIONS

RIPDES Construction General Permit – Part V.G

All parties working at the project site are required to comply with the Soil Erosion and Sediment Control Plan (SESC Plan including SESC Site Plans) for any work that is performed on-site. The site owner, site operator, contractors and sub-contractors are encouraged to advise all employees working on this project of the requirements of the SESC Plan. A copy of the SESC Plan is available for your review at the following location: Insert Onsite Location Here, or may be obtained by contacting the site owner or site operator.

The site owner and site operator and each subcontractor engaged in activities at the construction site that could impact stormwater must be identified and sign the following certification statement.

I acknowledge that I have read and understand the terms and conditions of the Soil Erosion and Sediment Control (SESC) Plan for the above designated project and agree to follow the control measures described in the SESC Plan and SESC Site Plans.

Site Owner:

RI Waterfront Enterprises, LLC
Melissa Martin
1080 Main Street
Pawtucket, RI 02860
508-965-3342, melissa@riwaterfrontevents.com

_____
signature/date

Site Operator:

Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

Designated Site Inspector:
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

SubContractor SESC Plan Contact:
Insert Company or Organization Name
Insert Name & Title
Insert Address
Insert City, State, Zip Code
Insert Telephone Number, Insert Fax/Email

_____
signature/date

Insert more contact/signature lines as necessary

LIST OF ATTACHMENTS

Attachment A - General Location Map

Attachment B - SESC Site Plans

Attachment C - Copy of RIPDES Construction General Permit and Authorization to Discharge *(To save paper and file space, do not include in DEM/CRMC submittal, for operator copy only)*

Attachment D - Copy of Other Regulatory Permits

Attachment E - Copy of RIPDES NOI *(if required as part of application, see RIPDES Construction General Permit for applicability)*

Attachment F - Inspection Reports w/ Corrective Action Log

Attachment G - SESC Plan Amendment Log

Temporary Sediment Trap

Wet Volume
Wv = 0.85*Aw*Dw

Wv= wet storage volume
Aw= surface area of the flooded area
Dw = maximum depth in feet

Dry Storage
Vd = (Aw+Ad)/2 x Dd

Vd = dry storage volume
Aw= surface area of the flooded area at the base
Ad = surface area of the flooded area at the top
Dd = depth in feet

Size requirement = 134 cy /acre

	Trib Area	Volume tot	Volume Wet
1	11	1474	737
2	10	1340	670
3	10	1340	670

Sed Trap Sizing

	Aw	Dw	Ad	Dd	Wv	Vd	
1	500		2	600	3	850	1650
2	450		2	550	3	765	1500
3	450		2	550	3	765	1500

Temporary Sediment Basin

V=((DA)(A)(DR)(TE)(2000 lbs/ton))/((y)(43560 sf/ac))

V= volume of sediment trapped in ac ft/yr
DA= Drainage Area in acres
A = Average annual erosion in tons per arcre per year
DR = Delivery Ratio
TE= Sediment Trap Efficiency
y= Estimated Sediment Density in lbs/cf

For RIWE Site

DA =	10	acres	
A=	50	ton/ac/yr	
DR =	35	%	Sandy
TE =	0.8		
y=	95	lbs/cf	sand -silt mixture

