ATTACHMENT F

Submarine Cable Route Field Evaluations Report

New Jersey and Delaware State Waters

December 2024

Silver Run Expansion Project

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1.0 Introduction

Silver Run Electric, LLC ("SRE") proposes to construct, operate, maintain, and own the Silver Run Expansion Project ("Project"), which will increase the capacity of the existing Silver Run – Hope Creek transmission line ("Silver Run Line"), a 230 kilovolt ("kV") alternating current ("AC") transmission line between SRE's Silver Run substation in Delaware and Public Service Electric & Gas Company's ("PSEG") Hope Creek substation in New Jersey. The Silver Run Line was authorized by the U.S. Army Corps of Engineers ("USACE"), Philadelphia District in 2018 under Section 10, Section 404, and Section 408 (CENAP-OP-R-2016-00542-75). The Silver Run Line was constructed from 2019 into 2020 and was fully energized in May 2020. The proposed in-water activities associated with the Project are similar to those conducted to complete the submarine portion of the Silver Run Line, as explained below.

The proposed Submarine Cable Route extends from an existing in-river transition structure in Delaware to a shore landing in New Jersey and consists of a total of four cables. This Submarine Cable Route, which crosses the Baker Reach of the Delaware River at approximately RM 51.5, is located within the interface of the oligohaline and mesohaline zones of the Delaware River estuary.

To obtain route-specific information on the sediment conditions for the Project's Submarine Cable Route, TRC completed a sediment sampling field investigation during August 2024 (the "Study") to collect and analyze sediment samples along the cable route as illustrated in Figure 1.1-1. The Study included an estuarine sediment sampling program developed to assess sediment bulk physical and chemical properties for riverbed sediments along the proposed Submarine Cable Route area. The investigation was completed to support:

- environmental regulatory permitting,
- preliminary engineering design,
- installer constructability assessments

TRC followed Environmental Sediment Sampling and Analysis Plans ("SSAPs") approved by both the New Jersey Department of Environmental Protection ("NJDEP") and the Delaware Department of Natural Resources and Environmental Control ("DNREC") for this Study. The SSAPs are included as Appendix A. Due to the evolution of EPA analytical methods following the approval of the SSAPs, more recent analytical methods were adopted and applied by the laboratory to enhance detection limits and reduce the required sediment volume per sample.

Ocean Surveys, Inc. (OSI) was responsible for field operations (i.e., advancement and collection of vibracores and benthic grabs) and establishing horizontal controls for sample collections for the August 2024 Program. TRC was responsible for directing and observing field activities; splitting, logging, and sampling sediment cores; and coordinating activities with OSI and the analytical laboratories. TRC and OSI also conducted marine benthic macroinvertebrate sampling from the research vessel and TRC performed quantitative macroinvertebrate analysis on the benthic samples. The methods and findings of the benthic sampling and analysis are presented under a separate cover.

This report describes the methods and findings of the vibracore sampling and analysis portion of the Study. The results of the Study are similar to the previously reported results from the 2016 geotechnical surveys conducted in support of the Silver Run Line.[1] The OSI Field Summary Report describing the 2023-2024 surveys is under separate cover. A separate TRC report provides the results of the benthic macroinvertebrate sampling for the Project.

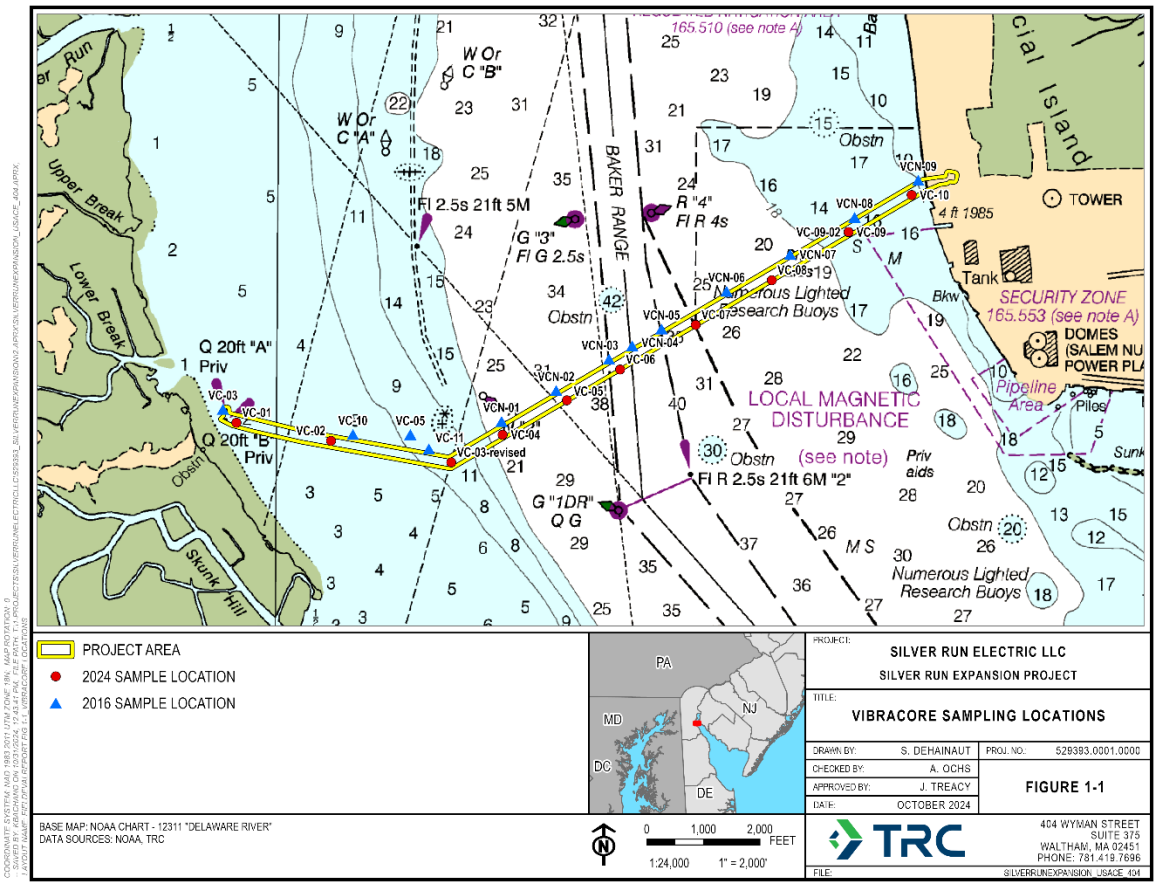


Figure 1.1-1 2016 and 2024 Vibracore Sampling Locations

2.0 Study Area, Control Information and Equipment

2.1 Study Area

The Study was conducted along the Submarine Cable Route within the Delaware River between the New Jersey landfall location and the existing transition structure in Delaware State Waters.

[1] ESS Group, Inc. *Submarine Cable Route Field Evaluations Report. Silver Run Project, Delaware River – New Jersey and Delaware*. May 24, 2016.

2.2 Survey Controls

Project horizontal grid is the Universal Transverse Mercator (UTM) Coordinate System, Zone 18N (NAD83), International Feet. Project vertical reference is the North American Vertical Datum of 1988 (NAVD 88) in units of feet. Water depths recorded during the survey were corrected for tidal variations and reduced to project vertical datum based on a blended solution of local NOAA tide gauge data and an Inertially Aided Post Processed Kinematic vertical solution of the Network Real-Time Kinematic (NRTK) water levels recorded on the survey vessel during data acquisition. Correctors from KeyNetGPS, a paid subscription, were employed resulting in nearly full time NRTK-quality 3-D positioning within the Project area.

2.3 Equipment

The following equipment was used and provided by OSI.

***Survey Vessel**:*

- *R/V CanDu* is a 36-foot by 16-foot shallow draft pontoon barge configured with an automated multi-point anchoring system and mechanized derrick for handling the samplers (Figure 2.1-1).



Figure 2.1-1 OSI's sampling pontoon barge R/V CanDu used for sediment sampling.

Vibracore Equipment:

- OSI Model 1500 pneumatic vibratory corer equipped with a 20 or 30-foot-long 4" diameter vibracore steel barrel and stand. The vibracore barrel was fitted with a check valve, cutter head, vibracore catcher, and a clear 3.5" diameter Lexan liner into which each continuous sediment core was recovered. The vibracore barrel is also fitted with a nose cone or "cutter" and a retainer to improve vibracore retention and sediment sample recovery.
- An air compressor was used to advance the vibracore barrel head into the sediment.

Navigation Equipment:

- Survey operations; Applanix POS-MV navigation system (primary vessel horizontal and vertical position, attitude and heading) and Trimble MPS 865 operating in NRTK GNSS mode employing correctors from NYSNet-CORS (secondary NRTK water level source). HYPACK navigation and data-logging computer system.
- Sampling operations: Trimble GNSS operating in Wide Area Augmentation System (WAAS) mode. A depth measurement was made by means of the onboard vessel depth sounder.

3.0 Sediment Sampling Investigation

The sediment sampling field investigation consisted of collecting vibracores from sediment along the Submarine Cable Route for field logging and laboratory analysis. The investigation was conducted in accordance with the approved SSAPs and the NJDEP "The Management and Regulation of Dredging Activities and Dredged Material Disposal in New Jersey's Tidal Waters," October 1997 (Dredging Technical Manual). Samples collected in New Jersey were compared to the NJDEP Ecological Screening Criteria for Saline Waters, revised 2009. Samples collected in Delaware state waters were compared to the DNREC Hazardous Substance Cleanup Act Screening Level Table Guidance, revised October 2024.

3.1 Vibracore Collection

From August 13 to August 17, 2024, the *R/V CanDu* was used to collect sediment cores from 10 pre-defined sample locations along the Submarine Cable Route (refer to Figure 1.1-1). OSI utilized a three-point anchoring system along with the Differential Global Positioning System (DGPS) to locate the vessel at each location. After the vessel was positioned, a benthic grab was collected using a modified Van Veen. The corer (assembled with clean plastic liner) was then deployed through a hatch opening in the center of the vessel and lowered through the water column via hydraulic winch to the sediment-water interface. After contacting sediment, the corer was mechanically released from its support assembly and lowered into the sediment using the hydraulic crane/winch.

Vibracores were collected from a total of 10 locations, one from each location. The 10 cores were collected at generally regular intervals within the Submarine Cable Route. The quantity and

location of cores was determined based on a review of existing information and sediment data specific to the proposed cable corridor and landfall area.

Once the vibracore rig was positioned, an air compressor was engaged to advance the vibracore head, driving the vibracore barrel into the sediment. After the vibracore barrel reached the penetration target depth or refusal, the air compressor was turned off and the vibracore rig was retrieved back onto the vessel. When the vibracore rig returns to the vessel, it is secured on deck and prepared for sediment sample recovery. Upon recovery, the cores were generally cut into 5-foot sections starting from the bottom of the core. The core sections were carefully marked with identification information (i.e., date, core ID, top and bottom, and section orientation) to allow for reassembly at time of splitting, logging, and sampling. After labeling, the core sections were kept cool and in a vertical position on the vessel, during transfer to shore and during transport to the on-site field station, where the cores were split, photo-logged, field characterized, and sub-sampled.

The target penetration depth was approximately 20 feet below the sediment-water interface for each core, except for the sample location within the federal navigation channel (VC-06), where the target penetration depth was 26 feet below the riverbed. The target depths for primary cores took into account the planned cable burial depths, being 25 feet below the authorized channel depth at the federally authorized navigation channel and generally 15 feet below the present riverbed in areas outside the federally authorized navigation channel. Penetration and recovery values are presented on the vibracore observation logs presented in Appendix B.

If the vibracore did not achieve 80% recovery of the sampled depth interval or encountered refusal, one additional vibracore attempt was made to achieve the target sediment recovery. The vessel would shift locations for the second vibracore attempt to avoid the disturbance area from the first vibracore attempt. Whichever of the two attempts provided the most sediment recovery was used for processing and sampling. The vibracore barrel was then decontaminated and re-assembled with a clean Lexan liner for the next sampling location.

A total of 10 vibracores, consisting of 6 cores collected in Delaware waters and 4 cores in New Jersey waters, were processed for sampling as part of the August 2024 field program. A total of 17 samples, including 9 from the New Jersey vibracores and 8 from the Delaware vibracores, were submitted to Pace Analytical Services, LLC. for analysis.

3.2 Vibracore Splitting, Photo Logging and Field Characterization

Vibracores were placed on a table specifically designed for vibracore processing at the onshore processing location. Two cuts (offset by 180 degrees) were made down the length of each core using a circular saw. Equipment was cleaned between cores to reduce the potential for cross-contamination between cores. A clean stainless-steel wire was then dragged through the length of the core to help separate the two core halves.

The core halves were then positioned side-by-side with a tape measure in between; then cores were photographed at approximately 1-foot intervals. Labels were used to document core identity and depths in the photographs. Vibracore photographic logs with images of the sampled vibracores are presented in Appendix C.

Following photo logging, the observed physical characteristics of the cores were documented using the USGS visual-manual classification methodology. Observations were documented in the field with particular attention to changes in stratigraphy (including color, predominant grain sizes, and evidence of potential contamination). Vibracore logs containing field descriptions and select physical laboratory analysis results are presented in Appendix B.

3.2.1 Field Shear Strength

TRC used a hand-held Torvane Shear Device (DGSI, Model S-160) to estimate the shear strength of cohesive sediment samples. It is important to note that Torvane field screening does not replace laboratory testing analysis for determination of sediment shear strength. The Torvane data in the vibracore logs are provided as an initial characterization of the shear strength of the sediment only.

Torvane field screening was typically performed at one-foot increments within an individual core to evaluate relative shear strength variability as a function of depth and to provide adequate data to estimate average relative shear strengths. The vibracore observation logs (Appendix B) contain the Torvane field screening results (noted as Field Shear Strength).

3.3 Vibracore Sampling

Samples were collected from each vibracore based on field characterization of the sediment cores. If no stratification was observed throughout the length of a core, one homogenized sample of the vibracore was collected for laboratory analysis. If the grain size, total organic carbon (TOC), or likelihood of contamination based on core lithology indicated that individual horizons within the core may be significantly different in sediment quality, then additional samples were collected based on field observations. Strata exhibiting distinct color changes and/or distinct changes in predominant grain size with a thickness of two feet or greater were sampled separately.

Volatile organic compound (VOC) grab samples were collected prior to sample homogenization. Sediment for VOC analysis was collected using laboratory-provided clean disposable sediment syringes from the top third of the sample profile.

Homogenized core samples were collected by taking sediment from the entire length of each identified stratum using decontaminated stainless-steel spoons. Sediment was placed in decontaminated stainless-steel mixing bowls. Enough sediment was collected to fill the laboratory-supplied sample containers for chemical and physical analysis. The sediment was mixed using the stainless-steel spoon until the sediment was a uniform color and consistency. Homogenized sediments were then placed into laboratory-supplied sample containers for lab analysis.

Sample Identification

Sediment samples were identified by the vibracore location followed by the sample depth “(0-2’)”, “(2’-15’)”, etc. (e.g., “VC-01 (0-2)”) in accordance with the SSAPs.

Sample Handling

The homogenized sediment samples were placed in laboratory-supplied sample containers (glassware for chemical samples and plastic bottles for physical samples). Laboratory-provided labels were used to identify sediment samples. The labels were pre-printed with analytical parameter, job identification, and preservation information and were filled out by TRC just prior to sampling with sample identification, date, time, and sampler name(s). Chemical and physical sediment samples were transported to Pace Analytical Services, LLC. of Mansfield, Massachusetts for chemical analysis. GeoTesting Express (GTX) of Acton, Massachusetts was sub-contracted by Pace for the physical lab analysis. Pace-Minnesota was sub-contracted by Pace to conduct the dioxin/furan and PCB analysis. Laboratory chain of custody forms were filled out after sample collection and provided to Pace with each sample delivery.

4.0 Sediment Sampling Laboratory Results

A total of 17 sediment samples were submitted for bulk chemical and physical testing. Additionally, 6 thermal conductivity sediment samples were taken from an additional 3 vibracores at locations shared with VC-02, VC-06, and VC-08. These locations were selected by SRE's engineers for use in designing the submarine cable. QA/QC samples were collected for a reduced list of chemical parameters from the 4 New Jersey and 6 Delaware vibracore locations. A duplicate vibracore sample (VC-106) was collected proximate to VC-06 and submitted to the laboratory for analysis to satisfy QA/QC requirements. The results of the Survey are summarized below, the laboratory testing reports are provided in Appendix D, and the results are provided in Appendices E1, E2, F1, and F2.

4.1 Bulk Physical Testing Results

Samples were submitted for analysis of the following bulk physical parameters to Pace Analytical and analyzed by GTX. A total of 17 physical sediment samples were collected from the 10 vibracore stations. Refer to Table 4.1-1 for a list of physical parameters tested.

Table 4.1-1 Bulk Physical Parameters Tested

Parameter	Method	New Jersey Waters Samples	Delaware Waters Samples
Grain Size	ASTM D6913	✓	✓
Moisture, Ash, and Organic Matter	ASTM D2974	✓	✓
Atterberg Limits	ASTM D4318	✓	✓
Specific Gravity	ASTM D854	✓	✓

The recovered sediments were classified by the laboratory in accordance with ASTM D6913 protocols as predominately fines. Refer to Figure 4.1-1 below for the distribution of fines, sands and gravels within the vibracores collected in Delaware (VC-01 – VC-06) and New Jersey (VC-07 – VC-10).

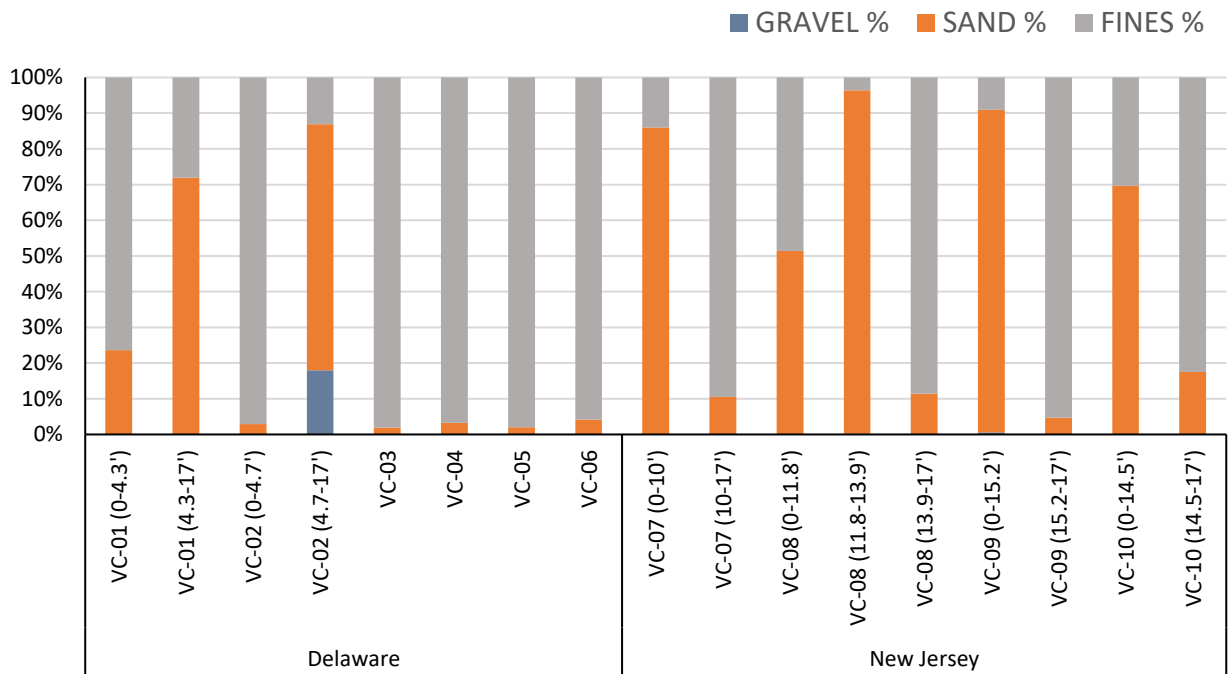


Figure 4.1-1 Sediment Grain Size in the Delaware River

Ash Content is the nonvolatile inorganic matter in a soil. Ash Content values ranged from 81.5% in VC-01 (0-4.3') to 99.7% in VC-08 (11.9-13.9').

Organic Matter is the carbon-based matter within a soil or sediment sample. Organic Matter percentages ranged from 0.3% in VC-08 (11.9-13.9') to 18.5% in VC-01 (0-4.3'). The average Organic Matter content was 4.14% across the 17 sediment samples collected.

Twelve sediment samples met the criteria for Atterberg Limits (Liquid Limit, Plastic Limit) analysis.

Liquid Limit is a measure of the moisture content at which a soil passes from a plastic to a liquid state. Liquid Limit values ranged from 38 in VC-10 (0-14.5') to 172 in VC-01 (0-4.3').

Plastic Limit is a measure of the moisture content at which a soil changes from a semi-solid to a plastic solid. Plastic Limit values ranged from 20 in VC-10 (0-14.5') to 122 in VC-01 (0-4.3').

Plasticity index is the difference between Liquid Limit and Plastic Limit, which provides information about the range of water contents over which a soil exhibits plastic properties. Plasticity Index values ranged from 16 at VC-08 (0-11.8') to 107 in VC-09 (15.2-17').

Moisture Content values ranged from 14% in VC-08 (11.9-13.9') to 177% VC-01 (0-4.3'). A sample with moisture content greater than the Liquid Limit will behave like a fluid while samples with moisture content between the Liquid Limit and Plastic Limit will behave like a plastic. All samples fell into the fluid category with regards to moisture with the exceptions of VC-01 (0-4.3'), VC-8 (0-11.8'), and VC-10 (0-14.5'). These three samples had moisture percentages higher than the Liquid Limit.

Physical laboratory analysis results are presented in Appendix E, displayed in the vibracore observation logs in Appendix C, and in the laboratory reports provided in Appendix D.

4.2 Bulk Chemical Testing Results

Sediment samples were submitted to Pace Analytical of Mansfield, Massachusetts for bulk chemical laboratory analysis of the parameters listed in Table 4.2-1. The laboratory analysis followed the SSAPs approved by both NJDEP and DNREC. More recently published EPA testing methods were used to enhance detection limits and reduce the required sample size. Methods used for the bulk chemical parameters are listed in Table 4.2-1. A total of 17 chemical sediment samples from 10 New Jersey and Delaware sample stations were analyzed. The chemical analysis was performed to evaluate potential water quality impacts from the proposed submarine cable installation by jetting. Sampling to characterize sediments for dredging and dredged material management was not required or performed since the material that could be temporarily excavated at the New Jersey shore landing will be replaced following cable installation.

Table 4.2-1 Bulk Chemical Parameters Tested

Parameter	Method	New Jersey Waters Samples	Delaware Waters Samples
TOC (2 runs)	EPA Method 9060	✓	✓
Total Metals [Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V and Zn]	EPA Method 6020B, 7474	✓	✓
Total Cyanide	EPA Method 9010C	✓	
Volatile Organic Compounds (VOCs)	EPA Method 8260	✓	
Semi-Volatile Organic Compounds (SVOC)	EPA Method 8270	✓	✓
Pesticides	EPA Method 8081B	✓	✓
PCB Aroclors	EPA Method 8082A	✓	✓
Dioxins/Furans	EPA Method 1613B	✓	✓
Nitrogen, Ammonia	SM4500NH3		✓
Total Phosphorus	SM4500P-E		✓

Bulk chemical laboratory analysis results are presented in Appendix F, and in the laboratory reports provided in Appendix D. A summary of New Jersey screening criteria exceedances can be found in Table 4.2-2 below.

Table 4.2-2 New Jersey Screening Threshold Exceedances

NJ Sample ID	ER-L Exceedances	ER-M Exceedances
VC-07 (0-10')	Total PCBs Arsenic, Zinc	Barium, Cobalt, Manganese, Selenium
VC-07 (10-17')	Arsenic, Nickel	Barium, Cobalt, Manganese, Selenium
VC-08 (0-11.8')	--	Manganese, Selenium
VC-08 (11.8-13.9')	--	--
VC-08 (13.9-17')	Arsenic, Nickel	Manganese, Selenium
VC-09 (0-15.2')	--	--
VC-09 (15.2-17')	Arsenic, Nickel	Barium, Cobalt, Manganese, Selenium
VC-10 (0-14.5')	--	Selenium
VC-10 (14.5-17')	--	Manganese, Selenium

Bulk Chemical Analysis

For the sediment samples collected from the New Jersey vibracores, the results were compared to the NJDEP Ecological Screening Criteria for Saline Waters (March 2009) for assessment of potential impacts from jetting installation of submarine cables. The results were compared to both the Effects Range Low (ER-L) and the Effects Range Medum (ER-M). The results of the comparison are shown in Table 4.2-2. Since no dredging or dredged material management will be part of the Project, the results were not compared with the NJDEP Residential and Non-residential Soil Remediation Standards.

- Exceedances for the NJDEP ER-L thresholds included: total PCBs (1 sample), Arsenic (4 samples, Nickel (3 samples), and Zinc (1 sample).
- Exceedances for the NJDEP ER-M thresholds included: Barium (3 samples), Cobalt (3 samples), Manganese (6 samples), and Selenium (7 samples).
- The organochlorine pesticide Chlordane has an ER-L threshold of 7 µg/kg. Although there were no detections reported for Chlordane, or any organochlorine pesticides in any of the New Jersey samples, the ER-L threshold was less than laboratory minimum detection limits in samples: VC-10 (14.5-17'), VC-09 (15.2-17'), VC-08 (0-11.8'), VC-08 (13.9-17'), and VC-07 (10-17').

For the sediment samples collected from the Delaware vibracores, results were compared to the DNREC Hazardous Substance Cleanup Act (HSCA) Screening Level Table Guidance (October 2024). The results of the comparison are shown in table 4.2-3.

Table 4.2-3 Delaware Screening Threshold Exceedances

DE Sample ID	HSCA Exceedances
VC-01 (0-4.3')	--
VC-01 (4.3-17')	Total Chromium, Nickel
VC-02 (0-4.7)	Arsenic, Nickel
VC-02 (4.7-17')	--
VC-03 (0-17')	Arsenic, Nickel
VC-04 (0-17')	Arsenic, Nickel
VC-05 (0-17')	Arsenic, Nickel
VC-06 (0-26')	Arsenic, Nickel

- Exceedances of the DNREC HSCA Ecological Screening Levels for Marine Sediment were detected for select Metals in six samples: VC-01 (4.3-17'), VC-02 (0-4.7'), VC-03, VC-04, VC-05, and VC-06. Metal exceedances included: Arsenic (6 samples), Chromium (1 sample), and Nickel (6 samples).
- The organochlorine pesticides Endosulfan I and Endosulfan II have a HSCA screening threshold of 0.107 µg/kg. Although there were no detections reported for Endosulfan I or II, or any organochlorine pesticides in any of the Delaware samples, the laboratory minimum detection limits exceeded the screening threshold in all of the Delaware samples.

4.3 Thermal Conductivity Testing Results

Sediment samples were submitted to GeoTesting Express of Acton, Massachusetts for laboratory analysis of thermal conductivity. A total of 6 thermal conductivity sediment samples were collected from 3 additional vibracores. The thermal conductivity samples were collected in close proximity to VC-02, VC-06, and VC-08. These locations were selected by SRE's engineers for use in designing the submarine cable. Thermal conductivity testing was performed using ASTM Method D5334 and provided results for both thermal conductivity and thermal resistivity. Refer to Appendix G for the thermal conductivity laboratory analytical report.

Thermal conductivity values ranged between 0.81 and 2.54 Watts per Meter °Kelvin and thermal resistivity values ranged between 39 and 124 °Kelvin Centimeter per Watt.

5.0 Benthic Grab Sampling

Benthic grab samples collected during the field program were delivered to the TRC in-house sorting laboratory for sorting, identification, and analysis of benthic species. The grabs were collected prior to vibracore activities at each site to minimize disturbance to the benthic community being sampled. One benthic grab sample was obtained and analyzed from each of the 10 vibracore locations. The data generated from the identification and enumeration of benthos within these samples were used to characterize the benthic community in the Project area. The TRC Benthic Community Assessment Report is under separate cover.

Appendix A: Sediment Sampling and Analysis Plans

Sediment Sampling and Analysis Plan

New Jersey State Waters

June 2023

Silver Run Expansion Project

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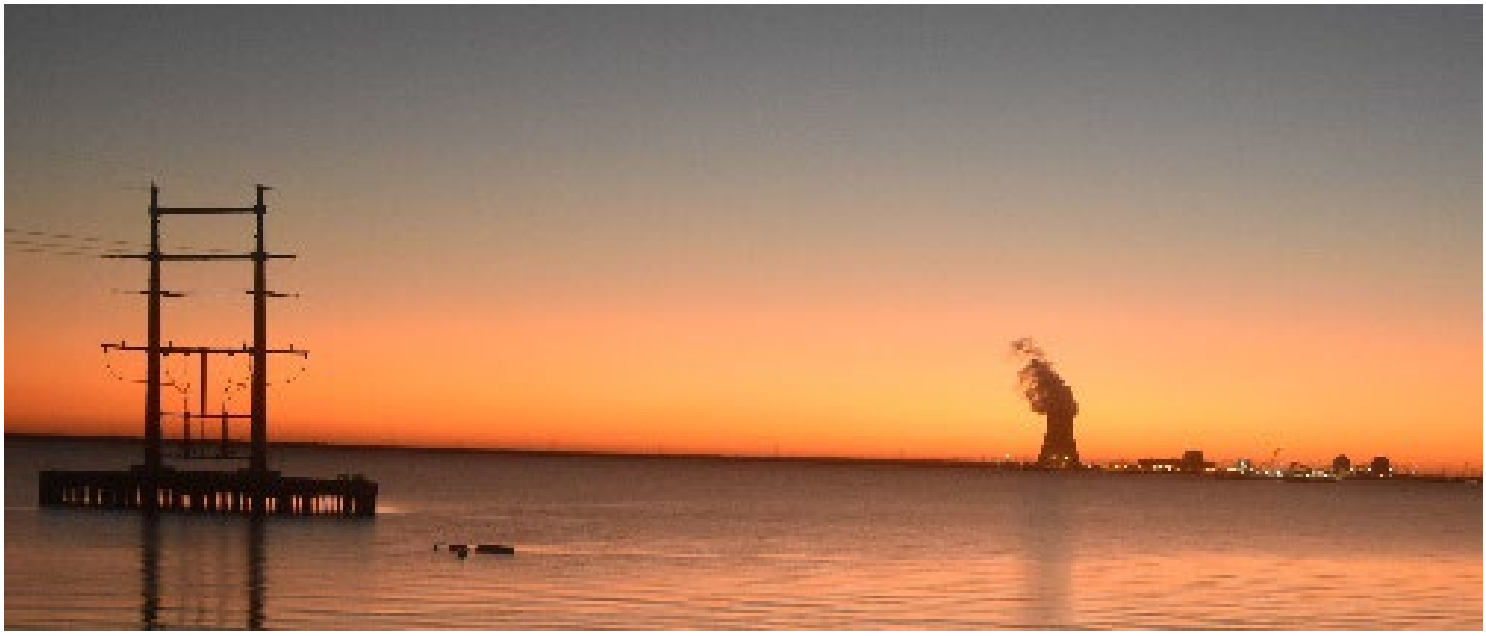


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FIGURE

Figure 1: Proposed Sample Locations

1.0 Project Description

This document details the proposed Sediment Sampling and Analysis Plan (SSAP) for Silver Run Electric, LLC (SRE) in support of SRE's proposed Silver Run Expansion Project ("Project"). This SSAP describes the proposed sediment and benthic sampling, testing, and analysis that will be performed within a survey corridor to support routing and permitting of a proposed additional set of submarine electric cables in New Jersey waters. Geophysical survey and sediment and benthic sampling activities will take place in a survey corridor in both New Jersey state waters and Delaware state waters across the Delaware River covering approximately 3 miles.

The Project consists of adding an estimated four new submarine cables to the existing Silver Run – Hope Creek 230 kV line. The new cables will be located adjacent to SRE's already installed cables within the river corridor surveyed for the original project. Submarine cable installation procedures are expected to be consistent with the procedures used when the first set of cables was installed in 2019. Modifications or additions to the existing on-land transition structure on the New Jersey side will be required to transition the new cables to the existing overhead electric transmission lines.

This sediment sampling and analysis plan (SSAP) was prepared to address New Jersey Department of Environmental Protection (NJDEP) requirements. A separate SSAP was prepared and will be followed for the portion of the field program to be conducted in Delaware waters.

The objective of the sediment sampling and analysis field program is to collect environmental information/data at locations along the survey corridor (Figure 1) to support the Project's regulatory permitting and design efforts. Specifically, sediment samples will be obtained using vibracore and gravity dredge sampling technologies and sediment will be analyzed for physical, chemical, and macroinvertebrate community analyses. This field program is being conducted to provide physical, chemical, and biological data to be used in environmental assessments required for environmental regulatory permitting at the local, state, and federal levels. Note that a Benthic Sampling Plan is provided as a separate document to specify sampling and analytical procedures for macroinvertebrate communities.

The field program is divided into three primary categories: geophysical survey, sediment sampling investigation, and benthic sampling investigation. The geophysical survey will provide remote sensing data for evaluating the physical characteristics of the Survey Area and is expected to begin in Spring/Summer 2023. The sediment sampling investigation will ground truth aspects of the geophysical survey and will provide detailed information regarding sediment characteristics including bulk physical, chemical and thermal resistivity properties at various locations throughout the Survey Area. The benthic investigation will provide insight into the biologic communities in the Survey Area.

2.0 Project Organization

TRC and SRE's contracted marine surveyor(s) will conduct this field investigation work. The marine surveyor(s) will be responsible for field operations (i.e., geophysical survey, advancing vibracores, benthic sample collection) and establishing horizontal/vertical controls during the field program. TRC will be responsible for observing field activities; splitting, logging, sampling sediment vibracores, containerizing the benthic samples; and coordinating all activities with the subcontractor and the selected analytical laboratories. Sediment samples will be analyzed by our current proposed laboratory Alpha Analytical, which is certified by the National Environmental Laboratory Approval Program (NELAP) in New Jersey for the particular analytical methods to be performed. Benthic samples will be catalogued and processed by TRC personnel.

3.0 Field Investigations

The sediment sampling field investigation will consist of collecting vibracores from sediment along the survey routes for field logging and laboratory analysis. The investigation will be conducted in accordance with the New Jersey Department of Environmental Protection (NJDEP) "The Management and Regulation of Dredging Activities and Dredged Material Disposal in New Jersey's Tidal Waters," October 1997 (Dredging Technical Manual). Cores will be located at pre-selected locations along the survey routes and near the proposed landfall (see Figure 1). Benthic macroinvertebrate samples will be collected before initiation of coring or other bottom-disturbing activity. This is necessary to minimize prior disturbance to the sampled benthic community.

It is anticipated that vibracores will be collected from up to five (5) locations within the survey corridor in New Jersey waters. The number and location of cores was determined based on a review of existing information and sediment data specific to the proposed cable corridor, in conjunction with TRC's professional judgment based on our experience. The number of vibracores may increase or decrease and the locations may be adjusted depending on the specific results obtained from the geophysical survey.

Potential cable installation depths are 25 feet below the authorized federal channel depths when crossing or within a federally maintained navigation channel, and nominally 6 to 15 feet below present bottom outside the federal channel. These potential installation depths were used to design the penetration depths for the vibracores.

Vibracore Target Penetration Depths – The target vibracore penetration depth will be up to 25 feet below the sediment-water interface.

The sediment cores will be collected to the target penetration depth or until refusal is encountered. Refusal shall be defined as a penetration rate of less than one (1) foot in three (3) minutes. Should refusal occur prior to reaching the target depth, the coring device will be recovered, serviced, re-deployed at an offset station proximal to but outside the area disturbed by the first attempt, and a second attempt shall be made to reach the target depth. The core with greater penetration/recovery will be maintained for sub-sampling. One retry will be attempted if sediment recovery from a core that achieves target depth is less than 80% of penetration. No more than two (2) cores will be collected at any location. Core locations will be named sequentially, as VC-01, VC-02, VC-03 or in some sensible modification thereof.

Upon recovery, cores may be cut into shorter sections and capped at both ends. When sub-sampling the core, care will be taken not to include any sediment from this cut surface, or any plastic chips from the saw cut. Prior to cutting cores into more manageable sections, cores will be visually examined through the core liner to ensure that no core is cut in a manner that precludes individual horizons from being sampled separately.

The cores will be marked with identification information (i.e., core ID, date, top/bottom) using an indelible marker. If cores are cut into sections, the sections of a core will be designated by their elevations beneath the sediment water interface in feet as shown on the vibracore field observation log. The markings will be located on both end caps denoting top and bottom of the section and labeled midway along the core liner. If necessary, a piece of plastic sheeting or a plastic bag will be secured over the bottom cap of each section to protect the label. After labeling, the cores will be kept upright and cool until they are split, photo-logged, described, and sub-sampled at the core processing location.

3.1 Vibracore System and Survey Control

Vibracores will be obtained from a vessel equipped with a vibracoring system capable of collecting standard 3.5-inch diameter cores up to 25 feet deep below the sediment-water interface. The marine surveyor will be responsible for locating the vibracores to within 10 feet of the target position, and will utilize the following survey and navigational controls:

- Trimble SPS461 Marine Global Navigation Satellite System (GNSS) Position and Heading Receiver operating in Wide Area Augmentation System (WAAS) mode.
- HYPACK navigation and data-logging computer system.
- Seabed elevation will be established at all sampling locations at the time of vibracore advancement.
- Survey data will be archived in raw and processed formats.

3.2 Vibracore Field Notes

Legible notes will be taken daily during vibracore operations by the TRC representative on the vessel in dedicated field notebooks, using an indelible writing instrument, and will include the following information:

- Date/time
- Author of field notes
- Vessel name, captain, and daily port
- Daily objective
- Names and roles of all other personnel on the vessel (including visitors)
- Descriptions of the wind and sea conditions, noting changes throughout the day and weather limitations
- Descriptions of the tide and current, noting changes throughout the day and limitations

- Arrival/departure times from port and at locations
- Core identification number
- Core location recorded electronically via DGPS
- Water depth at core locations
- Penetration length
- Recovery length
- Problems encountered during the coring, including results of additional coring attempts required due to poor penetration or recovery and which core attempt was retained for sub-sampling
- Visual description of the core material recovered (i.e., sand, silt, organics, etc.), including description of the material observed at the bottom of the core/core cutting shoe
- Summaries of communications with others
- Additional notes provided by the subcontractor, as applicable

Information in field books, logs and chains-of-custody should not be erased. Use single line cross-outs only and initial changes.

3.3 Benthic Sampling Protocol

The benthic sampling protocol has been prepared to meet the specific needs of the project for characterizing the macroinvertebrate community in New Jersey waters. This sampling protocol was designed with the objective of collecting benthic habitat data at up to 5 locations within the planned survey corridors, which will be analyzed to provide an assessment of the macroinvertebrate community in this area. Since the Project is located adjacent to the area previously studied for the original Silver Run Project, it likely that only limited number of select confirmatory benthic samples will be obtained. Specifically, this protocol will include the collection of surface sediment samples using a benthic grab sampling device. Please refer to the separate Benthic Sampling Protocol for additional details.

4.0 Core Processing and Logging

Cores will be processed and logged either at a designated land-based facility or on the coring vessel, depending on capacity. Details on core splitting, visual descriptions, and logging methodologies are presented in the following sections. Any deviation from these methodologies should be discussed with the Project Manager and noted accordingly in field notes.

4.1 Core Processing Area

The core processing area will be under cover and protected from rain or water, be well-lit, have electric outlets and running water, and be of sufficient size to allow full lengths of at least one core to be laid out on the core processing surface. Sufficient storage must be available for unprocessed vibracores, coolers, boxes of sample jars, refrigerator(s), freezer, core processing tools, and other supplies. A broom, dustpan or shovel, and trash container are also necessary.

If cores are not processed onboard the vessel, the land-based processing area should be on the first floor of a building proximal to a garage-type doorway where the core delivery vehicle can back up to the space or a designated area at the marina's property. Unprocessed cores need to be stored vertically and kept at temperatures between 0 to 4 degrees C (32 to 39 degrees F). DOT-approved 55-gallon open-top drums should be available for disposal of excess sediments (see Section 5.10). A solid waste dumpster is also necessary on site for disposal of core liners (with sediment removed) and other solid waste generated during core processing.

4.2 Splitting of Cores

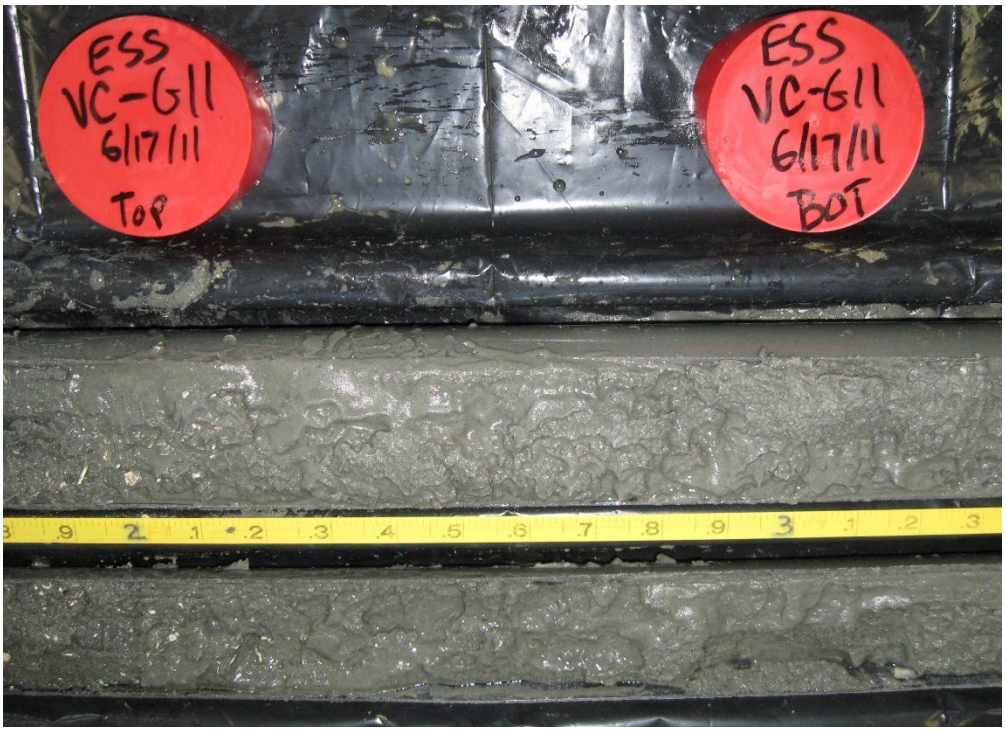
Each core will be split at the core processing facility and the previously labeled caps will be saved for photo logging purposes. Sediment within the cores will be assumed to be contaminated, and therefore dedicated disposable nitrile gloves will be worn at all times when handling samples. Gloves will be changed and properly disposed of as necessary to prevent cross contamination of separate laboratory samples. At a minimum, gloves shall be changed between each sampling location.

The lexan core liner will be cut lengthwise on two opposing sides, with decontaminated power shears or circular saw. Clean stainless-steel wire will be used to separate the core lengthwise into two half-cylinders, so that the center of the core is visible.

4.3 Photo Logging of Cores

The core will be photo logged. Photo logging will proceed as follows:

- A tape measure (divided into 0.10-foot units) will be placed next to the core for reference. The tape measure will be positioned so that the zero mark is located at the top of the core (i.e., the sediment-water interface) and oriented so it appears at the left side of the photographs.
- During photo logging, the core and the tape measure will not be moved. This will provide consistency in core measurements.
- The end caps from the core will be used as markers for the photo logging and will appear in each photograph of the core material.
- Each core photo will be taken in a uniform manner, with the two caps at the top of the photo and lined up with the upper and lower foot mark. The two halves of the core will be positioned at the bottom of the photo and the tape measure will be located between the two core halves. The photos will be taken for each foot of sediment as shown below:



4.4 Visual Examination of Cores and Core Logging

Each core will be visually examined and logged using a standard vibracore field logging sheet. The following information will be included on each core log:

1. Project number, site, and client/project name.
2. Core identification and collection date.
3. TRC field personnel on boat during coring.
4. Date/time of core logging/sub-sampling.
5. Core logging/sampling personnel (*ex situ*).
6. Depth of water during collection.
7. Core penetration length (to the nearest 0.1 foot).
8. Core recovery length (to the nearest 0.1 foot).
9. Unified Soils Classification System (USCS) classification.
10. Distinct changes in stratigraphy, including color, grain sizes, density, and organic material. Percent composition of materials within each core will be estimated and noted as well.
11. The presence and size of larger gravels and clasts, and foreign man-made material such as metal, brick, etc. Photographs will be taken of any man-made materials.
12. Materials that may have been cut by the vibracore (i.e., cobbles, stones, etc.). Fresh fractured surfaces may be evidence of such vibracore cutting.
13. Any indications of contamination, including odors and visual staining.

4.5 Field Analysis of Cores

The shear strength of cohesive sediments will be measured in the field using a hand-held Torvane. The Torvane will be capable of measuring a stress range from zero to 2.5 kilograms per square centimeter (kg/cm^2). For each cohesive stratum measuring at least two (2) feet in thickness, Torvane readings will be taken every two (2) feet beginning near the top of the stratum, with a minimum of two (2) measurements per stratum. To avoid cross contamination, sediment used for Torvane field testing will not be used for chemical sample analysis. One half of the core will be used for Torvane and physical sample collection and the other half for chemical analysis.

5.0 Sediment Sampling and Laboratory Analysis

Sediment sampling, handling, storage/preservation, and analysis will be consistent with accepted industry standard field and laboratory procedures, and pursuant to the NJDEP "The Management and Regulation of Dredging Activities and Dredged Material Disposal in New Jersey's Tidal Waters," October 1997 (Dredging Technical Manual). Visual assessments of cores will be completed as detailed above in Section 4.4. Following visual assessment and logging, each core will be sub-sampled for physical and chemical characteristics depending on sediment type and stratification observed in the cores.

If no stratification is observed throughout the length of a core, one homogenized sample of the core will be selected for laboratory analysis. If the grain size, total organic carbon (TOC) or likelihood of contamination based on core lithology or known contamination history indicates that individual horizons within the core may be significantly different in sediment quality, each distinct stratum with a depth of two feet or greater will be sampled separately.

If a core sample is observed to be comprised of greater than 90 percent sand and gravel, chemical laboratory analyses will not be performed, provided the core was not collected from an area of known present or historical contamination. Visual observations used to make the determination that a sample is greater than 90 percent sand and gravel will be documented by a laboratory grain size analysis. Samples from these locations will be collected and held at the laboratory for chemical analysis pending the results of the laboratory grain size analysis.

5.1 Physical Analysis

Each sample will be analyzed for the following physical parameters:

- Grain size with hydrometer (ASTM D 422)
- Moisture, Ash and Organic Matter (ASTM D 2974)
- Atterberg Limits (ASTM D 4318)
- Specific Gravity (ASTM D 854)

5.2 Chemical Analysis

Homogenized samples from 3 of the 5 locations will be analyzed for the parameters identified in Appendix B of the Dredging Technical Manual by USEPA SW-846 test methods, listed below. The specific analyte lists and detection limits will be consistent with Appendix B, Attachments 1 and 2 of the Dredging Technical Manual, presented in Appendix A. Additional sample volumes may be collected from each sample location for freezer archive purposes.

- Volatile Organic Compounds (VOC), USEPA Method 8260
- Semi-Volatile Organic Compounds (SVOC), USEPA Method 8270
- Pesticides, USEPA Method 8081
- PCB Aroclors, USEPA Method 8082
- Total Metals, USEPA Methods 6010, 7474
- Total Cyanide, USEPA Method 9014
- Dioxins, USEPA Method 1613
- Total Organic Carbon (TOC), 2 runs, USEPA Method 9060

5.3 Sample Containers

Appropriate pre-cleaned and unused sample containers will be provided by the laboratories. Container quality will be visually checked prior to placing sediments into containers.

5.4 Sample Labeling

Laboratory-supplied pre-printed sample labels will be used to appropriately identify sample containers and will be placed on the containers prior to filling with sediment. Samples collected during the sediment sampling investigation will be labeled with a sample identification code. Sample labels will reference both the vibracore identification number (VC-01, VC-02, and so on) and sample number (i.e., VC-01-S1, VC-01-S2, VC-01-S3, and so on). The following information will be recorded on each sample label, and sample labels will be checked twice to ensure accuracy and consistency with field records:

- Company name
- Project number
- Project/site name
- Sample identification code
- Analyses to be performed
- Preservation method
- Date/time of sampling from the core
- Initials of person collecting the sample
- Pertinent comments, if applicable

5.5 Sample Collection and Handling

Any water which separates from the raw sediment sample during transport/storage (i.e., pore water) will be re-mixed with the solid components of the sediments prior to forming the composite samples. This pore water will not be decanted from the sediment sample.