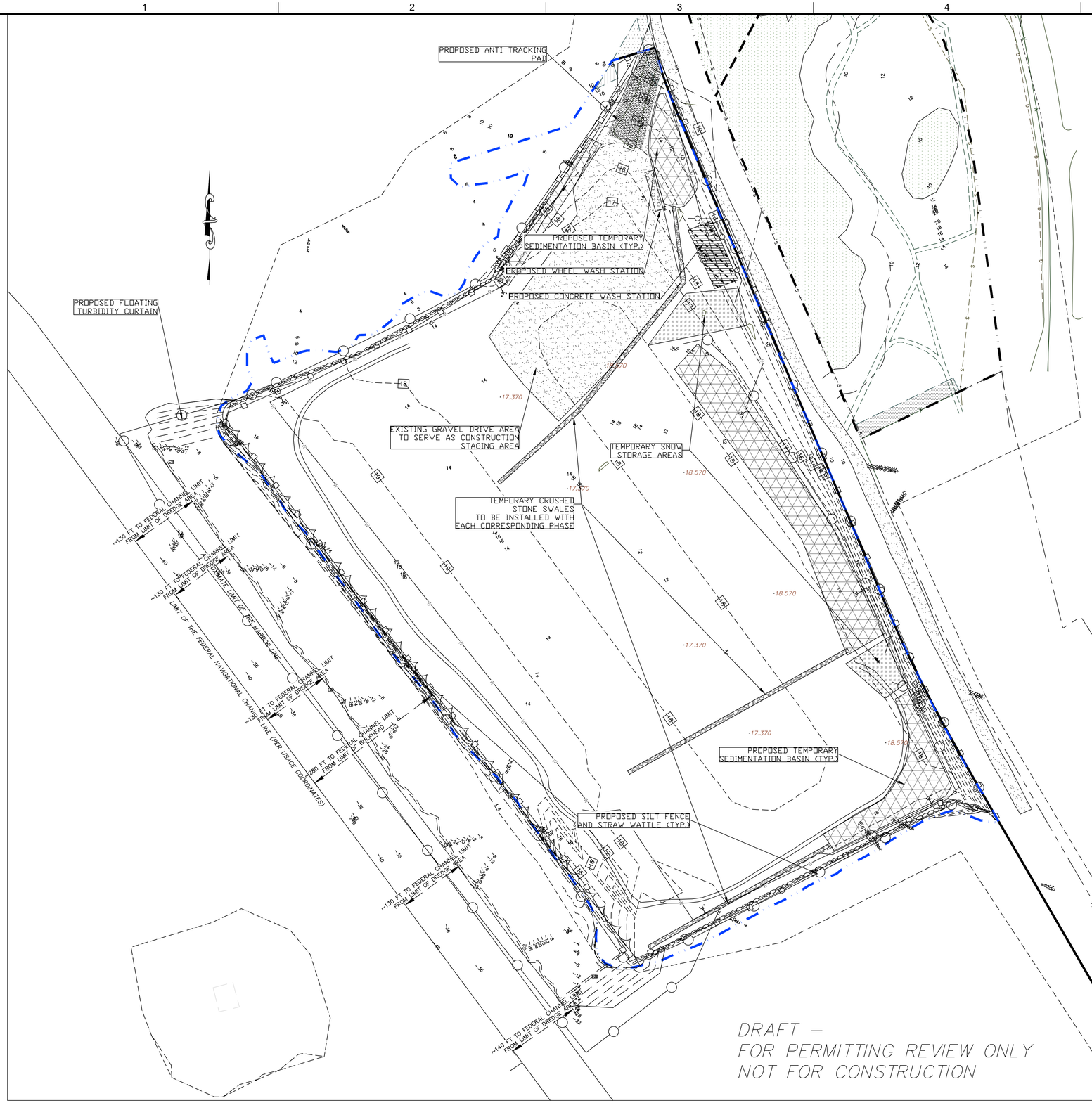
V 6.766227 ac ft/yr

Basin Sizing

		Area	Height	Volume	Volume -ac-ft
3	Basin SE	21662	4	86648	1.989164
1	Basin NE	22520	4	90080	2.067952
2	Basin E	51874	4	207496	4.763453

Sed Basin Sizing

	Aw	Dw	Ad	Dd	Wv	Vd
1	8710	2	13000	4	14807	43420
2	34170	2	51000	4	58089	170340
3	14740	2	22000	4	25058	73480



EROSION AND SEDIMENT CONTROL NOTES:

1. CONTRACTOR SHALL INSPECT CONTROL MEASURES AT THE END OF EACH WORKING DAY TO ENSURE MEASURES ARE FUNCTIONING PROPERLY .
2. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE AS DIRECTED BY THE ON SITE INSPECTOR OR THE CIVIL ENGINEER.
3. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE APPROVED EROSION CONTROL PLANS.
4. THE SITE CONTRACTOR WILL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL MEASURES INCLUDING REPLACING OR REPAIRING ANY DAMAGED DEVICES DUE TO ANY CONSTRUCTION ACTIVITY BY OTHERS.
5. EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
6. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE CHECKED AFTER EACH RAIN EVENT. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE. ADDITIONAL DEVICES MUST BE INSTALLED IF NEW CHANNELS HAVE DEVELOPED.
7. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE ACTIVITY SHALL BE DEMARCATED FOR THE DURATION OF THE
8. CONSTRUCTION ACTIVITY. NO LAND DISTURBANCE SHALL OCCUR OUTSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
9. PRIOR TO ANY OTHER CONSTRUCTION, A CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY TO OR EXIT FROM THE SITE OR ONTO ANY PUBLIC ROADWAY.
10. THE FOLLOWING INITIAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY.
    A. THE CONSTRUCTION ENTRANCE, CONSISTING OF A MINIMUM PAD SIZE OF 12 FT BY 50 FT WITH A MINIMUM OF 6"" THICK STONE. THE STONE SIZE SHOULD CONSIST OF COURSE AGGREGATE BETWEEN 1–1/2" & 3–1/2"" IN DIAMETER AND OVERLAID ON A GEOTEXTILE UNDERLINER. THE GEOTEXTILE UNDERLINER SHALL MEET THE REQUIREMENTS OF AASHTO M288–96, SECTION 7.3 SEPARATION REQUIREMENTS.
    B.IMMEDIATELY AFTER THE ESTABLISHMENT OF CONSTRUCTION ENTRANCE, ALL PERIMETER EROSION CONTROL AND STORM WATER MANAGEMENT DEVICES SHALL BE INSTALLED AS SHOWN ON THE INITIAL EROSION CONTROL PLAN.
    C. GEOTEXTILE SILT FENCE SHOULD BE INSTALLED AT THE PERIMETER OF THE DISTURBED AREA IF CONDITIONS WARRANT INSTALLATION OR SHOWN ON THE PLANS. THE GEOTEXTILE SILT FENCE SHOULD BE PLACED IN ACCORDANCE WITH THE CONNECTICUT EROSION & SEDIMENTATION CONTROL GUIDELINES. THE GEOTEXTILE SILT FENCE SHOULD BE KEPT ERECT AT ALL TIMES AND REPAIRED WHEN REQUESTED BY THE SITE INSPECTOR OR THE PROJECT DESIGN PROFESSIONAL OF RECORD. SILT SHOULD BE REMOVED WHEN ACCUMULATION REACHES ½ HEIGHT OF THE BARRIER. THE PERIMETER SILT FENCE SHOULD BE INSPECTED DAILY FOR ANY FAILURES. ANY FAILURES OF SAID FENCING SHOULD BE REPAIRED IMMEDIATELY.
    D. INLET SEDIMENT PROTECTION MEASURES SHALL BE INSTALLED ON ALL EXISTING STORM STRUCTURES AS SHOWN ON THE PLAN, SEE SEPARATE DETAILS FOR SPECIFICS ON TYPE OF INLET PROTECTION SPECIFIED.
11. AFTER INSTALLATION OF INITIAL EROSION CONTROL MEASURES THE SITE CONTRACTOR SHALL SCHEDULE AN INSPECTION BY THE PROJECT RESIDENT ENGINEER. NO OTHER CONSTRUCTION ACTIVITIES SHALL OCCUR UNTIL THE PROJECT RESIDENT ENGINEER APPROVES THE INSTALLATION OF SAID EROSION CONTROL MEASURES. IF UNFORESEEN CONDITIONS EXIST IN THE FIELD THAT WARRANT ADDITIONAL EROSION CONTROL MEASURES, THE CONTRACTOR MUST CONSTRUCT ANY ADDITIONAL EROSION CONTROL DEVICES DEEMED NECESSARY BY THE SITE INSPECTION.

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PARE CORPORATION

JOHN B. MCALLISTER, P.E.
16 HOXIE AVENUE
CHARLESTOWN, RI 02813

PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
RHODE ISLAND WATERFRONT ENTERPRISES, LLC
222 BERKELEY STREET
BOSTON, MA 02116

NO.	DATE	DESCRIPTION	BY
3	6/24/2021	ASSENT EDITS	JBM
2	3/11/2021	USACE CHANNEL LIMITS	JBM
1	11/2/2020	UPDATED BATHY	JBM

PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 100'

GRAPHIC SCALE
0 50 100 150 200

SHEET TITLE

EROSION
AND SEDIMENT
CONTROL PLAN

DRAWING NO.

ESC-1

27 OF 33

PLOT SCALE 1/16"=1'-0"

C:\Users\jobonn\OneDrive\Documents\JBM\LAKERIVER\Plans\RIVE_SOUTH QUAY BASE PLAN_MLLW_REV6.dwg

PHASE 1 AREA
DISTURBANCE ±11 ACRES

PHASE 2 AREA
DISTURBANCE ±10 ACRES

PHASE 3 AREA
DISTURBANCE ±10 ACRES

PHASE 1 TEMPORARY
SEDIMENTATION BASINS
4 FT BERM X 22,500 SF TOTAL
BETWEEN TWO BASINS

PHASE 2 TEMPORARY
SEDIMENTATION BASIN
4 FT BERM X 51,800 SF

PHASE 3 TEMPORARY
SEDIMENTATION BASIN
4 FT BERM X 21,600 SF

PROPOSED ANTI TRACKING PAD

PROPOSED TEMPORARY SEDIMENTATION BASIN (TYP.)

PROPOSED WHEEL WASH STATION

PROPOSED CONCRETE WASH STATION

PROPOSED FLOATING TURBIDITY CURTAIN

EXISTING GRAVEL DRIVE AREA TO SERVE AS CONSTRUCTION STAGING AREA

TEMPORARY SNOW STORAGE AREAS

TEMPORARY CRUSHED STONE SWALES TO BE INSTALLED WITH EACH CORRESPONDING PHASE

PROPOSED SILT FENCE AND STRAW WATTLE (TYP.)

~130 FT TO FEDERAL CHANNEL LIMIT FROM LIMIT OF DREDGE AREA (TYP.)