Sediment adjacent to core cross-cuts or sediment adjacent to the liner walls that was disturbed by the lengthwise cutting process will not be sampled. Collection of plastic chips or shards that may be present as a result of the cutting process will be avoided. Sampling will be limited to the interior of the split core.

Samples will be homogenized prior to placement in sampling containers to ensure that representative samples are obtained. Homogenization will proceed by mixing the sample in a clean stainless-steel bowl with a clean stainless-steel spoon until the sample is visibly uniform in color and consistency. Only sampling equipment designed for environmental sampling will be used. Any water that has separated from the sediment will be mixed back into the sample. For chemical samples, material larger than one-quarter inch will be removed and noted, including twigs, leaves, shells, and gravel. For physical samples, all materials will be maintained in the sample unless it is too large for the sample container or misrepresents the sample (i.e., a composite would not statistically contain this piece of material). Materials that are too large or unrepresentative will be documented.

Homogenized sediment will be transferred into the appropriate clean containers using a stainless-steel spoon and the containers closed securely. Care will be taken to prevent sediment from collecting on the exterior of sample containers. Sediment that accumulates on the container exterior and top, including jar threads, will be wiped off with a clean paper towel prior to securing the lid.

If chemical samples are to be frozen by the laboratory to suspend holding times, the jars will only be filled two-thirds to allow room for expansion of wet sediments and prevent container breakage. Chemical sample containers will be placed in laboratory-supplied bubble-wrap bags and into an ice-packed cooler or refrigerator immediately after sampling. Large, heavy-duty zip-loc bags will be used to contain ice within coolers, which will prevent water from seeping into sample containers, damaging sample container labels and/or leaking from coolers during transport. Physical sample containers will be placed in coolers or other appropriate shipping containers, without ice.

5.6 Sample Tracking and Chain of Custody

The samples submitted for laboratory analysis will be preserved, stored, handled, and transmitted to the laboratory within allowable hold times. Laboratory-supplied chain-of-custody forms will be used to track sample custody for both physical and chemical samples. The chain-of-custody forms will be completed immediately after each sample is processed to minimize potential for errors. Chain-of–custody forms will be double-checked prior to releasing the samples, and laboratory personnel advised on the proper signature, date, and time of release information required. Chain of custody forms will include all information required by the laboratory including the following, at a minimum:

- Project name
- Project number
- Sample identification (e.g., Station location number)
- Company name
- Date (e.g., date = MMDDYY)
- Time (e.g., 4-digit, 24-hour)
- Sample matrix indicating type of sample (composite or grab)
- Initials of personnel performing the sampling
- Analyses to be performed and required method reporting limits
- Preservation technique
- Container type
- Number of containers for each sample
- Pertinent comments or special requests (e.g., archive, hold, freeze)
- Release signature with date and time

The samples will be delivered to the appropriate laboratories via overnight priority shipping or courier so that hold times and temperature preservation requirements will be met. If shipped overnight, the chains of custody will be placed in plastic bags and taped inside the cooler lid. Additionally, custody seals will be properly secured over the lid of each cooler (i.e., double-wrapped with filament tape). If transported via courier, chain of custody forms must be signed by the courier with the date and time of release and do not need to be secured inside the coolers.

5.7 Sampling Equipment Decontamination Procedures

Every effort will be made to avoid cross-contamination of samples. Proper methods will be followed, including using dedicating sample equipment whenever possible. When equipment is to be reused, such as the re-use of plastic or stainless-steel spoons, trowels, or bowls, the following decontamination procedure will be followed before use with each new sample:

1. Distilled/deionized Water and Non-phosphate Detergent Rinse/Scrub – A non-phosphate laboratory-grade detergent will be added to distilled or deionized water and mixed in spray bottles per manufacturer's recommendations. The water/detergent solution will be sprayed onto equipment in quantities sufficient to promote formation of bubbles/foam when scrubbed with a scrub brush. Scrubbing shall continue until the absence of sediment and foreign material on the equipment is confirmed visually.
2. Distilled/deionized Water Rinse – Distilled or deionized water will be either poured or sprayed over the equipment following the tap water/detergent rinse/scrub. The water rinse shall continue until the bubbles/foam generated from the water/detergent rinse/scrub has been purged from the equipment.
3. Isopropyl Alcohol Rinse – Following the water rinse, isopropyl alcohol solution will be sprayed onto the equipment in sufficient quantities to coat the entire surface area of the equipment.

4. Distilled/deionized Water [Triple] Rinse – Following the isopropyl alcohol rinse, distilled or de-ionized water will be sprayed onto the equipment no fewer than three times to coat the entire surface of the equipment.
5. Dry – Equipment shall be dried with clean paper towels or allowed to air dry (preferred, if time allows).
6. Storage – Once dry, to prevent contamination in between uses, items will be secured and stored in an area not subject to cross-contamination from windblown sediment and/or water.

To keep transport to a minimum and prevent cross-contamination, the decontamination activities should occur in a designated area that is separate from, but close to, the sample handling location. Decontaminated sampling equipment will be stored in a location and manner that prevents cross-contamination. Storage and working areas, including the coolers, will be cleaned regularly.

5.8 Quality Assurance/Quality Control Program

The goal of this SSAP is to provide sediment data which are accurate, representative, and legally defensible. The Quality Assurance/Quality Control (QA/QC) measures in sampling sediments to be employed will include: use of proper containers and appropriate methods of sample collection and preservation; providing strict sample identification and chain-of-custody documentation; and decontamination and cross-contamination prevention procedures.

The guidance described in Appendix B; Section II of the Dredging Technical Manual will be followed for this project. These QC samples include field blanks, duplicate samples and matrix spike and matrix spike duplicate (MS/MSD) samples at the required frequencies. TRC will communicate the QA/QC requirements with the analytical laboratories. QA/QC samples will be collected with the following conditions:

- Duplicate samples will not be counted as “field samples” or “sediment samples” for the purposes of calculating frequency of Duplicate and MS/MSD sample collection.
- Field duplicate and MS/MSD samples will be collected from cores/strata which are observed in the field to contain greater than 10% fines (silt/clay) (i.e., less than 90% sand).
- Field duplicate samples will be analyzed for the same chemical parameters as the primary sample.
- MS/MSD samples will be analyzed for the same chemical parameters as the primary sample except PCB congeners, pesticides and dioxin/furans which are not required.
- Field duplicate and MS/MSD samples will not be analyzed for physical parameters.
- Field Blank: analyte-free, laboratory-supplied deionized water will be used to rinse clean sampling equipment and will be collected into sample containers after sampling and completion of decontamination. One field blank will be collected early in the sampling program and submitted to the laboratory on a separate chain-of-custody. The field blank results will be evaluated by the Project Manager as soon as the results are available, and corrective action taken if warranted by the results.
- Field Blank analysis will include all of the chemical parameters specified in this plan except for PCB congeners and dioxin/furans.

5.9 Archived Sediments

If needed, TRC will request that the chemical analytical laboratory freeze/archive, for one year, any additional sample aliquots collected for archive purposes and/ or any extra sediments remaining in sample containers following the requested analyses.

5.10 Excess Sediment Management

If an upland location is utilized for core processing/sampling, excess sediment remaining after sample collection will be transferred to DOT-approved 55-gallon open-top drums for temporary storage at the sample processing location. This sediment will be properly managed based on its chemical disposition.

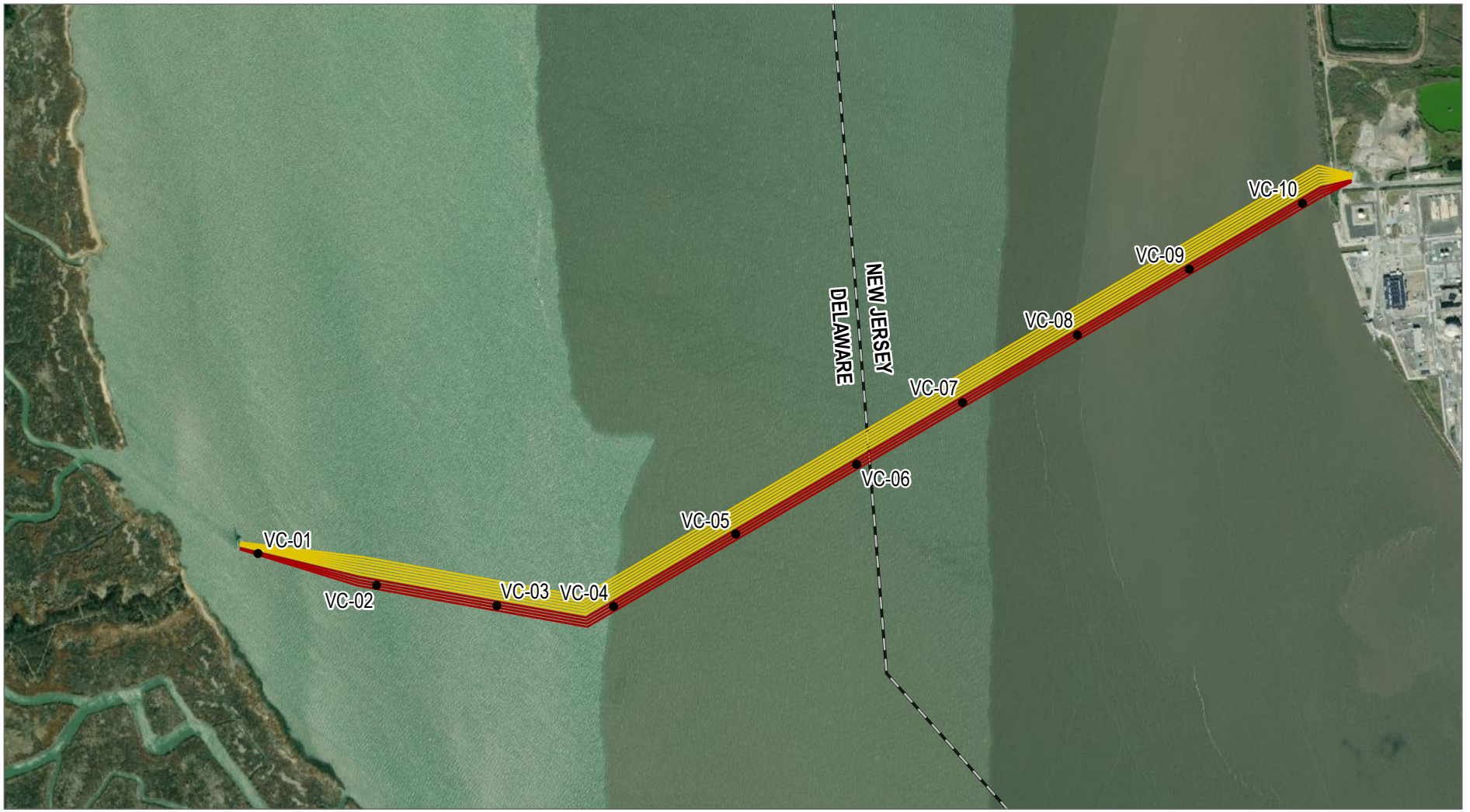
5.11 Notifications

A "Coast Guard Sector Delaware Bay Request for Marine Activity Approval" (https://www.atlanticarea.uscg.mil/Our-Organization/District-5/District-Units/Sector-Delaware-Bay/)form shall be completed and filed with US Coast Guard Sector Delaware Bay Waterways Management at least 10 business days prior to the start of field operations. This form is required to be submitted when sampling operations will occur within any charted or Federal Channel.

The completed form (https://homeport.uscg.mil/Pages/MarineEventFormSubmission.aspx or https://www.atlanticarea.uscg.mil/Portals/7/Fifth%20District/Sector%20Delaware%20Bay/docs/CG_4423%20Application%20for%20Marine%20Event.pdf?ver=2017-07-18-133557-053) is filed via email to Secdelbaywwm@uscg.mil. Review and approval will generally take a minimum of 5 business days. Authorization to proceed will not be given until five (5) days after Coast Guard approval is granted. This timeline also applies to any revisions to an approved project.

Requests for Notice to Mariners for sampling operations outside of the areas listed above must be faxed to 617.223.8073 or emailed to LNM@uscg.mil by Tuesday for Thursday publication.

Figure



- PROPOSED VIBRACORE AND BENTHIC GRAB SAMPLING LOCATION
- SILVER RUN EXPANSION PROJECT PROPOSED CABLE
- SILVER RUN EXISTING CABLE



PROJECT:
SILVER RUN ELECTRIC, LLC
LOWER DELAWARE RIVER

TITLE:
PROPOSED SAMPLE LOCATIONS

DRAWN BY:	K. BACHAND	PROJ. NO.:	529393
CHECKED BY:	M. PHILLIPS		
APPROVED BY:	P. WHITNEY		**FIGURE 1**
DATE:	MAY 2023		

BASE MAP: ESRI WORLD IMAGERY, 2020
DATA SOURCES: TRC

N

0 850 1,700 FEET

1:20,400 1" = 1,700'

TRC
404 WYMAN STREET
SUITE 375
WALTHAM, MA 02451
PHONE: 781.419.7696

FILE: 529393_SILVERRUNEXPANSION_FIGS

COORDINATE SYSTEM: NAD 1983 2011 UTM ZONE 18N; MAP ROTATION: 0
-- SAVED BY: KBACHAND ON 5/31/2023, 15:31:39 PM; -- FILE PATH: T:\1-PROJECTS\SILVERRUNELECTRICLLC\529393_SILVERRUNEXPANSION\2-APRX\529393_SILVERRUNEXPANSION_FIGS\529393_SILVERRUNEXPANSION_FIGS.APRX

Sampling and Analysis Plan

Delaware State Waters

June 2023

Silver Run Expansion Project

Prepared For:

Silver Run Electric, LLC
16150 Main Circle Drive, Suite 310
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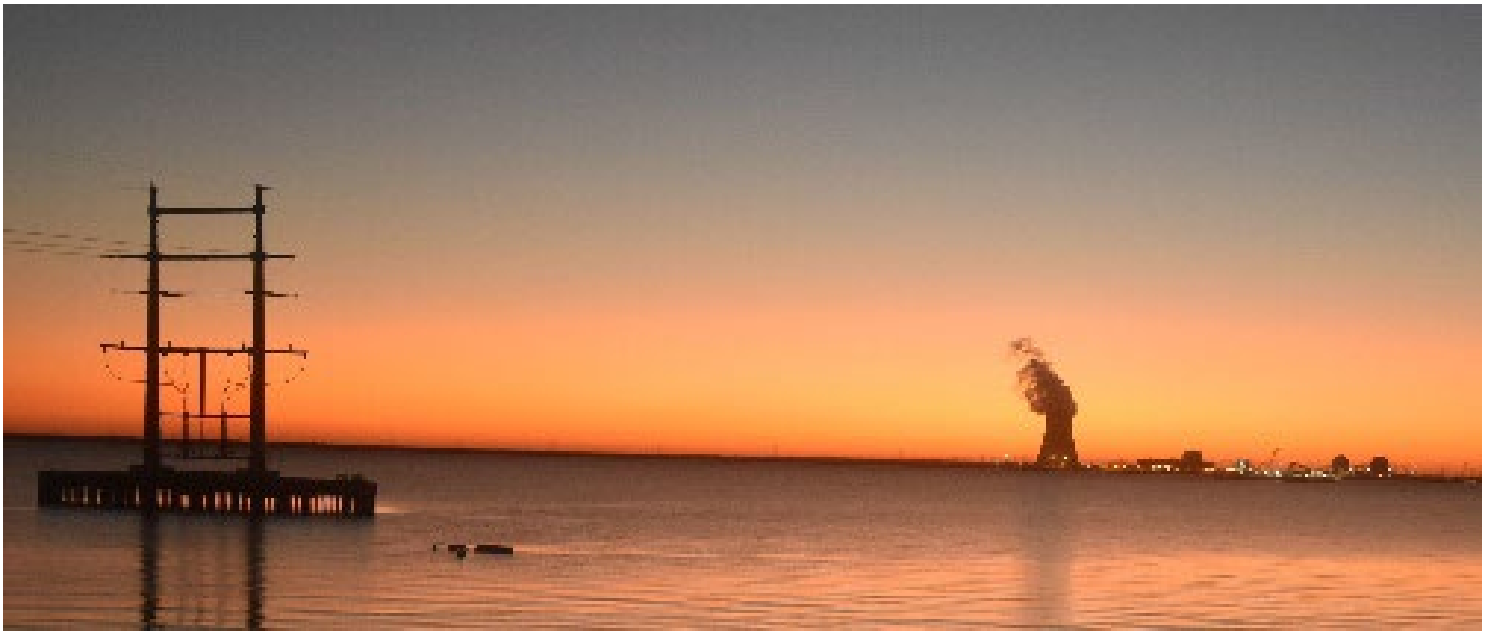


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FIGURE

Figure 1: Proposed Sample Locations

1.0 Project Description

The proposed Silver Run Expansion Project (Project), which will be constructed, owned, and operated by Silver Run Electric, LLC (SRE), consists of adding i) an additional set of submarine cables across the Delaware River at approximately river mile 51.5 and ii) upgrading terminal equipment at the Silver Run substation, together to achieve a higher rating for the Silver Run – Hope Creek 230 kV transmission line. The Project resolves electrical grid reliability violations identified by the independent grid operator in the Mid-Atlantic, PJM Interconnection, through its system planning process. Cost responsibility for the Project will be allocated to electric customers in the State of New Jersey.

The transmission line upgrade is proposed to consist of adding an estimated four new submarine cables to the existing Silver Run – Hope Creek 230-kilovolt (kV) line. The new cables will be located adjacent to SRE's already installed cables within the river corridor surveyed for the original project. Modifications or additions to the existing in-river transition structure on the Delaware side and the on-land transition structure on the New Jersey side will be required to transition the new cables to the existing overhead electric transmission lines. No construction activities will be required in the Augustine Wildlife Area as part of the Project.

The terminal equipment work at the Silver Run substation in New Castle County is expected to include one-for-one replacements of equipment within the existing substation fence line. Some earth disturbance within the existing substation may be required to replace existing foundations or install new cabling, pending detailed engineering analysis.

This sampling and analysis plan (SAP) was prepared to address Delaware Department of Natural Resources and Environmental Control (DNREC) requirements. A separate sediment sampling and analysis plan was prepared and will be followed for the portion of the field program to be conducted in New Jersey waters.

The objective of the sampling and analysis field program is to collect environmental information/data at locations along the survey corridor (Figure 1) to support the Project's regulatory permitting and design efforts. Specifically, sediment samples will be obtained using vibracore sampling which will be analyzed for physical and chemical analyses. Benthic samples will be obtained by gravity dredge sampling technologies for macroinvertebrate community analyses. This field program is being conducted to provide physical, chemical, and biological data to be used in environmental assessments required for environmental regulatory permitting at the local, state, and federal levels. Note that a Benthic Sampling Plan is provided as a separate document to specify sampling and analytical procedures for macroinvertebrate communities.

The field program is divided into three primary categories: geophysical survey, sediment sampling investigation, and benthic sampling investigation. The geophysical survey will provide remote sensing data for evaluating the physical characteristics of the Survey Area and is expected to begin in Spring/Summer 2023. The sediment sampling investigation will ground truth aspects of the geophysical survey and will provide detailed information regarding sediment characteristics including bulk physical, chemical and thermal resistivity properties at various locations throughout

the Survey Area. The benthic investigation will provide insight into the biologic communities in the Survey Area.

2.0 Project Organization

TRC and SRE's contracted marine surveyor(s) will conduct this field investigation work. The marine surveyor(s) will be responsible for field operations (i.e., geophysical survey, advancing vibracores, benthic sample collection) and establishing horizontal/vertical controls during the field program. TRC will be responsible for observing field activities; splitting, logging, sampling sediment vibracores, containerizing the benthic samples; and coordinating all activities with the subcontractor and the selected analytical laboratories. Sediment samples will be analyzed by our current proposed laboratory Alpha Analytical, which is certified by the National Environmental Laboratory Approval Program (NELAP) in New Jersey for the particular analytical methods to be performed. Benthic samples will be catalogued and processed by TRC personnel.

3.0 Field Investigations

The sediment sampling field investigation will consist of collecting vibracores from sediment along the survey routes for field logging and laboratory analysis. The investigation will be conducted in accordance with the Delaware Department of Natural Resources and Environmental Control (DNREC) "The Delaware Statewide Dredging Policy Framework" (February 2001). Cores will be located at pre-selected locations along the survey route and near the proposed Delaware transition structure (see Figure 1). Benthic macroinvertebrate samples will be collected before initiation of coring or other bottom-disturbing activity. This is necessary to minimize prior disturbance to the sampled benthic community.

It is anticipated that vibracores will be collected from up to six (6) locations within the survey corridor in Delaware waters. The number and location of cores was determined based on a review of existing information and sediment data specific to the proposed cable corridor, in conjunction with TRC's professional judgment based on our experience. The number of vibracores may increase or decrease and the locations may be adjusted depending on the specific results obtained from the geophysical survey.

Potential cable installation depths are 25 feet below the authorized federal channel depths when crossing or within a federally maintained navigation channel, and nominally 6 to 15 feet below present bottom outside the federal channel. These potential installation depths were used to design the penetration depths for the vibracores.

Vibracore Target Penetration Depths – The target vibracore penetration depth will be up to 25 feet below the sediment-water interface.

The sediment cores will be collected to the target penetration depth or until refusal is encountered. Refusal shall be defined as a penetration rate of less than one (1) foot in three (3) minutes. Should refusal occur prior to reaching the target depth, the coring device will be recovered, serviced, re-deployed at an offset station proximal to but outside the area disturbed by the first attempt, and a second attempt shall be made to reach the target depth. The core with greater penetration/recovery will be maintained for sub-sampling. One retry will be attempted if sediment

recovery from a core that achieves target depth is less than 80% of penetration. No more than two (2) cores will be collected at any location. Core locations will be named sequentially, as VC-01, VC-02, VC-03 or in some sensible modification thereof.

Upon recovery, cores may be cut into shorter sections and capped at both ends. When sub-sampling the core, care will be taken not to include any sediment from this cut surface, or any plastic chips from the saw cut. Prior to cutting cores into more manageable sections, cores will be visually examined through the core liner to ensure that no core is cut in a manner that precludes individual horizons from being sampled separately.

The cores will be marked with identification information (i.e., core ID, date, top/bottom) using an indelible marker. If cores are cut into sections, the sections of a core will be designated by their elevations beneath the sediment water interface in feet as shown on the vibracore field observation log. The markings will be located on both end caps denoting top and bottom of the section and labeled midway along the core liner. If necessary, a piece of plastic sheeting or a plastic bag will be secured over the bottom cap of each section to protect the label. After labeling, the cores will be kept upright and cool until they are split, photo-logged, described, and sub-sampled at the core processing location.

3.1 Vibracore System and Survey Control

Vibracores will be obtained from a vessel equipped with a vibracoring system capable of collecting standard 3.5-inch diameter cores up to 25 feet deep below the sediment-water interface. The marine surveyor will be responsible for locating the vibracores to within 10 feet of the target position, and will utilize the following survey and navigational controls:

- Trimble SPS461 Marine Global Navigation Satellite System (GNSS) Position and Heading Receiver operating in Wide Area Augmentation System (WAAS) mode.
- HYPACK navigation and data-logging computer system.
- Seabed elevation will be established at all sampling locations at the time of vibracore advancement.
- Survey data will be archived in raw and processed formats.

3.2 Vibracore Field Notes

Legible notes will be taken daily during vibracore operations by the TRC representative on the vessel in dedicated field notebooks, using an indelible writing instrument, and will include the following information:

- Date/time
- Author of field notes
- Vessel name, captain, and daily port
- Daily objective
- Names and roles of all other personnel on the vessel (including visitors)

- Descriptions of the wind and sea conditions, noting changes throughout the day and weather limitations
- Descriptions of the tide and current, noting changes throughout the day and limitations
- Arrival/departure times from port and at locations
- Core identification number
- Core location recorded electronically via DGPS
- Water depth at core locations
- Penetration length
- Recovery length
- Problems encountered during the coring, including results of additional coring attempts required due to poor penetration or recovery and which core attempt was retained for sub-sampling
- Visual description of the core material recovered (i.e., sand, silt, organics, etc.), including description of the material observed at the bottom of the core/core cutting shoe
- Summaries of communications with others
- Additional notes provided by the subcontractor, as applicable

Information in field books, logs and chains-of-custody should not be erased. Use single line cross-outs only and initial changes.

3.3 Benthic Sampling Protocol

The benthic sampling protocol has been prepared to meet the specific needs of the project for characterizing the macroinvertebrate community in Delaware waters. This sampling protocol was designed with the objective of collecting benthic habitat data at up to 6 locations within the planned survey corridors, which will be analyzed to provide an assessment of the macroinvertebrate community in this area. Since the Project is located adjacent to the area previously studied for the original Silver Run Project, it likely that only a limited number of select confirmatory benthic samples will be obtained. Specifically, this protocol will include the collection of surface sediment samples using a benthic grab sampling device. Please refer to the separate Benthic Sampling Protocol for additional details.

4.0 Core Processing and Logging

Cores will be processed and logged either at a designated land-based facility or on the coring vessel, depending on capacity. Details on core splitting, visual descriptions and logging methodologies are presented in the following sections. Any deviation from these methodologies should be discussed with the Project Manager and noted accordingly in field notes.

4.1 Core Processing Area

The core processing area will be under cover and protected from rain or water, be well-lit, have electric outlets and running water, and be of sufficient size to allow full lengths of at least one core

to be laid out on the core processing surface. Sufficient storage must be available for unprocessed vibracores, coolers, boxes of sample jars, refrigerator(s), freezer, core processing tools, and other supplies. A broom, dustpan or shovel, and trash container are also necessary.

If cores are not processed onboard the vessel, the land-based processing area should be on the first floor of a building proximal to a garage-type doorway where the core delivery vehicle can back up to the space or a designated area at the marina's property. Unprocessed cores need to be stored vertically and kept at temperatures between 0 to 4 degrees C (32 to 39 degrees F). DOT-approved 55-gallon open-top drums should be available for disposal of excess sediments (see Section 5.10). A solid waste dumpster is also necessary on site for disposal of core liners (with sediment removed) and other solid waste generated during core processing.

4.2 Splitting of Cores

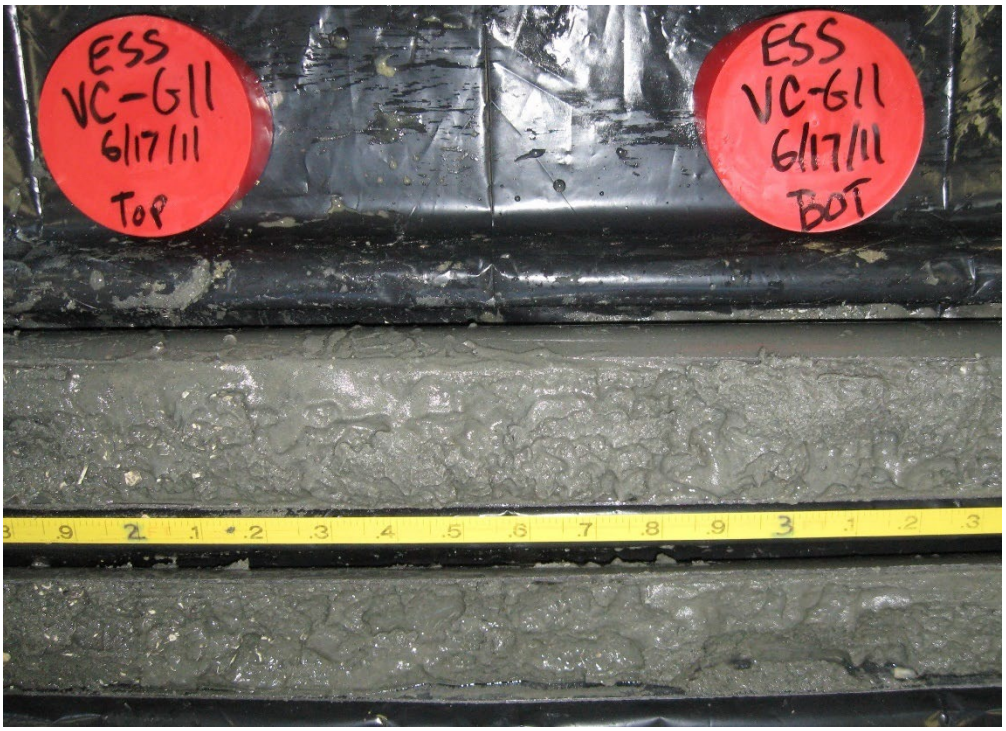
Each core will be split at the core processing facility and the previously labeled caps will be saved for photo logging purposes. Sediment within the cores will be assumed to be contaminated, and therefore dedicated disposable nitrile gloves will be worn at all times when handling samples. Gloves will be changed and properly disposed of as necessary to prevent cross contamination of separate laboratory samples. At a minimum, gloves shall be changed between each sampling location.

The lexan core liner will be cut lengthwise on two opposing sides, with decontaminated power shears or circular saw. Clean stainless-steel wire will be used to separate the core lengthwise into two half-cylinders, so that the center of the core is visible.

4.3 Photo Logging of Cores

The core will be photo logged. Photo logging will proceed as follows:

- A tape measure (divided into 0.10-foot units) will be placed next to the core for reference. The tape measure will be positioned so that the zero mark is located at the top of the core (i.e., the sediment-water interface) and oriented so it appears at the left side of the photographs.
- During photo logging, the core and the tape measure will not be moved. This will provide consistency in core measurements.
- The end caps from the core will be used as markers for the photo logging and will appear in each photograph of the core material.
- Each core photo will be taken in a uniform manner, with the two caps at the top of the photo and lined up with the upper and lower foot mark. The two halves of the core will be positioned at the bottom of the photo and the tape measure will be located between the two core halves. The photos will be taken for each foot of sediment as shown below:



4.4 Visual Examination of Cores and Core Logging

Each core will be visually examined and logged using a standard vibracore field logging sheet. The following information will be included on each core log:

1. Project number, site, and client/project name.
2. Core identification and collection date.
3. TRC field personnel on boat during coring.
4. Date/time of core logging/sub-sampling.
5. Core logging/sampling personnel (*ex situ*).
6. Depth of water during collection.
7. Core penetration length (to the nearest 0.1 foot).
8. Core recovery length (to the nearest 0.1 foot).
9. Unified Soils Classification System (USCS) classification.
10. Distinct changes in stratigraphy, including color, grain sizes, density, and organic material. Percent composition of materials within each core will be estimated and noted as well.
11. The presence and size of larger gravels and clasts, and foreign man-made material such as metal, brick, etc. Photographs will be taken of any man-made materials.
12. Materials that may have been cut by the vibracore (i.e., cobbles, stones, etc.). Fresh fractured surfaces may be evidence of such vibracore cutting.

13. Any indications of contamination, including odors and visual staining.

4.5 Field Analysis of Cores

The shear strength of cohesive sediments will be measured in the field using a hand-held Torvane. The Torvane will be capable of measuring a stress range from zero to 2.5 kilograms per square centimeter (kg/cm^2). For each cohesive stratum measuring at least two (2) feet in thickness, Torvane readings will be taken every two (2) feet beginning near the top of the stratum, with a minimum of two (2) measurements per stratum. To avoid cross contamination, sediment used for Torvane field testing will not be used for chemical sample analysis. One half of the core will be used for Torvane and physical sample collection and the other half for chemical analysis.

5.0 Sediment Sampling and Laboratory Analysis

Sediment sampling, handling, storage/preservation, and analysis will be consistent with accepted industry standard field and laboratory procedures and pursuant to "The Delaware Statewide Dredging Policy Framework" (February 2001). Visual assessments of cores will be completed as detailed above in Section 4.4. Following visual assessment and logging, each core will be sub-sampled for physical and chemical characteristics depending on sediment type and stratification observed in the cores.

If no stratification is observed throughout the length of a core, one (1) homogenized sample of the core will be selected for laboratory analysis. If the grain size, total organic carbon and black carbon (TOC/BC) or likelihood of contamination based on core lithology or known contamination history indicates that individual horizons within the core may be significantly different in sediment quality, each distinct stratum with a depth of two (2) feet or greater will be sampled separately.

If a core sample is observed to be comprised of greater than 90 percent sand and gravel, chemical laboratory analyses will not be performed, provided the core was not collected from an area of known present or historical contamination. Visual observations used to make the determination that a sample is greater than 90 percent sand and gravel will be documented by a laboratory grain size analysis. Samples from these locations will be collected and held at the laboratory for chemical analysis pending the results of the laboratory grain size analysis.

5.1 Physical Analysis

Each sample will be analyzed for the following physical parameters:

- Grain size with hydrometer (ASTM D 422)
- Moisture, Ash and Organic Matter (ASTM D 2974)
- Atterberg Limits (ASTM D 4318)
- Specific Gravity of Solids (ASTM D 854)

5.2 Chemical Analysis

Homogenized samples from 3 of the 6 locations will be analyzed for the parameters identified in Chapter II (Environmental Evaluation) of The Delaware Statewide Dredging Policy Framework by USEPA SW-846 test methods, listed below. The specific analyte lists and detection limits will be consistent The Delaware Statewide Dredging Policy Framework. Additional sample volumes may be collected from each sample location for freezer archive purposes.

- Pesticides, USEPA Method 8081A
- Total Metals, USEPA Methods 6010C, Hg cold vapor 7471B
- Dioxins, USEPA Method 1613B
- Total Organic Carbon and Black Carbon (TOC/BC), Lloyd Kahn method
- PCB Congeners, USEPA Method 1668C
- Parent PAH and Alkyl PAH Homologs, USEPA Method 8270D
- Ammonia-Nitrogen, USEPA Method 350.1
- Total Phosphorus, USEPA Method 365

5.3 Sample Containers

Appropriate pre-cleaned and unused sample containers will be provided by the laboratories. Container quality will be visually checked prior to placing sediments into containers.

5.4 Sample Labeling

Laboratory-supplied pre-printed sample labels will be used to appropriately identify sample containers and will be placed on the containers prior to filling with sediment. Samples collected during the sediment sampling investigation will be labeled with a sample identification code. Sample labels will reference both the vibracore identification number (VC-01, VC-02, and so on) and sample number (i.e., VC-01-S1, VC-01-S2, VC-01-S3, and so on). The following information will be recorded on each sample label, and sample labels will be checked twice to ensure accuracy and consistency with field records:

- Company name
- Project number
- Project/site name
- Sample identification code
- Analyses to be performed
- Preservation method
- Date/time of sampling from the core
- Initials of person collecting the sample
- Pertinent comments, if applicable

5.5 Sample Collection and Handling

Any water which separates from the raw sediment sample during transport/storage (i.e., pore water) will be re-mixed with the solid components of the sediments prior to forming the composite samples. This pore water will not be decanted from the sediment sample.

Sediment adjacent to core cross-cuts or sediment adjacent to the liner walls that was disturbed by the lengthwise cutting process will not be sampled. Collection of plastic chips or shards that may be present as a result of the cutting process will be avoided. Sampling will be limited to the interior of the split core.

Samples will be homogenized prior to placement in sampling containers to ensure that representative samples are obtained. Homogenization will proceed by mixing the sample in a clean stainless-steel bowl with a clean stainless-steel spoon until the sample is visibly uniform in color and consistency. Only sampling equipment designed for environmental sampling will be used. Any water that has separated from the sediment will be mixed back into the sample. For chemical samples, material larger than one-quarter inch will be removed and noted, including twigs, leaves, shells, and gravel. For physical samples, all materials will be maintained in the sample unless it is too large for the sample container or misrepresents the sample (i.e., a composite would not statistically contain this piece of material). Materials that are too large or unrepresentative will be documented.

Homogenized sediment will be transferred into the appropriate clean containers using a stainless-steel spoon and the containers closed securely. Care will be taken to prevent sediment from collecting on the exterior of sample containers. Sediment that accumulates on the container exterior and top, including jar threads, will be wiped off with a clean paper towel prior to securing the lid.

If chemical samples are to be frozen by the laboratory to suspend holding times, the jars will only be filled two-thirds to allow room for expansion of wet sediments and prevent container breakage. Chemical sample containers will be placed in laboratory-supplied bubble-wrap bags and into an ice-packed cooler or refrigerator immediately after sampling. Large, heavy-duty zip-loc bags will be used to contain ice within coolers, which will prevent water from seeping into sample containers, damaging sample container labels and/or leaking from coolers during transport. Physical sample containers will be placed in coolers or other appropriate shipping containers, without ice.

5.6 Sample Tracking and Chain of Custody

The samples submitted for laboratory analysis will be preserved, stored, handled, and transmitted to the laboratory within allowable hold times. Laboratory-supplied chain-of-custody forms will be used to track sample custody for both physical and chemical samples. The chain-of-custody forms will be completed immediately after each sample is processed to minimize potential for errors. Chain-of–custody forms will be double-checked prior to releasing the samples, and laboratory personnel advised on the proper signature, date, and time of release information required. Chain of custody forms will include all information required by the laboratory including the following, at a minimum:

- Project name
- Project number
- Sample identification (e.g., Station location number)
- Company name
- Date (e.g., date = MMDDYY)
- Time (e.g., 4-digit, 24-hour)
- Sample matrix indicating type of sample (composite or grab)
- Initials of personnel performing the sampling
- Analyses to be performed and required method reporting limits
- Preservation technique
- Container type
- Number of containers for each sample
- Pertinent comments or special requests (e.g., archive, hold, freeze)
- Release signature with date and time

The samples will be delivered to the appropriate laboratories via overnight priority shipping or courier so that hold times and temperature preservation requirements will be met. If shipped overnight, the chains of custody will be placed in plastic bags and taped inside the cooler lid. Additionally, custody seals will be properly secured over the lid of each cooler (i.e., double-wrapped with filament tape). If transported via courier, chain of custody forms must be signed by the courier with the date and time of release and do not need to be secured inside the coolers.

5.7 Sampling Equipment Decontamination Procedures

Every effort will be made to avoid cross-contamination of samples. Proper methods will be followed, including using dedicating sample equipment whenever possible. When equipment is to be reused, such as the re-use of plastic or stainless-steel spoons, trowels, or bowls, the following decontamination procedure will be followed before use with each new sample:

1. Distilled/deionized Water and Non-phosphate Detergent Rinse/Scrub – A non-phosphate laboratory-grade detergent will be added to distilled or deionized water and mixed in spray bottles per manufacturer's recommendations. The water/detergent solution will be sprayed onto equipment in quantities sufficient to promote formation of bubbles/foam when scrubbed with a scrub brush. Scrubbing shall continue until the absence of sediment and foreign material on the equipment is confirmed visually.
2. Distilled/deionized Water Rinse – Distilled or deionized water will be either poured or sprayed over the equipment following the tap water/detergent rinse/scrub. The water rinse shall continue until the bubbles/foam generated from the water/detergent rinse/scrub has been purged from the equipment.
3. Isopropyl Alcohol Rinse – Following the water rinse, isopropyl alcohol solution will be sprayed onto the equipment in sufficient quantities to coat the entire surface area of the equipment.

4. Distilled/deionized Water [Triple] Rinse – Following the isopropyl alcohol rinse, distilled or de-ionized water will be sprayed onto the equipment no fewer than three times to coat the entire surface of the equipment.
5. Dry – Equipment shall be dried with clean paper towels or allowed to air dry (preferred, if time allows).
6. Storage – Once dry, to prevent contamination in between uses, items will be secured and stored in an area not subject to cross-contamination from windblown sediment and/or water.

To keep transport to a minimum and prevent cross-contamination, the decontamination activities should occur in a designated area that is separate from, but close to, the sample handling location. Decontaminated sampling equipment will be stored in a location and manner that prevents cross-contamination. Storage and working areas, including the coolers, will be cleaned regularly.

5.8 Quality Assurance/Quality Control Program

The goal of this SAP is to provide sediment data which are accurate, representative, and legally defensible. The Quality Assurance/Quality Control (QA/QC) measures in sampling sediments to be employed will include: use of proper containers and appropriate methods of sample collection and preservation; providing strict sample identification and chain-of-custody documentation; and decontamination and cross-contamination prevention procedures.

The guidance described in Appendix B; Section II of the New Jersey Dredging Technical Manual will be followed for this project. These QC samples include field blanks, duplicate samples and matrix spike and matrix spike duplicate (MS/MSD) samples at the required frequencies. TRC will communicate the QA/QC requirements with the analytical laboratories. QA/QC samples will be collected with the following conditions:

- Duplicate samples will not be counted as “field samples” or “sediment samples” for the purposes of calculating frequency of Duplicate and MS/MSD sample collection.
- Field duplicate and MS/MSD samples will be collected from cores/strata which are observed in the field to contain greater than 10% fines (silt/clay) (i.e., less than 90% sand).
- Field duplicate samples will be analyzed for the same chemical parameters as the primary sample.
- MS/MSD samples will be analyzed for the same chemical parameters as the primary sample except PCB congeners, pesticides and dioxin/furans which are not required.
- Field duplicate and MS/MSD samples will not be analyzed for physical parameters.
- Field Blank: analyte-free, laboratory-supplied deionized water will be used to rinse clean sampling equipment and will be collected into sample containers after sampling and completion of decontamination. One field blank will be collected early in the sampling program and submitted to the laboratory on a separate chain-of-custody. The field blank results will be evaluated by the Project Manager as soon as the results are available, and corrective action taken if warranted by the results.

- Field Blank analysis will include all of the chemical parameters specified in this plan except for PCB congeners and dioxin/furans.

5.9 Archived Sediments

If needed, TRC will request that the chemical analytical laboratory freeze/archive, for one year, any additional sample aliquots collected for archive purposes and/ or any extra sediments remaining in sample containers following the requested analyses.

5.10 Excess Sediment Management

If an upland location is utilized for core processing/sampling, excess sediment remaining after sample collection will be transferred to DOT-approved 55-gallon open-top drums for temporary storage at the sample processing location. This sediment will be properly managed based on its chemical disposition.

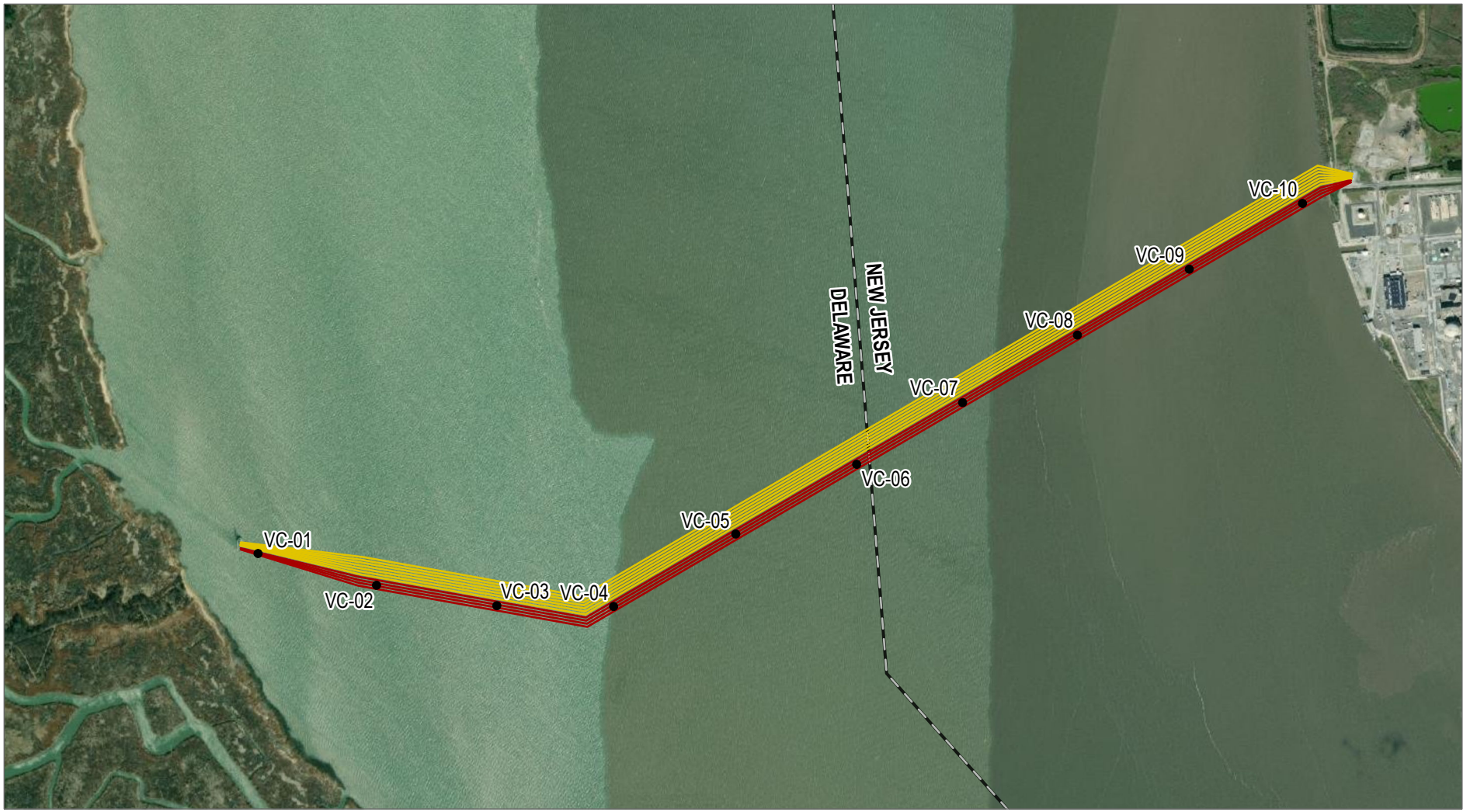
5.11 Notifications

A "Coast Guard Sector Delaware Bay Request for Marine Activity Approval" (https://www.atlanticarea.uscg.mil/Our-Organization/District-5/District-Units/Sector-Delaware-Bay/)form shall be completed and filed with US Coast Guard Sector Delaware Bay Waterways Management at least 10 business days prior to the start of field operations. This form is required to be submitted when sampling operations will occur within any charted or Federal Channel;

The completed form (https://homeport.uscg.mil/Pages/MarineEventFormSubmission.aspx or https://www.atlanticarea.uscg.mil/Portals/7/Fifth%20District/Sector%20Delaware%20Bay/docs/CG_4423%20Application%20for%20Marine%20Event.pdf?ver=2017-07-18-133557-053) is filed via email to Secdelbaywwm@uscg.mil. Review and approval will generally take a minimum of 5 business days. Authorization to proceed will not be given until five (5) days after Coast Guard approval is granted. This timeline also applies to any revisions to an approved project.

Requests for Notice to Mariners for sampling operations outside of the areas listed above must be faxed to 617.223.8073 or emailed to LNM@uscg.mil by Tuesday for Thursday publication.

Figure



- PROPOSED VIBRACORE AND BENTHIC GRAB SAMPLING LOCATION
- SILVER RUN EXPANSION PROJECT PROPOSED CABLE
- SILVER RUN EXISTING CABLE



PROJECT:
SILVER RUN ELECTRIC, LLC
LOWER DELAWARE RIVER

TITLE:
PROPOSED SAMPLE LOCATIONS

DRAWN BY:	K. BACHAND	PROJ. NO.:	529393
CHECKED BY:	M. PHILLIPS		
APPROVED BY:	P. WHITNEY		**FIGURE 1**
DATE:	MAY 2023		

BASE MAP: ESRI WORLD IMAGERY, 2020
DATA SOURCES: TRC

N

0 850 1,700 FEET

1:20,400 1" = 1,700'

TRC
404 WYMAN STREET
SUITE 375
WALTHAM, MA 02451
PHONE: 781.419.7696

FILE: 529393_SILVERRUNEXPANSION_FIGS

COORDINATE SYSTEM: NAD 1983 2011 UTM ZONE 18N; MAP ROTATION: 0
-- SAVED BY: KBACHAND ON 5/31/2023, 15:31:39 PM; -- FILE PATH: T:\1-PROJECTS\SILVERRUNELECTRICLLC\529393_SILVERRUNEXPANSION\2-APRX\529393_SILVERRUNEXPANSION_FIGS\529393_SILVERRUNEXPANSION_FIGS.APRX

Appendix B: Vibracore Observation Logs

Project:	Silver Run Expansion	Core :	**VC-01**
Site:	Delaware State Waters	Location: Northing:	14332096
Date:	08/17/2024	Easting:	1475061
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/19.9'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	8.3'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
				Field Observations		**Geotechnical Laboratory Data**				
0	VC-01 (0-4.3')	11.1		Moist, gray, SILTY CLAY, trace medium and fine sand. Organics observed.	MH	0.0	23.6	76.4	177	18.5
4.3	VC-01 (4.3'-17.0')	11.6		Moist, gray, FINE SAND and SILT, trace fine gravel, trace coarse and medium sand. Color change to brown but same sediment material.	SM	0.0	71.9	28.1	28	1.0
17										
20										

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:
Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

Project:	Silver Run Expansion	Core :	**VC-02**		
Site:	Delaware State Waters	Location:	Northing:	14329980	
Date:	08/15/2024		Easting:	1476733	
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):		20.0'/20.1'	
Coring Method:	Vibracore	Seas:		0-1'	
Sampling Method:	Grab and Composite	Depth to Sediment:		7.3'	
TRC Job No.:	529393.0003.0000	TRC Logger:		MP	

Field Observations				Geotechnical Laboratory Data					
Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
0	VC-02 (0-4.7')	14.8		Moist, gray, CLAY.	CH	0.0	2.9	97.1	91	2.4
5	VC-02 (4.7'-17.0')	24.0		Moist, gray, FINE SAND and CLAY.	SM	18.0	68.9	13.1	18	0.4
		7.4		Moist, brown, FINE SAND, little silt, trace coarse gravel (dense gravel band 16.6'-16.8').						