~130 FT TO FEDERAL CHANNEL LIMIT FROM LIMIT OF DREDGE AREA

~140 FT TO FEDERAL CHANNEL LIMIT FROM LIMIT OF DREDGE AREA

LIMIT OF THE FEDERAL NAVIGATIONAL CHANNEL (PER USACE COORDINATES)

PRIVATE LIMIT OF DREDGE AREA

DRAFT –
FOR PERMITTING REVIEW ONLY
NOT FOR CONSTRUCTION

C:\Users\johnm\OneDrive\Documents\JBM\LR\RIVE\Plans\RIVE_SOUTH QUAY BASE PLAN MLLW REV6.dwg

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PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	1" = 100'

GRAPHIC SCALE
0 50 100 150 200

SHEET TITLE

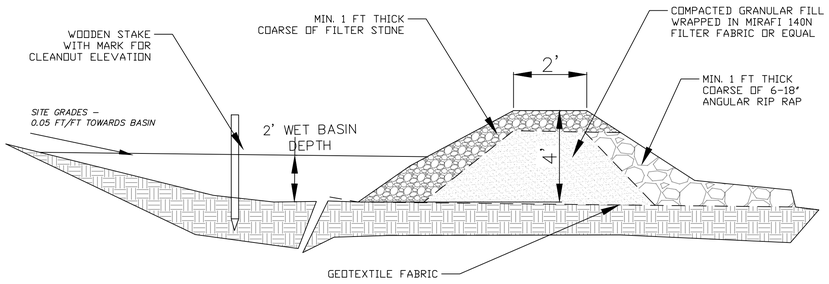
EROSION
AND SEDIMENT
CONTROL PLAN
PHASING

DRAWING NO.

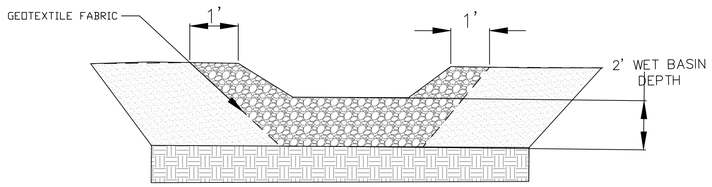
ESC-2

28 OF 33

PLOT SCALE 1/16"=1'-0"

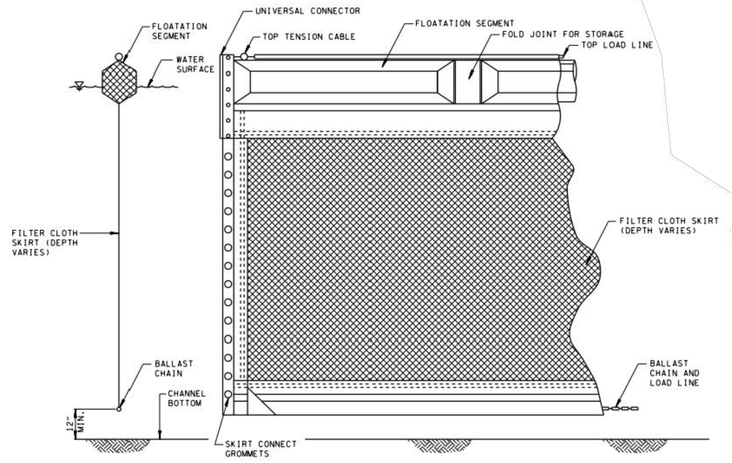


TEMPORARY SEDIMENTATION BASIN
TYPICAL PROFILE DETAIL
NOT TO SCALE



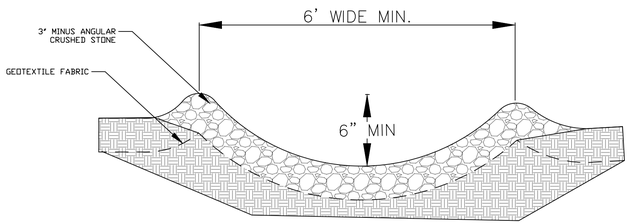
TEMPORARY SEDIMENTATION TRAP
TYPICAL PROFILE DETAIL
NOT TO SCALE

FLOATING TURBIDITY CURTAIN



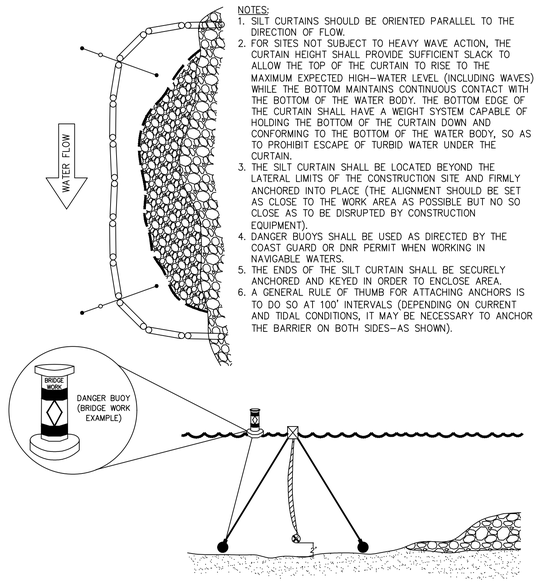
FLOATING TURBIDITY CURTAIN
TYPICAL PROFILE DETAIL
NOT TO SCALE

NOTE:
1. TURBIDITY CURTAINS SHALL BE DOT TYPE 3
2. ANCHORING SHALL BE DESIGNED AND ADAPTED TO ENVIRONMENT.
3. CURTAIN SHOULD REMAIN A MINIMUM 2' OFF HARBOR BOTTOM AT LOW TIDE.



TEMPORARY CRUSHED STONE SWALE
TYPICAL PROFILE DETAIL
NOT TO SCALE

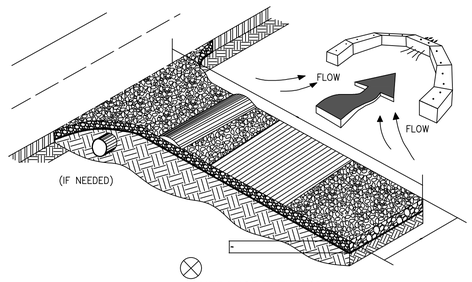
ANCHOR SYSTEM AND LAYOUT DETAILS



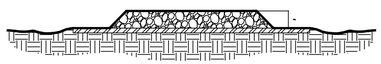
NOTES:
1. SILT CURTAINS SHOULD BE ORIENTED PARALLEL TO THE DIRECTION OF FLOW.
2. FOR SITES NOT SUBJECT TO HEAVY WAVE ACTION, THE CURTAIN HEIGHT SHALL PROVIDE SUFFICIENT SLACK TO ALLOW THE TOP OF THE CURTAIN TO RISE TO THE MAXIMUM EXPECTED HIGH-WATER LEVEL (INCLUDING WAVES) WHILE THE BOTTOM MAINTAINS CONTINUOUS CONTACT WITH THE BOTTOM OF THE WATER BODY. THE BOTTOM EDGE OF THE CURTAIN SHALL HAVE A WEIGHT SYSTEM CAPABLE OF HOLDING THE BOTTOM OF THE CURTAIN DOWN AND CONFORMING TO THE BOTTOM OF THE WATER BODY, SO AS TO PROHIBIT ESCAPE OF TURBID WATER UNDER THE CURTAIN.
3. THE SILT CURTAIN SHALL BE LOCATED BEYOND THE LATERAL LIMITS OF THE CONSTRUCTION SITE AND FIRMLY ANCHORED INTO PLACE (THE ALIGNMENT SHOULD BE SET AS CLOSE TO THE WORK AREA AS POSSIBLE BUT NO SO CLOSE AS TO BE DISRUPTED BY CONSTRUCTION EQUIPMENT).
4. DANGER BUOYS SHALL BE USED AS DIRECTED BY THE COAST GUARD OR DNR PERMIT WHEN WORKING IN NAVIGABLE WATERS.
5. THE ENDS OF THE SILT CURTAIN SHALL BE SECURELY ANCHORED AND KEYED IN ORDER TO ENCLOSE AREA.
6. A GENERAL RULE OF THUMB FOR ATTACHING ANCHORS IS TO DO SO AT 100' INTERVALS (DEPENDING ON CURRENT AND TIDAL CONDITIONS, IT MAY BE NECESSARY TO ANCHOR THE BARRIER ON BOTH SIDES-AS SHOWN).

CRUSHED STONE CONSTRUCTION EXIT

EXIT DIAGRAM



ENTRANCE ELEVATION



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

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FOR PERMITTING REVIEW ONLY
NOT FOR CONSTRUCTION

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PROJECT
SOUTH QUAY
PROPOSED SITE
REDEVELOPMENT PROJECT

OWNER
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NO.	DATE	DESCRIPTION	BY
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PROJECT NO.	
CADD FILE	
DESIGNED BY	JBM
DRAWN BY	
CHECKED BY	JAB
DATE	SEPTEMBER 2020
DRAWING SCALE	AS NOTED
GRAPHIC SCALE	

SHEET TITLE
EROSION AND SEDIMENT CONTROL PLAN DETAILS

DRAWING NO.
ESC-3

29 OF 33

PLOT SCALE 1/16"=1'-0"

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ATTACHMENT J

SAGE
ENVIRONMENTAL

October 14, 2022

The Honorable Roberto L. DaSilva
Mayor of East Providence
145 Taunton Avenue, 3rd Floor
East Providence, Rhode Island 02914
Sent via United States Postal Service

RE: ***Beneficial Use Determination***
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

Dear Mayor DaSilva:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, is providing the attached notice in accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). The purpose of this notice is to provide a copy of the Beneficial Use Determination – Variance Application (BUD) which was submitted to the RIDEM on October 14, 2022. A copy of the submitted BUD is attached hereto.

If you have any questions, please do not hesitate to contact the undersigned at 401-723-9900.

Sincerely,
SAGE Environmental, Inc.