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:
Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88. Collected VC-02-GT (13.5'-15.0'), VC-02-GT (15.0'-16.0') and VC-02-GT (19.0'-20.0') for Thermal Conductivity analysis.

Project:	Silver Run Expansion	Core :	**VC-03**
Site:	Delaware State Waters	Location: Northing:	14329598
Date:	08/17/2024	Easting:	1478854
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/20.1'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	15.6'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Field Observations					Geotechnical Laboratory Data					
Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
0	VC-03 (0-17.0')	25.6		Moist, gray, SILTY CLAY, trace fine sand (fine sand striations throughout core).	MH	0.0	1.9	98.1	86	3.3
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18										
19										
20										
21										

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:

Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

Project:	Silver Run Expansion	Core :	**VC-04**
Site:	Delaware State Waters	Location: Northing:	14330089
Date:	08/16/2024	Easting:	1479763
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/20.1'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	27.4'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Field Observations					Geotechnical Laboratory Data					
Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
0	VC-04 (0-17.0')	21.1		Moist, gray, SILTY CLAY, trace fine sand.	MH	0.0	3.3	96.7	103	4.6
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:

Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

Project:	Silver Run Expansion	Core :	**VC-05**
Site:	Delaware State Waters	Location: Northing:	1430697
Date:	08/17/2024	Easting:	1480900
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/20.2'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	44.6'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Field Observations					Geotechnical Laboratory Data					
Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
0	VC-05 (0-17.0')	11.7		Moist, gray, SILTY CLAY, trace fine sand (striations and bands).	MH	0.0	2.0	98.0	90	3.7
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:

Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

Project:	Silver Run Expansion	Core :	**VC-06**
Site:	Delaware State Waters	Location: Northing:	143312241
Date:	08/14/2024	Easting:	1481840
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	25.0'/26.6'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	61.1'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Field Observations					Geotechnical Laboratory Data					
Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
0										
1	VC-06 (0-26.6')	37.2		Moist, gray, CLAY, trace medium and fine sand.	CH	0.0	4.2	95.8	82	4.1
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
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16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:

Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88. Collected VC-06-GT (23.3'-26.0') for Thermal Conductivity analysis. Collected duplicate sample of VC-06 (0-26.6') labeled VC-106.

Project:	Silver Run Expansion	Core :	**VC-07**
Site:	New Jersey State Waters	Location: Northing:	14332027
Date:	08/16/2024	Easting:	1483175
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/19.7'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	34.0'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
				Field Observations	**Geotechnical Laboratory Data**					
0	VC-07 (0-10.0')	6.7		Moist, gray, FINE SAND, some silt striations, trace medium sand, decomposing organics odor.	SM	0.0	86.0	14.0	38	1.7
10	VC-07 (10.0'-17.0')	17.8		Moist, gray, CLAY, trace medium and fine sand striations, decomposing organics odor.	CH	0.0	10.5	89.5	80	3.4

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:
Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

Project:	Silver Run Expansion	Core :	**VC-08**
Site:	New Jersey State Waters	Location: Northing:	14332815
Date:	08/16/2024	Easting:	1484520
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/20.1'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	33.8'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
				Field Observations		**Geotechnical Laboratory Data**				
0	VC-08 (0-11.8')	14.7		Moist, gray, SILTY CLAY, some fine sand, trace medium sand (striations and bands alternating).	SM	0.0	51.4	48.6	56	2.1
12	VC-08 (11.8'-13.9')	3.6		Moist, gray, MEDIUM SAND, trace fine sand, trace fine gravel, trace silt.	SP	0.2	96.2	3.6	14	0.3
14	VC-08 (13.9'-17.0')	16.0		Moist, gray, SILTY CLAY, little fine sand, trace medium sand, trace organics.	CH	0.0	11.4	88.6	77	4.8

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:
Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88. Collect VC-08-GT (13.5'-16') and VC-08-GT (19'-20') for Thermal Conductivity analysis.

Project:	Silver Run Expansion	Core :	**VC-09**
Site:	New Jersey State Waters	Location: Northing:	1433666
Date:	08/15/2024	Easting:	1485875
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/19.7'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	19.5'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
				Field Observations		**Geotechnical Laboratory Data**				
0	VC-09 (0-15.2')	5.8		Moist, gray, FINE SAND, some medium sand, trace silt, trace fine gravel.	SP-SM	0.6	90.3	9.1	23	0.6
15	VC-09 (15.2'-17.0')	22.2		Moist, gray, CLAY, trace medium and fine sand. Organics observed, decomposing organics odor observed.	CH	0.0	4.7	95.3	122	14.0

LEGEND:

ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:

Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

Project:	Silver Run Expansion	Core :	**VC-10**
Site:	New Jersey State Waters	Location: Northing:	14334320
Date:	08/14/2024	Easting:	1486990
Coring Company:	Ocean Surveys, Inc.	Penetration/Recovery(ft.):	20.0'/20.2'
Coring Method:	Vibracore	Seas:	0-1'
Sampling Method:	Grab and Composite	Depth to Sediment:	21.2'
TRC Job No.:	529393.0003.0000	TRC Logger:	MP

Depth Below SWI (feet)	Sample Number	Field Shear Strength (PSI)	Sediment Log	Materials Description	USCS Group Symbol	Gravel Content (%) (ASTM D 6913)	Sand Content (%) (ASTM D 6913)	Fines (%) (ASTM D 6913)	Moisture Content (%) (ASTM D 2974)	Organic Matter (%) (ASTM D 2974)
				Field Observations		**Geotechnical Laboratory Data**				
0	VC-10 (0-14.5')	10.9		Moist, gray, FINE SAND, some silt, trace medium sand.	SC	0.0	69.7	30.3	40	1.6
15	VC-10 (14.5'-17.0')	35.6		Moist, gray, CLAY, little fine sand, trace medium sand.	CH	0.0	17.5	82.5	67	4.0
18		8.9		Moist, gray, FINE SAND, trace clay striations.						

LEGEND:

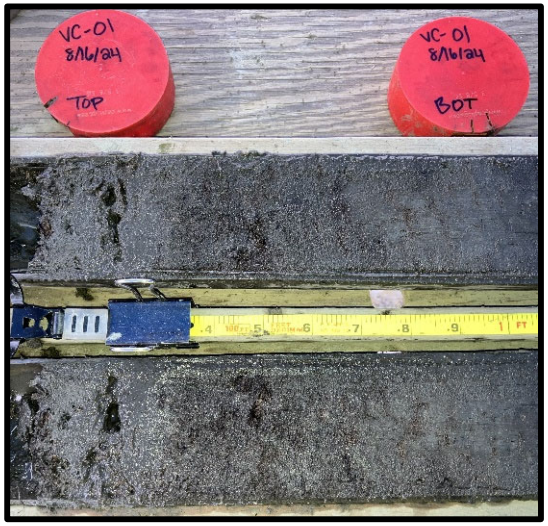
ND: not detected
N/A: not applicable
SWI: sediment water interface
NM: not measured
NA: not analyzed

PROPORTIONS USED:
Trace: <10%
Little: 10-20%
Some: 20-35%
And: 35-50%

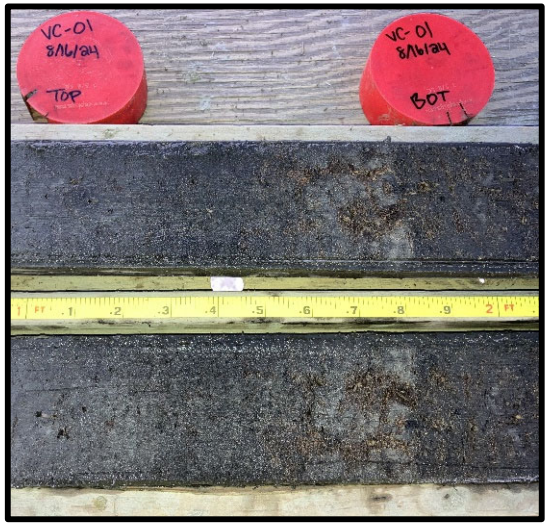
NOTES:

Northing and Easting are referenced to UTM North, Zone 18, NAD 83, International Feet. Approximate Water Depths are in feet and referenced to NAVD88.

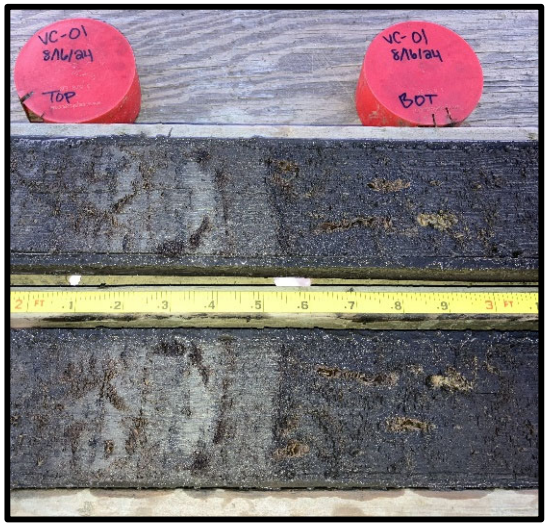
Appendix C: Vibracore Photographic Logs



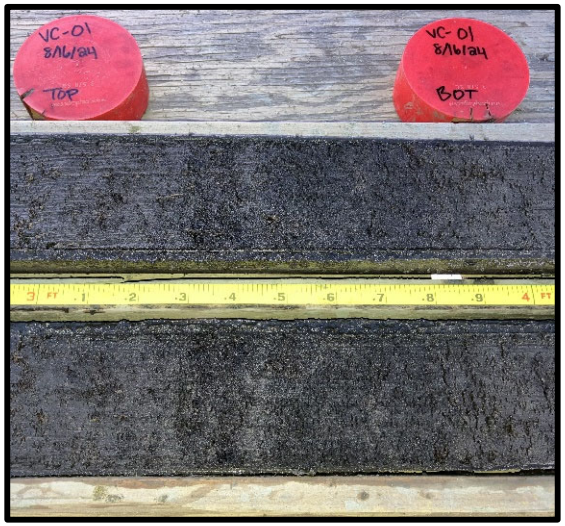
0-1 feet below sediment water interface



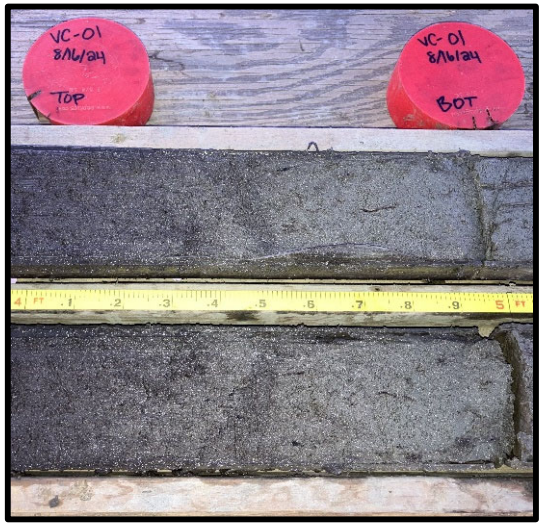
1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



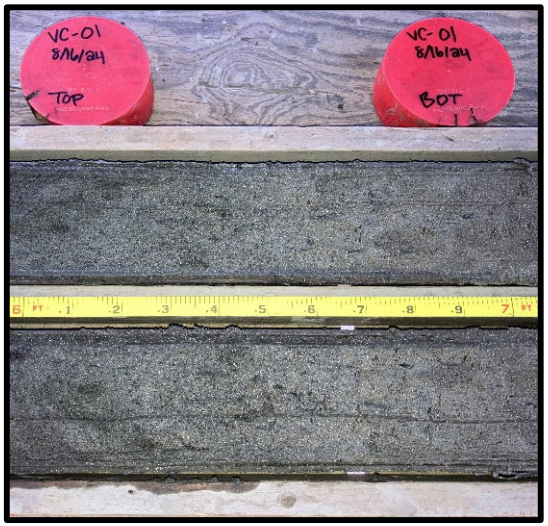
5-6 feet below sediment water interface

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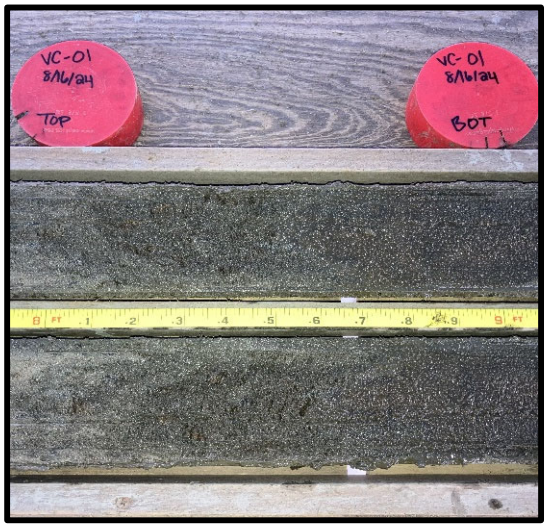
Vibracore: VC-01



6-7 feet below sediment water interface



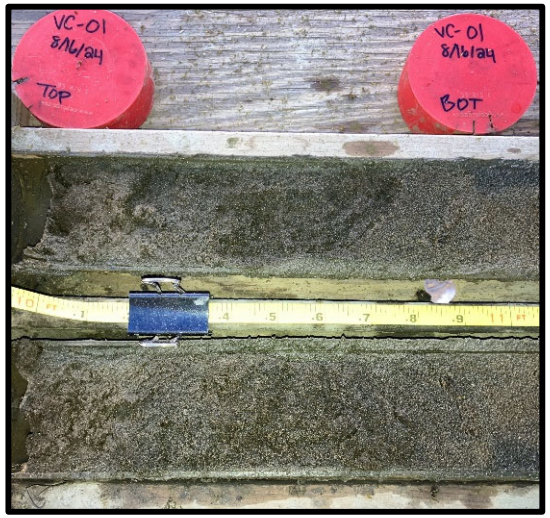
7-8 feet below sediment water interface



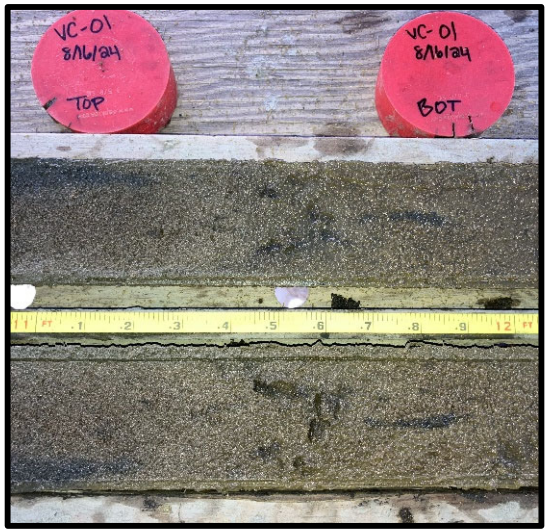
8-9 feet below sediment water interface



9-10 feet below sediment water interface



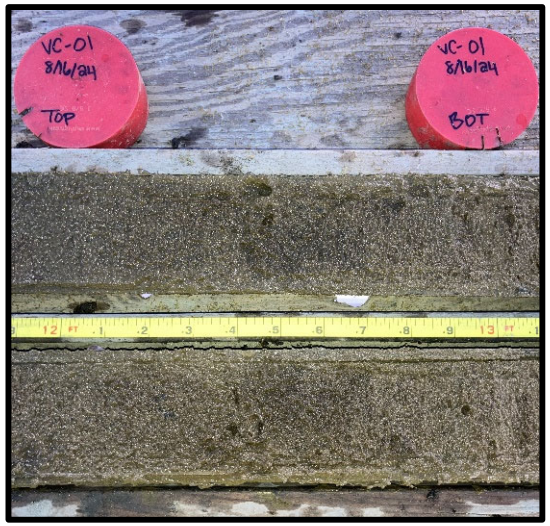
10-11 feet below sediment water interface



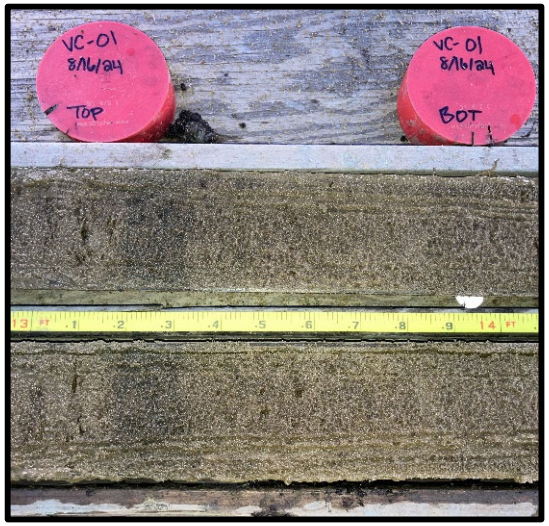
11-12 feet below sediment water interface

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Vibracore: VC-01



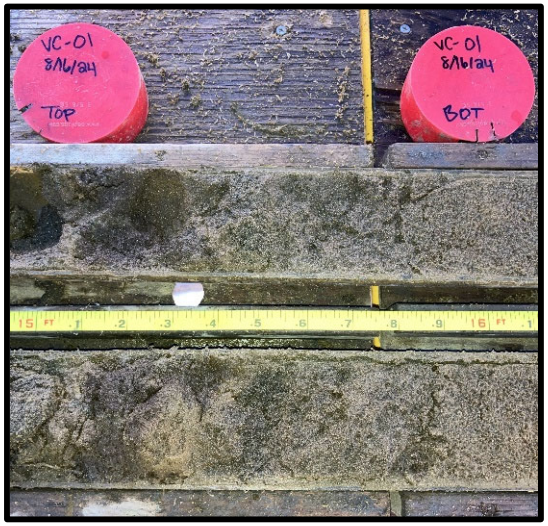
12-13 feet below sediment water interface



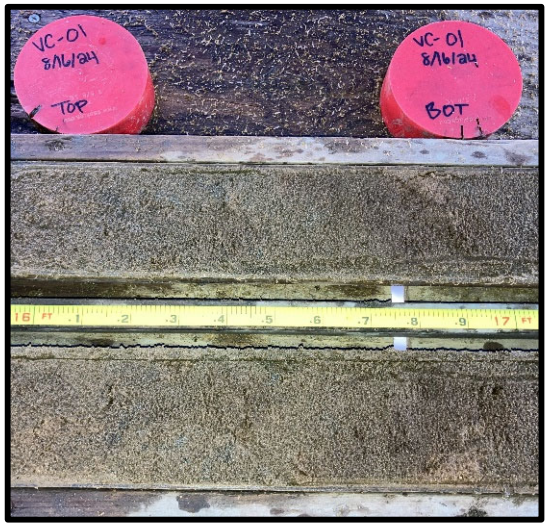
13-14 feet below sediment water interface



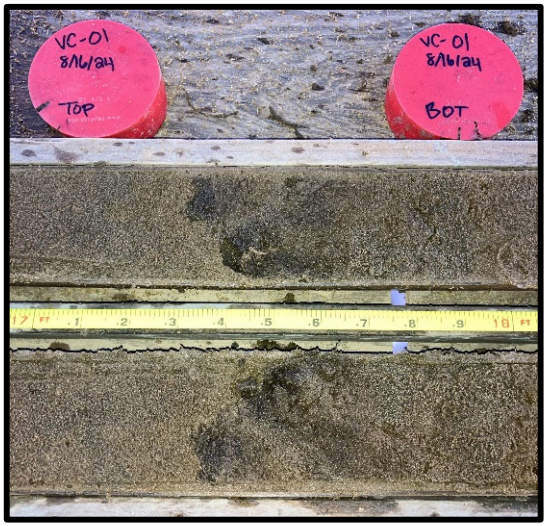
14-15 feet below sediment water interface



15-16 feet below sediment water interface



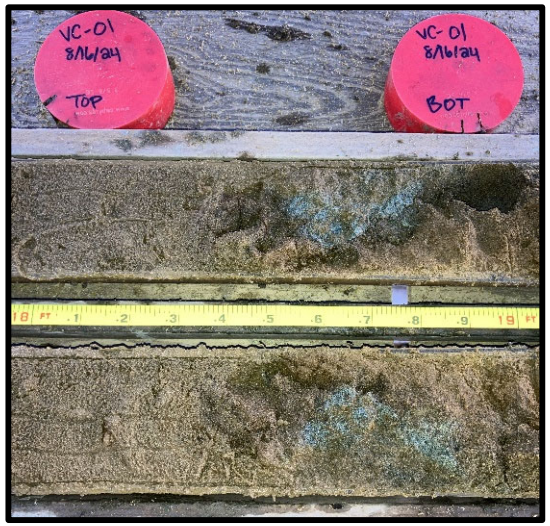
16-17 feet below sediment water interface



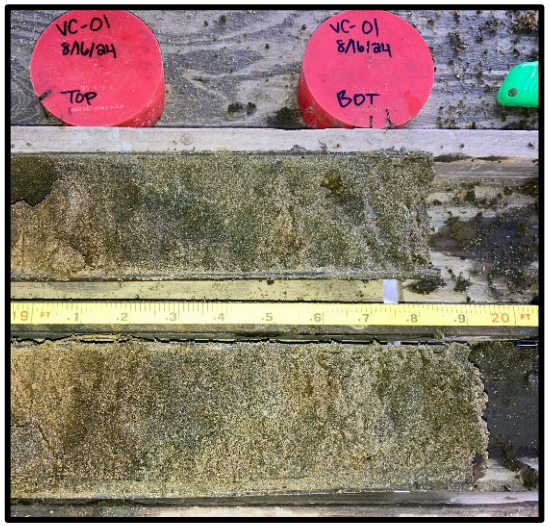
17-18 feet below sediment water interface

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Vibracore: VC-01

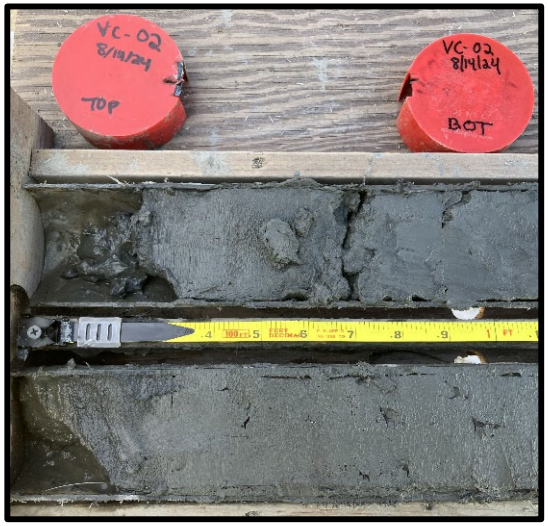


18-19 feet below sediment water interface

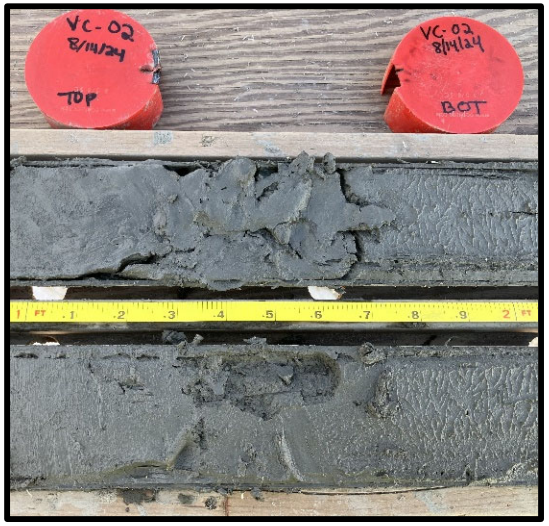


19-20 feet below sediment water interface

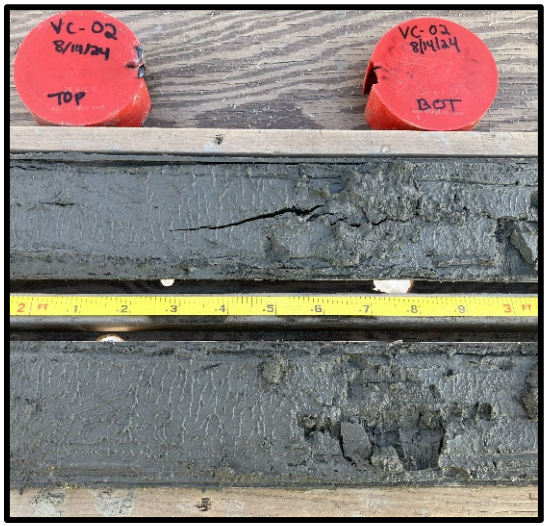
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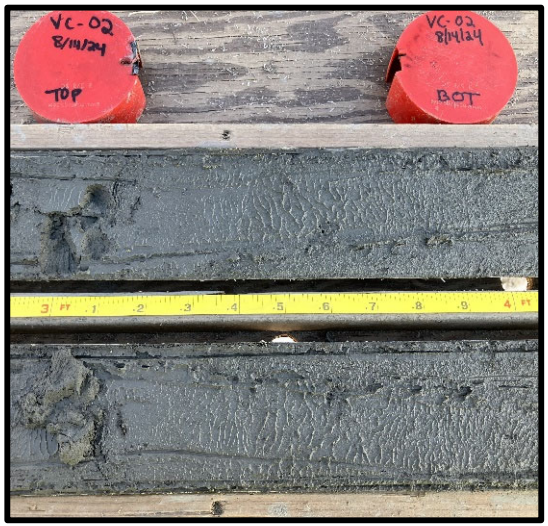
0-1 feet below sediment water interface



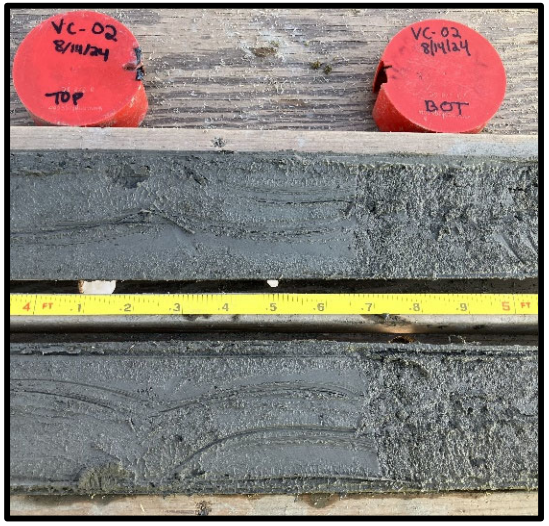
1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



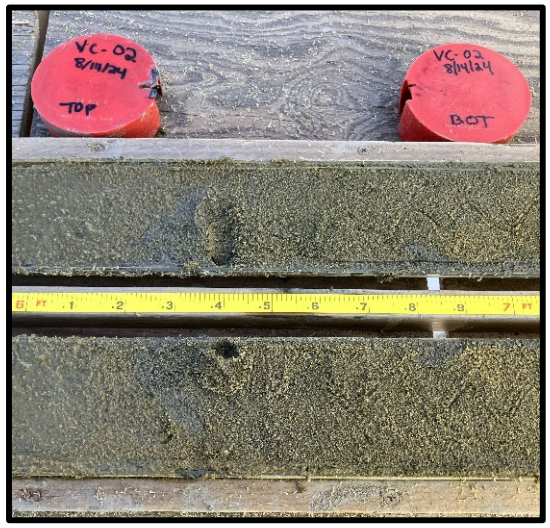
5-6 feet below sediment water interface

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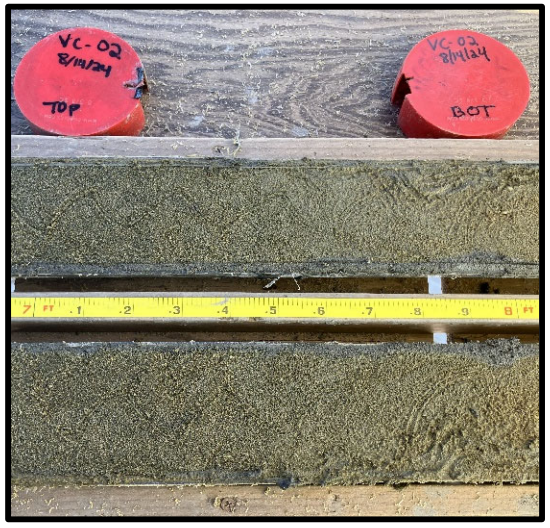
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Delaware State Waters
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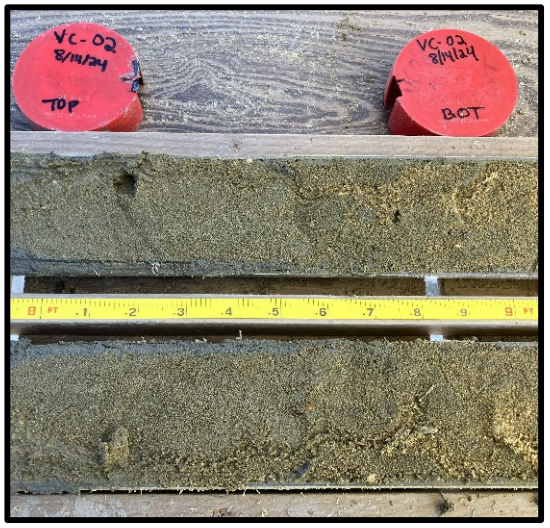
Vibracore: VC-02



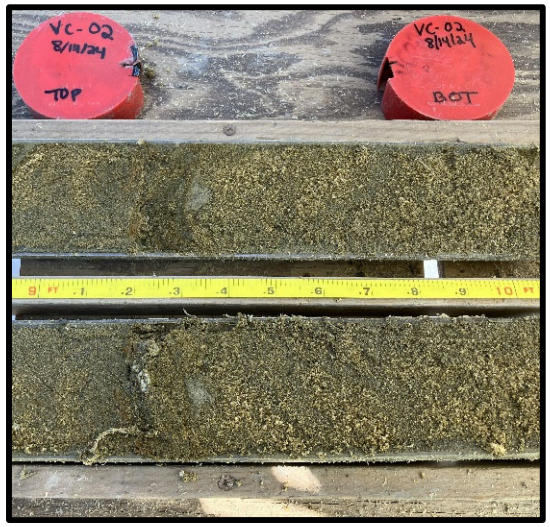
6-7 feet below sediment water interface



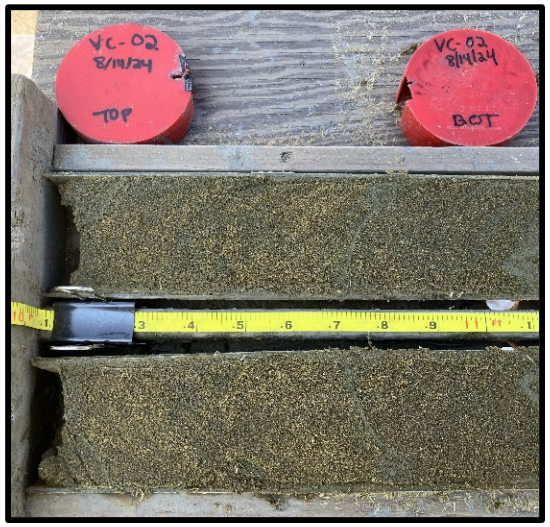
7-8 feet below sediment water interface



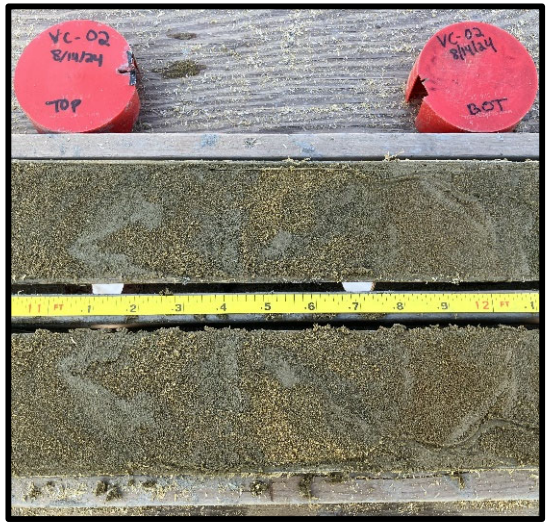
8-9 feet below sediment water interface



9-10 feet below sediment water interface

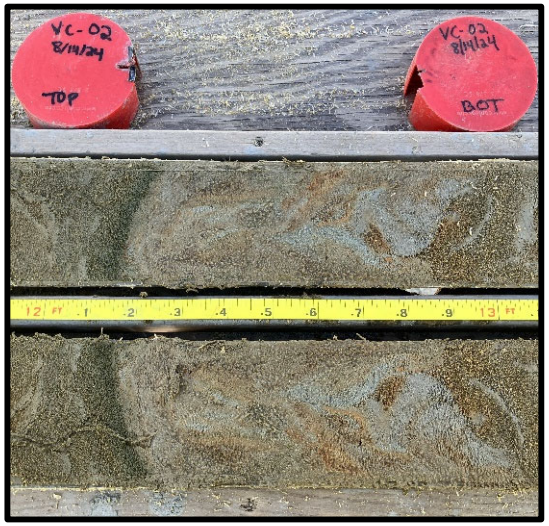


10-11 feet below sediment water interface

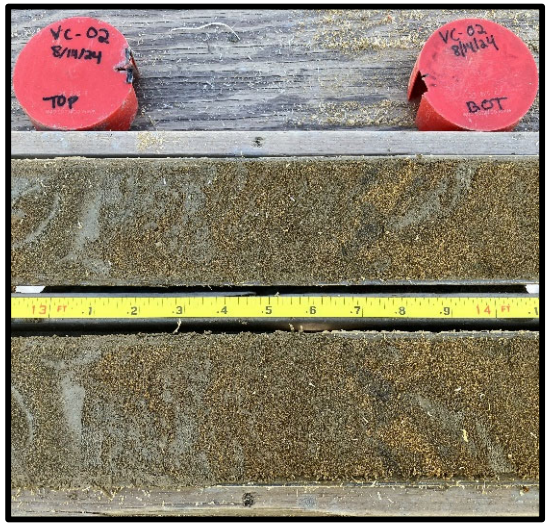


11-12 feet below sediment water interface

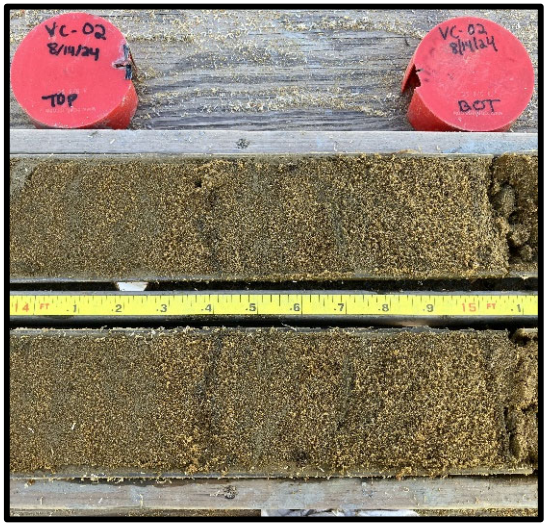
© 2024 TRC Companies, LLC



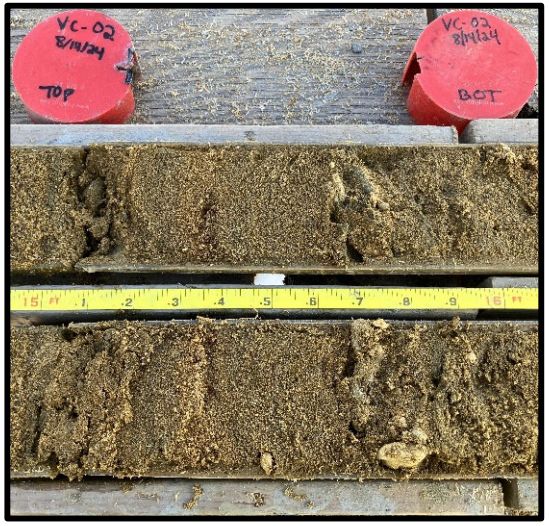
12-13 feet below sediment water interface



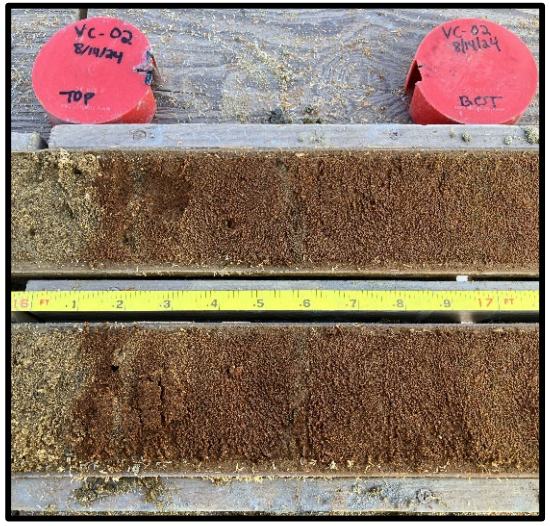
13-14 feet below sediment water interface



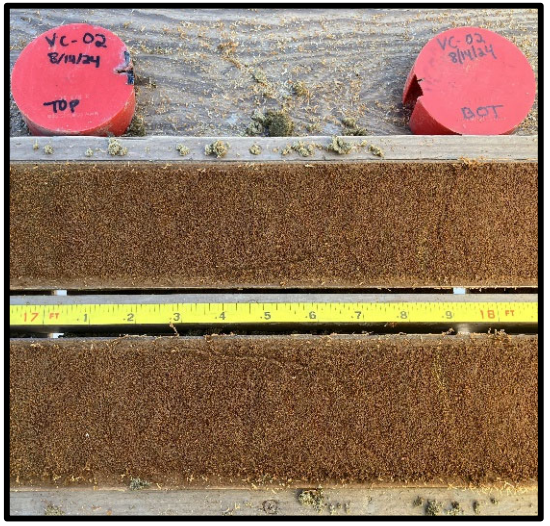
14-15 feet below sediment water interface



15-16 feet below sediment water interface



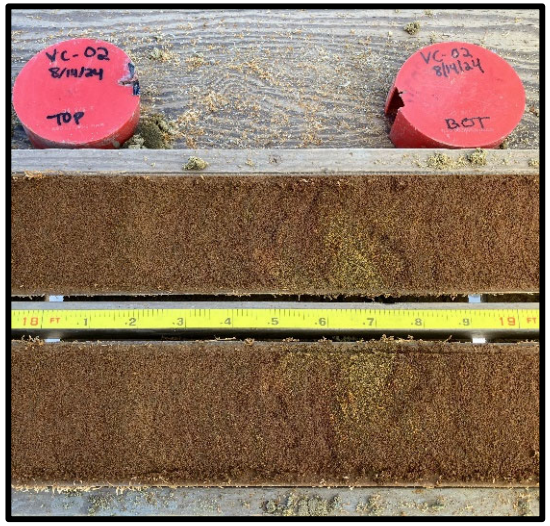
16-17 feet below sediment water interface



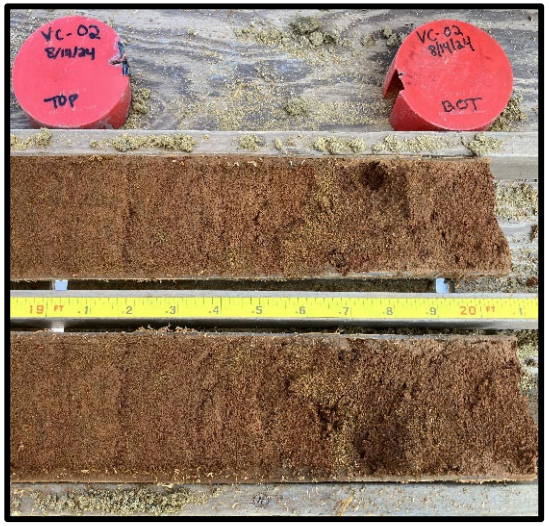
17-18 feet below sediment water interface

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Vibracore: VC-02



18-19 feet below sediment water interface



19-20 feet below sediment water interface

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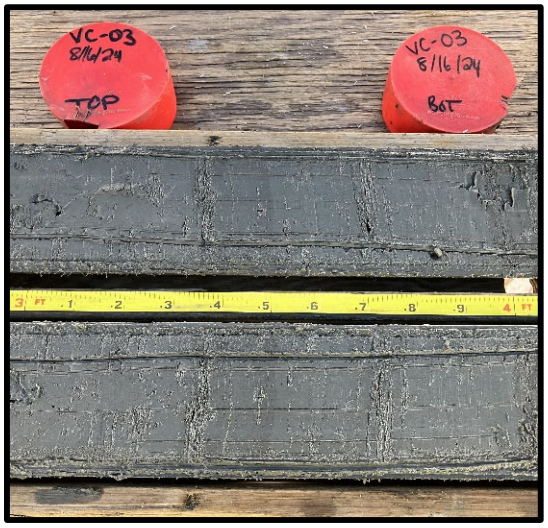
0-1 feet below sediment water interface



1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



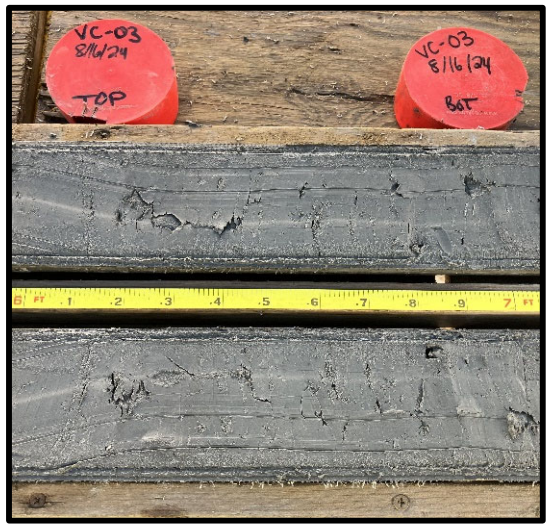
5-6 feet below sediment water interface

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Vibracore: VC-03



6-7 feet below sediment water interface



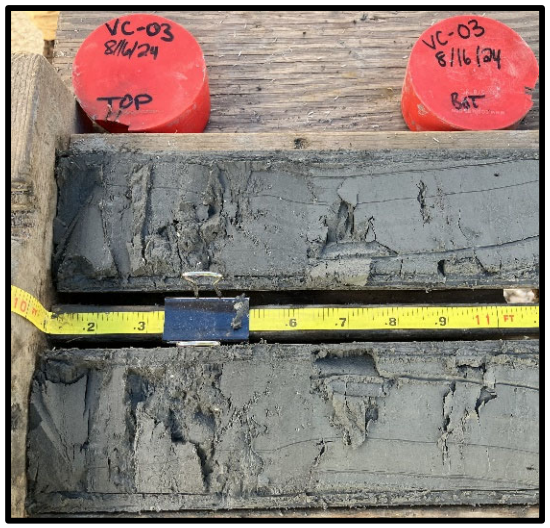
7-8 feet below sediment water interface



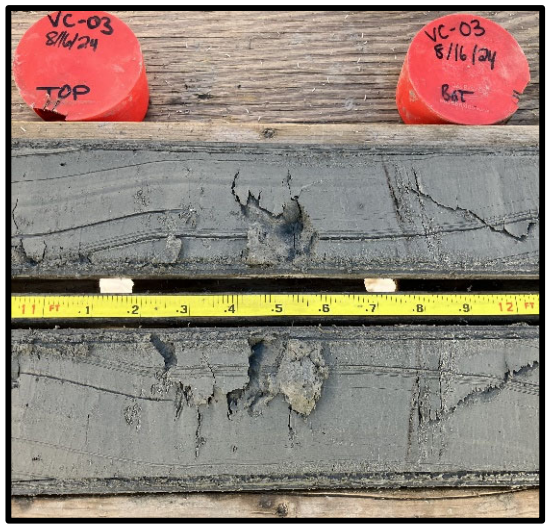
8-9 feet below sediment water interface



9-10 feet below sediment water interface

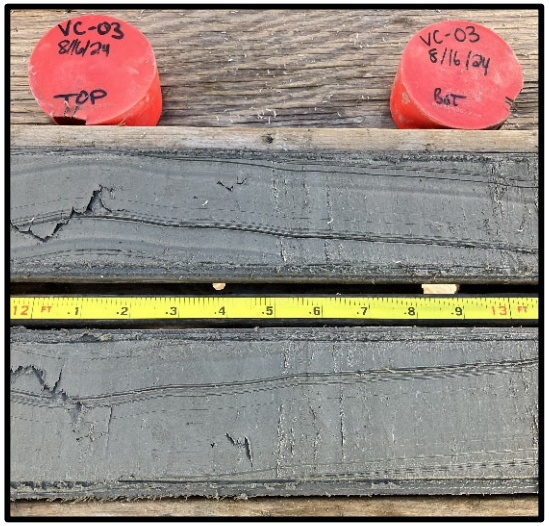


10-11 feet below sediment water interface

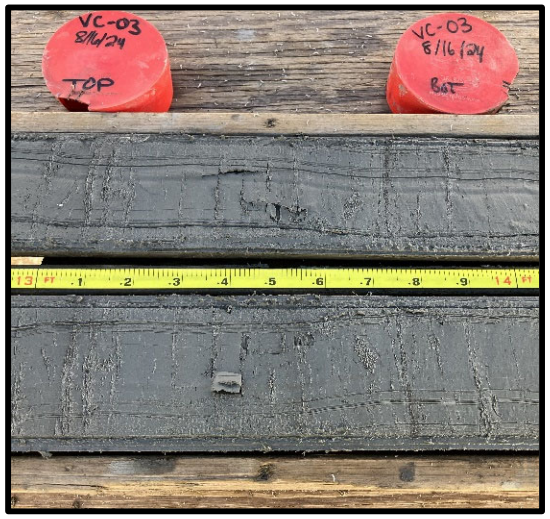


11-12 feet below sediment water interface

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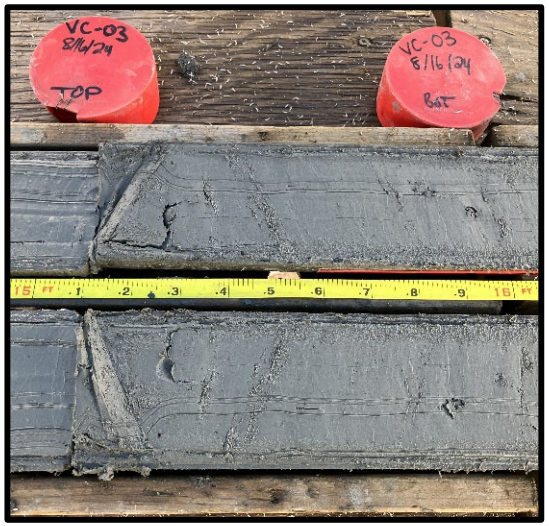
12-13 feet below sediment water interface



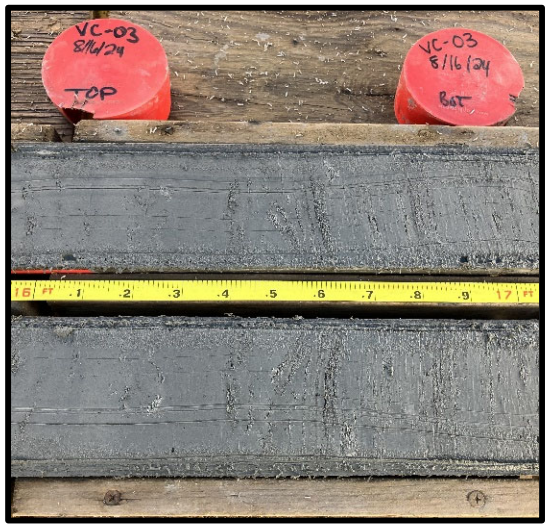
13-14 feet below sediment water interface