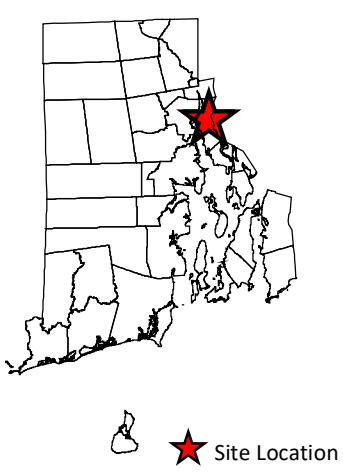
_____
Anthony Rossato
Project Manager

_____
Jacob H. Butterworth, MS
Vice President

_____
Richard J. Mandile
Principal

AR/JHB:alm

cc: Mr. Ronald Gagnon, RIDEM, Waste Facilities Management Program; Ms. Kasie McKenzie, RIDEM, Waste Facilities Management Program; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.



Site Plan

THE KEY (AKA SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

Figure

Date: 10/05/2022

Job #: S3291

Created By: ALM

Approximate Site Boundary

Abutting Properties Owned by RIWE

Abutting Properties

N

0 90 180 360 540 720 Feet

Data Provided by RIGIS
Orthoimagery provided by nearmap.com

SAGE ENVIRONMENTAL

Plat/Lot	Address	Owner	Owner Address
007-01-004-00	0 ZZ RAILROAD SITE	STATE OF RHODE ISLAND & DEPT OF TRANSPORTATION	TWO CAPITAL HILL, PROVIDENCE RI 02903
007-01-001-10	0 PIER RD	SPRAGUE OPERATING RESOURCES LLC	185 INTERNATIONAL DR., PORTSMOUTH NH 03801
007-01-003-00	649 WATERFRONT DR	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116
007-010-02.00	PIER RD	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116
018-020-01.00	VETERANS MEMORIAL PKWY	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116
007-01-001-00	0 PIER RD	RI WATERFRONT ENTERPRISES LLC	222 BERKELEY ST., BOSTON MA 02116

October 14, 2022

State of Rhode Island &
Rhode Island Department of Transportation
Two Capitol Hill
Providence, Rhode Island 02903
Sent via United States Postal Service

RE: ***Beneficial Use Determination***
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

To Whom It May Concern:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, is providing the attached notice in accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). The purpose of this notice is to inform you that a Beneficial Use Determination – Variance Application (BUD) was submitted to the RIDEM on October 14, 2022 for the above-reference property and abuts your property located at 0 ZZ Railroad Site in East Providence, Rhode Island.

To obtain more information on this BUD, please contact SAGE Environmental, Inc. by mail at 301 Friendship Street, Providence, Rhode Island 02903, by E-mail: sage@sage-enviro.com, or by phone at (401) 723-9900.

Sincerely,
SAGE Environmental, Inc.

_____
Anthony Rossato
Project Manager

_____
Jacob H. Butterworth, MS
Vice President

_____
Richard J. Mandile
Principal

AR/JHB:car

cc: Mr. Ronald Gagnon, RIDEM, Waste Facilities Management Program; Ms. Kasie McKenzie, RIDEM, Waste Facilities Management Program; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.

14 de outubro de 2022

Estado de Rhode Island &
Departamento de Transportes de Rhode Island
Dois Capitólio
Providence, Rhode Island 02903
Enviado via Serviço Postal dos Estados Unidos

RE:Determinação de uso benéfico
A Chave (também conhecida como South Key/Quay)
649 Waterfront Drive
Mapa plat plat 7 do assessor, bloco 1 lote 3
East Providence
Projeto SAGE No. S3291

A quem possa interessar:

A SAGE Environmental, Inc. (SAGE), em nome da RI Waterfront Enterprises LLC, está fornecendo o aviso anexado de acordo com as Diretrizes do Departamento de Gestão Ambiental de Rhode Island (RIDEM) *sobre determinações de uso benéfico ("BUDs") para resíduos sólidos segregados de origem* (Diretrizes bud). O objetivo deste aviso é informá-lo que um Pedido de Desativação de Uso Benéfico – Variância (BUD) foi submetido ao RIDEM em 14 de outubro de 2022 para a propriedade acima-referência e abuts sua propriedade localizada no 0 ZZ Railway Site em East Providence, Rhode Island.

Para obter mais informações sobre este BUD, entre em contato com a SAGE Environmental, Inc. pelo correio na Rua da Amizade, 301, Providence, Rhode Island 02903, por e-mail: sage@sage-enviro.com ou pelo telefone (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____
Anthony Rossato
Gerente de Projetos

_____
Jacob H. Butterworth, MS
Vice Presidente

_____
Richard J. Mandile
Principal

AR/JHB:alm

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestão de Instalações de Resíduos; Sra. Kasie McKenzie, RIDEM, Programa de Gestão de Instalações de Resíduos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson e Brusini Ltd.

octubre 14, 2022

Estado de Rhode Island &
Departamento de Transporte de Rhode Island
Dos Colina del Capitolio
Providence, Rhode Island 02903
Enviado a través del Servicio Postal de los Estados Unidos

RE: ***Determinación de uso beneficioso***
The Key (también conocido como South Key/Quay)
649 Waterfront Drive
Mapa de la Plataforma del Asesor 7, Bloque 1 Lote 3
02914, East Providence, Rhode Island
Proyecto SAGE No. S3291

A quien corresponda:

SAGE Environmental, Inc. (SAGE), en nombre de RI Waterfront Enterprises LLC, proporciona el aviso adjunto de acuerdo con las Directrices del Departamento de Gestión Ambiental de Rhode Island (RIDEM) *sobre Determinaciones de Uso Beneficioso ("PROD") para Residuos Sólidos Segregados en Origen* (Directrices BUD). El propósito de este aviso es informarle que se presentó una Solicitud de Determinación de Uso Beneficioso – Variación (BUD) a RIDEM en octubre 14, 2022 para la propiedad de referencia anterior y colinda con su propiedad ubicada en 0 ZZ Railroad Site en East Providence, Rhode Island.

Para obtener más información sobre este BUD, comuníquese con SAGE Environmental, Inc. por correo a 301 Friendship Street, Providence, Rhode Island 02903, por correo electrónico: sage@sage-enviro.com, o por teléfono al (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS
Gerente de Proyectos	Vicepresidente

_____
Richard J. Mandile
Principal

AR / JHB: coche

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestión de Instalaciones de Residuos; Sra. Kasie McKenzie, RIDEM, Programa de Gestión de Instalaciones de Residuos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson y Brusini Ltd.

October 14, 2022

Sprague Operating Resources LLC
185 International Drive
Portsmouth, New Hampshire 03801

Sent via United States Postal Service

RE: ***Beneficial Use Determination***
The Key (aka South Key/Quay)
649 Waterfront Drive
Assessor's Plat Map 7, Block 1 Lot 3
East Providence, Rhode Island 02914
SAGE Project No. S3291

To Whom It May Concern:

SAGE Environmental, Inc. (SAGE), on behalf of RI Waterfront Enterprises LLC, is providing the attached notice in accordance with the Rhode Island Department of Environmental Management (RIDEM) *Guidelines on Beneficial Use Determinations ("BUDs") for Source Segregated Solid Waste* (BUD Guidelines). The purpose of this notice is to inform you that a Beneficial Use Determination – Variance Application (BUD) was submitted to the RIDEM on October 14, 2022 for the above-reference property and abuts your property located at 0 Pier Road in East Providence, Rhode Island.

To obtain more information on this BUD, please contact SAGE Environmental, Inc. by mail at 301 Friendship Street, Providence, Rhode Island 02903, by E-mail: sage@sage-enviro.com, or by phone at (401) 723-9900.

Sincerely,
SAGE Environmental, Inc.

_____
Anthony Rossato
Project Manager

_____
Jacob H. Butterworth, MS
Vice President

_____
Richard J. Mandile
Principal

AR/JHB:car

cc: Mr. Ronald Gagnon, RIDEM, Waste Facilities Management Program; Ms. Kasie McKenzie, RIDEM, Waste Facilities Management Program; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson and Brusini Ltd.

14 de outubro de 2022

Sprague Recursos Operacionais LLC
185 International Drive
Portsmouth

Enviado via Serviço Postal dos Estados Unidos

RE: ***Determinação de uso benéfico***
A Chave (também conhecida como South Key/Quay)
649 Waterfront Drive
Mapa plat plat 7 do assessor, bloco 1 lote 3
East Providence
Projeto SAGE No. S3291

A quem possa interessar:

A SAGE Environmental, Inc. (SAGE), em nome da RI Waterfront Enterprises LLC, está fornecendo o aviso anexado de acordo com as Diretrizes do Departamento de Gestão Ambiental de Rhode Island (RIDEM) *sobre determinações de uso benéfico ("BUDs") para resíduos sólidos segregados de origem* (Diretrizes bud). O objetivo deste aviso é informá-lo que um Pedido de Determinação de Uso Benéfico – Variância (BUD) foi submetido ao RIDEM em 14 de outubro de 2022 para a propriedade acima-referência e abuts sua propriedade localizada em 0 Pier Road em East Providence, Rhode Island.

Para obter mais informações sobre este BUD, entre em contato com a SAGE Environmental, Inc. pelo correio na Rua da Amizade, 301, Providence, Rhode Island 02903, por e-mail: sage@sage-enviro.com ou pelo telefone (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS
Gerente de Projetos	Vice Presidente

_____
Richard J. Mandile
Principal

AR/JHB:alm

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestão de Instalações de Resíduos; Sra. Kasie McKenzie, RIDEM, Programa de Gestão de Instalações de Resíduos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson e Brusini Ltd.

octubre 14, 2022

Sprague Recursos Operativos LLC
185 Unidad Internacional
03801, Portsmouth, Nuevo Hampshire

Enviado a través del Servicio Postal de los Estados Unidos

RE: ***Determinación de uso beneficioso***
The Key (también conocido como South Key/Quay)
649 Waterfront Drive
Mapa de la Plataforma del Asesor 7, Bloque 1 Lote 3
02914, East Providence, Rhode Island
Proyecto SAGE No. S3291