14-15 feet below sediment water interface



15-16 feet below sediment water interface



16-17 feet below sediment water interface



17-18 feet below sediment water interface

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Vibracore: VC-03



18-19 feet below sediment water interface



19-20 feet below sediment water interface

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0-1 feet below sediment water interface



1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



5-6 feet below sediment water interface

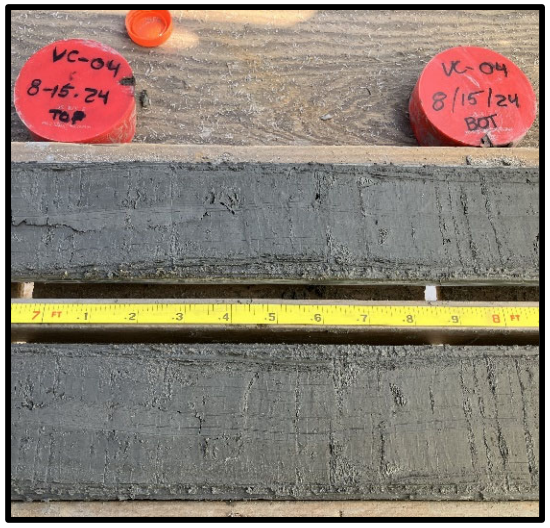
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Vibracore: VC-04



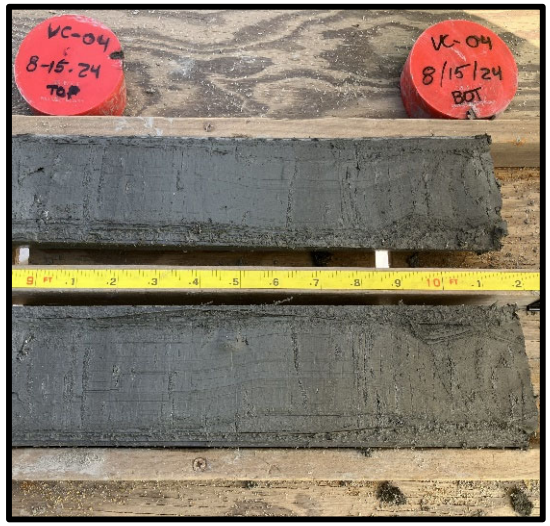
6-7 feet below sediment water interface



7-8 feet below sediment water interface



8-9 feet below sediment water interface



9-10 feet below sediment water interface



10-11 feet below sediment water interface



11-12 feet below sediment water interface

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Vibracore: VC-04



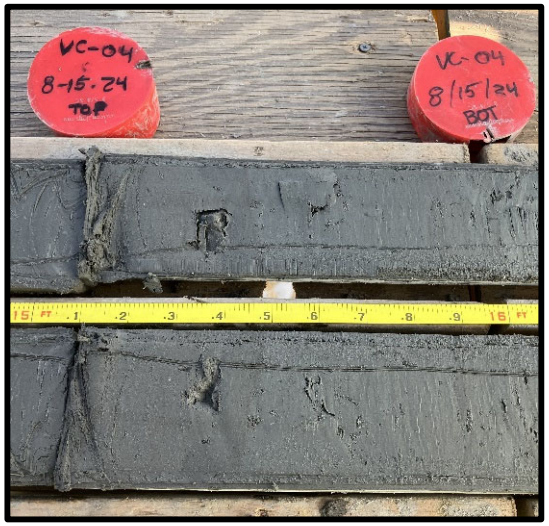
12-13 feet below sediment water interface



13-14 feet below sediment water interface



14-15 feet below sediment water interface



15-16 feet below sediment water interface

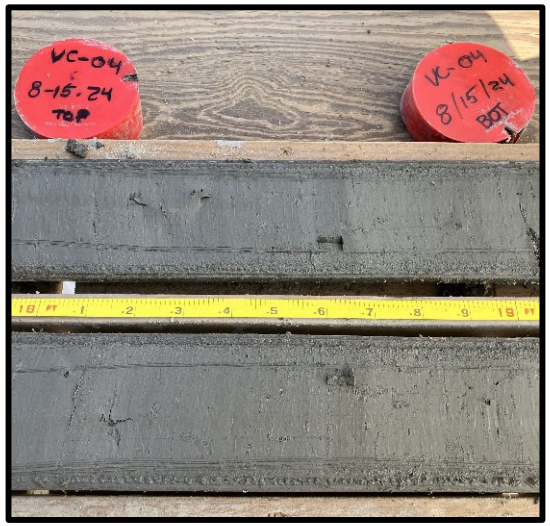


16-17 feet below sediment water interface

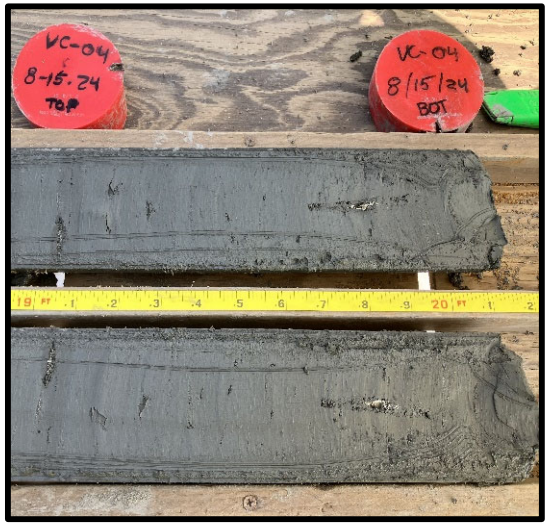


17-18 feet below sediment water interface

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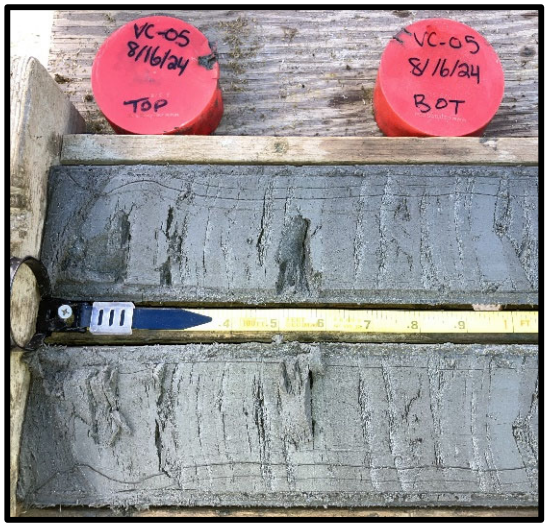


18-19 feet below sediment water interface

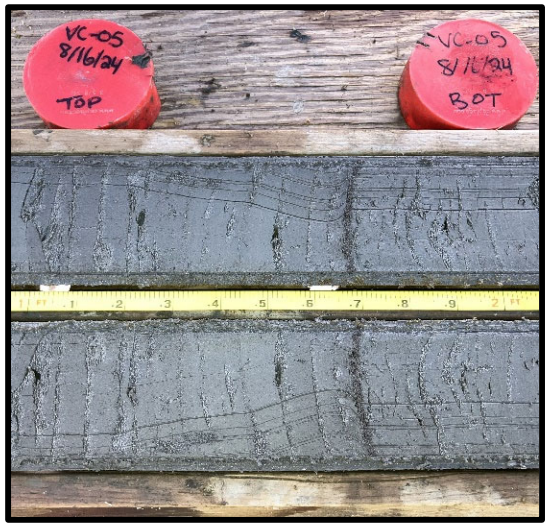


19-20 feet below sediment water interface

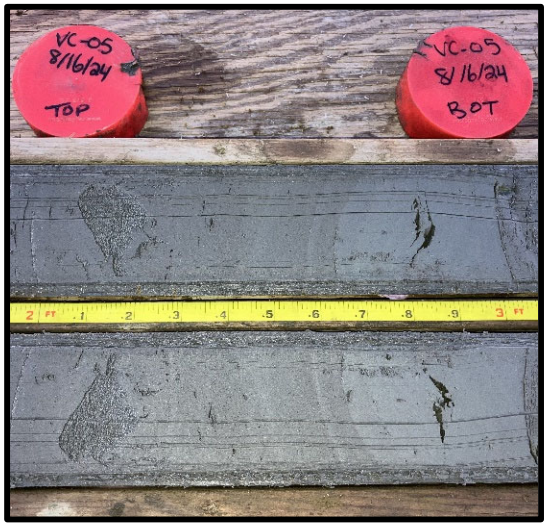
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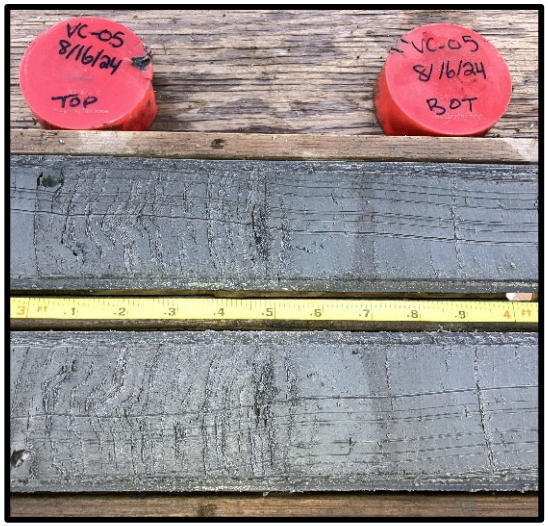
0-1 feet below sediment water interface



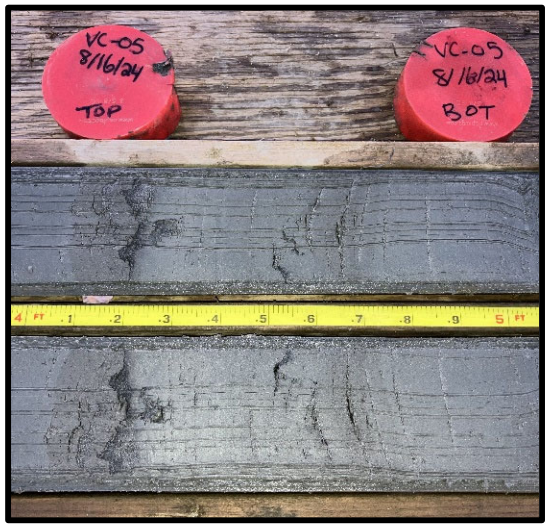
1-2 feet below sediment water interface



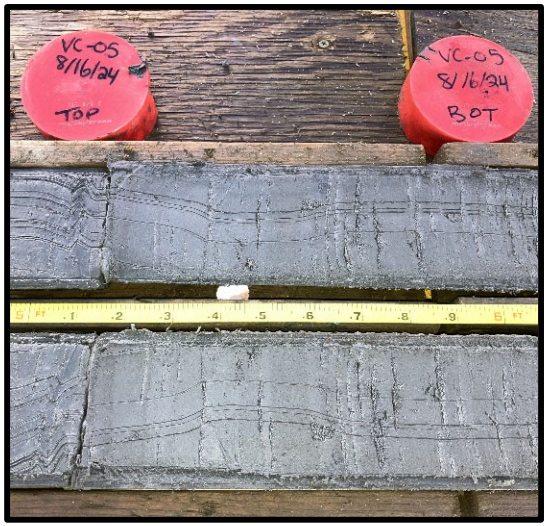
2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



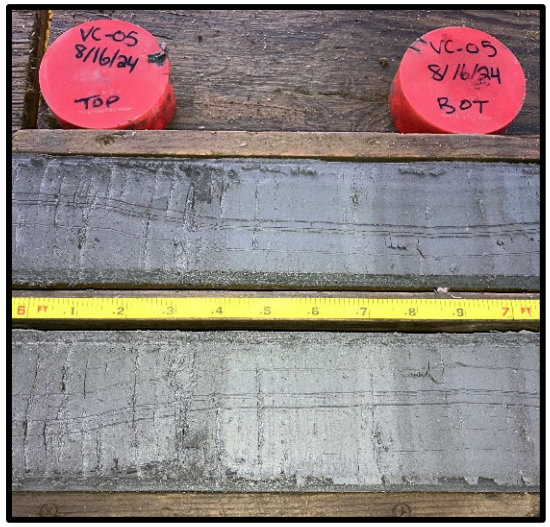
5-6 feet below sediment water interface

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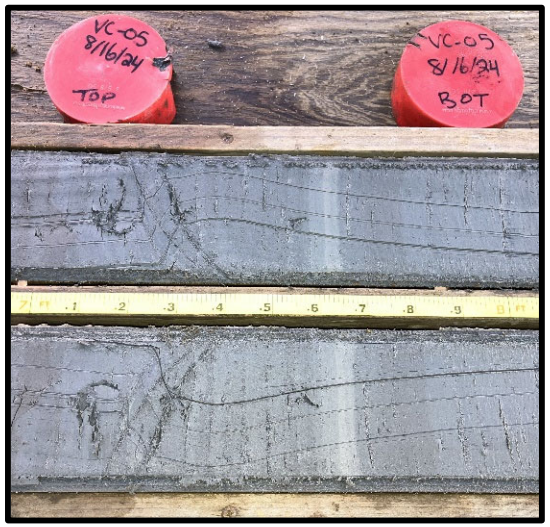
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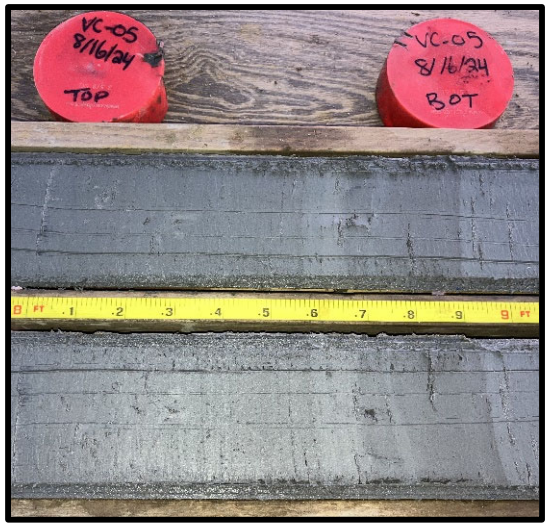
Vibracore: VC-05



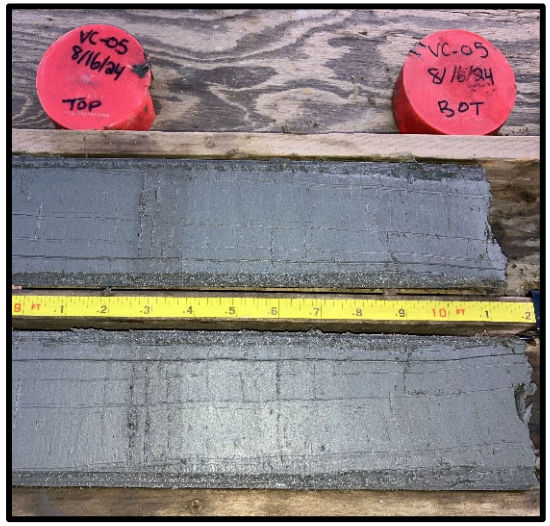
6-7 feet below sediment water interface



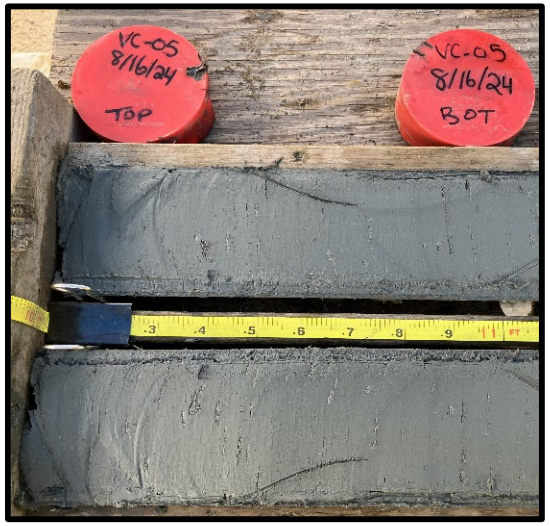
7-8 feet below sediment water interface



8-9 feet below sediment water interface



9-10 feet below sediment water interface



10-11 feet below sediment water interface



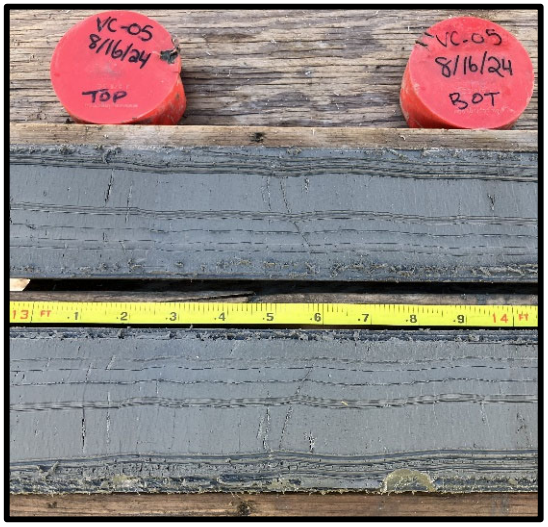
11-12 feet below sediment water interface

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Vibracore: VC-05



12-13 feet below sediment water interface



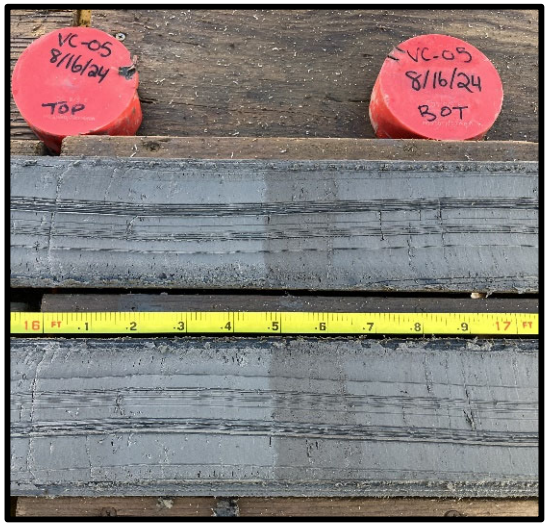
13-14 feet below sediment water interface



14-15 feet below sediment water interface



15-16 feet below sediment water interface



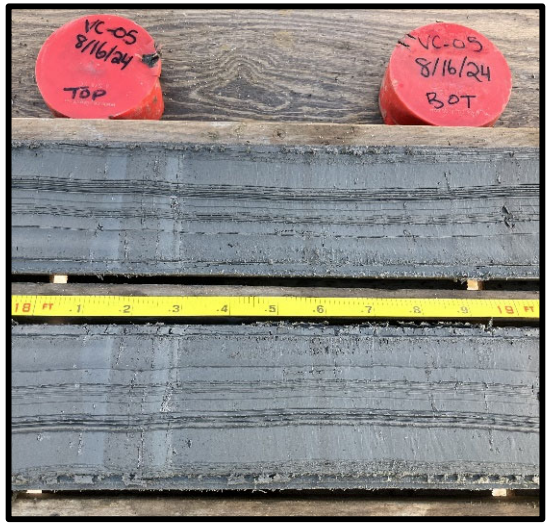
16-17 feet below sediment water interface



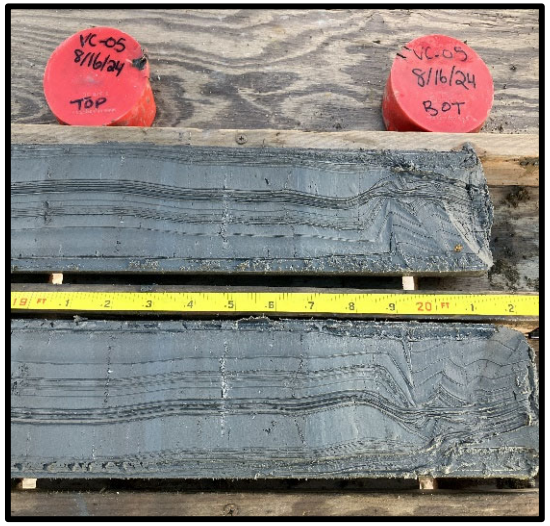
17-18 feet below sediment water interface

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Vibracore: VC-05

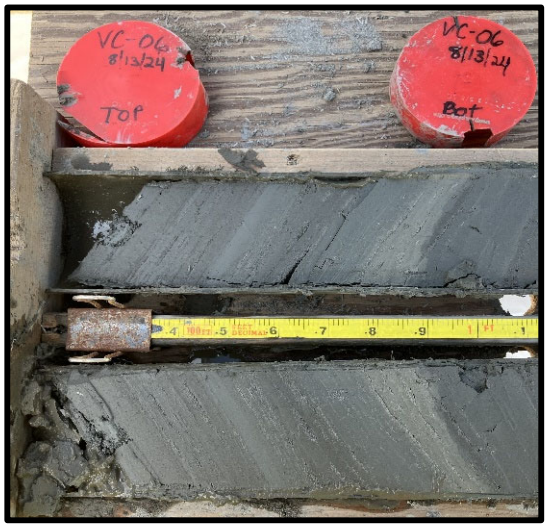


18-19 feet below sediment water interface

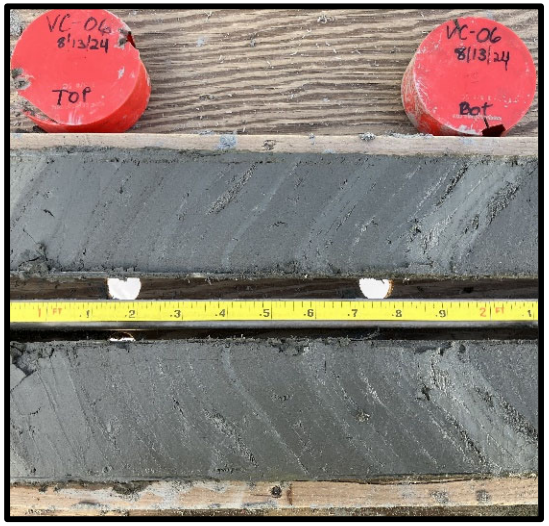


19-20 feet below sediment water interface

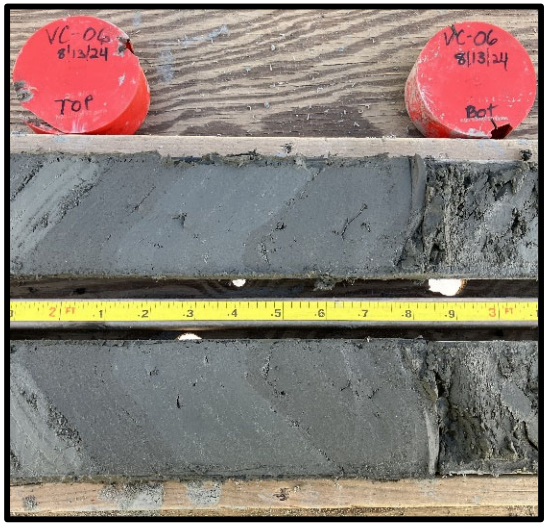
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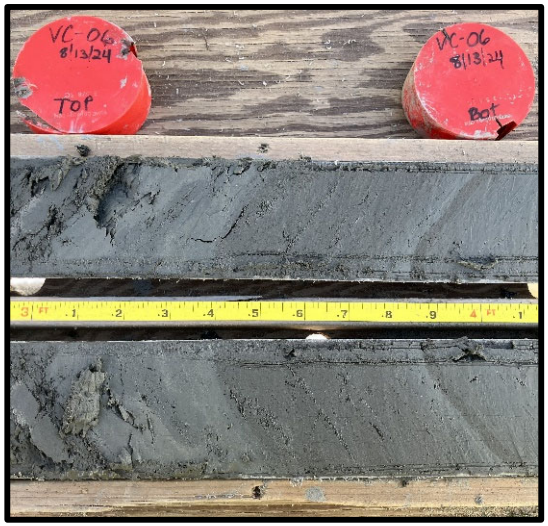
0-1 feet below sediment water interface



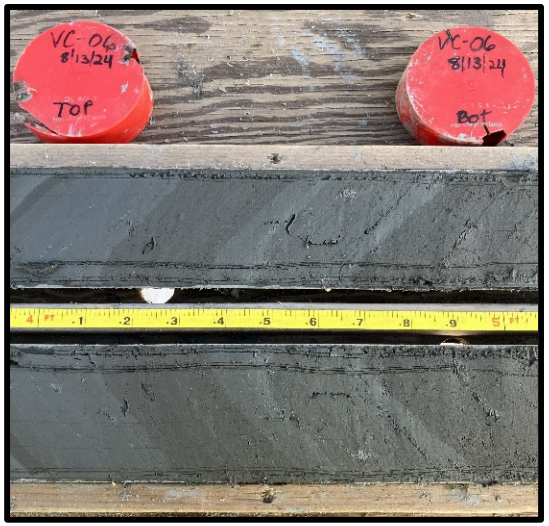
1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



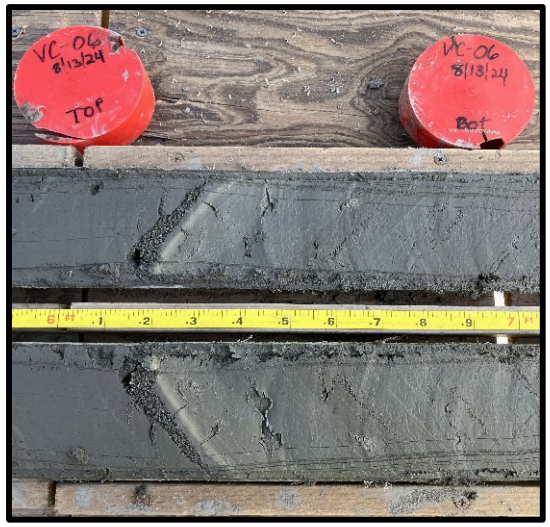
4-5 feet below sediment water interface



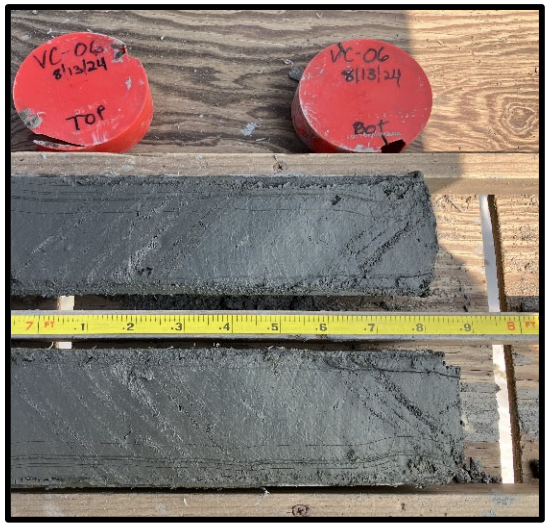
5-6 feet below sediment water interface

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Vibracore: VC-06



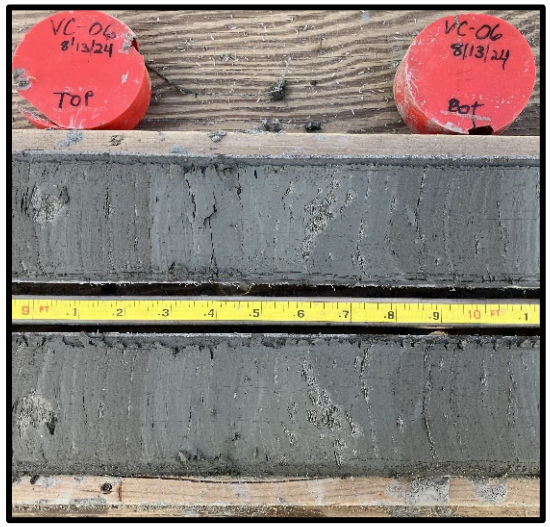
6-7 feet below sediment water interface



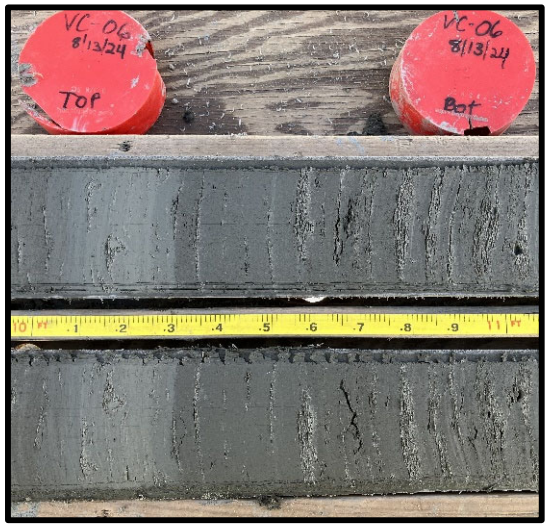
7-8 feet below sediment water interface



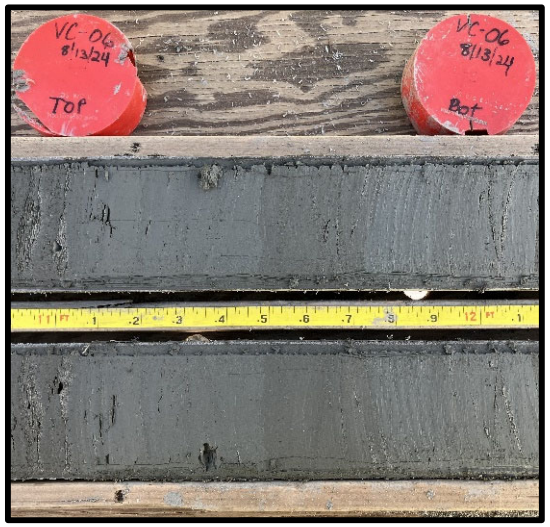
8-9 feet below sediment water interface



9-10 feet below sediment water interface

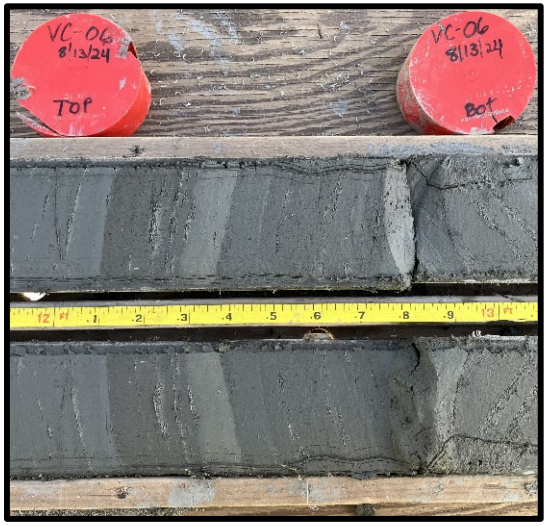


10-11 feet below sediment water interface

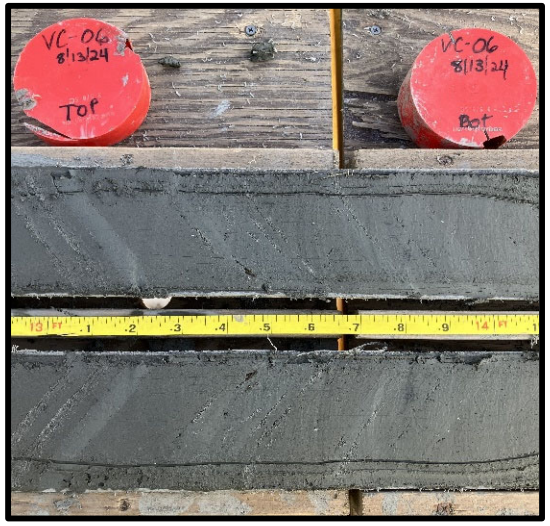


11-12 feet below sediment water interface

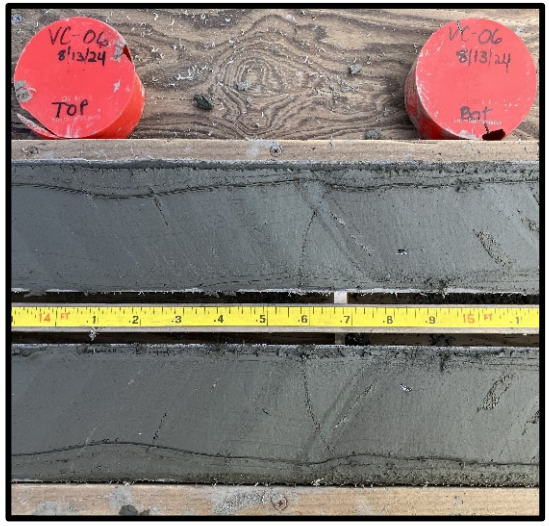
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12-13 feet below sediment water interface



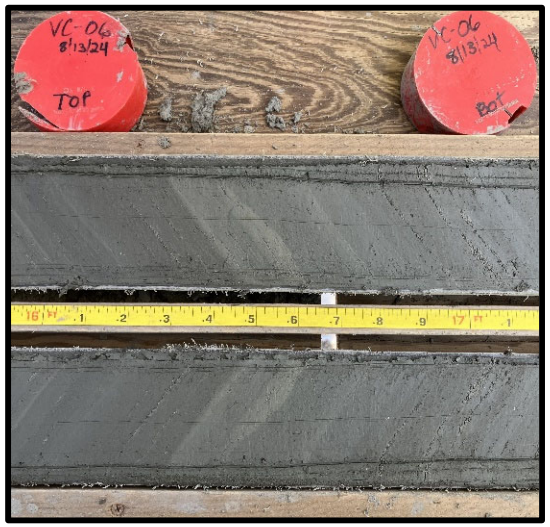
13-14 feet below sediment water interface



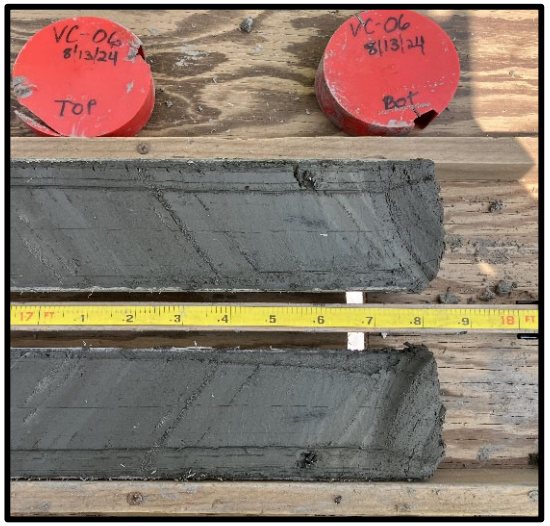
14-15 feet below sediment water interface



15-16 feet below sediment water interface



16-17 feet below sediment water interface

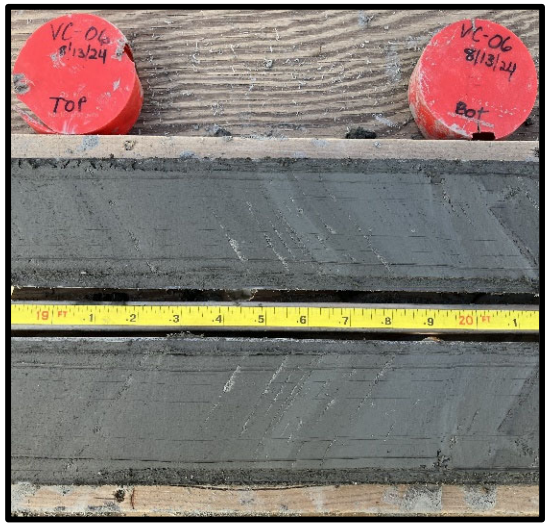


17-18 feet below sediment water interface

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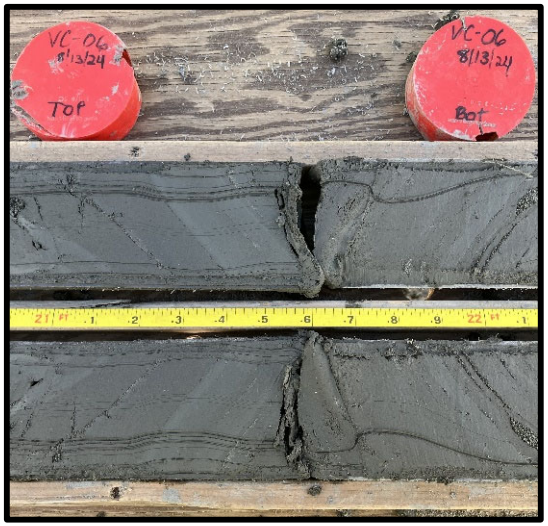
18-19 feet below sediment water interface



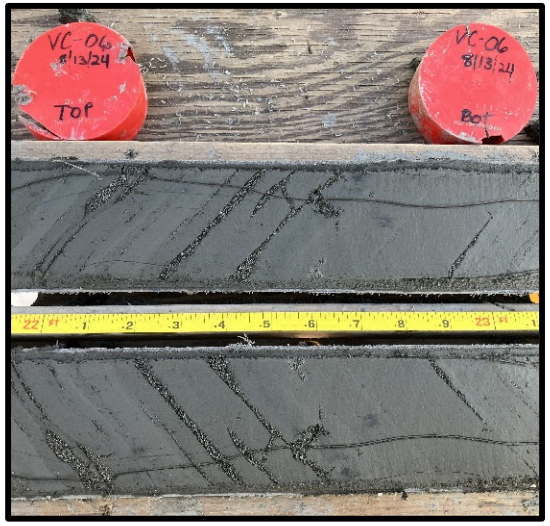
19-20 feet below sediment water interface



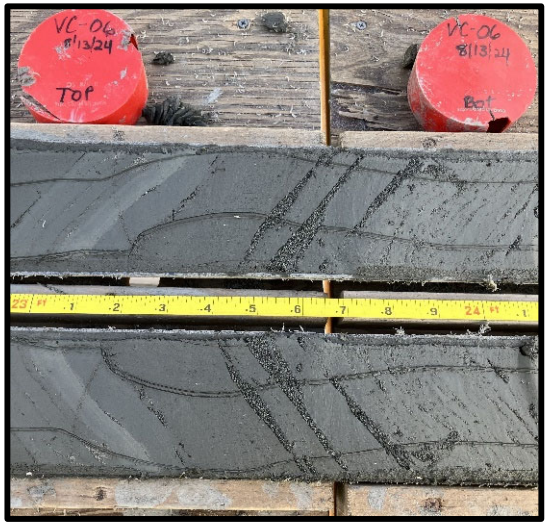
20-21 feet below sediment water interface



21-22 feet below sediment water interface



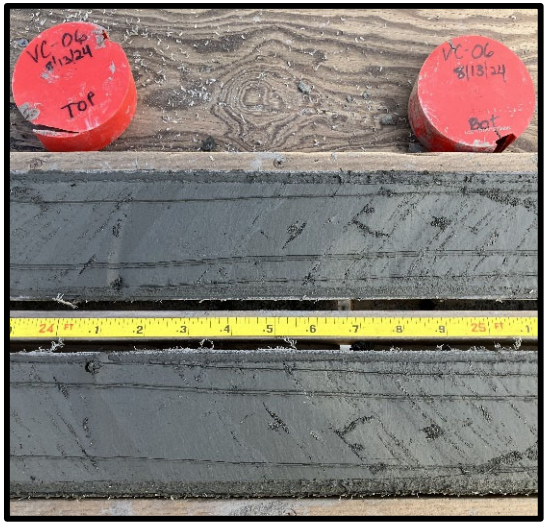
22-23 feet below sediment water interface



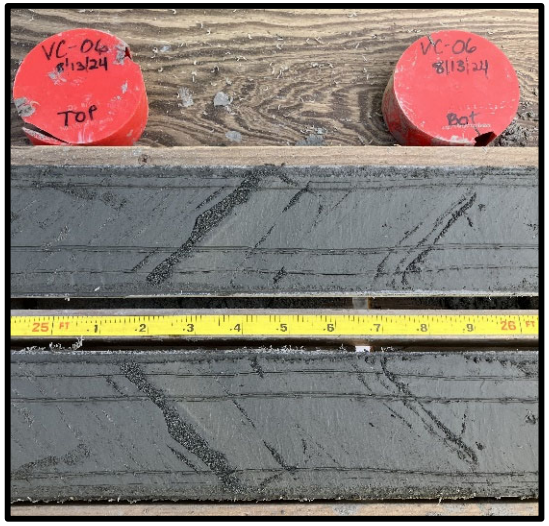
23-24 feet below sediment water interface

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Vibracore: VC-06



24-25 feet below sediment water interface



25-26 feet below sediment water interface

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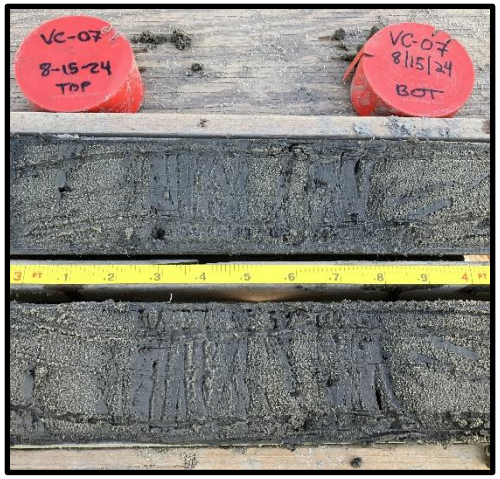
0-1 feet below sediment water interface



1-2 feet below sediment water interface



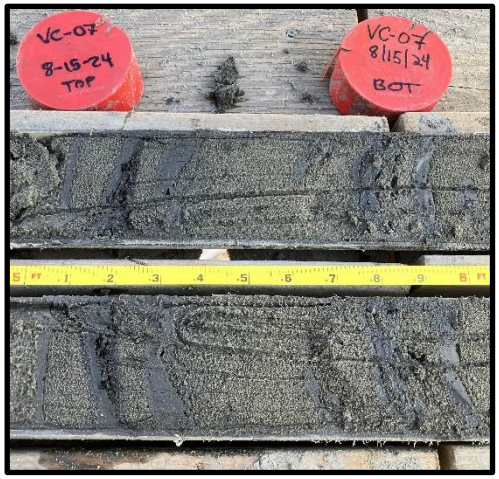
2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



5-6 feet below sediment water interface

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Vibracore: VC-07



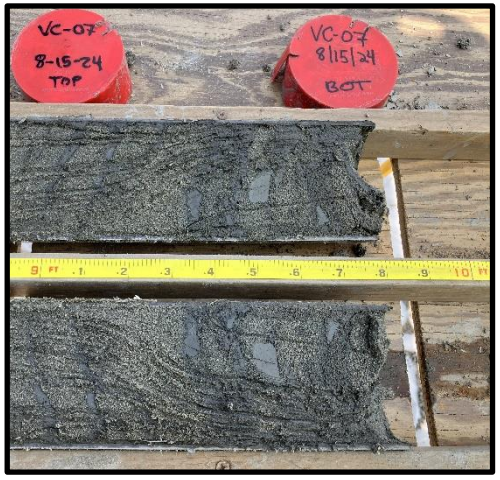
6-7 feet below sediment water interface



7-8 feet below sediment water interface



8-9 feet below sediment water interface



9-9.8 feet below sediment water interface



9.8-11 feet below sediment water interface



11-12 feet below sediment water interface

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Vibracore: VC-07



12-13 feet below sediment water interface



13-14 feet below sediment water interface



14-15 feet below sediment water interface



15-16 feet below sediment water interface



16-17 feet below sediment water interface



17-18 feet below sediment water interface

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18-19 feet below sediment water interface



19-19.7 feet below sediment water interface

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0-1 feet below sediment water interface



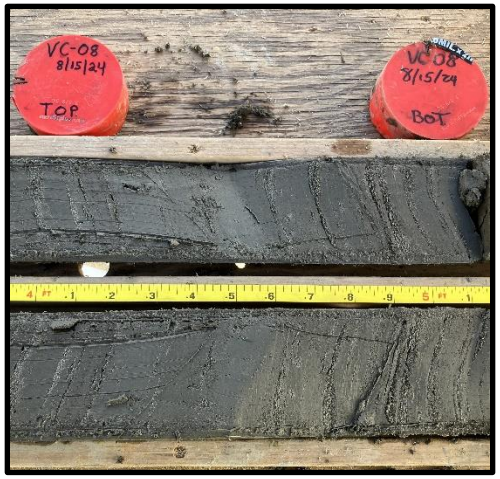
1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface

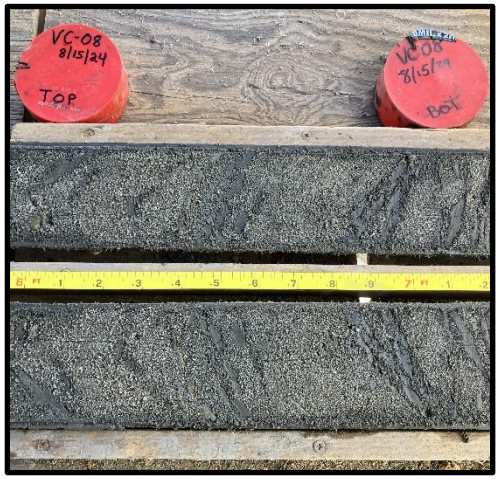


5-6 feet below sediment water interface

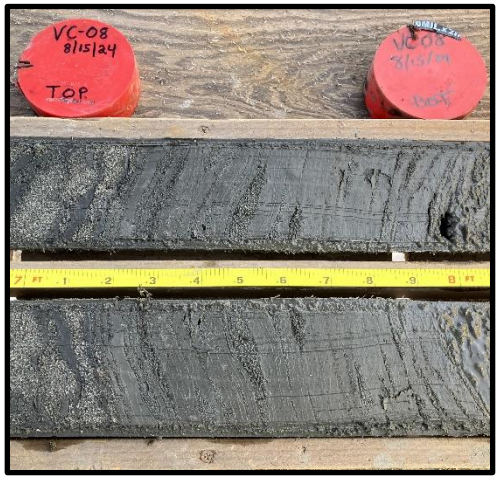
Silver Run Expansion, LLC
New Jersey State Waters
August 2024 Sediment Sampling Program

© 2024 TRC Companies, LLC

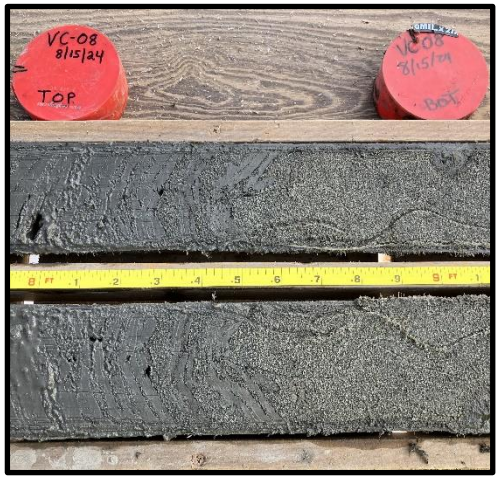
Vibracore: VC-08



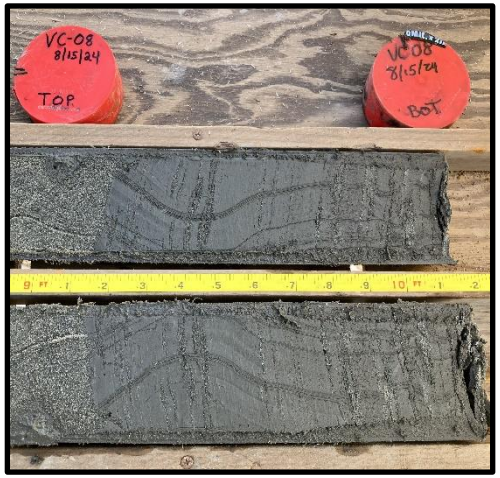
6-7 feet below sediment water interface



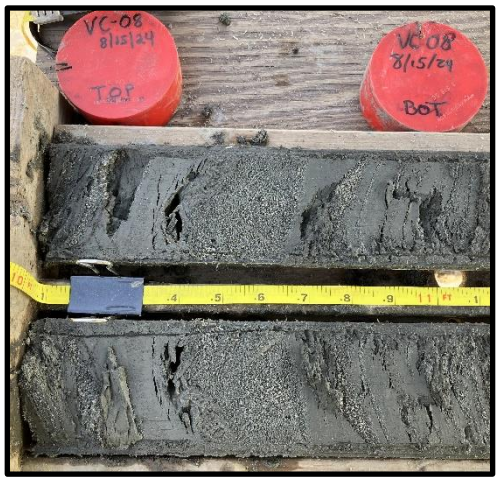
7-8 feet below sediment water interface



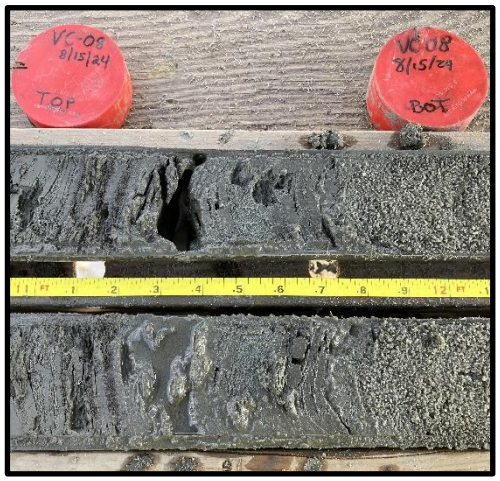
8-9 feet below sediment water interface



9-10.1 feet below sediment water interface



10.1-11 feet below sediment water interface

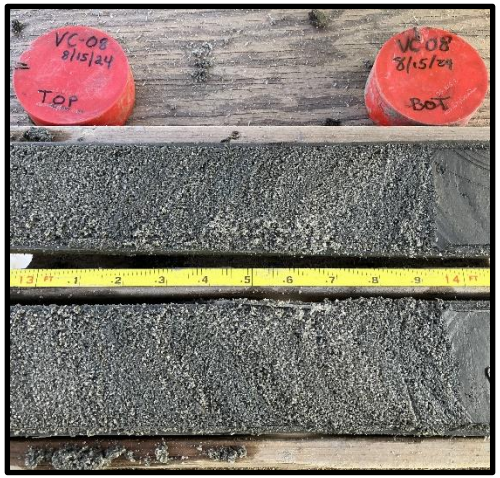


11-12 feet below sediment water interface

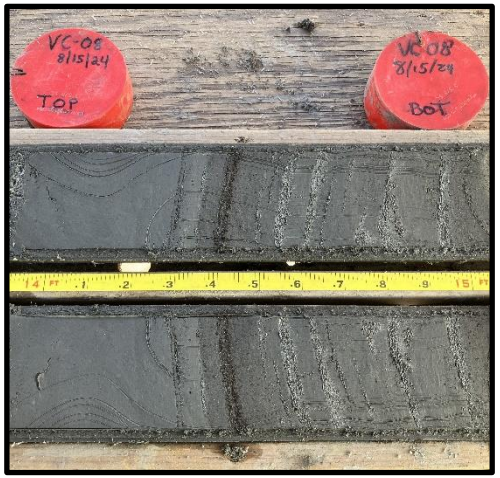
© 2024 TRC Companies, LLC



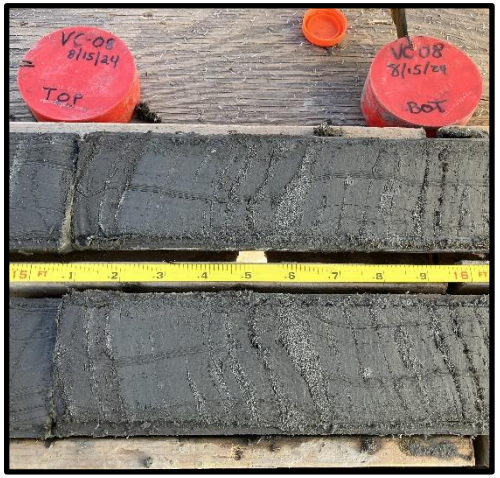
12-13 feet below sediment water interface