A quien corresponda:

SAGE Environmental, Inc. (SAGE), en nombre de RI Waterfront Enterprises LLC, proporciona el aviso adjunto de acuerdo con las Directrices del Departamento de Gestión Ambiental de Rhode Island (RIDEM) *sobre Determinaciones de Uso Beneficioso ("PROD") para Residuos Sólidos Segregados en Origen* (Directrices BUD). El propósito de este aviso es informarle que se presentó una Solicitud de Determinación de Uso Beneficioso – Variación (BUD) a la RIDEM en octubre 14, 2022 para la propiedad de referencia anterior y colinda con su propiedad ubicada en 0 Pier Road en East Providence, Rhode Island.

Para obtener más información sobre este BUD, comuníquese con SAGE Environmental, Inc. por correo a 301 Friendship Street, Providence, Rhode Island 02903, por correo electrónico: sage@sage-enviro.com, o por teléfono al (401) 723-9900.

Sinceramente
SAGE Ambiental, Inc.

_____	_____
Anthony Rossato	Jacob H. Butterworth, MS
Gerente de Proyectos	Vicepresidente

_____
Richard J. Mandile
Principal

AR / JHB: coche

cc: Sr. Ronald Gagnon, RIDEM, Programa de Gestión de Instalaciones de Residuos; Sra. Kasie McKenzie, RIDEM, Programa de Gestión de Instalaciones de Residuos; Melissa Martin, Rhode Island Waterfront Enterprises LLC; Michael Donegan, Orson y Brusini Ltd.

NOTICE OF BUD APPLICATION AND PUBLIC HEARING

THE KEY (AKA SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

A Beneficial Use Determination – Variance Application (BUD) to request a variance from the Rules and Regulations for Solid Waste Management Facilities and Organic Waste Management Facilities (Solid Waste Regulations) has been prepared for the subject site. On [DATE] between [TIME] PM and [TIME] PM, a public hearing will be held at [LOCATION/ADDRESS] in East Providence, Rhode Island. Additionally, the meeting will be simulcast virtually. Instructions on how to participate in this meeting via Zoom, via Smart Phone, or by calling are provided below:

[ZOOM INFORMATION]

To obtain more information on this BUD, please contact SAGE Environmental, Inc. by mail at 301 Friendship Street, Providence, Rhode Island 02903, by E-mail: sage@sage-enviro.com, or by phone at (401) 723-9900.

EDITAL DE APLICAÇÃO DO BUD E AUDIÊNCIA PÚBLICA

A CHAVE (TAMBÉM CONHECIDA COMO SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

Uma Determinação de Uso Benéfico – Aplicativo de Variância (BUD) para solicitar uma variância das Normas e Regulamentos para Instalações de Gestão de Resíduos Sólidos e Instalações de Gerenciamento de Resíduos Orgânicos (Regulamentos de Resíduos Sólidos) foi preparada para o local do assunto. Na [DATA] entre [TIME] PM e [TIME] PM, uma audiência pública será realizada no [LOCAL/ENDEREÇO] em East Providence, Rhode Island. Além disso, a reunião será simulada virtualmente. Instruções sobre como participar desta reunião via Zoom, via Smart Phone ou ligando são fornecidas abaixo:

[INFORMAÇÕES DO ZOOM]

Para obter mais informações sobre este BUD, entre em contato com a SAGE Environmental, Inc. pelo correio na Rua da Amizade, 301, Providence, Rhode Island 02903, por e-mail: sage@sage-enviro.com ou pelo telefone (401) 723-9900.

AVISO DE SOLICITUD DE BUD Y AUDIENCIA PÚBLICA

THE KEY (TAMBIÉN CONOCIDO COMO SOUTH KEY/QUAY)
649 WATERFRONT DRIVE
EAST PROVIDENCE, RHODE ISLAND

Se ha preparado una Solicitud de Determinación de Uso Beneficioso – Varianza (BUD) para solicitar una variación de las Reglas y Regulaciones para Instalaciones de Gestión de Residuos Sólidos e Instalaciones de Gestión de Residuos Orgánicos (Regulaciones de Residuos Sólidos) para el sitio en cuestión. En [FECHA] entre [HORA] PM y [HORA] PM, se llevará a cabo una audiencia pública en [UBICACIÓN / DIRECCIÓN] en East Providence, Rhode Island. Además, la reunión se transmitirá simultáneamente de manera virtual. Las instrucciones sobre cómo participar en esta reunión a través de Zoom, a través de un teléfono inteligente o llamando se proporcionan a continuación:

[INFORMACIÓN DE ZOOM]

Para obtener más información sobre este BUD, comuníquese con SAGE Environmental, Inc. por correo a 301 Friendship Street, Providence, Rhode Island 02903, por correo electrónico: sage@sage-enviro.com, o por teléfono al (401) 723-9900.