13-14 feet below sediment water interface



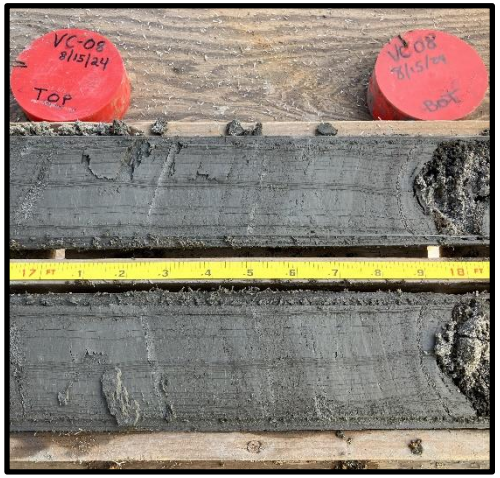
14-15 feet below sediment water interface



15-16 feet below sediment water interface

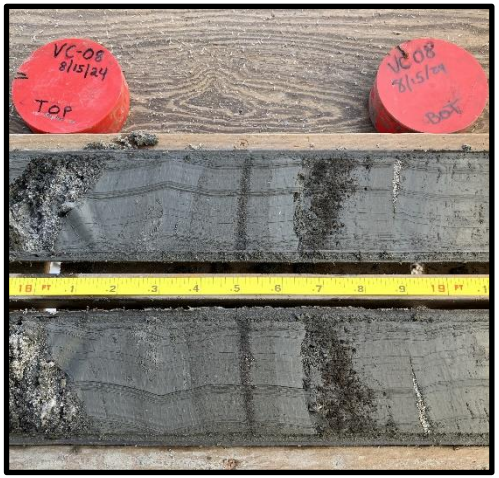


16-17 feet below sediment water interface

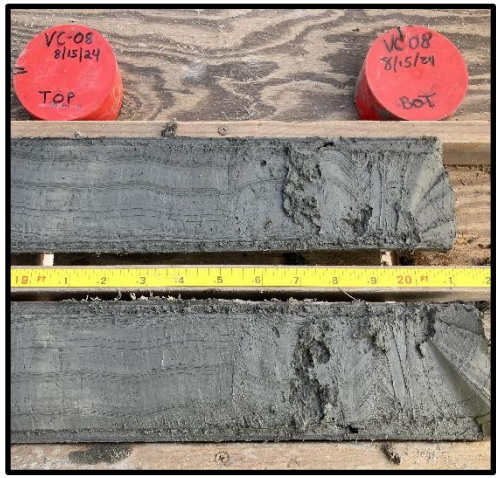


17-18 feet below sediment water interface

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18-19 feet below sediment water interface



19-20.1 feet below sediment water interface

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0-1 feet below sediment water interface



1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



4-5 feet below sediment water interface



5-6 feet below sediment water interface

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Vibracore: VC-09



6-7 feet below sediment water interface



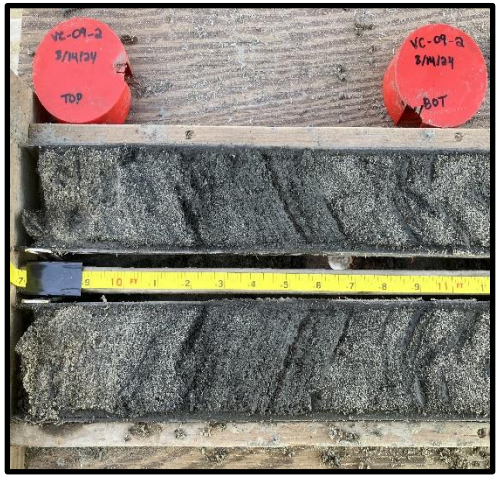
7-8 feet below sediment water interface



8-9 feet below sediment water interface



9-9.7 feet below sediment water interface

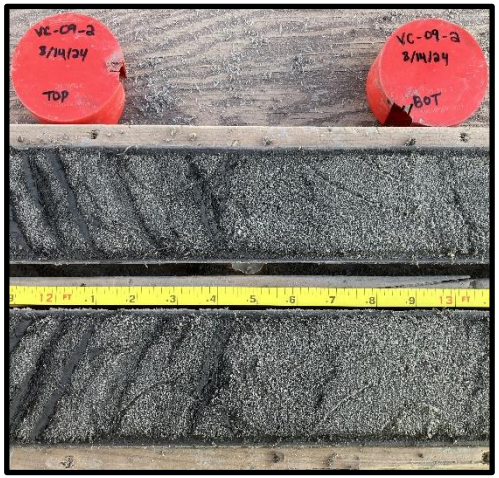


9.7-11 feet below sediment water interface



11-12 feet below sediment water interface

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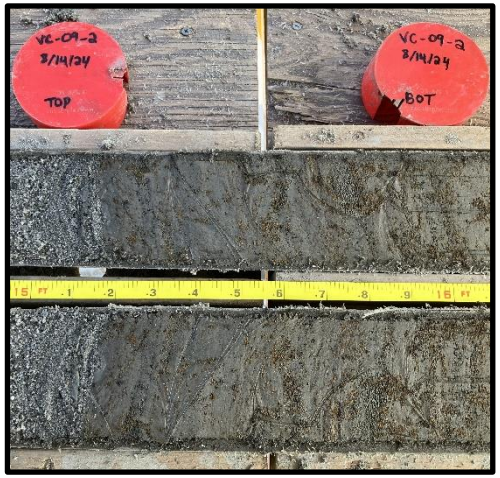
12-13 feet below sediment water interface



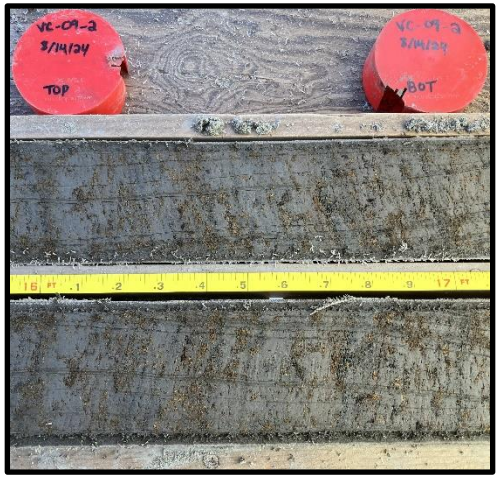
13-14 feet below sediment water interface



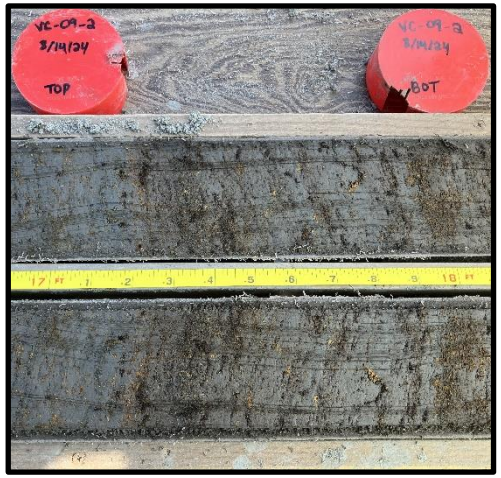
14-15 feet below sediment water interface



15-16 feet below sediment water interface

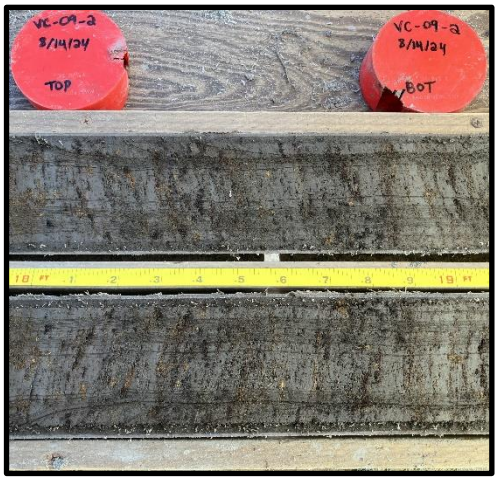


16-17 feet below sediment water interface

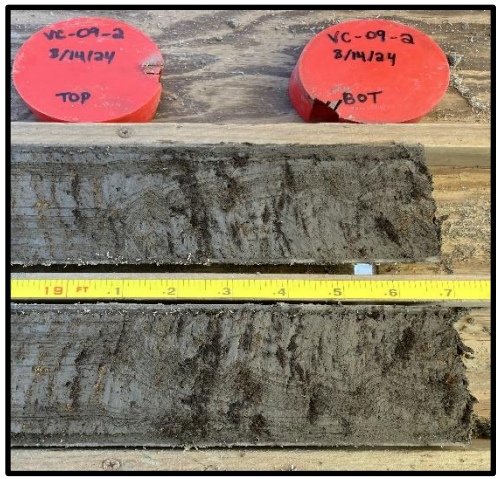


17-18 feet below sediment water interface

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18-19 feet below sediment water interface

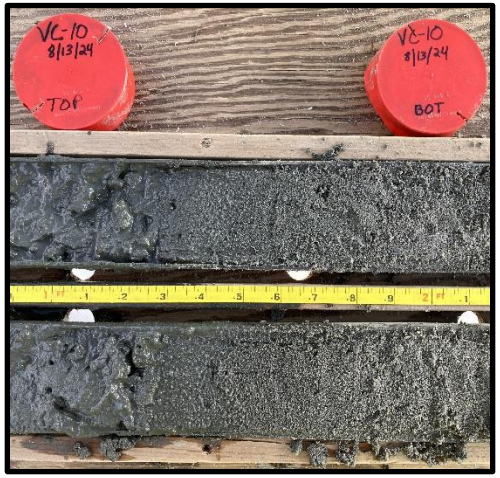


19-19.7 feet below sediment water interface

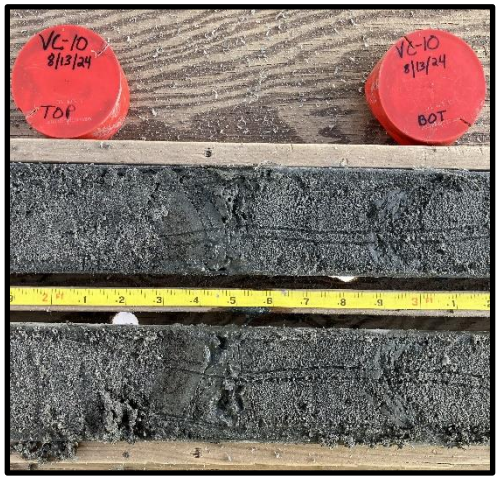
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0-1 feet below sediment water interface



1-2 feet below sediment water interface



2-3 feet below sediment water interface



3-4 feet below sediment water interface



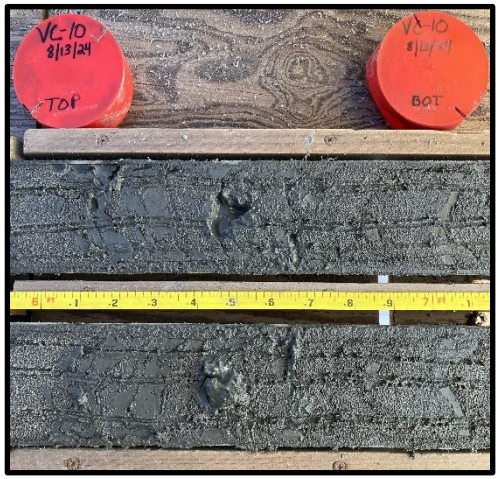
4-5 feet below sediment water interface



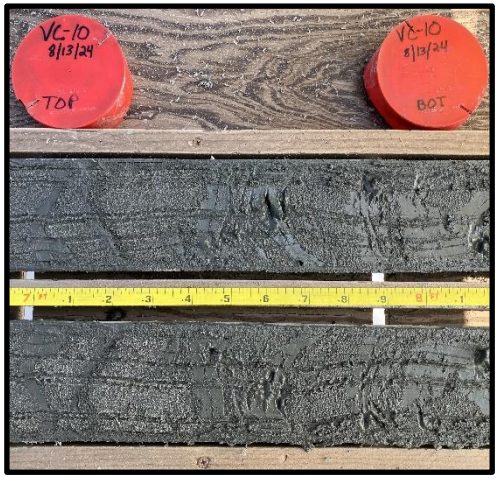
5-6 feet below sediment water interface

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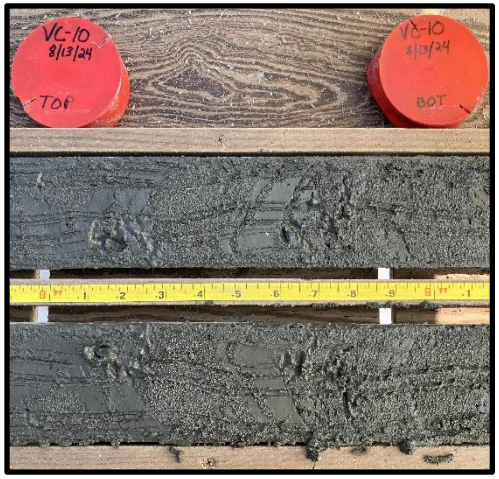
Vibracore: VC-10



6-7 feet below sediment water interface



7-8 feet below sediment water interface



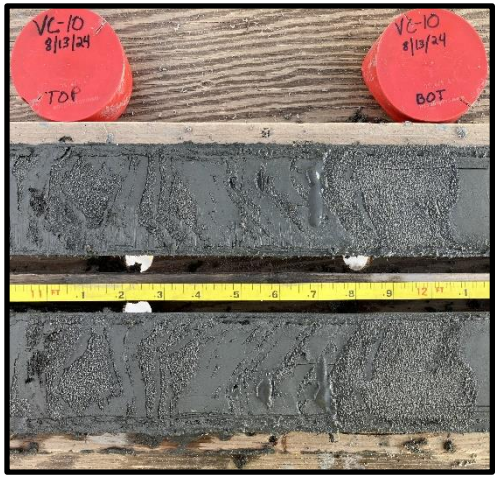
8-9 feet below sediment water interface



9-10.2 feet below sediment water interface



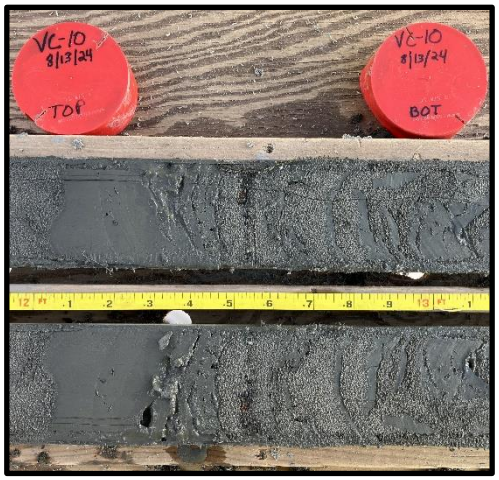
10.2-11 feet below sediment water interface



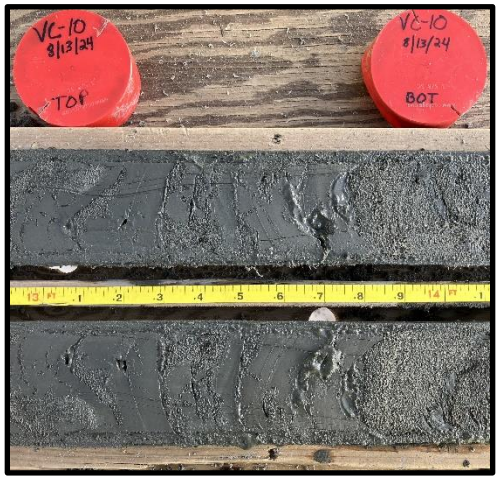
11-12 feet below sediment water interface

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Vibracore: VC-10



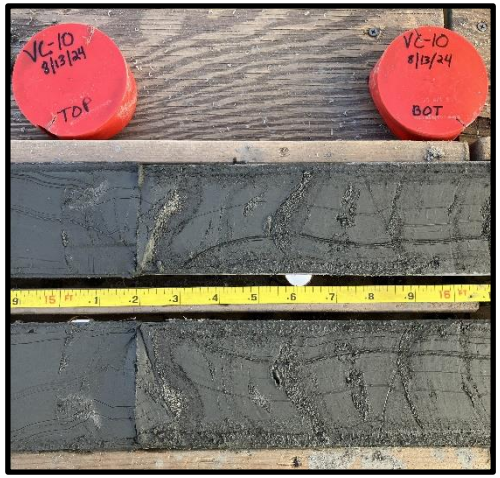
12-13 feet below sediment water interface



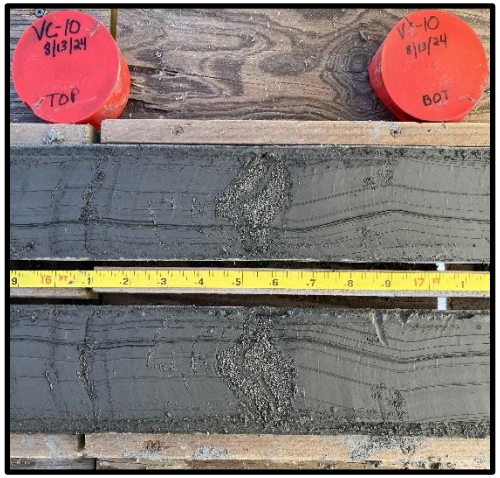
13-14 feet below sediment water interface



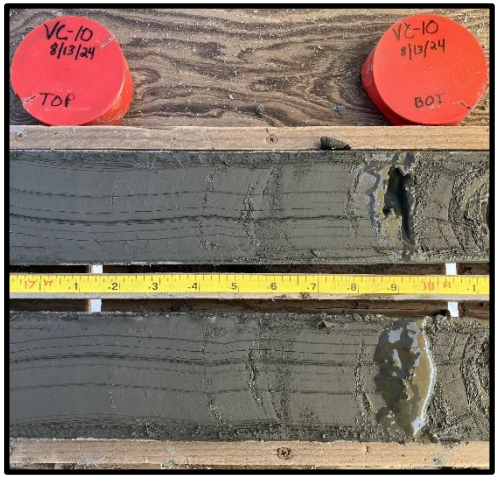
14-15 feet below sediment water interface



15-16 feet below sediment water interface



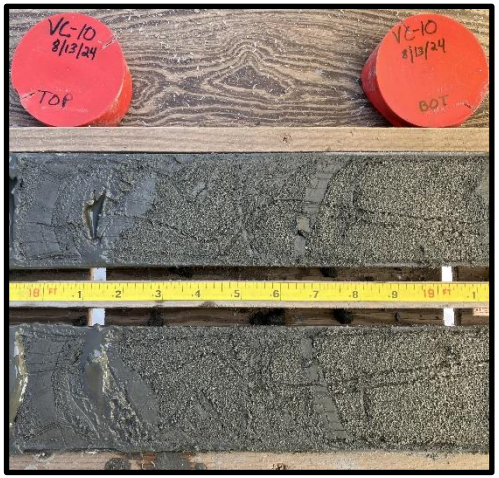
16-17 feet below sediment water interface



17-18 feet below sediment water interface

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Vibracore: VC-10



18-19 feet below sediment water interface



19-20.2 feet below sediment water interface

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Appendix D: Analytical Reports (Bulk Physical and Chemical Testing)

ANALYTICAL REPORT

Lab Number:	L2446115
Client:	TRC Companies, Inc. 404 Wyman Street Suite 375 Waltham, MA 02451
ATTN:	Payson Whitney
Phone:	(781) 419-7696
Project Name:	SILVER RUN EXPANSION
Project Number:	529393.0003.0000
Report Date:	09/24/24

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2446115-01	VC-10 (0-14.5)	SEDIMENT	NJ WATERS	08/14/24 10:35	08/14/24
L2446115-02	VC-10 (14.5'-17')	SEDIMENT	NJ WATERS	08/14/24 10:50	08/14/24
L2446115-03	VC-09 (0-15.2')	SEDIMENT	NJ WATERS	08/15/24 10:00	08/15/24
L2446115-04	VC-09 (15.2'-17')	SEDIMENT	NJ WATERS	08/15/24 10:40	08/15/24
L2446115-05	FB-081524	WATER	NJ WATERS	08/15/24 14:15	08/15/24
L2446115-06	VC-08 (0-11.8')	SEDIMENT	NJ WATERS	08/16/24 09:15	08/16/24
L2446115-07	VC-08 (11.8'-13.9')	SEDIMENT	NJ WATERS	08/16/24 09:40	08/16/24
L2446115-08	VC-08 (13.9'-17')	SEDIMENT	NJ WATERS	08/16/24 09:50	08/16/24
L2446115-09	VC-07 (0-10')	SEDIMENT	NJ WATERS	08/16/24 13:20	08/16/24
L2446115-10	VC-07 (10'-17')	SEDIMENT	NJ WATERS	08/16/24 13:45	08/16/24

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446115
Project Number:	529393.0003.0000	**Report Date:**	09/24/24

NJ DEP Data of Known Quality Protocols
Conformance/Non-Conformance
Summary Questionnaire

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP Data of Known Quality performance standards?	YES
1a	Were the method specified handling, preservation, and holding time requirements met?	YES
1b	EPH Method: Was the EPH Method conducted without significant modifications (see Section 11.3 of respective DKQ methods)?	N/A
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	YES
3	Were all samples received at an appropriate temperature (4 ± 2° C)?	YES
4	Were all QA/QC performance criteria specified in the NJDEP DKQP standards achieved?	NO
5a	Were reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?	NO
5b	Were these reporting limits met?	N/A
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?	YES
7	Are project-specific matrix spikes and/or laboratory duplicates included in this data set?	YES

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1a or #1b is "No", the data package does not meet the requirements for "Data of Known Quality".

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446115
Project Number:	529393.0003.0000	**Report Date:**	09/24/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446115
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Case Narrative (continued)

Report Submission

The analysis of the Physical parameters was subcontracted to GeoTesting Express. The analysis of Dioxin/Furan was subcontracted to Pace-MN. A copy of the laboratory report is included as an addendum.

Please note: This data is only available in PDF format and is not available on Data Merger.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

DKQP Related Narratives

Report Submission

In reference to question 5a:

Reporting limits were not specified.

Volatile Organics

The WG1964454-5 Method Blank, associated with L2446115-01, -02, -03, -04, -06, and -07, has concentrations below the reporting limits and "J" qualified. Associated field sample results are "B" qualified if the concentrations are less than 10x the concentrations in the blank.

In reference to question 4:

WG1961904-4: One or more compounds failed to meet the DKQP recovery and/or RPD limits. Please refer to the QC section of the report for specific details.

Semivolatile Organics

In reference to question 4:

WG1962083-2, WG1962083-3, WG1962083-4, WG1962083-5, WG1962819-2, and WG1962819-3: One or more compounds failed to meet the DKQP recovery and/or RPD limits. Difficult analytes may recover at less than 10% recovery, where applicable. Please refer to the QC section of the report for specific details.

PAHs by SIM

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446115
Project Number:	529393.0003.0000	**Report Date:**	09/24/24

Case Narrative (continued)

L2446115-05: The Field Blank has a result for Naphthalene present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.
In reference to question 4:
WG1960671-2 and WG1960671-3: One or more compounds failed to meet the DKQP recovery and/or RPD limits. Difficult analytes may recover at less than 10% recovery, where applicable. Please refer to the QC section of the report for specific details.

PCBs
In reference to question 4:
L2446115-07: One or more surrogates failed to meet the DKQP recovery limits. Please refer to the sample results and/or QC section of the report for specific details.
L2446115-09: One or more dual column RPDs are above the acceptance criteria. For results above the reporting limit that yield RPDs greater than 100%, re-analysis on dilution will also be reported. For any target hits greater than 100% that have co-eluting analytes on one column, a further dilution is not required and the lower value is reported. Please refer to the sample results and/or QC section of the report for specific details.

Pesticides
In reference to question 4:
WG1962072-4 and WG1962072-5: One or more compounds failed to meet the DKQP recovery and/or RPD limits. Please refer to the QC section of the report for specific details.

Total Metals
L2446115-05: The Field Blank has a result for chromium and manganese present above the reporting limit. The sample was verified as being labeled correctly by the laboratory and the previous analysis showed there was no potential for carry over.
In reference to question 4:

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Case Narrative (continued)

The WG1971466-3/-4 MS/MSD recoveries for aluminum (264%/206%) and iron (519%/473%), performed on L2446115-03, do not apply because the sample concentrations are greater than four times the spike amounts added.

The WG1972144-3 MS recovery, performed on L2446115-01, is outside the acceptance criteria for manganese (70%). A post digestion spike was performed and was within acceptance criteria.

The WG1972144-3 MS recoveries for aluminum (329%) and iron (185%), performed on L2446115-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

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

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 09/24/24

ORGANICS

VOLATILES

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/27/24 13:30
Analyst: AJK
Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0058	0.0019	1
1,4-Dioxane	ND		mg/kg	0.16	0.068	1
1,2-Dibromoethane	ND		mg/kg	0.0020	0.00054	1
Methylene chloride	ND		mg/kg	0.0098	0.0045	1
1,1-Dichloroethane	ND		mg/kg	0.0020	0.00028	1
Chloroform	ND		mg/kg	0.0029	0.00027	1
Carbon tetrachloride	ND		mg/kg	0.0020	0.00045	1
1,2-Dichloropropane	ND		mg/kg	0.0020	0.00024	1
Dibromochloromethane	ND		mg/kg	0.0020	0.00027	1
1,1,2-Trichloroethane	ND		mg/kg	0.0020	0.00052	1
Tetrachloroethene	ND		mg/kg	0.00098	0.00038	1
Chlorobenzene	ND		mg/kg	0.00098	0.00025	1
Trichlorofluoromethane	ND		mg/kg	0.0078	0.0014	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00050	1
1,1,1-Trichloroethane	ND		mg/kg	0.00098	0.00032	1
Bromodichloromethane	ND		mg/kg	0.00098	0.00021	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0020	0.00053	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00098	0.00031	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00098	0.00031	1
Bromoform	ND		mg/kg	0.0078	0.00048	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00098	0.00032	1
Benzene	ND		mg/kg	0.00098	0.00032	1
Toluene	ND		mg/kg	0.0020	0.0010	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
Chloromethane	ND		mg/kg	0.0078	0.0018	1
Bromomethane	ND		mg/kg	0.0039	0.0011	1
Vinyl chloride	ND		mg/kg	0.0020	0.00065	1
Chloroethane	ND		mg/kg	0.0039	0.00088	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01 Date Collected: 08/14/24 10:35

Client ID: VC-10 (0-14.5) Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0020	0.00046	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0029	0.00027	1
Trichloroethene	ND		mg/kg	0.00098	0.00027	1
1,2-Dichlorobenzene	ND		mg/kg	0.0039	0.00028	1
1,3-Dichlorobenzene	ND		mg/kg	0.0039	0.00029	1
1,4-Dichlorobenzene	ND		mg/kg	0.0039	0.00033	1
Methyl tert butyl ether	ND		mg/kg	0.0039	0.00039	1
p/m-Xylene	ND		mg/kg	0.0039	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00057	1
Xylenes, Total	ND		mg/kg	0.0020	0.00057	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0020	0.00034	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0020	0.00027	1
Styrene	ND		mg/kg	0.0020	0.00038	1
Dichlorodifluoromethane	ND		mg/kg	0.020	0.0018	1
Acetone	0.039	J	mg/kg	0.049	0.020	1
Carbon disulfide	ND		mg/kg	0.020	0.0089	1
2-Butanone	0.0094	J	mg/kg	0.020	0.0043	1
4-Methyl-2-pentanone	ND		mg/kg	0.020	0.0025	1
2-Hexanone	ND		mg/kg	0.020	0.0023	1
Bromochloromethane	ND		mg/kg	0.0039	0.00040	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00021	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0039	0.00063	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0039	0.00053	1
Methyl Acetate	ND		mg/kg	0.0078	0.0018	1
Cyclohexane	ND		mg/kg	0.020	0.0011	1
Methyl cyclohexane	ND		mg/kg	0.0078	0.0012	1
Freon-113	ND		mg/kg	0.0078	0.0014	1

Tentatively Identified Compounds			
No Tentatively Identified Compounds	ND	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01 Date Collected: 08/14/24 10:35

Client ID: VC-10 (0-14.5) Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/27/24 13:56
Analyst: AJK
Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0050	0.0017	1
1,4-Dioxane	ND		mg/kg	0.13	0.058	1
1,2-Dibromoethane	ND		mg/kg	0.0017	0.00046	1
Methylene chloride	ND		mg/kg	0.0083	0.0038	1
1,1-Dichloroethane	ND		mg/kg	0.0017	0.00024	1
Chloroform	ND		mg/kg	0.0025	0.00023	1
Carbon tetrachloride	ND		mg/kg	0.0017	0.00038	1
1,2-Dichloropropane	ND		mg/kg	0.0017	0.00021	1
Dibromochloromethane	ND		mg/kg	0.0017	0.00023	1
1,1,2-Trichloroethane	ND		mg/kg	0.0017	0.00044	1
Tetrachloroethene	ND		mg/kg	0.00083	0.00033	1
Chlorobenzene	ND		mg/kg	0.00083	0.00021	1
Trichlorofluoromethane	ND		mg/kg	0.0067	0.0012	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
1,1,1-Trichloroethane	ND		mg/kg	0.00083	0.00028	1
Bromodichloromethane	ND		mg/kg	0.00083	0.00018	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0017	0.00046	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00083	0.00026	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00083	0.00026	1
Bromoform	ND		mg/kg	0.0067	0.00041	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00083	0.00028	1
Benzene	ND		mg/kg	0.00083	0.00028	1
Toluene	ND		mg/kg	0.0017	0.00091	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
Chloromethane	ND		mg/kg	0.0067	0.0016	1
Bromomethane	ND		mg/kg	0.0033	0.00097	1
Vinyl chloride	ND		mg/kg	0.0017	0.00056	1
Chloroethane	ND		mg/kg	0.0033	0.00075	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02 Date Collected: 08/14/24 10:50

Client ID: VC-10 (14.5'-17') Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0017	0.00040	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0025	0.00023	1
Trichloroethene	ND		mg/kg	0.00083	0.00023	1
1,2-Dichlorobenzene	ND		mg/kg	0.0033	0.00024	1
1,3-Dichlorobenzene	ND		mg/kg	0.0033	0.00025	1
1,4-Dichlorobenzene	ND		mg/kg	0.0033	0.00028	1
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00034	1
p/m-Xylene	ND		mg/kg	0.0033	0.00093	1
o-Xylene	ND		mg/kg	0.0017	0.00048	1
Xylenes, Total	ND		mg/kg	0.0017	0.00048	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0017	0.00029	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0017	0.00023	1
Styrene	ND		mg/kg	0.0017	0.00033	1
Dichlorodifluoromethane	ND		mg/kg	0.017	0.0015	1
Acetone	0.067		mg/kg	0.042	0.017	1
Carbon disulfide	ND		mg/kg	0.017	0.0076	1
2-Butanone	0.015	J	mg/kg	0.017	0.0037	1
4-Methyl-2-pentanone	ND		mg/kg	0.017	0.0021	1
2-Hexanone	ND		mg/kg	0.017	0.0020	1
Bromochloromethane	ND		mg/kg	0.0033	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0033	0.00054	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0033	0.00045	1
Methyl Acetate	ND		mg/kg	0.0067	0.0016	1
Cyclohexane	ND		mg/kg	0.017	0.00091	1
Methyl cyclohexane	ND		mg/kg	0.0067	0.0010	1
Freon-113	ND		mg/kg	0.0067	0.0012	1

Tentatively Identified Compounds			
No Tentatively Identified Compounds	ND	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02 Date Collected: 08/14/24 10:50

Client ID: VC-10 (14.5'-17') Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/27/24 14:22
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0030	0.00098	1
1,4-Dioxane	ND		mg/kg	0.079	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.00098	0.00027	1
Methylene chloride	ND		mg/kg	0.0049	0.0022	1
1,1-Dichloroethane	ND		mg/kg	0.00098	0.00014	1
Chloroform	ND		mg/kg	0.0015	0.00014	1
Carbon tetrachloride	ND		mg/kg	0.00098	0.00023	1
1,2-Dichloropropane	ND		mg/kg	0.00098	0.00012	1
Dibromochloromethane	ND		mg/kg	0.00098	0.00014	1
1,1,2-Trichloroethane	ND		mg/kg	0.00098	0.00026	1
Tetrachloroethene	ND		mg/kg	0.00049	0.00019	1
Chlorobenzene	ND		mg/kg	0.00049	0.00012	1
Trichlorofluoromethane	ND		mg/kg	0.0039	0.00068	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
1,1,1-Trichloroethane	ND		mg/kg	0.00049	0.00016	1
Bromodichloromethane	ND		mg/kg	0.00049	0.00011	1
trans-1,3-Dichloropropene	ND		mg/kg	0.00098	0.00027	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00049	0.00016	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00049	0.00016	1
Bromoform	ND		mg/kg	0.0039	0.00024	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00049	0.00016	1
Benzene	ND		mg/kg	0.00049	0.00016	1
Toluene	ND		mg/kg	0.00098	0.00053	1
Ethylbenzene	ND		mg/kg	0.00098	0.00014	1
Chloromethane	ND		mg/kg	0.0039	0.00092	1
Bromomethane	ND		mg/kg	0.0020	0.00057	1
Vinyl chloride	ND		mg/kg	0.00098	0.00033	1
Chloroethane	ND		mg/kg	0.0020	0.00044	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03 Date Collected: 08/15/24 10:00

Client ID: VC-09 (0-15.2') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.00098	0.00023	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0015	0.00013	1
Trichloroethene	ND		mg/kg	0.00049	0.00013	1
1,2-Dichlorobenzene	ND		mg/kg	0.0020	0.00014	1
1,3-Dichlorobenzene	ND		mg/kg	0.0020	0.00014	1
1,4-Dichlorobenzene	ND		mg/kg	0.0020	0.00017	1
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00098	0.00029	1
Xylenes, Total	ND		mg/kg	0.00098	0.00029	1
cis-1,2-Dichloroethene	ND		mg/kg	0.00098	0.00017	1
1,2-Dichloroethene, Total	ND		mg/kg	0.00098	0.00013	1
Styrene	ND		mg/kg	0.00098	0.00019	1
Dichlorodifluoromethane	ND		mg/kg	0.0098	0.00090	1
Acetone	0.016	J	mg/kg	0.025	0.0098	1
Carbon disulfide	ND		mg/kg	0.0098	0.0045	1
2-Butanone	0.0035	J	mg/kg	0.0098	0.0022	1
4-Methyl-2-pentanone	ND		mg/kg	0.0098	0.0013	1
2-Hexanone	ND		mg/kg	0.0098	0.0012	1
Bromochloromethane	ND		mg/kg	0.0020	0.00020	1
Isopropylbenzene	ND		mg/kg	0.00098	0.00011	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0020	0.00032	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0020	0.00027	1
Methyl Acetate	ND		mg/kg	0.0039	0.00094	1
Cyclohexane	ND		mg/kg	0.0098	0.00054	1
Methyl cyclohexane	ND		mg/kg	0.0039	0.00059	1
Freon-113	ND		mg/kg	0.0039	0.00068	1

Tentatively Identified Compounds			
No Tentatively Identified Compounds	ND	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03 Date Collected: 08/15/24 10:00

Client ID: VC-09 (0-15.2') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	98		70-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS
Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/27/24 14:48
Analyst: AJK
Percent Solids: 45%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0060	0.0020	1
1,4-Dioxane	ND		mg/kg	0.16	0.070	1
1,2-Dibromoethane	ND		mg/kg	0.0020	0.00056	1
Methylene chloride	ND		mg/kg	0.010	0.0046	1
1,1-Dichloroethane	ND		mg/kg	0.0020	0.00029	1
Chloroform	ND		mg/kg	0.0030	0.00028	1
Carbon tetrachloride	ND		mg/kg	0.0020	0.00046	1
1,2-Dichloropropane	ND		mg/kg	0.0020	0.00025	1
Dibromochloromethane	ND		mg/kg	0.0020	0.00028	1
1,1,2-Trichloroethane	ND		mg/kg	0.0020	0.00054	1
Tetrachloroethene	ND		mg/kg	0.0010	0.00039	1
Chlorobenzene	ND		mg/kg	0.0010	0.00025	1
Trichlorofluoromethane	ND		mg/kg	0.0080	0.0014	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00052	1
1,1,1-Trichloroethane	ND		mg/kg	0.0010	0.00033	1
Bromodichloromethane	ND		mg/kg	0.0010	0.00022	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0020	0.00055	1
cis-1,3-Dichloropropene	ND		mg/kg	0.0010	0.00032	1
1,3-Dichloropropene, Total	ND		mg/kg	0.0010	0.00032	1
Bromoform	ND		mg/kg	0.0080	0.00049	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.0010	0.00033	1
Benzene	ND		mg/kg	0.0010	0.00033	1
Toluene	ND		mg/kg	0.0020	0.0011	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
Chloromethane	ND		mg/kg	0.0080	0.0019	1
Bromomethane	ND		mg/kg	0.0040	0.0012	1
Vinyl chloride	ND		mg/kg	0.0020	0.00067	1
Chloroethane	ND		mg/kg	0.0040	0.00091	1

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS
Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0020	0.00048	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0030	0.00027	1
Trichloroethene	ND		mg/kg	0.0010	0.00027	1
1,2-Dichlorobenzene	ND		mg/kg	0.0040	0.00029	1
1,3-Dichlorobenzene	ND		mg/kg	0.0040	0.00030	1
1,4-Dichlorobenzene	ND		mg/kg	0.0040	0.00034	1
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
p/m-Xylene	ND		mg/kg	0.0040	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00058	1
Xylenes, Total	ND		mg/kg	0.0020	0.00058	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0020	0.00035	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0020	0.00027	1
Styrene	ND		mg/kg	0.0020	0.00039	1
Dichlorodifluoromethane	ND		mg/kg	0.020	0.0018	1
Acetone	0.037	J	mg/kg	0.050	0.020	1
Carbon disulfide	0.017	J	mg/kg	0.020	0.0091	1
2-Butanone	0.0075	J	mg/kg	0.020	0.0044	1
4-Methyl-2-pentanone	ND		mg/kg	0.020	0.0026	1
2-Hexanone	ND		mg/kg	0.020	0.0024	1
Bromochloromethane	ND		mg/kg	0.0040	0.00041	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00022	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0040	0.00064	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0040	0.00054	1
Methyl Acetate	ND		mg/kg	0.0080	0.0019	1
Cyclohexane	ND		mg/kg	0.020	0.0011	1
Methyl cyclohexane	ND		mg/kg	0.0080	0.0012	1
Freon-113	ND		mg/kg	0.0080	0.0014	1

Tentatively Identified Compounds			
No Tentatively Identified Compounds	ND	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04 Date Collected: 08/15/24 10:40

Client ID: VC-09 (15.2'-17') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS

Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 08/20/24 16:41
Analyst: RAW

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35	1
1,4-Dioxane	ND		ug/l	250	61.	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Methylene chloride	ND		ug/l	2.5	0.68	1
1,1-Dichloroethane	ND		ug/l	0.75	0.21	1
Chloroform	ND		ug/l	0.75	0.22	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	0.50	0.18	1
Trichlorofluoromethane	ND		ug/l	2.5	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
Bromoform	ND		ug/l	2.0	0.25	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.08	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Chloromethane	ND		ug/l	2.5	0.20	1
Bromomethane	ND		ug/l	1.0	0.26	1
Vinyl chloride	ND		ug/l	0.20	0.07	1
Chloroethane	ND		ug/l	1.0	0.13	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05 Date Collected: 08/15/24 14:15

Client ID: FB-081524 Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	0.75	0.16	1
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.19	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19	1
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19	1
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16	1
Styrene	ND		ug/l	1.0	0.36	1
Dichlorodifluoromethane	ND		ug/l	5.0	0.24	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	0.30	1
2-Butanone	ND		ug/l	5.0	1.9	1
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42	1
2-Hexanone	ND		ug/l	5.0	0.52	1
Bromochloromethane	ND		ug/l	2.5	0.15	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.22	1
Methyl Acetate	ND		ug/l	2.0	0.23	1
Cyclohexane	ND		ug/l	10	0.27	1
Methyl cyclohexane	ND		ug/l	10	0.40	1
Freon-113	ND		ug/l	2.5	0.15	1

Tentatively Identified Compounds			
No Tentatively Identified Compounds	ND	ug/l	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05 Date Collected: 08/15/24 14:15

Client ID: FB-081524 Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	106		70-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/27/24 15:14
Analyst: LAC
Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0038	0.0013	1
1,4-Dioxane	ND		mg/kg	0.10	0.045	1
1,2-Dibromoethane	ND		mg/kg	0.0013	0.00036	1
Methylene chloride	ND		mg/kg	0.0064	0.0029	1
1,1-Dichloroethane	ND		mg/kg	0.0013	0.00018	1
Chloroform	ND		mg/kg	0.0019	0.00018	1
Carbon tetrachloride	ND		mg/kg	0.0013	0.00029	1
1,2-Dichloropropane	ND		mg/kg	0.0013	0.00016	1
Dibromochloromethane	ND		mg/kg	0.0013	0.00018	1
1,1,2-Trichloroethane	ND		mg/kg	0.0013	0.00034	1
Tetrachloroethene	ND		mg/kg	0.00064	0.00025	1
Chlorobenzene	ND		mg/kg	0.00064	0.00016	1
Trichlorofluoromethane	ND		mg/kg	0.0051	0.00088	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
1,1,1-Trichloroethane	ND		mg/kg	0.00064	0.00021	1
Bromodichloromethane	ND		mg/kg	0.00064	0.00014	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0013	0.00035	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00064	0.00020	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00064	0.00020	1
Bromoform	ND		mg/kg	0.0051	0.00031	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00064	0.00021	1
Benzene	ND		mg/kg	0.00064	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Chloromethane	ND		mg/kg	0.0051	0.0012	1
Bromomethane	ND		mg/kg	0.0025	0.00074	1
Vinyl chloride	ND		mg/kg	0.0013	0.00043	1
Chloroethane	ND		mg/kg	0.0025	0.00058	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06 Date Collected: 08/16/24 09:15

Client ID: VC-08 (0-11.8') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0013	0.00030	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0019	0.00017	1
Trichloroethene	ND		mg/kg	0.00064	0.00017	1
1,2-Dichlorobenzene	ND		mg/kg	0.0025	0.00018	1
1,3-Dichlorobenzene	ND		mg/kg	0.0025	0.00019	1
1,4-Dichlorobenzene	ND		mg/kg	0.0025	0.00022	1
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00026	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0013	0.00022	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0013	0.00017	1
Styrene	ND		mg/kg	0.0013	0.00025	1
Dichlorodifluoromethane	ND		mg/kg	0.013	0.0012	1
Acetone	0.078		mg/kg	0.032	0.013	1
Carbon disulfide	ND		mg/kg	0.013	0.0058	1
2-Butanone	0.016		mg/kg	0.013	0.0028	1
4-Methyl-2-pentanone	ND		mg/kg	0.013	0.0016	1
2-Hexanone	ND		mg/kg	0.013	0.0015	1
Bromochloromethane	ND		mg/kg	0.0025	0.00026	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0025	0.00041	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0025	0.00035	1
Methyl Acetate	ND		mg/kg	0.0051	0.0012	1
Cyclohexane	ND		mg/kg	0.013	0.00069	1
Methyl cyclohexane	ND		mg/kg	0.0051	0.00077	1
Freon-113	ND		mg/kg	0.0051	0.00088	1

Tentatively Identified Compounds			
No Tentatively Identified Compounds	ND	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06 Date Collected: 08/16/24 09:15

Client ID: VC-08 (0-11.8') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	98		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/27/24 15:41
Analyst: LAC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0032	0.0011	1
1,4-Dioxane	ND		mg/kg	0.086	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00030	1
Methylene chloride	ND		mg/kg	0.0054	0.0025	1
1,1-Dichloroethane	ND		mg/kg	0.0011	0.00016	1
Chloroform	ND		mg/kg	0.0016	0.00015	1
Carbon tetrachloride	ND		mg/kg	0.0011	0.00025	1
1,2-Dichloropropane	ND		mg/kg	0.0011	0.00013	1
Dibromochloromethane	ND		mg/kg	0.0011	0.00015	1
1,1,2-Trichloroethane	ND		mg/kg	0.0011	0.00029	1
Tetrachloroethene	ND		mg/kg	0.00054	0.00021	1
Chlorobenzene	ND		mg/kg	0.00054	0.00014	1
Trichlorofluoromethane	ND		mg/kg	0.0043	0.00075	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
1,1,1-Trichloroethane	ND		mg/kg	0.00054	0.00018	1
Bromodichloromethane	ND		mg/kg	0.00054	0.00012	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0011	0.00029	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00054	0.00017	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00054	0.00017	1
Bromoform	ND		mg/kg	0.0043	0.00026	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00054	0.00018	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	0.0016		mg/kg	0.0011	0.00058	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
Chloromethane	ND		mg/kg	0.0043	0.0010	1
Bromomethane	ND		mg/kg	0.0022	0.00063	1
Vinyl chloride	ND		mg/kg	0.0011	0.00036	1
Chloroethane	ND		mg/kg	0.0022	0.00049	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07 Date Collected: 08/16/24 09:40

Client ID: VC-08 (11.8'-13.9') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0011	0.00026	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0016	0.00015	1
Trichloroethene	ND		mg/kg	0.00054	0.00015	1
1,2-Dichlorobenzene	ND		mg/kg	0.0022	0.00016	1
1,3-Dichlorobenzene	ND		mg/kg	0.0022	0.00016	1
1,4-Dichlorobenzene	ND		mg/kg	0.0022	0.00018	1
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
p/m-Xylene	ND		mg/kg	0.0022	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0011	0.00019	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0011	0.00015	1
Styrene	ND		mg/kg	0.0011	0.00021	1
Dichlorodifluoromethane	ND		mg/kg	0.011	0.00099	1
Acetone	0.012	J	mg/kg	0.027	0.011	1
Carbon disulfide	ND		mg/kg	0.011	0.0049	1
2-Butanone	ND		mg/kg	0.011	0.0024	1
4-Methyl-2-pentanone	ND		mg/kg	0.011	0.0014	1
2-Hexanone	ND		mg/kg	0.011	0.0013	1
Bromochloromethane	ND		mg/kg	0.0022	0.00022	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0022	0.00035	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0022	0.00029	1
Methyl Acetate	ND		mg/kg	0.0043	0.0010	1
Cyclohexane	ND		mg/kg	0.011	0.00059	1
Methyl cyclohexane	ND		mg/kg	0.0043	0.00065	1
Freon-113	ND		mg/kg	0.0043	0.00075	1

Tentatively Identified Compounds				
No Tentatively Identified Compounds	ND	mg/kg		1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07 Date Collected: 08/16/24 09:40

Client ID: VC-08 (11.8'-13.9') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS
Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/28/24 13:32
Analyst: AJK
Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0057	0.0019	1
1,4-Dioxane	ND		mg/kg	0.15	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.0019	0.00053	1
Methylene chloride	ND		mg/kg	0.0095	0.0043	1
1,1-Dichloroethane	ND		mg/kg	0.0019	0.00027	1
Chloroform	ND		mg/kg	0.0028	0.00026	1
Carbon tetrachloride	ND		mg/kg	0.0019	0.00044	1
1,2-Dichloropropane	ND		mg/kg	0.0019	0.00024	1
Dibromochloromethane	ND		mg/kg	0.0019	0.00026	1
1,1,2-Trichloroethane	ND		mg/kg	0.0019	0.00050	1
Tetrachloroethene	ND		mg/kg	0.00095	0.00037	1
Chlorobenzene	ND		mg/kg	0.00095	0.00024	1
Trichlorofluoromethane	ND		mg/kg	0.0076	0.0013	1
1,2-Dichloroethane	ND		mg/kg	0.0019	0.00049	1
1,1,1-Trichloroethane	ND		mg/kg	0.00095	0.00032	1
Bromodichloromethane	ND		mg/kg	0.00095	0.00021	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0019	0.00052	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00095	0.00030	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00095	0.00030	1
Bromoform	ND		mg/kg	0.0076	0.00047	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00095	0.00031	1
Benzene	ND		mg/kg	0.00095	0.00031	1
Toluene	0.0013	J	mg/kg	0.0019	0.0010	1
Ethylbenzene	ND		mg/kg	0.0019	0.00027	1
Chloromethane	ND		mg/kg	0.0076	0.0018	1
Bromomethane	ND		mg/kg	0.0038	0.0011	1
Vinyl chloride	ND		mg/kg	0.0019	0.00063	1
Chloroethane	ND		mg/kg	0.0038	0.00086	1

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS
Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0019	0.00045	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0028	0.00026	1
Trichloroethene	ND		mg/kg	0.00095	0.00026	1
1,2-Dichlorobenzene	ND		mg/kg	0.0038	0.00027	1
1,3-Dichlorobenzene	ND		mg/kg	0.0038	0.00028	1
1,4-Dichlorobenzene	ND		mg/kg	0.0038	0.00032	1
Methyl tert butyl ether	ND		mg/kg	0.0038	0.00038	1
p/m-Xylene	ND		mg/kg	0.0038	0.0011	1
o-Xylene	ND		mg/kg	0.0019	0.00055	1
Xylenes, Total	ND		mg/kg	0.0019	0.00055	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0019	0.00033	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0019	0.00026	1
Styrene	ND		mg/kg	0.0019	0.00037	1
Dichlorodifluoromethane	ND		mg/kg	0.019	0.0017	1
Acetone	0.092		mg/kg	0.047	0.019	1
Carbon disulfide	ND		mg/kg	0.019	0.0086	1
2-Butanone	0.022		mg/kg	0.019	0.0042	1
4-Methyl-2-pentanone	ND		mg/kg	0.019	0.0024	1
2-Hexanone	ND		mg/kg	0.019	0.0022	1
Bromochloromethane	ND		mg/kg	0.0038	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0019	0.00021	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0038	0.00061	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0038	0.00052	1
Methyl Acetate	ND		mg/kg	0.0076	0.0018	1
Cyclohexane	ND		mg/kg	0.019	0.0010	1
Methyl cyclohexane	ND		mg/kg	0.0076	0.0011	1
Freon-113	ND		mg/kg	0.0076	0.0013	1

Tentatively Identified Compounds				
Total TIC Compounds	0.017	J	mg/kg	1
Unknown	0.017	J	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08 Date Collected: 08/16/24 09:50

Client ID: VC-08 (13.9'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	105		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/28/24 13:55
Analyst: AJK
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0038	0.0012	1
1,4-Dioxane	ND		mg/kg	0.10	0.044	1
1,2-Dibromoethane	ND		mg/kg	0.0012	0.00035	1
Methylene chloride	ND		mg/kg	0.0063	0.0029	1
1,1-Dichloroethane	ND		mg/kg	0.0012	0.00018	1
Chloroform	ND		mg/kg	0.0019	0.00018	1
Carbon tetrachloride	ND		mg/kg	0.0012	0.00029	1
1,2-Dichloropropane	ND		mg/kg	0.0012	0.00016	1
Dibromochloromethane	ND		mg/kg	0.0012	0.00018	1
1,1,2-Trichloroethane	ND		mg/kg	0.0012	0.00034	1
Tetrachloroethene	ND		mg/kg	0.00063	0.00025	1
Chlorobenzene	ND		mg/kg	0.00063	0.00016	1
Trichlorofluoromethane	ND		mg/kg	0.0050	0.00087	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
1,1,1-Trichloroethane	ND		mg/kg	0.00063	0.00021	1
Bromodichloromethane	ND		mg/kg	0.00063	0.00014	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0012	0.00034	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00063	0.00020	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00063	0.00020	1
Bromoform	ND		mg/kg	0.0050	0.00031	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00063	0.00021	1
Benzene	ND		mg/kg	0.00063	0.00021	1
Toluene	ND		mg/kg	0.0012	0.00068	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
Chloromethane	ND		mg/kg	0.0050	0.0012	1
Bromomethane	ND		mg/kg	0.0025	0.00073	1
Vinyl chloride	ND		mg/kg	0.0012	0.00042	1
Chloroethane	ND		mg/kg	0.0025	0.00057	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09 Date Collected: 08/16/24 13:20

Client ID: VC-07 (0-10') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0012	0.00030	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0019	0.00017	1
Trichloroethene	ND		mg/kg	0.00063	0.00017	1
1,2-Dichlorobenzene	ND		mg/kg	0.0025	0.00018	1
1,3-Dichlorobenzene	ND		mg/kg	0.0025	0.00019	1
1,4-Dichlorobenzene	ND		mg/kg	0.0025	0.00022	1
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00037	1
Xylenes, Total	ND		mg/kg	0.0012	0.00037	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0012	0.00022	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0012	0.00017	1
Styrene	ND		mg/kg	0.0012	0.00025	1
Dichlorodifluoromethane	ND		mg/kg	0.012	0.0012	1
Acetone	0.052		mg/kg	0.031	0.012	1
Carbon disulfide	ND		mg/kg	0.012	0.0057	1
2-Butanone	0.012		mg/kg	0.012	0.0028	1
4-Methyl-2-pentanone	ND		mg/kg	0.012	0.0016	1
2-Hexanone	ND		mg/kg	0.012	0.0015	1
Bromochloromethane	ND		mg/kg	0.0025	0.00026	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0025	0.00040	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0025	0.00034	1
Methyl Acetate	ND		mg/kg	0.0050	0.0012	1
Cyclohexane	ND		mg/kg	0.012	0.00068	1
Methyl cyclohexane	ND		mg/kg	0.0050	0.00076	1
Freon-113	ND		mg/kg	0.0050	0.00087	1

Tentatively Identified Compounds				
Total TIC Compounds	0.018	J	mg/kg	1
Unknown	0.012	J	mg/kg	1
Unknown	0.002	J	mg/kg	1
Unknown	0.003	J	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09 Date Collected: 08/16/24 13:20

Client ID: VC-07 (0-10') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8260D
Analytical Date: 08/28/24 13:09
Analyst: AJK
Percent Solids: 55%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0060	0.0020	1
1,4-Dioxane	ND		mg/kg	0.16	0.070	1
1,2-Dibromoethane	ND		mg/kg	0.0020	0.00055	1
Methylene chloride	ND		mg/kg	0.0099	0.0046	1
1,1-Dichloroethane	ND		mg/kg	0.0020	0.00029	1
Chloroform	ND		mg/kg	0.0030	0.00028	1
Carbon tetrachloride	ND		mg/kg	0.0020	0.00046	1
1,2-Dichloropropane	ND		mg/kg	0.0020	0.00025	1
Dibromochloromethane	ND		mg/kg	0.0020	0.00028	1
1,1,2-Trichloroethane	ND		mg/kg	0.0020	0.00053	1
Tetrachloroethene	ND		mg/kg	0.00099	0.00039	1
Chlorobenzene	ND		mg/kg	0.00099	0.00025	1
Trichlorofluoromethane	ND		mg/kg	0.0079	0.0014	1
1,2-Dichloroethane	ND		mg/kg	0.0020	0.00051	1
1,1,1-Trichloroethane	ND		mg/kg	0.00099	0.00033	1
Bromodichloromethane	ND		mg/kg	0.00099	0.00022	1
trans-1,3-Dichloropropene	ND		mg/kg	0.0020	0.00054	1
cis-1,3-Dichloropropene	ND		mg/kg	0.00099	0.00031	1
1,3-Dichloropropene, Total	ND		mg/kg	0.00099	0.00031	1
Bromoform	ND		mg/kg	0.0079	0.00049	1
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00099	0.00033	1
Benzene	ND		mg/kg	0.00099	0.00033	1
Toluene	ND		mg/kg	0.0020	0.0011	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
Chloromethane	ND		mg/kg	0.0079	0.0018	1
Bromomethane	ND		mg/kg	0.0040	0.0012	1
Vinyl chloride	ND		mg/kg	0.0020	0.00066	1
Chloroethane	ND		mg/kg	0.0040	0.00090	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10 Date Collected: 08/16/24 13:45

Client ID: VC-07 (10'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
1,1-Dichloroethene	ND		mg/kg	0.0020	0.00047	1
trans-1,2-Dichloroethene	ND		mg/kg	0.0030	0.00027	1
Trichloroethene	ND		mg/kg	0.00099	0.00027	1
1,2-Dichlorobenzene	ND		mg/kg	0.0040	0.00029	1
1,3-Dichlorobenzene	ND		mg/kg	0.0040	0.00029	1
1,4-Dichlorobenzene	ND		mg/kg	0.0040	0.00034	1
Methyl tert butyl ether	ND		mg/kg	0.0040	0.00040	1
p/m-Xylene	ND		mg/kg	0.0040	0.0011	1
o-Xylene	ND		mg/kg	0.0020	0.00058	1
Xylenes, Total	ND		mg/kg	0.0020	0.00058	1
cis-1,2-Dichloroethene	ND		mg/kg	0.0020	0.00035	1
1,2-Dichloroethene, Total	ND		mg/kg	0.0020	0.00027	1
Styrene	ND		mg/kg	0.0020	0.00039	1
Dichlorodifluoromethane	ND		mg/kg	0.020	0.0018	1
Acetone	0.065		mg/kg	0.050	0.020	1
Carbon disulfide	ND		mg/kg	0.020	0.0090	1
2-Butanone	0.015	J	mg/kg	0.020	0.0044	1
4-Methyl-2-pentanone	ND		mg/kg	0.020	0.0025	1
2-Hexanone	ND		mg/kg	0.020	0.0023	1
Bromochloromethane	ND		mg/kg	0.0040	0.00041	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00022	1
1,2,3-Trichlorobenzene	ND		mg/kg	0.0040	0.00064	1
1,2,4-Trichlorobenzene	ND		mg/kg	0.0040	0.00054	1
Methyl Acetate	ND		mg/kg	0.0079	0.0019	1
Cyclohexane	ND		mg/kg	0.020	0.0011	1
Methyl cyclohexane	ND		mg/kg	0.0079	0.0012	1
Freon-113	ND		mg/kg	0.0079	0.0014	1

Tentatively Identified Compounds					
Total TIC Compounds	0.018	J	mg/kg		1
Unknown	0.018	J	mg/kg		1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10 Date Collected: 08/16/24 13:45

Client ID: VC-07 (10'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	103		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/20/24 09:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1961904-5					
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.35
1,4-Dioxane	ND		ug/l	250	61.
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Methylene chloride	ND		ug/l	2.5	0.68
1,1-Dichloroethane	ND		ug/l	0.75	0.21
Chloroform	ND		ug/l	0.75	0.22
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	0.75	0.14
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	0.50	0.18
Trichlorofluoromethane	ND		ug/l	2.5	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	0.50	0.16
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
Bromoform	ND		ug/l	2.0	0.25
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.08
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Chloromethane	ND		ug/l	2.5	0.20
Bromomethane	ND		ug/l	1.0	0.26
Vinyl chloride	ND		ug/l	0.20	0.07
Chloroethane	ND		ug/l	1.0	0.13
1,1-Dichloroethene	ND		ug/l	0.50	0.17

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/20/24 09:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1961904-5					
trans-1,2-Dichloroethene	ND		ug/l	0.75	0.16
Trichloroethene	ND		ug/l	0.50	0.18
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18
1,3-Dichlorobenzene	ND		ug/l	2.5	0.19
1,4-Dichlorobenzene	ND		ug/l	2.5	0.19
Methyl tert butyl ether	ND		ug/l	1.0	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
cis-1,2-Dichloroethene	ND		ug/l	0.50	0.19
1,2-Dichloroethene, Total	ND		ug/l	0.50	0.16
Styrene	ND		ug/l	1.0	0.36
Dichlorodifluoromethane	ND		ug/l	5.0	0.24
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	0.30
2-Butanone	ND		ug/l	5.0	1.9
4-Methyl-2-pentanone	ND		ug/l	5.0	0.42
2-Hexanone	ND		ug/l	5.0	0.52
Bromochloromethane	ND		ug/l	2.5	0.15
Isopropylbenzene	ND		ug/l	0.50	0.19
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.23
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.22
Methyl Acetate	ND		ug/l	2.0	0.23
Cyclohexane	ND		ug/l	10	0.27
Methyl cyclohexane	ND		ug/l	10	0.40
Freon-113	ND		ug/l	2.5	0.15

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/20/24 09:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1961904-5					
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		ug/l		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/27/24 09:35
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04,06-07 Batch: WG1964454-5					
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0030	0.0010
1,4-Dioxane	ND		mg/kg	0.080	0.035
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00028
Methylene chloride	ND		mg/kg	0.0050	0.0023
1,1-Dichloroethane	ND		mg/kg	0.0010	0.00014
Chloroform	0.00067	J	mg/kg	0.0015	0.00014
Carbon tetrachloride	ND		mg/kg	0.0010	0.00023
1,2-Dichloropropane	ND		mg/kg	0.0010	0.00012
Dibromochloromethane	ND		mg/kg	0.0010	0.00014
1,1,2-Trichloroethane	ND		mg/kg	0.0010	0.00027
Tetrachloroethene	ND		mg/kg	0.00050	0.00020
Chlorobenzene	ND		mg/kg	0.00050	0.00013
Trichlorofluoromethane	ND		mg/kg	0.0040	0.00070
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
1,1,1-Trichloroethane	ND		mg/kg	0.00050	0.00017
Bromodichloromethane	ND		mg/kg	0.00050	0.00011
trans-1,3-Dichloropropene	ND		mg/kg	0.0010	0.00027
cis-1,3-Dichloropropene	ND		mg/kg	0.00050	0.00016
1,3-Dichloropropene, Total	ND		mg/kg	0.00050	0.00016
Bromoform	ND		mg/kg	0.0040	0.00025
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00050	0.00017
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Chloromethane	ND		mg/kg	0.0040	0.00093
Bromomethane	ND		mg/kg	0.0020	0.00058
Vinyl chloride	ND		mg/kg	0.0010	0.00034
Chloroethane	ND		mg/kg	0.0020	0.00045
1,1-Dichloroethene	ND		mg/kg	0.0010	0.00024

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/27/24 09:35
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04,06-07 Batch: WG1964454-5					
trans-1,2-Dichloroethene	ND		mg/kg	0.0015	0.00014
Trichloroethene	ND		mg/kg	0.00050	0.00014
1,2-Dichlorobenzene	ND		mg/kg	0.0020	0.00014
1,3-Dichlorobenzene	ND		mg/kg	0.0020	0.00015
1,4-Dichlorobenzene	ND		mg/kg	0.0020	0.00017
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
cis-1,2-Dichloroethene	ND		mg/kg	0.0010	0.00018
1,2-Dichloroethene, Total	ND		mg/kg	0.0010	0.00014
Styrene	ND		mg/kg	0.0010	0.00020
Dichlorodifluoromethane	ND		mg/kg	0.010	0.00092
Acetone	ND		mg/kg	0.025	0.010
Carbon disulfide	ND		mg/kg	0.010	0.0046
2-Butanone	ND		mg/kg	0.010	0.0022
4-Methyl-2-pentanone	ND		mg/kg	0.010	0.0013
2-Hexanone	ND		mg/kg	0.010	0.0012
Bromochloromethane	ND		mg/kg	0.0020	0.00020
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,2,3-Trichlorobenzene	0.00034	J	mg/kg	0.0020	0.00032
1,2,4-Trichlorobenzene	ND		mg/kg	0.0020	0.00027
Methyl Acetate	ND		mg/kg	0.0040	0.00095
Cyclohexane	ND		mg/kg	0.010	0.00054
Methyl cyclohexane	ND		mg/kg	0.0040	0.00060
Freon-113	ND		mg/kg	0.0040	0.00069

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/27/24 09:35
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04,06-07 Batch: WG1964454-5					
Tentatively Identified Compounds					
No Tentatively Identified Compounds	ND		mg/kg		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/28/24 12:03
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-10 Batch: WG1965523-5					
1,2-Dibromo-3-chloropropane	ND		mg/kg	0.0030	0.0010
1,4-Dioxane	ND		mg/kg	0.080	0.035
1,2-Dibromoethane	ND		mg/kg	0.0010	0.00028
Methylene chloride	ND		mg/kg	0.0050	0.0023
1,1-Dichloroethane	ND		mg/kg	0.0010	0.00014
Chloroform	ND		mg/kg	0.0015	0.00014
Carbon tetrachloride	ND		mg/kg	0.0010	0.00023
1,2-Dichloropropane	ND		mg/kg	0.0010	0.00012
Dibromochloromethane	ND		mg/kg	0.0010	0.00014
1,1,2-Trichloroethane	ND		mg/kg	0.0010	0.00027
Tetrachloroethene	ND		mg/kg	0.00050	0.00020
Chlorobenzene	ND		mg/kg	0.00050	0.00013
Trichlorofluoromethane	ND		mg/kg	0.0040	0.00070
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
1,1,1-Trichloroethane	ND		mg/kg	0.00050	0.00017
Bromodichloromethane	ND		mg/kg	0.00050	0.00011
trans-1,3-Dichloropropene	ND		mg/kg	0.0010	0.00027
cis-1,3-Dichloropropene	ND		mg/kg	0.00050	0.00016
1,3-Dichloropropene, Total	ND		mg/kg	0.00050	0.00016
Bromoform	ND		mg/kg	0.0040	0.00025
1,1,2,2-Tetrachloroethane	ND		mg/kg	0.00050	0.00017
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Chloromethane	ND		mg/kg	0.0040	0.00093
Bromomethane	ND		mg/kg	0.0020	0.00058
Vinyl chloride	ND		mg/kg	0.0010	0.00034
Chloroethane	ND		mg/kg	0.0020	0.00045
1,1-Dichloroethene	ND		mg/kg	0.0010	0.00024

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/28/24 12:03
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-10 Batch: WG1965523-5					
trans-1,2-Dichloroethene	ND		mg/kg	0.0015	0.00014
Trichloroethene	ND		mg/kg	0.00050	0.00014
1,2-Dichlorobenzene	ND		mg/kg	0.0020	0.00014
1,3-Dichlorobenzene	ND		mg/kg	0.0020	0.00015
1,4-Dichlorobenzene	ND		mg/kg	0.0020	0.00017
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
cis-1,2-Dichloroethene	ND		mg/kg	0.0010	0.00018
1,2-Dichloroethene, Total	ND		mg/kg	0.0010	0.00014
Styrene	ND		mg/kg	0.0010	0.00020
Dichlorodifluoromethane	ND		mg/kg	0.010	0.00092
Acetone	ND		mg/kg	0.025	0.010
Carbon disulfide	ND		mg/kg	0.010	0.0046
2-Butanone	ND		mg/kg	0.010	0.0022
4-Methyl-2-pentanone	ND		mg/kg	0.010	0.0013
2-Hexanone	ND		mg/kg	0.010	0.0012
Bromochloromethane	ND		mg/kg	0.0020	0.00020
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,2,3-Trichlorobenzene	ND		mg/kg	0.0020	0.00032
1,2,4-Trichlorobenzene	ND		mg/kg	0.0020	0.00027
Methyl Acetate	ND		mg/kg	0.0040	0.00095
Cyclohexane	ND		mg/kg	0.010	0.00054
Methyl cyclohexane	ND		mg/kg	0.0040	0.00060
Freon-113	ND		mg/kg	0.0040	0.00069

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 08/28/24 12:03
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08-10 Batch: WG1965523-5					
Tentatively Identified Compounds					
Total TIC Compounds	0.011	J	mg/kg		
Unknown	0.008	J	mg/kg		
Unknown	0.003	J	mg/kg		

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	84		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1961904-3 WG1961904-4								
1,2-Dibromo-3-chloropropane	84		82		40-160	2		20
1,4-Dioxane	92		106		40-160	14		20
1,2-Dibromoethane	97		94		70-130	3		20
Methylene chloride	110		100		70-130	10		20
1,1-Dichloroethane	120		120		70-130	0		20
Chloroform	110		110		70-130	0		20
Carbon tetrachloride	120		120		70-130	0		20
1,2-Dichloropropane	120		120		70-130	0		20
Dibromochloromethane	100		100		70-130	0		20
1,1,2-Trichloroethane	100		100		70-130	0		20
Tetrachloroethene	120		110		70-130	9		20
Chlorobenzene	100		100		70-130	0		20
Trichlorofluoromethane	130		130		40-160	0		20
1,2-Dichloroethane	110		110		70-130	0		20
1,1,1-Trichloroethane	120		120		70-130	0		20
Bromodichloromethane	110		100		70-130	10		20
trans-1,3-Dichloropropene	100		100		70-130	0		20
cis-1,3-Dichloropropene	110		100		70-130	10		20
Bromoform	96		98		40-160	2		20
1,1,2,2-Tetrachloroethane	100		100		40-160	0		20
Benzene	110		110		70-130	0		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1961904-3 WG1961904-4								
Chloromethane	120		120		40-160	0		20
Bromomethane	150		160		40-160	6		20
Vinyl chloride	120		120		70-130	0		20
Chloroethane	130		130		40-160	0		20
1,1-Dichloroethene	120		120		70-130	0		20
trans-1,2-Dichloroethene	110		110		70-130	0		20
Trichloroethene	110		110		70-130	0		20
1,2-Dichlorobenzene	99		98		70-130	1		20
1,3-Dichlorobenzene	100		99		70-130	1		20
1,4-Dichlorobenzene	97		96		70-130	1		20
Methyl tert butyl ether	110		110		70-130	0		20
p/m-Xylene	115		115		70-130	0		20
o-Xylene	110		110		70-130	0		20
cis-1,2-Dichloroethene	100		100		70-130	0		20
Styrene	100		100		40-160	0		20
Dichlorodifluoromethane	94		95		40-160	1		20
Acetone	97		98		40-160	1		20
Carbon disulfide	130		130		40-160	0		20
2-Butanone	100		100		40-160	0		20
4-Methyl-2-pentanone	100		99		40-160	1		20
2-Hexanone	94		92		40-160	2		20
Bromochloromethane	110		110		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1961904-3 WG1961904-4								
1,2,3-Trichlorobenzene	86		96		70-130	11		20
1,2,4-Trichlorobenzene	89		93		70-130	4		20
Methyl Acetate	110		110		70-130	0		20
Cyclohexane	120		120		70-130	0		20
Methyl cyclohexane	120		110		70-130	9		20
Freon-113	130		**140**	Q	70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	100		100		70-130
Dibromofluoromethane	100		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04,06-07 Batch: WG1964454-3 WG1964454-4								
1,2-Dibromo-3-chloropropane	90		89		40-160	1		30
1,4-Dioxane	87		88		40-160	1		30
1,2-Dibromoethane	90		92		70-130	2		30
Methylene chloride	81		82		70-130	1		30
1,1-Dichloroethane	83		86		70-130	4		30
Chloroform	81		85		70-130	5		30
Carbon tetrachloride	83		90		70-130	8		30
1,2-Dichloropropane	79		84		70-130	6		30
Dibromochloromethane	86		89		70-130	3		30
1,1,2-Trichloroethane	84		86		70-130	2		30
Tetrachloroethene	100		108		70-130	8		30
Chlorobenzene	92		96		70-130	4		30
Trichlorofluoromethane	82		91		40-160	10		30
1,2-Dichloroethane	75		78		70-130	4		30
1,1,1-Trichloroethane	84		90		70-130	7		30
Bromodichloromethane	78		83		70-130	6		30
trans-1,3-Dichloropropene	96		99		70-130	3		30
cis-1,3-Dichloropropene	88		93		40-160	6		30
Bromoform	88		89		40-160	1		30
1,1,2,2-Tetrachloroethane	89		89		40-160	0		30
Benzene	83		88		70-130	6		30
Toluene	90		96		70-130	6		30
Ethylbenzene	91		98		70-130	7		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04,06-07 Batch: WG1964454-3 WG1964454-4								
Chloromethane	77		76		40-160	1		30
Bromomethane	106		108		40-160	2		30
Vinyl chloride	83		85		70-130	2		30
Chloroethane	87		89		40-160	2		30
1,1-Dichloroethene	89		93		70-130	4		30
trans-1,2-Dichloroethene	90		93		70-130	3		30
Trichloroethene	82		89		70-130	8		30
1,2-Dichlorobenzene	94		98		70-130	4		30
1,3-Dichlorobenzene	99		104		70-130	5		30
1,4-Dichlorobenzene	97		102		70-130	5		30
Methyl tert butyl ether	81		79		70-130	3		30
p/m-Xylene	94		100		70-130	6		30
o-Xylene	91		97		70-130	6		30
cis-1,2-Dichloroethene	82		85		70-130	4		30
Styrene	92		97		40-160	5		30
Dichlorodifluoromethane	63		66		40-160	5		30
Acetone	65		61		40-160	6		30
Carbon disulfide	84		87		40-160	4		30
2-Butanone	73		71		40-160	3		30
4-Methyl-2-pentanone	83		81		40-160	2		30
2-Hexanone	80		80		40-160	0		30
Bromochloromethane	83		84		70-130	1		30
Isopropylbenzene	97		102		70-130	5		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04,06-07 Batch: WG1964454-3 WG1964454-4								
1,2,3-Trichlorobenzene	101		103		70-130	2		30
1,2,4-Trichlorobenzene	114		116		70-130	2		30
Methyl Acetate	78		74		70-130	5		30
Cyclohexane	84		90		70-130	7		30
Methyl cyclohexane	84		93		70-130	10		30
Freon-113	92		96		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		89		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-10 Batch: WG1965523-3 WG1965523-4								
1,2-Dibromo-3-chloropropane	77		72		40-160	7		30
1,4-Dioxane	81		86		40-160	6		30
1,2-Dibromoethane	82		78		70-130	5		30
Methylene chloride	83		79		70-130	5		30
1,1-Dichloroethane	102		98		70-130	4		30
Chloroform	90		86		70-130	5		30
Carbon tetrachloride	86		84		70-130	2		30
1,2-Dichloropropane	101		95		70-130	6		30
Dibromochloromethane	84		81		70-130	4		30
1,1,2-Trichloroethane	88		83		70-130	6		30
Tetrachloroethene	86		82		70-130	5		30
Chlorobenzene	87		83		70-130	5		30
Trichlorofluoromethane	84		81		40-160	4		30
1,2-Dichloroethane	89		84		70-130	6		30
1,1,1-Trichloroethane	86		84		70-130	2		30
Bromodichloromethane	84		81		70-130	4		30
trans-1,3-Dichloropropene	88		84		70-130	5		30
cis-1,3-Dichloropropene	89		84		40-160	6		30
Bromoform	81		76		40-160	6		30
1,1,2,2-Tetrachloroethane	82		78		40-160	5		30
Benzene	89		85		70-130	5		30
Toluene	84		82		70-130	2		30
Ethylbenzene	88		84		70-130	5		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-10 Batch: WG1965523-3 WG1965523-4								
Chloromethane	101		98		40-160	3		30
Bromomethane	89		86		40-160	3		30
Vinyl chloride	89		88		70-130	1		30
Chloroethane	88		88		40-160	0		30
1,1-Dichloroethene	80		82		70-130	2		30
trans-1,2-Dichloroethene	81		79		70-130	3		30
Trichloroethene	90		87		70-130	3		30
1,2-Dichlorobenzene	86		82		70-130	5		30
1,3-Dichlorobenzene	88		82		70-130	7		30
1,4-Dichlorobenzene	87		81		70-130	7		30
Methyl tert butyl ether	94		88		70-130	7		30
p/m-Xylene	87		84		70-130	4		30
o-Xylene	88		85		70-130	3		30
cis-1,2-Dichloroethene	87		84		70-130	4		30
Styrene	88		85		40-160	3		30
Dichlorodifluoromethane	55		54		40-160	2		30
Acetone	66		61		40-160	8		30
Carbon disulfide	85		82		40-160	4		30
2-Butanone	87		80		40-160	8		30
4-Methyl-2-pentanone	91		85		40-160	7		30
2-Hexanone	81		77		40-160	5		30
Bromochloromethane	87		83		70-130	5		30
Isopropylbenzene	91		85		70-130	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08-10 Batch: WG1965523-3 WG1965523-4								
1,2,3-Trichlorobenzene	84		78		70-130	7		30
1,2,4-Trichlorobenzene	82		76		70-130	8		30
Methyl Acetate	84		81		70-130	4		30
Cyclohexane	107		103		70-130	4		30
Methyl cyclohexane	91		88		70-130	3		30
Freon-113	85		82		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		101		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	101		101		70-130
Dibromofluoromethane	101		100		70-130

SEMIVOLATILES

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/06/24 20:52
Analyst: DB
Percent Solids: 71%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0457	0.00434	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0457	0.00839	1
2-Chlorophenol	ND		mg/kg	0.0457	0.00302	1
2-Methylphenol	ND		mg/kg	0.0457	0.00393	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0457	0.00762	1
Acetophenone	ND		mg/kg	0.0457	0.00576	1
4-Methylphenol	ND		mg/kg	0.0457	0.00598	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0457	0.00778	1
Hexachloroethane	ND		mg/kg	0.0457	0.00764	1
Nitrobenzene	ND		mg/kg	0.0457	0.00476	1
Isophorone	ND		mg/kg	0.0457	0.00501	1
2-Nitrophenol	ND		mg/kg	0.0457	0.00493	1
2,4-Dimethylphenol	ND		mg/kg	0.0457	0.00753	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0457	0.00460	1
2,4-Dichlorophenol	ND		mg/kg	0.0457	0.00491	1
4-Chloroaniline	ND		mg/kg	0.0457	0.00418	1
Hexachlorobutadiene	ND		mg/kg	0.0457	0.00887	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0457	0.00660	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0457	0.00435	1
Hexachlorocyclopentadiene	ND		mg/kg	0.274	0.0501	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0457	0.00409	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0457	0.00545	1
2-Nitroaniline	ND		mg/kg	0.0457	0.00739	1
Dimethylphthalate	ND		mg/kg	0.0457	0.00356	1
2,6-Dinitrotoluene	ND		mg/kg	0.0457	0.0118	1
3-Nitroaniline	ND		mg/kg	0.0914	0.00480	1
2,4-Dinitrophenol	ND		mg/kg	0.274	0.0779	1
4-Nitrophenol	ND		mg/kg	0.759	0.251	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01 Date Collected: 08/14/24 10:35

Client ID: VC-10 (0-14.5) Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0457	0.00791	1
Dibenzofuran	ND		mg/kg	0.0457	0.00342	1
2,4-Dinitrotoluene	ND		mg/kg	0.0457	0.00320	1
Diethylphthalate	ND		mg/kg	0.0457	0.00467	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0457	0.00441	1
4-Nitroaniline	ND		mg/kg	0.274	0.00617	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.274	0.0878	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0457	0.00321	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0457	0.00430	1
Hexachlorobenzene	ND		mg/kg	0.0457	0.00445	1
Pentachlorophenol	ND		mg/kg	0.274	0.0822	1
Di-n-butylphthalate	ND		mg/kg	0.0457	0.00435	1
Butylbenzylphthalate	ND		mg/kg	0.0457	0.00923	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.0914	0.00780	1
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.0457	0.0120	1
Di-n-octylphthalate	ND		mg/kg	0.0914	0.0189	1
Carbazole	ND		mg/kg	0.0457	0.00292	1
Atrazine	ND		mg/kg	0.0457	0.00397	1
Benzaldehyde	0.0190	J	mg/kg	0.0457	0.0115	1
Caprolactam	0.00768	J	mg/kg	0.0914	0.00671	1
Biphenyl	ND		mg/kg	0.0457	0.00480	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01 Date Collected: 08/14/24 10:35

Client ID: VC-10 (0-14.5) Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	1.41	J	mg/kg			1
Unknown	0.113	J	mg/kg			1
Unknown Alkane	0.193	J	mg/kg			1
Stigmastanol	0.0832	NJ	mg/kg			1
Unknown Alkane	0.140	J	mg/kg			1
Unknown	0.0548	J	mg/kg			1
Unknown	0.0795	J	mg/kg			1
Unknown	0.0567	J	mg/kg			1
Unknown	0.0795	J	mg/kg			1
Unknown	0.141	J	mg/kg			1
Friedelan-3-one	0.156	NJ	mg/kg			1
Unknown	0.0676	J	mg/kg			1
Unknown Alkane	0.246	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	65		30-130
Phenol-d5	61		30-130
Nitrobenzene-d5	65		30-130
2-Fluorophenol	57		30-130
2,4,6-Tribromophenol	58		30-130
Terphenyl-d14	74		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/25/24 19:51
Analyst: MC
Percent Solids: 71%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00078	J	mg/kg	0.00559	0.00050	1
Acenaphthylene	ND		mg/kg	0.00559	0.00037	1
Acenaphthene	ND		mg/kg	0.00559	0.00062	1
Fluorene	0.00062	J	mg/kg	0.00559	0.00037	1
Phenanthrene	0.00172	J	mg/kg	0.00559	0.00065	1
Anthracene	ND		mg/kg	0.00559	0.00069	1
Fluoranthene	0.00110	J	mg/kg	0.00559	0.00102	1
Pyrene	0.00063	J	mg/kg	0.00559	0.00057	1
Benz(a)anthracene	ND		mg/kg	0.00559	0.00149	1
Chrysene	0.00049	J	mg/kg	0.00559	0.00049	1
Benzo(b)fluoranthene	ND		mg/kg	0.00559	0.00058	1
Benzo(k)fluoranthene	ND		mg/kg	0.00559	0.00057	1
Benzo(a)pyrene	ND		mg/kg	0.00559	0.00065	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00559	0.00159	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00559	0.00057	1
Benzo(ghi)perylene	0.00046	J	mg/kg	0.00559	0.00046	1
2-Methylnaphthalene	ND		mg/kg	0.00559	0.00069	1
2-Chloronaphthalene	ND		mg/kg	0.00559	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	78		30-130
Pyrene-d10	87		30-130
Benzo(b)fluoranthene-d12	87		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/06/24 21:21
Analyst: DB
Percent Solids: 59%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0562	0.00534	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0562	0.0103	1
2-Chlorophenol	ND		mg/kg	0.0562	0.00371	1
2-Methylphenol	ND		mg/kg	0.0562	0.00484	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0562	0.00938	1
Acetophenone	ND		mg/kg	0.0562	0.00709	1
4-Methylphenol	ND		mg/kg	0.0562	0.00736	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0562	0.00957	1
Hexachloroethane	ND		mg/kg	0.0562	0.00940	1
Nitrobenzene	ND		mg/kg	0.0562	0.00586	1
Isophorone	ND		mg/kg	0.0562	0.00616	1
2-Nitrophenol	ND		mg/kg	0.0562	0.00606	1
2,4-Dimethylphenol	ND		mg/kg	0.0562	0.00927	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0562	0.00566	1
2,4-Dichlorophenol	ND		mg/kg	0.0562	0.00604	1
4-Chloroaniline	ND		mg/kg	0.0562	0.00514	1
Hexachlorobutadiene	ND		mg/kg	0.0562	0.0109	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0562	0.00812	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0562	0.00536	1
Hexachlorocyclopentadiene	ND		mg/kg	0.338	0.0616	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0562	0.00503	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0562	0.00670	1
2-Nitroaniline	ND		mg/kg	0.0562	0.00909	1
Dimethylphthalate	ND		mg/kg	0.0562	0.00439	1
2,6-Dinitrotoluene	ND		mg/kg	0.0562	0.0145	1
3-Nitroaniline	ND		mg/kg	0.112	0.00591	1
2,4-Dinitrophenol	ND		mg/kg	0.338	0.0958	1
4-Nitrophenol	ND		mg/kg	0.934	0.309	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02 Date Collected: 08/14/24 10:50

Client ID: VC-10 (14.5'-17') Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0562	0.00973	1
Dibenzofuran	ND		mg/kg	0.0562	0.00421	1
2,4-Dinitrotoluene	ND		mg/kg	0.0562	0.00394	1
Diethylphthalate	ND		mg/kg	0.0562	0.00575	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0562	0.00542	1
4-Nitroaniline	ND		mg/kg	0.338	0.00759	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.338	0.108	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0562	0.00395	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0562	0.00529	1
Hexachlorobenzene	ND		mg/kg	0.0562	0.00548	1
Pentachlorophenol	ND		mg/kg	0.338	0.101	1
Di-n-butylphthalate	ND		mg/kg	0.0562	0.00536	1
Butylbenzylphthalate	0.0168	J	mg/kg	0.0562	0.0114	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.112	0.00960	1
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.0562	0.0147	1
Di-n-octylphthalate	ND		mg/kg	0.112	0.0233	1
Carbazole	ND		mg/kg	0.0562	0.00359	1
Atrazine	ND		mg/kg	0.0562	0.00488	1
Benzaldehyde	0.0557	J	mg/kg	0.0562	0.0142	1
Caprolactam	0.0125	J	mg/kg	0.112	0.00826	1
Biphenyl	ND		mg/kg	0.0562	0.00591	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02 Date Collected: 08/14/24 10:50

Client ID: VC-10 (14.5'-17') Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	3.08	J	mg/kg			1
Unknown Alkane	0.0866	J	mg/kg			1
Unknown	0.0844	J	mg/kg			1
Unknown Organic Acid	0.546	J	mg/kg			1
Unknown	0.111	J	mg/kg			1
Unknown	0.0922	J	mg/kg			1
Unknown	0.181	J	mg/kg			1
Unknown Alkane	0.186	J	mg/kg			1
Unknown	0.100	J	mg/kg			1
Unknown	0.137	J	mg/kg			1
Unknown Alkane	0.498	J	mg/kg			1
Friedelan-3-one	0.255	NJ	mg/kg			1
Unknown	0.0810	J	mg/kg			1
Unknown	0.109	J	mg/kg			1
Unknown	0.163	J	mg/kg			1
Unknown	0.451	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	63		30-130
Phenol-d5	57		30-130
Nitrobenzene-d5	64		30-130
2-Fluorophenol	53		30-130
2,4,6-Tribromophenol	55		30-130
Terphenyl-d14	70		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/25/24 20:23
Analyst: MC
Percent Solids: 59%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00124	J	mg/kg	0.00675	0.00060	1
Acenaphthylene	ND		mg/kg	0.00675	0.00045	1
Acenaphthene	0.00167	J	mg/kg	0.00675	0.00075	1
Fluorene	0.00150	J	mg/kg	0.00675	0.00045	1
Phenanthrene	0.00288	J	mg/kg	0.00675	0.00079	1
Anthracene	ND		mg/kg	0.00675	0.00083	1
Fluoranthene	0.00207	J	mg/kg	0.00675	0.00124	1
Pyrene	0.00125	J	mg/kg	0.00675	0.00068	1
Benz(a)anthracene	ND		mg/kg	0.00675	0.00180	1
Chrysene	0.00088	J	mg/kg	0.00675	0.00059	1
Benzo(b)fluoranthene	0.00114	J	mg/kg	0.00675	0.00070	1
Benzo(k)fluoranthene	ND		mg/kg	0.00675	0.00069	1
Benzo(a)pyrene	ND		mg/kg	0.00675	0.00079	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00675	0.00192	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00675	0.00069	1
Benzo(ghi)perylene	0.00085	J	mg/kg	0.00675	0.00055	1
2-Methylnaphthalene	ND		mg/kg	0.00675	0.00083	1
2-Chloronaphthalene	ND		mg/kg	0.00675	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	83		30-130
Pyrene-d10	91		30-130
Benzo(b)fluoranthene-d12	92		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/06/24 21:51
Analyst: DB
Percent Solids: 79%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0410	0.00389	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0410	0.00752	1
2-Chlorophenol	ND		mg/kg	0.0410	0.00270	1
2-Methylphenol	ND		mg/kg	0.0410	0.00352	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0410	0.00683	1
Acetophenone	ND		mg/kg	0.0410	0.00516	1
4-Methylphenol	ND		mg/kg	0.0410	0.00536	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0410	0.00697	1
Hexachloroethane	ND		mg/kg	0.0410	0.00685	1
Nitrobenzene	ND		mg/kg	0.0410	0.00427	1
Isophorone	ND		mg/kg	0.0410	0.00449	1
2-Nitrophenol	ND		mg/kg	0.0410	0.00442	1
2,4-Dimethylphenol	ND		mg/kg	0.0410	0.00675	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0410	0.00412	1
2,4-Dichlorophenol	ND		mg/kg	0.0410	0.00440	1
4-Chloroaniline	ND		mg/kg	0.0410	0.00374	1
Hexachlorobutadiene	ND		mg/kg	0.0410	0.00795	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0410	0.00592	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0410	0.00390	1
Hexachlorocyclopentadiene	ND		mg/kg	0.246	0.0449	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0410	0.00366	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0410	0.00488	1
2-Nitroaniline	ND		mg/kg	0.0410	0.00662	1
Dimethylphthalate	ND		mg/kg	0.0410	0.00320	1
2,6-Dinitrotoluene	ND		mg/kg	0.0410	0.0106	1
3-Nitroaniline	ND		mg/kg	0.0819	0.00430	1
2,4-Dinitrophenol	ND		mg/kg	0.246	0.0698	1
4-Nitrophenol	ND		mg/kg	0.680	0.225	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03 Date Collected: 08/15/24 10:00

Client ID: VC-09 (0-15.2') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0410	0.00709	1
Dibenzofuran	ND		mg/kg	0.0410	0.00306	1
2,4-Dinitrotoluene	ND		mg/kg	0.0410	0.00287	1
Diethylphthalate	ND		mg/kg	0.0410	0.00419	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0410	0.00395	1
4-Nitroaniline	ND		mg/kg	0.246	0.00553	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.246	0.0787	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0410	0.00288	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0410	0.00385	1
Hexachlorobenzene	ND		mg/kg	0.0410	0.00399	1
Pentachlorophenol	ND		mg/kg	0.246	0.0737	1
Di-n-butylphthalate	ND		mg/kg	0.0410	0.00390	1
Butylbenzylphthalate	ND		mg/kg	0.0410	0.00828	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.0819	0.00699	1
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.0410	0.0107	1
Di-n-octylphthalate	ND		mg/kg	0.0819	0.0170	1
Carbazole	ND		mg/kg	0.0410	0.00261	1
Atrazine	ND		mg/kg	0.0410	0.00356	1
Benzaldehyde	ND		mg/kg	0.0410	0.0103	1
Caprolactam	0.00885	J	mg/kg	0.0819	0.00601	1
Biphenyl	ND		mg/kg	0.0410	0.00430	1

Tentatively Identified Compounds				
Total TIC Compounds	0.495	J	mg/kg	1
Unknown	0.0828	J	mg/kg	1
Unknown	0.0819	J	mg/kg	1
Unknown	0.128	J	mg/kg	1
Unknown	0.0860	J	mg/kg	1
Unknown	0.116	J	mg/kg	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03 Date Collected: 08/15/24 10:00

Client ID: VC-09 (0-15.2') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	62		30-130
Phenol-d5	60		30-130
Nitrobenzene-d5	63		30-130
2-Fluorophenol	57		30-130
2,4,6-Tribromophenol	63		30-130
Terphenyl-d14	77		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/25/24 20:55
Analyst: MC
Percent Solids: 79%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00092	J	mg/kg	0.00474	0.00042	1
Acenaphthylene	ND		mg/kg	0.00474	0.00031	1
Acenaphthene	0.00062	J	mg/kg	0.00474	0.00053	1
Fluorene	ND		mg/kg	0.00474	0.00031	1
Phenanthrene	0.00096	J	mg/kg	0.00474	0.00055	1
Anthracene	ND		mg/kg	0.00474	0.00058	1
Fluoranthene	ND		mg/kg	0.00474	0.00086	1
Pyrene	ND		mg/kg	0.00474	0.00048	1
Benz(a)anthracene	ND		mg/kg	0.00474	0.00126	1
Chrysene	ND		mg/kg	0.00474	0.00041	1
Benzo(b)fluoranthene	ND		mg/kg	0.00474	0.00049	1
Benzo(k)fluoranthene	ND		mg/kg	0.00474	0.00048	1
Benzo(a)pyrene	ND		mg/kg	0.00474	0.00055	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00474	0.00135	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00474	0.00048	1
Benzo(ghi)perylene	ND		mg/kg	0.00474	0.00039	1
2-Methylnaphthalene	0.00061	J	mg/kg	0.00474	0.00058	1
2-Chloronaphthalene	ND		mg/kg	0.00474	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	69		30-130
Pyrene-d10	77		30-130
Benzo(b)fluoranthene-d12	79		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/06/24 23:19
Analyst: DB
Percent Solids: 45%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0726	0.00690	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0726	0.0133	1
2-Chlorophenol	ND		mg/kg	0.0726	0.00479	1
2-Methylphenol	ND		mg/kg	0.0726	0.00624	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0726	0.0121	1
Acetophenone	0.00958	J	mg/kg	0.0726	0.00915	1
4-Methylphenol	ND		mg/kg	0.0726	0.00950	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0726	0.0124	1
Hexachloroethane	ND		mg/kg	0.0726	0.0121	1
Nitrobenzene	ND		mg/kg	0.0726	0.00756	1
Isophorone	ND		mg/kg	0.0726	0.00796	1
2-Nitrophenol	ND		mg/kg	0.0726	0.00783	1
2,4-Dimethylphenol	ND		mg/kg	0.0726	0.0120	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0726	0.00730	1
2,4-Dichlorophenol	ND		mg/kg	0.0726	0.00780	1
4-Chloroaniline	ND		mg/kg	0.0726	0.00664	1
Hexachlorobutadiene	ND		mg/kg	0.0726	0.0141	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0726	0.0105	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0726	0.00691	1
Hexachlorocyclopentadiene	ND		mg/kg	0.436	0.0796	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0726	0.00649	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0726	0.00865	1
2-Nitroaniline	ND		mg/kg	0.0726	0.0117	1
Dimethylphthalate	ND		mg/kg	0.0726	0.00566	1
2,6-Dinitrotoluene	ND		mg/kg	0.0726	0.0187	1
3-Nitroaniline	ND		mg/kg	0.145	0.00762	1
2,4-Dinitrophenol	ND		mg/kg	0.436	0.124	1
4-Nitrophenol	ND		mg/kg	1.20	0.399	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04 Date Collected: 08/15/24 10:40

Client ID: VC-09 (15.2'-17') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0726	0.0126	1
Dibenzofuran	ND		mg/kg	0.0726	0.00543	1
2,4-Dinitrotoluene	ND		mg/kg	0.0726	0.00508	1
Diethylphthalate	ND		mg/kg	0.0726	0.00742	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0726	0.00700	1
4-Nitroaniline	ND		mg/kg	0.436	0.00980	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.436	0.139	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0726	0.00510	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0726	0.00682	1
Hexachlorobenzene	ND		mg/kg	0.0726	0.00707	1
Pentachlorophenol	ND		mg/kg	0.436	0.130	1
Di-n-butylphthalate	ND		mg/kg	0.0726	0.00691	1
Butylbenzylphthalate	0.0182	J	mg/kg	0.0726	0.0147	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.145	0.0124	1
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.0726	0.0190	1
Di-n-octylphthalate	ND		mg/kg	0.145	0.0300	1
Carbazole	0.00682	J	mg/kg	0.0726	0.00463	1
Atrazine	ND		mg/kg	0.0726	0.00630	1
Benzaldehyde	0.0290	J	mg/kg	0.0726	0.0183	1
Caprolactam	0.0229	J	mg/kg	0.145	0.0106	1
Biphenyl	ND		mg/kg	0.0726	0.00762	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04 Date Collected: 08/15/24 10:40

Client ID: VC-09 (15.2'-17') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	14.6	J	mg/kg			1
Unknown	1.71	J	mg/kg			1
Unknown	0.666	J	mg/kg			1
Unknown	0.770	J	mg/kg			1
Unknown	0.438	J	mg/kg			1
Unknown	0.669	J	mg/kg			1
Lupan-3-one	0.729	NJ	mg/kg			1
Unknown	0.424	J	mg/kg			1
Unknown	0.576	J	mg/kg			1
Unknown	2.60	J	mg/kg			1
Unknown	0.810	J	mg/kg			1
Unknown	0.536	J	mg/kg			1
Unknown	0.462	J	mg/kg			1
Unknown	0.726	J	mg/kg			1
Unknown	0.896	J	mg/kg			1
Unknown	2.56	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	61		30-130
Phenol-d5	52		30-130
Nitrobenzene-d5	61		30-130
2-Fluorophenol	48		30-130
2,4,6-Tribromophenol	59		30-130
Terphenyl-d14	65		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/26/24 21:07
Analyst: MC
Percent Solids: 45%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00550	J	mg/kg	0.00824	0.00073	1
Acenaphthylene	0.00104	J	mg/kg	0.00824	0.00055	1
Acenaphthene	0.00242	J	mg/kg	0.00824	0.00092	1
Fluorene	0.00151	J	mg/kg	0.00824	0.00055	1
Phenanthrene	0.00604	J	mg/kg	0.00824	0.00097	1
Anthracene	ND		mg/kg	0.00824	0.00102	1
Fluoranthene	0.00259	J	mg/kg	0.00824	0.00151	1
Pyrene	0.00242	J	mg/kg	0.00824	0.00084	1
Benz(a)anthracene	ND		mg/kg	0.00824	0.00220	1
Chrysene	0.00112	J	mg/kg	0.00824	0.00072	1
Benzo(b)fluoranthene	ND		mg/kg	0.00824	0.00085	1
Benzo(k)fluoranthene	ND		mg/kg	0.00824	0.00084	1
Benzo(a)pyrene	ND		mg/kg	0.00824	0.00096	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00824	0.00235	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00824	0.00084	1
Benzo(ghi)perylene	ND		mg/kg	0.00824	0.00067	1
2-Methylnaphthalene	0.00129	J	mg/kg	0.00824	0.00102	1
2-Chloronaphthalene	ND		mg/kg	0.00824	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	63		30-130
Pyrene-d10	80		30-130
Benzo(b)fluoranthene-d12	80		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS

Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E
Analytical Date: 08/30/24 00:28
Analyst: DB

Extraction Method: EPA 3510C
Extraction Date: 08/22/24 21:20

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Bis(2-chloroethyl)ether	ND		ug/l	0.495	0.092	1
Phenol	ND		ug/l	0.495	0.051	1
2-Chlorophenol	ND		ug/l	0.495	0.090	1
Bis(2-chloroisopropyl)ether	ND		ug/l	0.495	0.107	1
2-Methylphenol	ND		ug/l	0.495	0.103	1
Hexachloroethane	ND		ug/l	0.495	0.101	1
n-Nitroso-di-n-propylamine	ND		ug/l	0.495	0.122	1
4-Methylphenol	ND		ug/l	0.495	0.112	1
Nitrobenzene	ND		ug/l	0.495	0.101	1
Isophorone	ND		ug/l	0.495	0.125	1
2-Nitrophenol	ND		ug/l	0.495	0.114	1
2,4-Dimethylphenol	ND		ug/l	1.98	0.239	1
Bis(2-chloroethoxy)methane	ND		ug/l	0.495	0.085	1
2,4-Dichlorophenol	ND		ug/l	0.495	0.099	1
4-Chloroaniline	ND		ug/l	0.495	0.127	1
Hexachlorobutadiene	ND		ug/l	0.495	0.085	1
4-Chloro-3-methylphenol	ND		ug/l	0.495	0.102	1
1,2,4,5-Tetrachlorobenzene	ND		ug/l	0.495	0.079	1
Hexachlorocyclopentadiene	ND		ug/l	0.495	0.151	1
2,4,6-Trichlorophenol	ND		ug/l	0.495	0.150	1
2,4,5-Trichlorophenol	ND		ug/l	0.495	0.090	1
2-Nitroaniline	ND		ug/l	0.495	0.137	1
Dimethylphthalate	ND		ug/l	0.495	0.116	1
2,6-Dinitrotoluene	ND		ug/l	0.495	0.166	1
3-Nitroaniline	ND		ug/l	0.495	0.110	1
2,4-Dinitrophenol	ND		ug/l	4.95	0.721	1
Dibenzofuran	ND		ug/l	0.495	0.090	1
2,4-Dinitrotoluene	ND		ug/l	0.495	0.161	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05 Date Collected: 08/15/24 14:15

Client ID: FB-081524 Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
4-Nitrophenol	ND		ug/l	2.48	0.584	1
2,3,4,6-Tetrachlorophenol	ND		ug/l	0.495	0.142	1
4-Chlorophenyl-phenylether	ND		ug/l	0.495	0.078	1
Diethylphthalate	ND		ug/l	0.495	0.178	1
4-Nitroaniline	ND		ug/l	0.495	0.111	1
4,6-Dinitro-2-methylphenol	ND		ug/l	1.98	0.505	1
n-Nitrosodiphenylamine	ND		ug/l	0.495	0.071	1
4-Bromophenyl-phenylether	ND		ug/l	0.495	0.099	1
Hexachlorobenzene	ND		ug/l	0.495	0.121	1
Pentachlorophenol	ND		ug/l	1.98	0.426	1
Carbazole	ND		ug/l	0.495	0.142	1
Di-n-butylphthalate	ND		ug/l	0.495	0.099	1
Butylbenzylphthalate	ND		ug/l	0.495	0.084	1
3,3'-Dichlorobenzidine	ND		ug/l	0.495	0.191	1
Bis(2-ethylhexyl)phthalate	ND		ug/l	0.495	0.080	1
Di-n-octylphthalate	ND		ug/l	0.990	0.078	1
Acetophenone	ND		ug/l	0.990	0.205	1
Atrazine	ND		ug/l	0.495	0.158	1
Benzaldehyde	ND		ug/l	1.98	0.118	1
Caprolactam	ND		ug/l	1.98	0.122	1
Biphenyl	ND		ug/l	0.495	0.110	1

Tentatively Identified Compounds

Total TIC Compounds	2.31	J	ug/l			1
Unknown Organic Acid	2.31	J	ug/l			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		15-110
Phenol-d5	38		15-110
Nitrobenzene-d5	96		30-130
2-Fluorobiphenyl	90		30-130
2,4,6-Tribromophenol	110		15-110
Terphenyl-d14	104		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS

Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 08/22/24 18:57
Analyst: MC

Extraction Method: EPA 3510C
Extraction Date: 08/18/24 11:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.014		ug/l	0.010	0.002	1
2-Methylnaphthalene	0.002	J	ug/l	0.010	0.001	1
2-Chloronaphthalene	ND		ug/l	0.010	0.002	1
Acenaphthylene	ND		ug/l	0.010	0.002	1
Acenaphthene	ND		ug/l	0.010	0.002	1
Fluorene	ND		ug/l	0.010	0.002	1
Phenanthrene	0.004	J	ug/l	0.010	0.002	1
Anthracene	ND		ug/l	0.010	0.002	1
Fluoranthene	ND		ug/l	0.010	0.001	1
Pyrene	ND		ug/l	0.010	0.002	1
Benz(a)anthracene	ND		ug/l	0.010	0.002	1
Chrysene	ND		ug/l	0.010	0.001	1
Benzo(b)fluoranthene	ND		ug/l	0.010	0.001	1
Benzo(k)fluoranthene	ND		ug/l	0.010	0.001	1
Benzo(a)pyrene	ND		ug/l	0.010	0.001	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.010	0.001	1
Dibenz(a,h)anthracene	ND		ug/l	0.010	0.001	1
Benzo(ghi)perylene	ND		ug/l	0.010	0.001	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	67		30-130
Pyrene-d10	72		30-130
Benzo(b)fluoranthene-d12	70		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/06/24 23:48
Analyst: DB
Percent Solids: 66%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0493	0.00468	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0493	0.00905	1
2-Chlorophenol	ND		mg/kg	0.0493	0.00325	1
2-Methylphenol	ND		mg/kg	0.0493	0.00424	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0493	0.00822	1
Acetophenone	ND		mg/kg	0.0493	0.00621	1
4-Methylphenol	ND		mg/kg	0.0493	0.00645	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0493	0.00839	1
Hexachloroethane	ND		mg/kg	0.0493	0.00824	1
Nitrobenzene	ND		mg/kg	0.0493	0.00514	1
Isophorone	ND		mg/kg	0.0493	0.00540	1
2-Nitrophenol	ND		mg/kg	0.0493	0.00531	1
2,4-Dimethylphenol	ND		mg/kg	0.0493	0.00812	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0493	0.00496	1
2,4-Dichlorophenol	ND		mg/kg	0.0493	0.00529	1
4-Chloroaniline	ND		mg/kg	0.0493	0.00450	1
Hexachlorobutadiene	ND		mg/kg	0.0493	0.00956	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0493	0.00712	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0493	0.00469	1
Hexachlorocyclopentadiene	ND		mg/kg	0.296	0.0540	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0493	0.00441	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0493	0.00588	1
2-Nitroaniline	ND		mg/kg	0.0493	0.00797	1
Dimethylphthalate	ND		mg/kg	0.0493	0.00384	1
2,6-Dinitrotoluene	ND		mg/kg	0.0493	0.0127	1
3-Nitroaniline	ND		mg/kg	0.0986	0.00518	1
2,4-Dinitrophenol	ND		mg/kg	0.296	0.0840	1
4-Nitrophenol	ND		mg/kg	0.818	0.271	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06 Date Collected: 08/16/24 09:15

Client ID: VC-08 (0-11.8') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0493	0.00853	1
Dibenzofuran	ND		mg/kg	0.0493	0.00369	1
2,4-Dinitrotoluene	ND		mg/kg	0.0493	0.00345	1
Diethylphthalate	ND		mg/kg	0.0493	0.00504	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0493	0.00475	1
4-Nitroaniline	ND		mg/kg	0.296	0.00666	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.296	0.0946	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0493	0.00346	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0493	0.00463	1
Hexachlorobenzene	ND		mg/kg	0.0493	0.00480	1
Pentachlorophenol	ND		mg/kg	0.296	0.0886	1
Di-n-butylphthalate	ND		mg/kg	0.0493	0.00469	1
Butylbenzylphthalate	0.0100	J	mg/kg	0.0493	0.00996	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.0986	0.00841	1
Bis(2-ethylhexyl)phthalate	0.0291	J	mg/kg	0.0493	0.0129	1
Di-n-octylphthalate	ND		mg/kg	0.0986	0.0204	1
Carbazole	ND		mg/kg	0.0493	0.00314	1
Atrazine	ND		mg/kg	0.0493	0.00428	1
Benzaldehyde	0.0370	J	mg/kg	0.0493	0.0124	1
Caprolactam	0.0128	J	mg/kg	0.0986	0.00724	1
Biphenyl	ND		mg/kg	0.0493	0.00518	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06 Date Collected: 08/16/24 09:15

Client ID: VC-08 (0-11.8') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	2.96	J	mg/kg			1
Stigmastanol	0.0818	NJ	mg/kg			1
Unknown	0.128	J	mg/kg			1
Unknown	0.730	J	mg/kg			1
Unknown Alkane	0.0996	J	mg/kg			1
Unknown	0.290	J	mg/kg			1
Friedelan-3-one	0.162	NJ	mg/kg			1
Unknown	0.0858	J	mg/kg			1
Unknown	0.129	J	mg/kg			1
Unknown Alkane	0.153	J	mg/kg			1
Unknown	0.0966	J	mg/kg			1
Unknown	0.109	J	mg/kg			1
Unknown	0.151	J	mg/kg			1
Unknown	0.217	J	mg/kg			1
Unknown Alkane	0.430	J	mg/kg			1
Unknown	0.0946	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	70		30-130
Phenol-d5	64		30-130
Nitrobenzene-d5	69		30-130
2-Fluorophenol	59		30-130
2,4,6-Tribromophenol	71		30-130
Terphenyl-d14	79		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/26/24 21:39
Analyst: MC
Percent Solids: 66%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00079	J	mg/kg	0.00596	0.00053	1
Acenaphthylene	ND		mg/kg	0.00596	0.00040	1
Acenaphthene	0.00166	J	mg/kg	0.00596	0.00066	1
Fluorene	0.00097	J	mg/kg	0.00596	0.00039	1
Phenanthrene	0.00189	J	mg/kg	0.00596	0.00070	1
Anthracene	ND		mg/kg	0.00596	0.00074	1
Fluoranthene	0.00120	J	mg/kg	0.00596	0.00109	1
Pyrene	0.00077	J	mg/kg	0.00596	0.00060	1
Benz(a)anthracene	ND		mg/kg	0.00596	0.00159	1
Chrysene	ND		mg/kg	0.00596	0.00052	1
Benzo(b)fluoranthene	ND		mg/kg	0.00596	0.00062	1
Benzo(k)fluoranthene	ND		mg/kg	0.00596	0.00061	1
Benzo(a)pyrene	ND		mg/kg	0.00596	0.00069	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00596	0.00170	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00596	0.00061	1
Benzo(ghi)perylene	ND		mg/kg	0.00596	0.00049	1
2-Methylnaphthalene	ND		mg/kg	0.00596	0.00074	1
2-Chloronaphthalene	ND		mg/kg	0.00596	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	41		30-130
Pyrene-d10	50		30-130
Benzo(b)fluoranthene-d12	51		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/07/24 00:17
Analyst: DB
Percent Solids: 90%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0368	0.00350	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0368	0.00676	1
2-Chlorophenol	ND		mg/kg	0.0368	0.00243	1
2-Methylphenol	ND		mg/kg	0.0368	0.00317	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0368	0.00614	1
Acetophenone	ND		mg/kg	0.0368	0.00464	1
4-Methylphenol	ND		mg/kg	0.0368	0.00482	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0368	0.00627	1
Hexachloroethane	ND		mg/kg	0.0368	0.00616	1
Nitrobenzene	ND		mg/kg	0.0368	0.00384	1
Isophorone	ND		mg/kg	0.0368	0.00404	1
2-Nitrophenol	ND		mg/kg	0.0368	0.00397	1
2,4-Dimethylphenol	ND		mg/kg	0.0368	0.00607	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0368	0.00370	1
2,4-Dichlorophenol	ND		mg/kg	0.0368	0.00396	1
4-Chloroaniline	0.00383	J	mg/kg	0.0368	0.00337	1
Hexachlorobutadiene	ND		mg/kg	0.0368	0.00714	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0368	0.00532	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0368	0.00351	1
Hexachlorocyclopentadiene	ND		mg/kg	0.221	0.0404	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0368	0.00329	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0368	0.00439	1
2-Nitroaniline	ND		mg/kg	0.0368	0.00595	1
Dimethylphthalate	ND		mg/kg	0.0368	0.00287	1
2,6-Dinitrotoluene	ND		mg/kg	0.0368	0.00950	1
3-Nitroaniline	ND		mg/kg	0.0736	0.00387	1
2,4-Dinitrophenol	ND		mg/kg	0.221	0.0628	1
4-Nitrophenol	ND		mg/kg	0.611	0.202	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07 Date Collected: 08/16/24 09:40

Client ID: VC-08 (11.8'-13.9') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0368	0.00637	1
Dibenzofuran	ND		mg/kg	0.0368	0.00275	1
2,4-Dinitrotoluene	ND		mg/kg	0.0368	0.00258	1
Diethylphthalate	ND		mg/kg	0.0368	0.00376	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0368	0.00355	1
4-Nitroaniline	ND		mg/kg	0.221	0.00497	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.221	0.0707	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0368	0.00258	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0368	0.00346	1
Hexachlorobenzene	ND		mg/kg	0.0368	0.00359	1
Pentachlorophenol	ND		mg/kg	0.221	0.0662	1
Di-n-butylphthalate	ND		mg/kg	0.0368	0.00351	1
Butylbenzylphthalate	ND		mg/kg	0.0368	0.00744	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.0736	0.00628	1
Bis(2-ethylhexyl)phthalate	0.0213	J	mg/kg	0.0368	0.00965	1
Di-n-octylphthalate	ND		mg/kg	0.0736	0.0152	1
Carbazole	ND		mg/kg	0.0368	0.00235	1
Atrazine	ND		mg/kg	0.0368	0.00320	1
Benzaldehyde	ND		mg/kg	0.0368	0.00928	1
Caprolactam	0.00670	J	mg/kg	0.0736	0.00541	1
Biphenyl	ND		mg/kg	0.0368	0.00387	1

Tentatively Identified Compounds

No Tentatively Identified Compounds	ND	mg/kg	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	63		30-130
Phenol-d5	61		30-130
Nitrobenzene-d5	65		30-130
2-Fluorophenol	58		30-130
2,4,6-Tribromophenol	69		30-130
Terphenyl-d14	81		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/26/24 22:11
Analyst: MC
Percent Solids: 90%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00052	J	mg/kg	0.00428	0.00038	1
Acenaphthylene	0.00053	J	mg/kg	0.00428	0.00028	1
Acenaphthene	0.00156	J	mg/kg	0.00428	0.00047	1
Fluorene	0.00098	J	mg/kg	0.00428	0.00028	1
Phenanthrene	0.00238	J	mg/kg	0.00428	0.00050	1
Anthracene	0.00161	J	mg/kg	0.00428	0.00053	1
Fluoranthene	0.00182	J	mg/kg	0.00428	0.00078	1
Pyrene	0.00238	J	mg/kg	0.00428	0.00043	1
Benz(a)anthracene	ND		mg/kg	0.00428	0.00114	1
Chrysene	0.00041	J	mg/kg	0.00428	0.00037	1
Benzo(b)fluoranthene	ND		mg/kg	0.00428	0.00044	1
Benzo(k)fluoranthene	ND		mg/kg	0.00428	0.00044	1
Benzo(a)pyrene	ND		mg/kg	0.00428	0.00050	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00428	0.00122	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00428	0.00044	1
Benzo(ghi)perylene	ND		mg/kg	0.00428	0.00035	1
2-Methylnaphthalene	ND		mg/kg	0.00428	0.00053	1
2-Chloronaphthalene	ND		mg/kg	0.00428	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	79		30-130
Pyrene-d10	89		30-130
Benzo(b)fluoranthene-d12	90		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/07/24 00:47
Analyst: DB
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0580	0.00552	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0580	0.0106	1
2-Chlorophenol	ND		mg/kg	0.0580	0.00383	1
2-Methylphenol	ND		mg/kg	0.0580	0.00499	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0580	0.00968	1
Acetophenone	ND		mg/kg	0.0580	0.00731	1
4-Methylphenol	ND		mg/kg	0.0580	0.00759	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0580	0.00988	1
Hexachloroethane	ND		mg/kg	0.0580	0.00971	1
Nitrobenzene	ND		mg/kg	0.0580	0.00605	1
Isophorone	ND		mg/kg	0.0580	0.00636	1
2-Nitrophenol	ND		mg/kg	0.0580	0.00626	1
2,4-Dimethylphenol	ND		mg/kg	0.0580	0.00957	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0580	0.00584	1
2,4-Dichlorophenol	ND		mg/kg	0.0580	0.00623	1
4-Chloroaniline	ND		mg/kg	0.0580	0.00531	1
Hexachlorobutadiene	ND		mg/kg	0.0580	0.0113	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0580	0.00838	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0580	0.00553	1
Hexachlorocyclopentadiene	ND		mg/kg	0.348	0.0636	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0580	0.00519	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0580	0.00692	1
2-Nitroaniline	ND		mg/kg	0.0580	0.00938	1
Dimethylphthalate	ND		mg/kg	0.0580	0.00453	1
2,6-Dinitrotoluene	ND		mg/kg	0.0580	0.0150	1
3-Nitroaniline	ND		mg/kg	0.116	0.00610	1
2,4-Dinitrophenol	ND		mg/kg	0.348	0.0989	1
4-Nitrophenol	ND		mg/kg	0.964	0.319	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08 Date Collected: 08/16/24 09:50

Client ID: VC-08 (13.9'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0580	0.0100	1
Dibenzofuran	ND		mg/kg	0.0580	0.00434	1
2,4-Dinitrotoluene	ND		mg/kg	0.0580	0.00406	1
Diethylphthalate	ND		mg/kg	0.0580	0.00593	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0580	0.00560	1
4-Nitroaniline	ND		mg/kg	0.348	0.00784	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.348	0.111	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0580	0.00408	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0580	0.00546	1
Hexachlorobenzene	ND		mg/kg	0.0580	0.00565	1
Pentachlorophenol	ND		mg/kg	0.348	0.104	1
Di-n-butylphthalate	ND		mg/kg	0.0580	0.00553	1
Butylbenzylphthalate	0.0181	J	mg/kg	0.0580	0.0117	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.116	0.00990	1
Bis(2-ethylhexyl)phthalate	0.0344	J	mg/kg	0.0580	0.0152	1
Di-n-octylphthalate	ND		mg/kg	0.116	0.0240	1
Carbazole	ND		mg/kg	0.0580	0.00370	1
Atrazine	ND		mg/kg	0.0580	0.00504	1
Benzaldehyde	0.0432	J	mg/kg	0.0580	0.0146	1
Caprolactam	0.0146	J	mg/kg	0.116	0.00852	1
Biphenyl	ND		mg/kg	0.0580	0.00610	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08 Date Collected: 08/16/24 09:50

Client ID: VC-08 (13.9'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	3.43	J	mg/kg			1
Unknown	0.164	J	mg/kg			1
Unknown Alkane	0.178	J	mg/kg			1
Friedelan-3-one	0.332	NJ	mg/kg			1
Unknown	0.310	J	mg/kg			1
Unknown	0.571	J	mg/kg			1
Unknown	0.203	J	mg/kg			1
Unknown	0.150	J	mg/kg			1
Unknown	0.116	J	mg/kg			1
Unknown	0.123	J	mg/kg			1
Unknown Alkane	0.125	J	mg/kg			1
Unknown	0.153	J	mg/kg			1
Unknown	0.328	J	mg/kg			1
Unknown Alkane	0.430	J	mg/kg			1
Unknown	0.128	J	mg/kg			1
Unknown Alkene	0.121	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	63		30-130
Phenol-d5	57		30-130
Nitrobenzene-d5	62		30-130
2-Fluorophenol	53		30-130
2,4,6-Tribromophenol	56		30-130
Terphenyl-d14	73		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/26/24 22:43
Analyst: MC
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00122	J	mg/kg	0.00666	0.00059	1
Acenaphthylene	ND		mg/kg	0.00666	0.00044	1
Acenaphthene	0.00150	J	mg/kg	0.00666	0.00074	1
Fluorene	0.00102	J	mg/kg	0.00666	0.00044	1
Phenanthrene	0.00170	J	mg/kg	0.00666	0.00078	1
Anthracene	ND		mg/kg	0.00666	0.00082	1
Fluoranthene	0.00170	J	mg/kg	0.00666	0.00122	1
Pyrene	0.00119	J	mg/kg	0.00666	0.00067	1
Benz(a)anthracene	ND		mg/kg	0.00666	0.00178	1
Chrysene	0.00078	J	mg/kg	0.00666	0.00058	1
Benzo(b)fluoranthene	0.00187	J	mg/kg	0.00666	0.00069	1
Benzo(k)fluoranthene	ND		mg/kg	0.00666	0.00068	1
Benzo(a)pyrene	ND		mg/kg	0.00666	0.00077	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00666	0.00190	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00666	0.00068	1
Benzo(ghi)perylene	ND		mg/kg	0.00666	0.00054	1
2-Methylnaphthalene	ND		mg/kg	0.00666	0.00082	1
2-Chloronaphthalene	ND		mg/kg	0.00666	0.00052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	44		30-130
Pyrene-d10	53		30-130
Benzo(b)fluoranthene-d12	56		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/07/24 01:16
Analyst: DB
Percent Solids: 74%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0446	0.00424	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0446	0.00819	1
2-Chlorophenol	ND		mg/kg	0.0446	0.00294	1
2-Methylphenol	ND		mg/kg	0.0446	0.00384	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0446	0.00744	1
Acetophenone	0.00642	J	mg/kg	0.0446	0.00562	1
4-Methylphenol	0.00999	J	mg/kg	0.0446	0.00583	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0446	0.00759	1
Hexachloroethane	ND		mg/kg	0.0446	0.00746	1
Nitrobenzene	ND		mg/kg	0.0446	0.00465	1
Isophorone	ND		mg/kg	0.0446	0.00489	1
2-Nitrophenol	ND		mg/kg	0.0446	0.00481	1
2,4-Dimethylphenol	ND		mg/kg	0.0446	0.00735	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0446	0.00449	1
2,4-Dichlorophenol	ND		mg/kg	0.0446	0.00479	1
4-Chloroaniline	ND		mg/kg	0.0446	0.00408	1
Hexachlorobutadiene	ND		mg/kg	0.0446	0.00865	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0446	0.00644	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0446	0.00424	1
Hexachlorocyclopentadiene	ND		mg/kg	0.268	0.0489	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0446	0.00399	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0446	0.00532	1
2-Nitroaniline	ND		mg/kg	0.0446	0.00721	1
Dimethylphthalate	ND		mg/kg	0.0446	0.00348	1
2,6-Dinitrotoluene	ND		mg/kg	0.0446	0.0115	1
3-Nitroaniline	ND		mg/kg	0.0892	0.00468	1
2,4-Dinitrophenol	ND		mg/kg	0.268	0.0760	1
4-Nitrophenol	ND		mg/kg	0.740	0.245	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09 Date Collected: 08/16/24 13:20

Client ID: VC-07 (0-10') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0446	0.00772	1
Dibenzofuran	0.0102	J	mg/kg	0.0446	0.00334	1
2,4-Dinitrotoluene	ND		mg/kg	0.0446	0.00312	1
Diethylphthalate	ND		mg/kg	0.0446	0.00456	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0446	0.00430	1
4-Nitroaniline	ND		mg/kg	0.268	0.00602	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.268	0.0856	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0446	0.00313	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0446	0.00419	1
Hexachlorobenzene	ND		mg/kg	0.0446	0.00434	1
Pentachlorophenol	ND		mg/kg	0.268	0.0802	1
Di-n-butylphthalate	0.00437	J	mg/kg	0.0446	0.00424	1
Butylbenzylphthalate	0.0105	J	mg/kg	0.0446	0.00901	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.0892	0.00761	1
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.0446	0.0117	1
Di-n-octylphthalate	ND		mg/kg	0.0892	0.0185	1
Carbazole	0.00366	J	mg/kg	0.0446	0.00284	1
Atrazine	ND		mg/kg	0.0446	0.00387	1
Benzaldehyde	0.0159	J	mg/kg	0.0446	0.0112	1
Caprolactam	ND		mg/kg	0.0892	0.00655	1
Biphenyl	0.00767	J	mg/kg	0.0446	0.00468	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09 Date Collected: 08/16/24 13:20

Client ID: VC-07 (0-10') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	2.33	J	mg/kg			1
Unknown	0.138	J	mg/kg			1
Toluene	0.228	NJ	mg/kg			1
Unknown	0.118	J	mg/kg			1
Unknown Alkane	0.133	J	mg/kg			1
Unknown	0.168	J	mg/kg			1
Unknown	0.107	J	mg/kg			1
Unknown	0.232	J	mg/kg			1
Unknown Alkane	0.0830	J	mg/kg			1
Unknown	0.0722	J	mg/kg			1
Unknown Alkane	0.144	J	mg/kg			1
Unknown	0.205	J	mg/kg			1
Unknown	0.340	J	mg/kg			1
Unknown	0.183	J	mg/kg			1
Unknown	0.0794	J	mg/kg			1
Unknown	0.101	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	67		30-130
Phenol-d5	60		30-130
Nitrobenzene-d5	67		30-130
2-Fluorophenol	53		30-130
2,4,6-Tribromophenol	49		30-130
Terphenyl-d14	76		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/26/24 23:14
Analyst: MC
Percent Solids: 74%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.0638		mg/kg	0.00526	0.00047	1
Acenaphthylene	0.00788		mg/kg	0.00526	0.00035	1
Acenaphthene	0.00725		mg/kg	0.00526	0.00058	1
Fluorene	0.0125		mg/kg	0.00526	0.00035	1
Phenanthrene	0.0433		mg/kg	0.00526	0.00062	1
Anthracene	0.0191		mg/kg	0.00526	0.00065	1
Fluoranthene	0.0392		mg/kg	0.00526	0.00096	1
Pyrene	0.0538		mg/kg	0.00526	0.00053	1
Benz(a)anthracene	0.0238		mg/kg	0.00526	0.00140	1
Chrysene	0.0294		mg/kg	0.00526	0.00046	1
Benzo(b)fluoranthene	0.0272		mg/kg	0.00526	0.00054	1
Benzo(k)fluoranthene	0.0224		mg/kg	0.00526	0.00054	1
Benzo(a)pyrene	0.0334		mg/kg	0.00526	0.00061	1
Indeno(1,2,3-cd)pyrene	0.0235		mg/kg	0.00526	0.00150	1
Dibenz(a,h)anthracene	0.00524	J	mg/kg	0.00526	0.00054	1
Benzo(ghi)perylene	0.0329		mg/kg	0.00526	0.00043	1
2-Methylnaphthalene	0.0380		mg/kg	0.00526	0.00065	1
2-Chloronaphthalene	ND		mg/kg	0.00526	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	83		30-130
Pyrene-d10	94		30-130
Benzo(b)fluoranthene-d12	94		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E
Analytical Date: 09/07/24 01:45
Analyst: DB
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Phenol	ND		mg/kg	0.0599	0.00569	1
Bis(2-chloroethyl)ether	ND		mg/kg	0.0599	0.0110	1
2-Chlorophenol	ND		mg/kg	0.0599	0.00395	1
2-Methylphenol	ND		mg/kg	0.0599	0.00515	1
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0599	0.00999	1
Acetophenone	ND		mg/kg	0.0599	0.00755	1
4-Methylphenol	ND		mg/kg	0.0599	0.00784	1
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0599	0.0102	1
Hexachloroethane	ND		mg/kg	0.0599	0.0100	1
Nitrobenzene	ND		mg/kg	0.0599	0.00624	1
Isophorone	ND		mg/kg	0.0599	0.00657	1
2-Nitrophenol	ND		mg/kg	0.0599	0.00646	1
2,4-Dimethylphenol	ND		mg/kg	0.0599	0.00987	1
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0599	0.00603	1
2,4-Dichlorophenol	ND		mg/kg	0.0599	0.00644	1
4-Chloroaniline	ND		mg/kg	0.0599	0.00548	1
Hexachlorobutadiene	ND		mg/kg	0.0599	0.0116	1
4-Chloro-3-methylphenol	ND		mg/kg	0.0599	0.00865	1
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0599	0.00570	1
Hexachlorocyclopentadiene	ND		mg/kg	0.360	0.0657	1
2,4,6-Trichlorophenol	ND		mg/kg	0.0599	0.00536	1
2,4,5-Trichlorophenol	ND		mg/kg	0.0599	0.00714	1
2-Nitroaniline	ND		mg/kg	0.0599	0.00968	1
Dimethylphthalate	ND		mg/kg	0.0599	0.00467	1
2,6-Dinitrotoluene	ND		mg/kg	0.0599	0.0154	1
3-Nitroaniline	ND		mg/kg	0.120	0.00629	1
2,4-Dinitrophenol	ND		mg/kg	0.360	0.102	1
4-Nitrophenol	ND		mg/kg	0.995	0.330	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10 Date Collected: 08/16/24 13:45

Client ID: VC-07 (10'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0599	0.0104	1
Dibenzofuran	ND		mg/kg	0.0599	0.00448	1
2,4-Dinitrotoluene	ND		mg/kg	0.0599	0.00419	1
Diethylphthalate	ND		mg/kg	0.0599	0.00612	1
4-Chlorophenyl-phenylether	ND		mg/kg	0.0599	0.00578	1
4-Nitroaniline	ND		mg/kg	0.360	0.00809	1
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.360	0.115	1
n-Nitrosodiphenylamine	ND		mg/kg	0.0599	0.00421	1
4-Bromophenyl-phenylether	ND		mg/kg	0.0599	0.00563	1
Hexachlorobenzene	ND		mg/kg	0.0599	0.00584	1
Pentachlorophenol	ND		mg/kg	0.360	0.108	1
Di-n-butylphthalate	ND		mg/kg	0.0599	0.00570	1
Butylbenzylphthalate	0.0129	J	mg/kg	0.0599	0.0121	1
3,3'-Dichlorobenzidine	ND		mg/kg	0.120	0.0102	1
Bis(2-ethylhexyl)phthalate	0.0394	J	mg/kg	0.0599	0.0157	1
Di-n-octylphthalate	ND		mg/kg	0.120	0.0248	1
Carbazole	ND		mg/kg	0.0599	0.00382	1
Atrazine	ND		mg/kg	0.0599	0.00520	1
Benzaldehyde	0.0669		mg/kg	0.0599	0.0151	1
Caprolactam	0.0145	J	mg/kg	0.120	0.00880	1
Biphenyl	ND		mg/kg	0.0599	0.00629	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10 Date Collected: 08/16/24 13:45

Client ID: VC-07 (10'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Mansfield Lab						
Tentatively Identified Compounds						
Total TIC Compounds	2.87	J	mg/kg			1
Friedelan-3-one	0.229	NJ	mg/kg			1
Unknown	0.107	J	mg/kg			1
Unknown Organic Acid	0.157	J	mg/kg			1
Unknown Alkane	0.200	J	mg/kg			1
Unknown	0.150	J	mg/kg			1
Unknown	0.249	J	mg/kg			1
Unknown	0.104	J	mg/kg			1
Unknown	0.127	J	mg/kg			1
Unknown	0.115	J	mg/kg			1
Unknown	0.211	J	mg/kg			1
Unknown	0.355	J	mg/kg			1
Unknown Alkane	0.550	J	mg/kg			1
Unknown	0.0959	J	mg/kg			1
Unknown	0.0959	J	mg/kg			1
Unknown Alkane	0.123	J	mg/kg			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	70		30-130
Phenol-d5	63		30-130
Nitrobenzene-d5	69		30-130
2-Fluorophenol	59		30-130
2,4,6-Tribromophenol	65		30-130
Terphenyl-d14	81		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM
Analytical Date: 08/26/24 23:46
Analyst: MC
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs by GC/MS-SIM - Mansfield Lab						
Naphthalene	0.00372	J	mg/kg	0.00723	0.00064	1
Acenaphthylene	0.00074	J	mg/kg	0.00723	0.00048	1
Acenaphthene	0.00368	J	mg/kg	0.00723	0.00081	1
Fluorene	0.00183	J	mg/kg	0.00723	0.00048	1
Phenanthrene	0.00458	J	mg/kg	0.00723	0.00085	1
Anthracene	0.00161	J	mg/kg	0.00723	0.00089	1
Fluoranthene	0.00368	J	mg/kg	0.00723	0.00132	1
Pyrene	0.00496	J	mg/kg	0.00723	0.00073	1
Benz(a)anthracene	ND		mg/kg	0.00723	0.00193	1
Chrysene	0.00258	J	mg/kg	0.00723	0.00063	1
Benzo(b)fluoranthene	0.00221	J	mg/kg	0.00723	0.00075	1
Benzo(k)fluoranthene	0.00135	J	mg/kg	0.00723	0.00074	1
Benzo(a)pyrene	ND		mg/kg	0.00723	0.00084	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00723	0.00206	1
Dibenz(a,h)anthracene	ND		mg/kg	0.00723	0.00074	1
Benzo(ghi)perylene	0.00230	J	mg/kg	0.00723	0.00059	1
2-Methylnaphthalene	0.00220	J	mg/kg	0.00723	0.00089	1
2-Chloronaphthalene	ND		mg/kg	0.00723	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	47		30-130
Pyrene-d10	53		30-130
Benzo(b)fluoranthene-d12	53		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 08/21/24 15:36
Analyst: MC

Extraction Method: EPA 3510C
Extraction Date: 08/18/24 11:05

Parameter	Result	Qualifier	Units	RL	MDL
PAHs by GC/MS-SIM - Mansfield Lab for sample(s): 05 Batch: WG1960671-1					
Naphthalene	ND		ug/l	0.010	0.002
2-Methylnaphthalene	ND		ug/l	0.010	0.001
2-Chloronaphthalene	ND		ug/l	0.010	0.002
Acenaphthylene	ND		ug/l	0.010	0.002
Acenaphthene	ND		ug/l	0.010	0.002
Fluorene	ND		ug/l	0.010	0.002
Phenanthrene	0.003	J	ug/l	0.010	0.002
Anthracene	ND		ug/l	0.010	0.002
Fluoranthene	ND		ug/l	0.010	0.001
Pyrene	ND		ug/l	0.010	0.002
Benz(a)anthracene	ND		ug/l	0.010	0.002
Chrysene	ND		ug/l	0.010	0.001
Benzo(b)fluoranthene	ND		ug/l	0.010	0.001
Benzo(k)fluoranthene	ND		ug/l	0.010	0.001
Benzo(a)pyrene	ND		ug/l	0.010	0.001
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.010	0.001
Dibenz(a,h)anthracene	ND		ug/l	0.010	0.001
Benzo(ghi)perylene	ND		ug/l	0.010	0.001

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	72		30-130
Pyrene-d10	80		30-130
Benzo(b)fluoranthene-d12	85		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 08/25/24 14:00
Analyst: MC

Extraction Method: EPA 3570
Extraction Date: 08/21/24 18:32
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL
PAHs by GC/MS-SIM - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962079-1					
Naphthalene	0.00052	J	mg/kg	0.00400	0.00035
Acenaphthylene	ND		mg/kg	0.00400	0.00026
Acenaphthene	ND		mg/kg	0.00400	0.00044
Fluorene	ND		mg/kg	0.00400	0.00026
Phenanthrene	0.00055	J	mg/kg	0.00400	0.00047
Anthracene	ND		mg/kg	0.00400	0.00049
Fluoranthene	ND		mg/kg	0.00400	0.00073
Pyrene	ND		mg/kg	0.00400	0.00040
Benz(a)anthracene	ND		mg/kg	0.00400	0.00107
Chrysene	ND		mg/kg	0.00400	0.00035
Benzo(b)fluoranthene	ND		mg/kg	0.00400	0.00041
Benzo(k)fluoranthene	ND		mg/kg	0.00400	0.00041
Benzo(a)pyrene	ND		mg/kg	0.00400	0.00046
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.00400	0.00114
Dibenz(a,h)anthracene	ND		mg/kg	0.00400	0.00041
Benzo(ghi)perylene	ND		mg/kg	0.00400	0.00033
2-Methylnaphthalene	ND		mg/kg	0.00400	0.00049
2-Chloronaphthalene	ND		mg/kg	0.00400	0.00031

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	91		30-130
Pyrene-d10	105		30-130
Benzo(b)fluoranthene-d12	112		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 09/06/24 17:56
Analyst: DB

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962083-1					
Phenol	ND		mg/kg	0.0333	0.00317
Bis(2-chloroethyl)ether	ND		mg/kg	0.0333	0.00612
2-Chlorophenol	ND		mg/kg	0.0333	0.00220
2-Methylphenol	ND		mg/kg	0.0333	0.00287
Bis(2-chloroisopropyl)ether	ND		mg/kg	0.0333	0.00556
Acetophenone	ND		mg/kg	0.0333	0.00420
4-Methylphenol	ND		mg/kg	0.0333	0.00436
n-Nitroso-di-n-propylamine	ND		mg/kg	0.0333	0.00567
Hexachloroethane	ND		mg/kg	0.0333	0.00557
Nitrobenzene	ND		mg/kg	0.0333	0.00347
Isophorone	ND		mg/kg	0.0333	0.00365
2-Nitrophenol	ND		mg/kg	0.0333	0.00359
2,4-Dimethylphenol	ND		mg/kg	0.0333	0.00549
Bis(2-chloroethoxy)methane	ND		mg/kg	0.0333	0.00335
2,4-Dichlorophenol	ND		mg/kg	0.0333	0.00358
4-Chloroaniline	ND		mg/kg	0.0333	0.00305
Hexachlorobutadiene	ND		mg/kg	0.0333	0.00647
4-Chloro-3-methylphenol	ND		mg/kg	0.0333	0.00481
1,2,4,5-Tetrachlorobenzene	ND		mg/kg	0.0333	0.00317
Hexachlorocyclopentadiene	ND		mg/kg	0.200	0.0365
2,4,6-Trichlorophenol	ND		mg/kg	0.0333	0.00298
2,4,5-Trichlorophenol	ND		mg/kg	0.0333	0.00397
2-Nitroaniline	ND		mg/kg	0.0333	0.00539
Dimethylphthalate	ND		mg/kg	0.0333	0.00260
2,6-Dinitrotoluene	ND		mg/kg	0.0333	0.00860
3-Nitroaniline	ND		mg/kg	0.0667	0.00350
2,4-Dinitrophenol	ND		mg/kg	0.200	0.0568
4-Nitrophenol	ND		mg/kg	0.553	0.183
2,3,4,6-Tetrachlorophenol	ND		mg/kg	0.0333	0.00577

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 09/06/24 17:56
Analyst: DB

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962083-1					
Dibenzofuran	ND		mg/kg	0.0333	0.00249
2,4-Dinitrotoluene	ND		mg/kg	0.0333	0.00233
Diethylphthalate	ND		mg/kg	0.0333	0.00341
4-Chlorophenyl-phenylether	ND		mg/kg	0.0333	0.00321
4-Nitroaniline	ND		mg/kg	0.200	0.00450
4,6-Dinitro-2-methylphenol	ND		mg/kg	0.200	0.0640
n-Nitrosodiphenylamine	ND		mg/kg	0.0333	0.00234
4-Bromophenyl-phenylether	ND		mg/kg	0.0333	0.00313
Hexachlorobenzene	ND		mg/kg	0.0333	0.00325
Pentachlorophenol	ND		mg/kg	0.200	0.0599
Di-n-butylphthalate	ND		mg/kg	0.0333	0.00317
Butylbenzylphthalate	ND		mg/kg	0.0333	0.00673
3,3'-Dichlorobenzidine	ND		mg/kg	0.0667	0.00569
Bis(2-ethylhexyl)phthalate	ND		mg/kg	0.0333	0.00873
Di-n-octylphthalate	ND		mg/kg	0.0667	0.0138
Carbazole	ND		mg/kg	0.0333	0.00213
Atrazine	ND		mg/kg	0.0333	0.00289
Benzaldehyde	ND		mg/kg	0.0333	0.00840
Caprolactam	ND		mg/kg	0.0667	0.00489
Biphenyl	ND		mg/kg	0.0333	0.00350

Tentatively Identified Compounds

No Tentatively Identified Compounds ND mg/kg

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 09/06/24 17:56
Analyst: DB

Extraction Method: EPA 3570
Extraction Date: 08/21/24 16:19
Cleanup Method: EPA 3640A
Cleanup Date: 08/27/24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962083-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorobiphenyl	60		30-130
Phenol-d5	58		30-130
Nitrobenzene-d5	62		30-130
2-Fluorophenol	55		30-130
2,4,6-Tribromophenol	49		30-130
Terphenyl-d14	73		30-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 08/29/24 18:39
Analyst: DB

Extraction Method: EPA 3510C
Extraction Date: 08/22/24 21:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Mansfield Lab for sample(s): 05 Batch: WG1962819-1					
Bis(2-chloroethyl)ether	ND		ug/l	0.500	0.093
Phenol	ND		ug/l	0.500	0.051
2-Chlorophenol	ND		ug/l	0.500	0.091
Bis(2-chloroisopropyl)ether	ND		ug/l	0.500	0.108
2-Methylphenol	ND		ug/l	0.500	0.104
Hexachloroethane	ND		ug/l	0.500	0.102
n-Nitroso-di-n-propylamine	ND		ug/l	0.500	0.123
4-Methylphenol	ND		ug/l	0.500	0.113
Nitrobenzene	ND		ug/l	0.500	0.102
Isophorone	ND		ug/l	0.500	0.126
2-Nitrophenol	ND		ug/l	0.500	0.115
2,4-Dimethylphenol	ND		ug/l	2.00	0.241
Bis(2-chloroethoxy)methane	ND		ug/l	0.500	0.085
2,4-Dichlorophenol	ND		ug/l	0.500	0.100
4-Chloroaniline	ND		ug/l	0.500	0.128
Hexachlorobutadiene	ND		ug/l	0.500	0.086
4-Chloro-3-methylphenol	ND		ug/l	0.500	0.103
1,2,4,5-Tetrachlorobenzene	ND		ug/l	0.500	0.080
Hexachlorocyclopentadiene	ND		ug/l	0.500	0.153
2,4,6-Trichlorophenol	ND		ug/l	0.500	0.152
2,4,5-Trichlorophenol	ND		ug/l	0.500	0.091
2-Nitroaniline	ND		ug/l	0.500	0.138
Dimethylphthalate	ND		ug/l	0.500	0.117
2,6-Dinitrotoluene	ND		ug/l	0.500	0.168
3-Nitroaniline	ND		ug/l	0.500	0.111
2,4-Dinitrophenol	ND		ug/l	5.00	0.728
Dibenzofuran	ND		ug/l	0.500	0.091
2,4-Dinitrotoluene	ND		ug/l	0.500	0.163
4-Nitrophenol	ND		ug/l	2.50	0.590

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 08/29/24 18:39
Analyst: DB

Extraction Method: EPA 3510C
Extraction Date: 08/22/24 21:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Mansfield Lab for sample(s): 05 Batch: WG1962819-1					
2,3,4,6-Tetrachlorophenol	ND		ug/l	0.500	0.143
4-Chlorophenyl-phenylether	ND		ug/l	0.500	0.079
Diethylphthalate	ND		ug/l	0.500	0.180
4-Nitroaniline	ND		ug/l	0.500	0.112
4,6-Dinitro-2-methylphenol	ND		ug/l	2.00	0.510
n-Nitrosodiphenylamine	ND		ug/l	0.500	0.072
4-Bromophenyl-phenylether	ND		ug/l	0.500	0.100
Hexachlorobenzene	ND		ug/l	0.500	0.122
Pentachlorophenol	ND		ug/l	2.00	0.430
Carbazole	ND		ug/l	0.500	0.143
Di-n-butylphthalate	ND		ug/l	0.500	0.100
Butylbenzylphthalate	ND		ug/l	0.500	0.085
3,3'-Dichlorobenzidine	ND		ug/l	0.500	0.193
Bis(2-ethylhexyl)phthalate	ND		ug/l	0.500	0.081
Di-n-octylphthalate	ND		ug/l	1.00	0.079
Acetophenone	ND		ug/l	1.00	0.207
Atrazine	ND		ug/l	0.500	0.160
Benzaldehyde	ND		ug/l	2.00	0.119
Caprolactam	ND		ug/l	2.00	0.123
Biphenyl	ND		ug/l	0.500	0.111

Tentatively Identified Compounds

Total TIC Compounds	1.82	J	ug/l
Unknown	1.82	J	ug/l

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 08/29/24 18:39
Analyst: DB

Extraction Method: EPA 3510C
Extraction Date: 08/22/24 21:20

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Mansfield Lab for sample(s): 05 Batch: WG1962819-1					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	56		15-110
Phenol-d5	37		15-110
Nitrobenzene-d5	86		30-130
2-Fluorobiphenyl	85		30-130
2,4,6-Tribromophenol	99		15-110
Terphenyl-d14	110		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 05 Batch: WG1960671-2 WG1960671-3								
Naphthalene	**66**	Q	**65**	Q	70-130	2		20
2-Methylnaphthalene	**68**	Q	**68**	Q	70-130	0		20
2-Chloronaphthalene	**64**	Q	**64**	Q	70-130	0		20
Acenaphthylene	**49**	Q	**47**	Q	70-130	4		20
Acenaphthene	**64**	Q	**65**	Q	70-130	2		20
Fluorene	**66**	Q	**66**	Q	70-130	0		20
Phenanthrene	**68**	Q	**68**	Q	70-130	0		20
Anthracene	**66**	Q	**65**	Q	70-130	2		20
Fluoranthene	**69**	Q	**69**	Q	70-130	0		20
Pyrene	71		72		70-130	1		20
Benz(a)anthracene	**67**	Q	**68**	Q	70-130	1		20
Chrysene	**69**	Q	70		70-130	1		20
Benzo(b)fluoranthene	76		71		70-130	7		20
Benzo(k)fluoranthene	**66**	Q	71		70-130	7		20
Benzo(a)pyrene	**68**	Q	**67**	Q	70-130	1		20
Indeno(1,2,3-cd)pyrene	74		74		70-130	0		20
Dibenz(a,h)anthracene	**65**	Q	**64**	Q	70-130	2		20
Benzo(ghi)perylene	**68**	Q	**68**	Q	70-130	0		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 05 Batch: WG1960671-2 WG1960671-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	67		69		30-130
Pyrene-d10	72		73		30-130
Benzo(b)fluoranthene-d12	76		75		30-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962079-2 WG1962079-3								
Naphthalene	80		75		70-130	6		30
Acenaphthylene	76		74		70-130	3		30
Acenaphthene	84		83		70-130	1		30
Fluorene	86		83		70-130	4		30
Phenanthrene	90		90		70-130	0		30
Anthracene	92		91		70-130	1		30
Fluoranthene	92		92		70-130	0		30
Pyrene	95		95		70-130	0		30
Benz(a)anthracene	95		94		70-130	1		30
Chrysene	92		92		70-130	0		30
Benzo(b)fluoranthene	105		105		70-130	0		30
Benzo(k)fluoranthene	92		92		70-130	0		30
Benzo(a)pyrene	98		97		70-130	1		30
Indeno(1,2,3-cd)pyrene	116		110		70-130	5		30
Dibenz(a,h)anthracene	99		98		70-130	1		30
Benzo(ghi)perylene	99		99		70-130	0		30
2-Methylnaphthalene	85		80		70-130	6		30
2-Chloronaphthalene	80		76		70-130	5		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962079-2 WG1962079-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Methylnaphthalene-d10	89		83		30-130
Pyrene-d10	99		97		30-130
Benzo(b)fluoranthene-d12	105		103		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962083-2 WG1962083-3								
Phenol	72		61		20-160	17		30
Bis(2-chloroethyl)ether	74		**61**	Q	70-130	19		30
2-Chlorophenol	72		**61**	Q	70-130	17		30
2-Methylphenol	71		**60**	Q	70-130	17		30
Bis(2-chloroisopropyl)ether	76		**63**	Q	70-130	19		30
Acetophenone	76		**64**	Q	70-130	17		30
4-Methylphenol	72		61		20-160	17		30
n-Nitroso-di-n-propylamine	75		**63**	Q	70-130	17		30
Hexachloroethane	70		58		20-160	19		30
Nitrobenzene	73		**62**	Q	70-130	16		30
Isophorone	75		**63**	Q	70-130	17		30
2-Nitrophenol	73		**61**	Q	70-130	18		30
2,4-Dimethylphenol	72		**60**	Q	70-130	18		30
Bis(2-chloroethoxy)methane	72		**60**	Q	70-130	18		30
2,4-Dichlorophenol	70		**60**	Q	70-130	15		30
4-Chloroaniline	62		54		20-160	14		30
Hexachlorobutadiene	**64**	Q	**54**	Q	70-130	17		30
4-Chloro-3-methylphenol	77		**65**	Q	70-130	17		30
1,2,4,5-Tetrachlorobenzene	70		**58**	Q	70-130	19		30
Hexachlorocyclopentadiene	61		50		20-160	20		30
2,4,6-Trichlorophenol	71		**60**	Q	70-130	17		30
2,4,5-Trichlorophenol	72		**61**	Q	70-130	17		30
2-Nitroaniline	84		72		70-130	15		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962083-2 WG1962083-3								
Dimethylphthalate	74		**64**	Q	70-130	14		30
2,6-Dinitrotoluene	75		**66**	Q	70-130	13		30
3-Nitroaniline	75		**65**	Q	70-130	14		30
2,4-Dinitrophenol	37		34		20-160	8		30
4-Nitrophenol	74		64		20-160	14		30
2,3,4,6-Tetrachlorophenol	**66**	Q	**58**	Q	70-130	13		30
Dibenzofuran	74		**64**	Q	70-130	14		30
2,4-Dinitrotoluene	79		**66**	Q	70-130	18		30
Diethylphthalate	81		**69**	Q	70-130	16		30
4-Chlorophenyl-phenylether	74		**63**	Q	70-130	16		30
4-Nitroaniline	85		74		70-130	14		30
4,6-Dinitro-2-methylphenol	**69**	Q	**59**	Q	70-130	16		30
n-Nitrosodiphenylamine	82		**69**	Q	70-130	17		30
4-Bromophenyl-phenylether	75		**63**	Q	70-130	17		30
Hexachlorobenzene	70		**59**	Q	70-130	17		30
Pentachlorophenol	41		37		20-160	10		30
Di-n-butylphthalate	92		78		70-130	16		30
Butylbenzylphthalate	86		74		70-130	15		30
3,3'-Dichlorobenzidine	71		**62**	Q	70-130	14		30
Bis(2-ethylhexyl)phthalate	80		70		70-130	13		30
Di-n-octylphthalate	94		79		70-130	17		30
Carbazole	81		**69**	Q	70-130	16		30
Atrazine	88		74		70-130	17		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962083-2 WG1962083-3								
Benzaldehyde	76		62		20-160	20		30
Caprolactam	87		75		20-160	15		30
Biphenyl	75		**63**	Q	70-130	17		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorobiphenyl	76		64		30-130
Phenol-d5	72		61		30-130
Nitrobenzene-d5	77		64		30-130
2-Fluorophenol	71		59		30-130
2,4,6-Tribromophenol	80		68		30-130
Terphenyl-d14	83		70		30-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 05 Batch: WG1962819-2 WG1962819-3								
Bis(2-chloroethyl)ether	74		75		70-130	1		20
Phenol	33		34		20-160	3		20
2-Chlorophenol	73		74		70-130	1		20
Bis(2-chloroisopropyl)ether	71		70		70-130	1		20
2-Methylphenol	70		70		70-130	0		20
Hexachloroethane	34		42		20-160	**21**	Q	20
n-Nitroso-di-n-propylamine	80		78		70-130	3		20
4-Methylphenol	66		66		20-160	0		20
Nitrobenzene	75		76		70-130	1		20
Isophorone	78		78		70-130	0		20
2-Nitrophenol	78		80		70-130	3		20
2,4-Dimethylphenol	89		91		70-130	2		20
Bis(2-chloroethoxy)methane	79		79		70-130	0		20
2,4-Dichlorophenol	79		81		70-130	3		20
4-Chloroaniline	71		68		20-160	4		20
Hexachlorobutadiene	**34**	Q	**42**	Q	70-130	**21**	Q	20
4-Chloro-3-methylphenol	89		89		70-130	0		20
1,2,4,5-Tetrachlorobenzene	**46**	Q	**52**	Q	70-130	12		20
Hexachlorocyclopentadiene	33		40		20-160	19		20
2,4,6-Trichlorophenol	83		84		70-130	1		20
2,4,5-Trichlorophenol	86		87		70-130	1		20
2-Nitroaniline	92		94		70-130	2		20
Dimethylphthalate	86		87		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 05 Batch: WG1962819-2 WG1962819-3								
2,6-Dinitrotoluene	88		89		70-130	1		20
3-Nitroaniline	89		88		70-130	1		20
2,4-Dinitrophenol	60		72		20-160	18		20
Dibenzofuran	74		76		70-130	3		20
2,4-Dinitrotoluene	91		95		70-130	4		20
4-Nitrophenol	36		38		20-160	5		20
2,3,4,6-Tetrachlorophenol	83		87		70-130	5		20
4-Chlorophenyl-phenylether	72		75		70-130	4		20
Diethylphthalate	90		86		70-130	5		20
4-Nitroaniline	101		103		70-130	2		20
4,6-Dinitro-2-methylphenol	87		94		70-130	8		20
n-Nitrosodiphenylamine	92		94		70-130	2		20
4-Bromophenyl-phenylether	81		82		70-130	1		20
Hexachlorobenzene	85		86		70-130	1		20
Pentachlorophenol	78		86		20-160	10		20
Carbazole	96		97		70-130	1		20
Di-n-butylphthalate	96		98		70-130	2		20
Butylbenzylphthalate	93		97		70-130	4		20
3,3'-Dichlorobenzidine	91		93		70-130	2		20
Bis(2-ethylhexyl)phthalate	87		90		70-130	3		20
Di-n-octylphthalate	102		105		70-130	3		20
Acetophenone	80		79		70-130	1		20
Atrazine	96		97		70-130	1		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 05 Batch: WG1962819-2 WG1962819-3								
Benzaldehyde	**69**	Q	70		70-130	1		20
Caprolactam	27		29		20-160	7		20
Biphenyl	75		78		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50		50		15-110
Phenol-d5	33		33		15-110
Nitrobenzene-d5	84		83		30-130
2-Fluorobiphenyl	85		83		30-130
2,4,6-Tribromophenol	105		106		15-110
Terphenyl-d14	97		97		30-130

Matrix Spike Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962079-4 WG1962079-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Naphthalene	0.00092J	0.604	0.454	75		0.461	78		70-130	2		30
Acenaphthylene	ND	0.604	0.446	74		0.436	74		70-130	2		30
Acenaphthene	0.00062J	0.604	0.498	82		0.486	82		70-130	2		30
Fluorene	ND	0.604	0.491	81		0.480	81		70-130	2		30
Phenanthrene	0.00096J	0.604	0.536	89		0.517	87		70-130	4		30
Anthracene	ND	0.604	0.543	90		0.524	89		70-130	4		30
Fluoranthene	ND	0.604	0.540	89		0.520	88		70-130	4		30
Pyrene	ND	0.604	0.560	93		0.542	92		70-130	3		30
Benz(a)anthracene	ND	0.604	0.557	92		0.538	91		70-130	3		30
Chrysene	ND	0.604	0.528	87		0.517	87		70-130	2		30
Benzo(b)fluoranthene	ND	0.604	0.591	98		0.565	95		70-130	4		30
Benzo(k)fluoranthene	ND	0.604	0.531	88		0.519	88		70-130	2		30
Benzo(a)pyrene	ND	0.604	0.559	93		0.548	93		70-130	2		30
Indeno(1,2,3-cd)pyrene	ND	0.604	0.639	106		0.603	102		70-130	6		30
Dibenz(a,h)anthracene	ND	0.604	0.554	92		0.538	91		70-130	3		30
Benzo(ghi)perylene	ND	0.604	0.550	91		0.538	91		70-130	2		30
2-Methylnaphthalene	0.00061J	0.604	0.487	81		0.490	83		70-130	1		30
2-Chloronaphthalene	ND	0.604	0.450	74		0.444	75		70-130	1		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Methylnaphthalene-d10	82		85		30-130
Benzo(b)fluoranthene-d12	97		96		30-130

Matrix Spike Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PAHs by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962079-4 WG1962079-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
Pyrene-d10	94		93		30-130

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962083-4 WG1962083-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Phenol	ND	0.814	0.554	68		0.500	61		20-160	10		30
Bis(2-chloroethyl)ether	ND	0.814	0.566	**70**	Q	0.504	**62**	Q	70-130	12		30
2-Chlorophenol	ND	0.814	0.540	**66**	Q	0.490	**60**	Q	70-130	10		30
2-Methylphenol	ND	0.814	0.505	**62**	Q	0.481	**59**	Q	70-130	5		30
Bis(2-chloroisopropyl)ether	ND	0.814	0.580	71		0.518	**63**	Q	70-130	11		30
Acetophenone	ND	0.814	0.588	72		0.528	**65**	Q	70-130	11		30
4-Methylphenol	ND	0.814	0.507	62		0.487	60		20-160	4		30
n-Nitroso-di-n-propylamine	ND	0.814	0.592	73		0.537	**66**	Q	70-130	10		30
Hexachloroethane	ND	0.814	0.502	62		0.452	55		20-160	10		30
Nitrobenzene	ND	0.814	0.566	**70**	Q	0.499	**61**	Q	70-130	13		30
Isophorone	ND	0.814	0.593	73		0.535	**65**	Q	70-130	10		30
2-Nitrophenol	ND	0.814	0.576	71		0.515	**63**	Q	70-130	11		30
2,4-Dimethylphenol	ND	0.814	0.252	**31**	Q	0.317	**39**	Q	70-130	23		30
Bis(2-chloroethoxy)methane	ND	0.814	0.557	**68**	Q	0.496	**61**	Q	70-130	12		30
2,4-Dichlorophenol	ND	0.814	0.538	**66**	Q	0.493	**60**	Q	70-130	9		30
4-Chloroaniline	ND	0.814	0.114	**14**	Q	0.0962	**12**	Q	20-160	17		30
Hexachlorobutadiene	ND	0.814	0.479	**59**	Q	0.432	**53**	Q	70-130	10		30
4-Chloro-3-methylphenol	ND	0.814	0.600	74		0.544	**67**	Q	70-130	10		30
1,2,4,5-Tetrachlorobenzene	ND	0.814	0.515	**63**	Q	0.471	**58**	Q	70-130	9		30
Hexachlorocyclopentadiene	ND	0.814	0.316	39		0.293	36		20-160	8		30
2,4,6-Trichlorophenol	ND	0.814	0.538	**66**	Q	0.513	**63**	Q	70-130	5		30
2,4,5-Trichlorophenol	ND	0.814	0.555	**68**	Q	0.486	**59**	Q	70-130	13		30
2-Nitroaniline	ND	0.814	0.652	80		0.592	72		70-130	10		30

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962083-4 WG1962083-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Dimethylphthalate	ND	0.814	0.567	**70**	Q	0.523	**64**	Q	70-130	8		30
2,6-Dinitrotoluene	ND	0.814	0.589	72		0.536	**66**	Q	70-130	9		30
3-Nitroaniline	ND	0.814	0.297	**37**	Q	0.284	**35**	Q	70-130	4		30
2,4-Dinitrophenol	ND	0.814	0.233J	29		0.179J	22		20-160	26		30
4-Nitrophenol	ND	0.814	0.527J	65		0.467J	57		20-160	12		30
2,3,4,6-Tetrachlorophenol	ND	0.814	0.506	**62**	Q	0.466	**57**	Q	70-130	8		30
Dibenzofuran	ND	0.814	0.567	**70**	Q	0.520	**64**	Q	70-130	9		30
2,4-Dinitrotoluene	ND	0.814	0.605	74		0.548	**67**	Q	70-130	10		30
Diethylphthalate	ND	0.814	0.615	76		0.566	**69**	Q	70-130	8		30
4-Chlorophenyl-phenylether	ND	0.814	0.569	**70**	Q	0.514	**63**	Q	70-130	10		30
4-Nitroaniline	ND	0.814	0.464	**57**	Q	0.425	**52**	Q	70-130	9		30
4,6-Dinitro-2-methylphenol	ND	0.814	0.512	**63**	Q	0.443	**54**	Q	70-130	14		30
n-Nitrosodiphenylamine	ND	0.814	0.607	75		0.562	**69**	Q	70-130	8		30
4-Bromophenyl-phenylether	ND	0.814	0.572	70		0.522	**64**	Q	70-130	9		30
Hexachlorobenzene	ND	0.814	0.529	**65**	Q	0.487	**60**	Q	70-130	8		30
Pentachlorophenol	ND	0.814	0.333	41		0.303	37		20-160	9		30
Di-n-butylphthalate	ND	0.814	0.714	88		0.652	80		70-130	9		30
Butylbenzylphthalate	ND	0.814	0.705	87		0.653	80		70-130	8		30
3,3'-Dichlorobenzidine	ND	0.814	0.180	**22**	Q	0.209	**26**	Q	70-130	15		30
Bis(2-ethylhexyl)phthalate	ND	0.814	0.674	83		0.622	76		70-130	8		30
Di-n-octylphthalate	ND	0.814	0.797	98		0.733	90		70-130	8		30
Carbazole	ND	0.814	0.579	71		0.533	**65**	Q	70-130	8		30
Atrazine	ND	0.814	0.669	82		0.607	74		70-130	10		30

Matrix Spike Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962083-4 WG1962083-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Benzaldehyde	ND	0.814	0.586	72		0.520	64		20-160	12		30
Caprolactam	0.00885J	0.814	0.697	86		0.613	75		20-160	13		30
Biphenyl	ND	0.814	0.576	71		0.517	**63**	Q	70-130	11		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2,4,6-Tribromophenol	71		68		30-130
2-Fluorobiphenyl	69		62		30-130
2-Fluorophenol	63		57		30-130
Nitrobenzene-d5	72		63		30-130
Phenol-d5	67		60		30-130
Terphenyl-d14	75		70		30-130

PCBS

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 15:16
Analyst: DP
Percent Solids: 71%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.0104	0.00384	1	A
Aroclor 1221	ND		mg/kg	0.0104	0.00514	1	A
Aroclor 1232	ND		mg/kg	0.0104	0.00492	1	A
Aroclor 1242	ND		mg/kg	0.0104	0.00353	1	A
Aroclor 1248	ND		mg/kg	0.0104	0.00442	1	A
Aroclor 1254	ND		mg/kg	0.0104	0.00439	1	A
Aroclor 1260	ND		mg/kg	0.0104	0.00442	1	A
Aroclor 1262	ND		mg/kg	0.0104	0.00403	1	A
Aroclor 1268	ND		mg/kg	0.0104	0.00348	1	A
PCBs, Total	ND		mg/kg	0.0104	0.00348	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	131		30-150	A
Decachlorobiphenyl	122		30-150	A
Tetrachloro-meta-Xylene	119		30-150	B
Decachlorobiphenyl	128		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 15:40
Analyst: DP
Percent Solids: 59%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.0124	0.00458	1	A
Aroclor 1221	ND		mg/kg	0.0124	0.00614	1	A
Aroclor 1232	ND		mg/kg	0.0124	0.00587	1	A
Aroclor 1242	ND		mg/kg	0.0124	0.00421	1	A
Aroclor 1248	ND		mg/kg	0.0124	0.00528	1	A
Aroclor 1254	ND		mg/kg	0.0124	0.00524	1	A
Aroclor 1260	ND		mg/kg	0.0124	0.00528	1	A
Aroclor 1262	ND		mg/kg	0.0124	0.00481	1	A
Aroclor 1268	ND		mg/kg	0.0124	0.00415	1	A
PCBs, Total	ND		mg/kg	0.0124	0.00415	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	84		30-150	A
Decachlorobiphenyl	70		30-150	A
Tetrachloro-meta-Xylene	79		30-150	B
Decachlorobiphenyl	81		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 15:52
Analyst: DP
Percent Solids: 79%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.00931	0.00342	1	A
Aroclor 1221	ND		mg/kg	0.00931	0.00459	1	A
Aroclor 1232	ND		mg/kg	0.00931	0.00439	1	A
Aroclor 1242	ND		mg/kg	0.00931	0.00315	1	A
Aroclor 1248	ND		mg/kg	0.00931	0.00395	1	A
Aroclor 1254	ND		mg/kg	0.00931	0.00392	1	A
Aroclor 1260	ND		mg/kg	0.00931	0.00395	1	A
Aroclor 1262	ND		mg/kg	0.00931	0.00360	1	A
Aroclor 1268	ND		mg/kg	0.00931	0.00310	1	A
PCBs, Total	ND		mg/kg	0.00931	0.00310	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	105		30-150	A
Decachlorobiphenyl	83		30-150	A
Tetrachloro-meta-Xylene	96		30-150	B
Decachlorobiphenyl	100		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 16:29
Analyst: DP
Percent Solids: 45%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.0162	0.00598	1	A
Aroclor 1221	ND		mg/kg	0.0162	0.00801	1	A
Aroclor 1232	ND		mg/kg	0.0162	0.00766	1	A
Aroclor 1242	ND		mg/kg	0.0162	0.00550	1	A
Aroclor 1248	ND		mg/kg	0.0162	0.00688	1	A
Aroclor 1254	ND		mg/kg	0.0162	0.00684	1	A
Aroclor 1260	ND		mg/kg	0.0162	0.00688	1	A
Aroclor 1262	ND		mg/kg	0.0162	0.00628	1	A
Aroclor 1268	ND		mg/kg	0.0162	0.00541	1	A
PCBs, Total	ND		mg/kg	0.0162	0.00541	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	55		30-150	A
Decachlorobiphenyl	36		30-150	A
Tetrachloro-meta-Xylene	52		30-150	B
Decachlorobiphenyl	50		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS

Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8082A
Analytical Date: 08/26/24 14:04
Analyst: DMP

Extraction Method: EPA 3510C
Extraction Date: 08/22/24 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		ug/l	0.018	0.007	1	A
Aroclor 1221	ND		ug/l	0.018	0.009	1	A
Aroclor 1232	ND		ug/l	0.018	0.008	1	A
Aroclor 1242	ND		ug/l	0.018	0.009	1	A
Aroclor 1248	ND		ug/l	0.018	0.009	1	A
Aroclor 1254	ND		ug/l	0.018	0.006	1	A
Aroclor 1260	ND		ug/l	0.018	0.008	1	A
Aroclor 1262	ND		ug/l	0.018	0.006	1	A
Aroclor 1268	ND		ug/l	0.018	0.003	1	A
PCBs, Total	ND		ug/l	0.018	0.003	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	49		30-150	A
Decachlorobiphenyl	45		30-150	A
Tetrachloro-meta-Xylene	45		30-150	B
Decachlorobiphenyl	40		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 16:41
Analyst: DP
Percent Solids: 66%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.0114	0.00418	1	A
Aroclor 1221	ND		mg/kg	0.0114	0.00560	1	A
Aroclor 1232	ND		mg/kg	0.0114	0.00536	1	A
Aroclor 1242	ND		mg/kg	0.0114	0.00385	1	A
Aroclor 1248	ND		mg/kg	0.0114	0.00482	1	A
Aroclor 1254	ND		mg/kg	0.0114	0.00479	1	A
Aroclor 1260	ND		mg/kg	0.0114	0.00482	1	A
Aroclor 1262	ND		mg/kg	0.0114	0.00439	1	A
Aroclor 1268	ND		mg/kg	0.0114	0.00379	1	A
PCBs, Total	ND		mg/kg	0.0114	0.00379	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	71		30-150	A
Decachlorobiphenyl	55		30-150	A
Tetrachloro-meta-Xylene	66		30-150	B
Decachlorobiphenyl	70		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 09/16/24 13:31
Analyst: DP
Percent Solids: 90%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.00798	0.00294	1	A
Aroclor 1221	ND		mg/kg	0.00798	0.00394	1	A
Aroclor 1232	ND		mg/kg	0.00798	0.00376	1	A
Aroclor 1242	ND		mg/kg	0.00798	0.00270	1	A
Aroclor 1248	ND		mg/kg	0.00798	0.00338	1	A
Aroclor 1254	ND		mg/kg	0.00798	0.00336	1	A
Aroclor 1260	ND		mg/kg	0.00798	0.00338	1	A
Aroclor 1262	ND		mg/kg	0.00798	0.00308	1	A
Aroclor 1268	ND		mg/kg	0.00798	0.00266	1	A
PCBs, Total	ND		mg/kg	0.00798	0.00266	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	80		30-150	A
Decachlorobiphenyl	**27**	Q	30-150	A
Tetrachloro-meta-Xylene	70		30-150	B
Decachlorobiphenyl	47		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 17:05
Analyst: DP
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.0126	0.00464	1	A
Aroclor 1221	ND		mg/kg	0.0126	0.00622	1	A
Aroclor 1232	ND		mg/kg	0.0126	0.00595	1	A
Aroclor 1242	ND		mg/kg	0.0126	0.00427	1	A
Aroclor 1248	ND		mg/kg	0.0126	0.00534	1	A
Aroclor 1254	ND		mg/kg	0.0126	0.00531	1	A
Aroclor 1260	ND		mg/kg	0.0126	0.00534	1	A
Aroclor 1262	ND		mg/kg	0.0126	0.00487	1	A
Aroclor 1268	ND		mg/kg	0.0126	0.00420	1	A
PCBs, Total	ND		mg/kg	0.0126	0.00420	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	98		30-150	A
Decachlorobiphenyl	71		30-150	A
Tetrachloro-meta-Xylene	90		30-150	B
Decachlorobiphenyl	90		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 17:17
Analyst: DP
Percent Solids: 74%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.00949	0.00349	1	A
Aroclor 1221	ND		mg/kg	0.00949	0.00468	1	A
Aroclor 1232	ND		mg/kg	0.00949	0.00448	1	A
Aroclor 1242	ND		mg/kg	0.00949	0.00321	1	A
Aroclor 1248	ND		mg/kg	0.00949	0.00402	1	A
Aroclor 1254	ND		mg/kg	0.00949	0.00400	1	A
Aroclor 1260	ND		mg/kg	0.00949	0.00402	1	A
Aroclor 1262	ND		mg/kg	0.00949	0.00367	1	A
Aroclor 1268	0.0288	P	mg/kg	0.00949	0.00316	1	B
PCBs, Total	0.0288		mg/kg	0.00949	0.00316	1	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	60		30-150	A
Decachlorobiphenyl	74		30-150	A
Tetrachloro-meta-Xylene	57		30-150	B
Decachlorobiphenyl	107		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8082A
Analytical Date: 08/30/24 17:29
Analyst: DP
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Mansfield Lab							
Aroclor 1016	ND		mg/kg	0.0135	0.00496	1	A
Aroclor 1221	ND		mg/kg	0.0135	0.00665	1	A
Aroclor 1232	ND		mg/kg	0.0135	0.00636	1	A
Aroclor 1242	ND		mg/kg	0.0135	0.00456	1	A
Aroclor 1248	ND		mg/kg	0.0135	0.00572	1	A
Aroclor 1254	ND		mg/kg	0.0135	0.00568	1	A
Aroclor 1260	ND		mg/kg	0.0135	0.00572	1	A
Aroclor 1262	ND		mg/kg	0.0135	0.00521	1	A
Aroclor 1268	ND		mg/kg	0.0135	0.00449	1	A
PCBs, Total	ND		mg/kg	0.0135	0.00449	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	58		30-150	A
Decachlorobiphenyl	40		30-150	A
Tetrachloro-meta-Xylene	55		30-150	B
Decachlorobiphenyl	54		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 08/30/24 14:39
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962078-1						
Aroclor 1016	ND		mg/kg	0.00750	0.00276	A
Aroclor 1221	ND		mg/kg	0.00750	0.00370	A
Aroclor 1232	ND		mg/kg	0.00750	0.00354	A
Aroclor 1242	ND		mg/kg	0.00750	0.00254	A
Aroclor 1248	ND		mg/kg	0.00750	0.00318	A
Aroclor 1254	ND		mg/kg	0.00750	0.00316	A
Aroclor 1260	ND		mg/kg	0.00750	0.00318	A
Aroclor 1262	ND		mg/kg	0.00750	0.00290	A
Aroclor 1268	ND		mg/kg	0.00750	0.00250	A
PCBs, Total	ND		mg/kg	0.00750	0.00250	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	86		30-150	A
Decachlorobiphenyl	110		30-150	A
Tetrachloro-meta-Xylene	81		30-150	B
Decachlorobiphenyl	102		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 08/26/24 12:37
Analyst: DMP

Extraction Method: EPA 3510C
Extraction Date: 08/22/24 17:30

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Mansfield Lab for sample(s): 05 Batch: WG1962760-1						
Aroclor 1016	ND		ug/l	0.020	0.008	A
Aroclor 1221	ND		ug/l	0.020	0.010	A
Aroclor 1232	ND		ug/l	0.020	0.008	A
Aroclor 1242	ND		ug/l	0.020	0.009	A
Aroclor 1248	ND		ug/l	0.020	0.009	A
Aroclor 1254	ND		ug/l	0.020	0.007	A
Aroclor 1260	ND		ug/l	0.020	0.009	A
Aroclor 1262	ND		ug/l	0.020	0.007	A
Aroclor 1268	ND		ug/l	0.020	0.003	A
PCBs, Total	ND		ug/l	0.020	0.003	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	66		30-150	A
Decachlorobiphenyl	89		30-150	A
Tetrachloro-meta-Xylene	58		30-150	B
Decachlorobiphenyl	76		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962078-2 WG1962078-3									
Aroclor 1016	72		74		40-140	3		30	A
Aroclor 1260	82		84		40-140	2		30	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	84		82		30-150	A
Decachlorobiphenyl	79		82		30-150	A
Tetrachloro-meta-Xylene	75		74		30-150	B
Decachlorobiphenyl	84		85		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 05 Batch: WG1962760-2 WG1962760-3									
Aroclor 1016	81		85		40-140	5		20	A
Aroclor 1260	87		100		40-140	14		20	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
Tetrachloro-meta-Xylene	76		81		30-150	A
Decachlorobiphenyl	90		93		30-150	A
Tetrachloro-meta-Xylene	67		71		30-150	B
Decachlorobiphenyl	77		83		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962078-4 WG1962078-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')													
Aroclor 1016	ND	0.3	0.184	61		0.154	53		40-140	18		30	A
Aroclor 1260	ND	0.3	0.182	61		0.149	51		40-140	20		30	A

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
Decachlorobiphenyl	48		41		30-150	A
Tetrachloro-meta-Xylene	72		59		30-150	A
Decachlorobiphenyl	65		55		30-150	B
Tetrachloro-meta-Xylene	68		55		30-150	B

PESTICIDES

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/11/24 21:10
Analyst: DMP
Percent Solids: 71%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00013	0.00013	1	A
4,4'-DDE	ND		mg/kg	0.00013	0.00013	1	A
4,4'-DDT	ND		mg/kg	0.00013	0.00013	1	A
Aldrin	ND		mg/kg	0.00013	0.00013	1	A
alpha-BHC	ND		mg/kg	0.00013	0.00013	1	A
alpha-Chlordane	ND		mg/kg	0.00013	0.00013	1	A
beta-BHC	ND		mg/kg	0.00013	0.00013	1	A
delta-BHC	ND		mg/kg	0.00013	0.00013	1	A
Dieldrin	ND		mg/kg	0.00013	0.00013	1	A
Endosulfan I	ND		mg/kg	0.00013	0.00013	1	A
Endosulfan II	ND		mg/kg	0.00013	0.00013	1	A
Endosulfan sulfate	ND		mg/kg	0.00013	0.00013	1	A
Endrin	ND		mg/kg	0.00013	0.00013	1	A
Endrin aldehyde	ND		mg/kg	0.00041	0.00041	1	A
Endrin ketone	ND		mg/kg	0.00013	0.00013	1	A
gamma-BHC	ND		mg/kg	0.00013	0.00013	1	A
gamma-Chlordane	ND		mg/kg	0.00013	0.00013	1	A
Heptachlor	ND		mg/kg	0.00013	0.00013	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00027	0.00027	1	B
Methoxychlor	ND		mg/kg	0.00139	0.00139	1	A
Toxaphene	ND		mg/kg	0.00698	0.00698	1	A
Chlordane	ND		mg/kg	0.00698	0.00698	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01 Date Collected: 08/14/24 10:35

Client ID: VC-10 (0-14.5) Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	54		30-150	A
DCB - Surrogate	61		30-150	A
TMX - Surrogate	53		30-150	B
DCB - Surrogate	68		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/11/24 21:44
Analyst: DMP
Percent Solids: 59%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00016	0.00016	1	A
4,4'-DDE	ND		mg/kg	0.00016	0.00016	1	A
4,4'-DDT	ND		mg/kg	0.00016	0.00016	1	A
Aldrin	ND		mg/kg	0.00016	0.00016	1	A
alpha-BHC	ND		mg/kg	0.00016	0.00016	1	A
alpha-Chlordane	ND		mg/kg	0.00016	0.00016	1	A
beta-BHC	ND		mg/kg	0.00016	0.00016	1	A
delta-BHC	ND		mg/kg	0.00016	0.00016	1	A
Dieldrin	ND		mg/kg	0.00016	0.00016	1	A
Endosulfan I	ND		mg/kg	0.00016	0.00016	1	A
Endosulfan II	ND		mg/kg	0.00016	0.00016	1	A
Endosulfan sulfate	ND		mg/kg	0.00016	0.00016	1	A
Endrin	ND		mg/kg	0.00016	0.00016	1	A
Endrin aldehyde	ND		mg/kg	0.00049	0.00049	1	A
Endrin ketone	ND		mg/kg	0.00016	0.00016	1	A
gamma-BHC	ND		mg/kg	0.00016	0.00016	1	A
gamma-Chlordane	ND		mg/kg	0.00016	0.00016	1	A
Heptachlor	ND		mg/kg	0.00016	0.00016	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00033	0.00033	1	B
Methoxychlor	ND		mg/kg	0.00166	0.00166	1	A
Toxaphene	ND		mg/kg	0.00833	0.00833	1	A
Chlordane	ND		mg/kg	0.00833	0.00833	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02 Date Collected: 08/14/24 10:50

Client ID: VC-10 (14.5'-17') Date Received: 08/14/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	58		30-150	A
DCB - Surrogate	63		30-150	A
TMX - Surrogate	55		30-150	B
DCB - Surrogate	73		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/11/24 22:17
Analyst: DMP
Percent Solids: 79%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00012	0.00012	1	A
4,4'-DDE	ND		mg/kg	0.00012	0.00012	1	A
4,4'-DDT	ND		mg/kg	0.00012	0.00012	1	A
Aldrin	ND		mg/kg	0.00012	0.00012	1	A
alpha-BHC	ND		mg/kg	0.00012	0.00012	1	A
alpha-Chlordane	ND		mg/kg	0.00012	0.00012	1	A
beta-BHC	ND		mg/kg	0.00012	0.00012	1	A
delta-BHC	ND		mg/kg	0.00012	0.00012	1	A
Dieldrin	ND		mg/kg	0.00012	0.00012	1	A
Endosulfan I	ND		mg/kg	0.00012	0.00012	1	A
Endosulfan II	ND		mg/kg	0.00012	0.00012	1	A
Endosulfan sulfate	ND		mg/kg	0.00012	0.00012	1	A
Endrin	ND		mg/kg	0.00012	0.00012	1	A
Endrin aldehyde	ND		mg/kg	0.00037	0.00037	1	A
Endrin ketone	ND		mg/kg	0.00012	0.00012	1	A
gamma-BHC	ND		mg/kg	0.00012	0.00012	1	A
gamma-Chlordane	ND		mg/kg	0.00012	0.00012	1	A
Heptachlor	ND		mg/kg	0.00012	0.00012	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00024	0.00024	1	B
Methoxychlor	ND		mg/kg	0.00124	0.00124	1	A
Toxaphene	ND		mg/kg	0.00623	0.00623	1	A
Chlordane	ND		mg/kg	0.00623	0.00623	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03 Date Collected: 08/15/24 10:00

Client ID: VC-09 (0-15.2') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	48		30-150	A
DCB - Surrogate	49		30-150	A
TMX - Surrogate	44		30-150	B
DCB - Surrogate	57		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/11/24 23:58
Analyst: DMP
Percent Solids: 45%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00021	0.00021	1	A
4,4'-DDE	ND		mg/kg	0.00021	0.00021	1	A
4,4'-DDT	ND		mg/kg	0.00021	0.00021	1	A
Aldrin	ND		mg/kg	0.00021	0.00021	1	A
alpha-BHC	ND		mg/kg	0.00021	0.00021	1	A
alpha-Chlordane	ND		mg/kg	0.00021	0.00021	1	A
beta-BHC	ND		mg/kg	0.00021	0.00021	1	A
delta-BHC	ND		mg/kg	0.00021	0.00021	1	A
Dieldrin	ND		mg/kg	0.00021	0.00021	1	A
Endosulfan I	ND		mg/kg	0.00021	0.00021	1	A
Endosulfan II	ND		mg/kg	0.00021	0.00021	1	A
Endosulfan sulfate	ND		mg/kg	0.00021	0.00021	1	A
Endrin	ND		mg/kg	0.00021	0.00021	1	A
Endrin aldehyde	ND		mg/kg	0.00065	0.00065	1	A
Endrin ketone	ND		mg/kg	0.00021	0.00021	1	A
gamma-BHC	ND		mg/kg	0.00021	0.00021	1	A
gamma-Chlordane	ND		mg/kg	0.00021	0.00021	1	A
Heptachlor	ND		mg/kg	0.00021	0.00021	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00043	0.00043	1	B
Methoxychlor	ND		mg/kg	0.00216	0.00216	1	A
Toxaphene	ND		mg/kg	0.0109	0.0109	1	A
Chlordane	ND		mg/kg	0.0109	0.0109	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04 Date Collected: 08/15/24 10:40

Client ID: VC-09 (15.2'-17') Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	38		30-150	A
DCB - Surrogate	38		30-150	A
TMX - Surrogate	34		30-150	B
DCB - Surrogate	41		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS

Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8081B
Analytical Date: 08/23/24 21:31
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 08/19/24 09:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		ug/l	0.0005	0.0005	1	A
4,4'-DDE	ND		ug/l	0.0005	0.0005	1	A
4,4'-DDT	ND		ug/l	0.0005	0.0005	1	A
Aldrin	ND		ug/l	0.0010	0.0010	1	A
alpha-BHC	ND		ug/l	0.0005	0.0005	1	A
alpha-Chlordane	ND		ug/l	0.0005	0.0005	1	A
beta-BHC	ND		ug/l	0.0005	0.0005	1	A
delta-BHC	ND		ug/l	0.0005	0.0005	1	A
Dieldrin	ND		ug/l	0.0005	0.0005	1	A
Endosulfan I	ND		ug/l	0.0005	0.0005	1	A
Endosulfan II	ND		ug/l	0.0005	0.0005	1	A
Endosulfan sulfate	ND		ug/l	0.0005	0.0005	1	A
Endrin	ND		ug/l	0.0005	0.0005	1	A
Endrin aldehyde	ND		ug/l	0.0005	0.0005	1	A
Endrin ketone	ND		ug/l	0.0005	0.0005	1	A
gamma-BHC	ND		ug/l	0.0005	0.0005	1	A
gamma-Chlordane	ND		ug/l	0.0005	0.0005	1	A
Heptachlor	ND		ug/l	0.0005	0.0005	1	A
Heptachlor epoxide (B)	ND		ug/l	0.0005	0.0005	1	B
Methoxychlor	ND		ug/l	0.0050	0.0050	1	A
Toxaphene	ND		ug/l	0.0250	0.0250	1	A
Chlordane	ND		ug/l	0.0250	0.0250	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05 Date Collected: 08/15/24 14:15

Client ID: FB-081524 Date Received: 08/15/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	43		30-150	A
DCB - Surrogate	45		30-150	A
TMX - Surrogate	50		30-150	B
DCB - Surrogate	42		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 00:32
Analyst: DMP
Percent Solids: 66%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00015	0.00015	1	A
4,4'-DDE	ND		mg/kg	0.00015	0.00015	1	A
4,4'-DDT	ND		mg/kg	0.00015	0.00015	1	A
Aldrin	ND		mg/kg	0.00015	0.00015	1	A
alpha-BHC	ND		mg/kg	0.00015	0.00015	1	A
alpha-Chlordane	ND		mg/kg	0.00015	0.00015	1	A
beta-BHC	ND		mg/kg	0.00015	0.00015	1	A
delta-BHC	ND		mg/kg	0.00015	0.00015	1	A
Dieldrin	ND		mg/kg	0.00015	0.00015	1	A
Endosulfan I	ND		mg/kg	0.00015	0.00015	1	A
Endosulfan II	ND		mg/kg	0.00015	0.00015	1	A
Endosulfan sulfate	ND		mg/kg	0.00015	0.00015	1	A
Endrin	ND		mg/kg	0.00015	0.00015	1	A
Endrin aldehyde	ND		mg/kg	0.00045	0.00045	1	A
Endrin ketone	ND		mg/kg	0.00015	0.00015	1	A
gamma-BHC	ND		mg/kg	0.00015	0.00015	1	A
gamma-Chlordane	ND		mg/kg	0.00015	0.00015	1	A
Heptachlor	ND		mg/kg	0.00015	0.00015	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00030	0.00030	1	B
Methoxychlor	ND		mg/kg	0.00151	0.00151	1	A
Toxaphene	ND		mg/kg	0.00760	0.00760	1	A
Chlordane	ND		mg/kg	0.00760	0.00760	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06 Date Collected: 08/16/24 09:15

Client ID: VC-08 (0-11.8') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	50		30-150	A
DCB - Surrogate	47		30-150	A
TMX - Surrogate	43		30-150	B
DCB - Surrogate	59		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 01:05
Analyst: DMP
Percent Solids: 90%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00010	0.00010	1	A
4,4'-DDE	ND		mg/kg	0.00010	0.00010	1	A
4,4'-DDT	ND		mg/kg	0.00010	0.00010	1	A
Aldrin	ND		mg/kg	0.00010	0.00010	1	A
alpha-BHC	ND		mg/kg	0.00010	0.00010	1	A
alpha-Chlordane	ND		mg/kg	0.00010	0.00010	1	A
beta-BHC	ND		mg/kg	0.00010	0.00010	1	A
delta-BHC	ND		mg/kg	0.00010	0.00010	1	A
Dieldrin	ND		mg/kg	0.00010	0.00010	1	A
Endosulfan I	ND		mg/kg	0.00010	0.00010	1	A
Endosulfan II	ND		mg/kg	0.00010	0.00010	1	A
Endosulfan sulfate	ND		mg/kg	0.00010	0.00010	1	A
Endrin	ND		mg/kg	0.00010	0.00010	1	A
Endrin aldehyde	ND		mg/kg	0.00031	0.00031	1	A
Endrin ketone	ND		mg/kg	0.00010	0.00010	1	A
gamma-BHC	ND		mg/kg	0.00010	0.00010	1	A
gamma-Chlordane	ND		mg/kg	0.00010	0.00010	1	A
Heptachlor	ND		mg/kg	0.00010	0.00010	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00021	0.00021	1	B
Methoxychlor	ND		mg/kg	0.00106	0.00106	1	A
Toxaphene	ND		mg/kg	0.00534	0.00534	1	A
Chlordane	ND		mg/kg	0.00534	0.00534	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07 Date Collected: 08/16/24 09:40

Client ID: VC-08 (11.8'-13.9') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	53		30-150	A
DCB - Surrogate	51		30-150	A
TMX - Surrogate	51		30-150	B
DCB - Surrogate	62		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 01:39
Analyst: DMP
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00016	0.00016	1	A
4,4'-DDE	ND		mg/kg	0.00016	0.00016	1	A
4,4'-DDT	ND		mg/kg	0.00016	0.00016	1	A
Aldrin	ND		mg/kg	0.00016	0.00016	1	A
alpha-BHC	ND		mg/kg	0.00016	0.00016	1	A
alpha-Chlordane	ND		mg/kg	0.00016	0.00016	1	A
beta-BHC	ND		mg/kg	0.00016	0.00016	1	A
delta-BHC	ND		mg/kg	0.00016	0.00016	1	A
Dieldrin	ND		mg/kg	0.00016	0.00016	1	A
Endosulfan I	ND		mg/kg	0.00016	0.00016	1	A
Endosulfan II	ND		mg/kg	0.00016	0.00016	1	A
Endosulfan sulfate	ND		mg/kg	0.00016	0.00016	1	A
Endrin	ND		mg/kg	0.00016	0.00016	1	A
Endrin aldehyde	ND		mg/kg	0.00050	0.00050	1	A
Endrin ketone	ND		mg/kg	0.00016	0.00016	1	A
gamma-BHC	ND		mg/kg	0.00016	0.00016	1	A
gamma-Chlordane	ND		mg/kg	0.00016	0.00016	1	A
Heptachlor	ND		mg/kg	0.00016	0.00016	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00033	0.00033	1	B
Methoxychlor	ND		mg/kg	0.00168	0.00168	1	A
Toxaphene	ND		mg/kg	0.00844	0.00844	1	A
Chlordane	ND		mg/kg	0.00844	0.00844	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08 Date Collected: 08/16/24 09:50

Client ID: VC-08 (13.9'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	63		30-150	A
DCB - Surrogate	66		30-150	A
TMX - Surrogate	60		30-150	B
DCB - Surrogate	70		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 12:50
Analyst: DP
Percent Solids: 74%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00012	0.00012	1	A
4,4'-DDE	ND		mg/kg	0.00012	0.00012	1	A
4,4'-DDT	ND		mg/kg	0.00012	0.00012	1	A
Aldrin	ND		mg/kg	0.00012	0.00012	1	A
alpha-BHC	ND		mg/kg	0.00012	0.00012	1	A
alpha-Chlordane	ND		mg/kg	0.00012	0.00012	1	A
beta-BHC	ND		mg/kg	0.00012	0.00012	1	A
delta-BHC	ND		mg/kg	0.00012	0.00012	1	A
Dieldrin	ND		mg/kg	0.00012	0.00012	1	A
Endosulfan I	ND		mg/kg	0.00012	0.00012	1	A
Endosulfan II	ND		mg/kg	0.00012	0.00012	1	A
Endosulfan sulfate	ND		mg/kg	0.00012	0.00012	1	A
Endrin	ND		mg/kg	0.00012	0.00012	1	A
Endrin aldehyde	ND		mg/kg	0.00038	0.00038	1	A
Endrin ketone	ND		mg/kg	0.00012	0.00012	1	A
gamma-BHC	ND		mg/kg	0.00012	0.00012	1	A
gamma-Chlordane	ND		mg/kg	0.00012	0.00012	1	A
Heptachlor	ND		mg/kg	0.00012	0.00012	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00025	0.00025	1	B
Methoxychlor	ND		mg/kg	0.00126	0.00126	1	A
Toxaphene	ND		mg/kg	0.00635	0.00635	1	A
Chlordane	ND		mg/kg	0.00635	0.00635	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09 Date Collected: 08/16/24 13:20

Client ID: VC-07 (0-10') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	44		30-150	A
DCB - Surrogate	91		30-150	A
TMX - Surrogate	54		30-150	B
DCB - Surrogate	93		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 02:46
Analyst: DMP
Percent Solids: 55%

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
4,4'-DDD	ND		mg/kg	0.00018	0.00018	1	A
4,4'-DDE	ND		mg/kg	0.00018	0.00018	1	A
4,4'-DDT	ND		mg/kg	0.00018	0.00018	1	A
Aldrin	ND		mg/kg	0.00018	0.00018	1	A
alpha-BHC	ND		mg/kg	0.00018	0.00018	1	A
alpha-Chlordane	ND		mg/kg	0.00018	0.00018	1	A
beta-BHC	ND		mg/kg	0.00018	0.00018	1	A
delta-BHC	ND		mg/kg	0.00018	0.00018	1	A
Dieldrin	ND		mg/kg	0.00018	0.00018	1	A
Endosulfan I	ND		mg/kg	0.00018	0.00018	1	A
Endosulfan II	ND		mg/kg	0.00018	0.00018	1	A
Endosulfan sulfate	ND		mg/kg	0.00018	0.00018	1	A
Endrin	ND		mg/kg	0.00018	0.00018	1	A
Endrin aldehyde	ND		mg/kg	0.00053	0.00053	1	A
Endrin ketone	ND		mg/kg	0.00018	0.00018	1	A
gamma-BHC	ND		mg/kg	0.00018	0.00018	1	A
gamma-Chlordane	ND		mg/kg	0.00018	0.00018	1	A
Heptachlor	ND		mg/kg	0.00018	0.00018	1	A
Heptachlor epoxide (B)	ND		mg/kg	0.00036	0.00036	1	B
Methoxychlor	ND		mg/kg	0.00180	0.00180	1	A
Toxaphene	ND		mg/kg	0.00902	0.00902	1	A
Chlordane	ND		mg/kg	0.00902	0.00902	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10 Date Collected: 08/16/24 13:45

Client ID: VC-07 (10'-17') Date Received: 08/16/24

Sample Location: NJ WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	37		30-150	A
DCB - Surrogate	41		30-150	A
TMX - Surrogate	35		30-150	B
DCB - Surrogate	45		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 08/23/24 12:19
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 08/19/24 09:35

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 05 Batch: WG1960925-1						
4,4'-DDD	ND		ug/l	0.0005	0.0005	A
4,4'-DDE	ND		ug/l	0.0005	0.0005	A
4,4'-DDT	ND		ug/l	0.0005	0.0005	A
Aldrin	ND		ug/l	0.0010	0.0010	A
alpha-BHC	ND		ug/l	0.0005	0.0005	A
alpha-Chlordane	ND		ug/l	0.0005	0.0005	A
beta-BHC	ND		ug/l	0.0005	0.0005	A
delta-BHC	ND		ug/l	0.0005	0.0005	A
Dieldrin	ND		ug/l	0.0005	0.0005	A
Endosulfan I	ND		ug/l	0.0005	0.0005	A
Endosulfan II	ND		ug/l	0.0005	0.0005	A
Endosulfan sulfate	ND		ug/l	0.0005	0.0005	A
Endrin	ND		ug/l	0.0005	0.0005	A
Endrin aldehyde	ND		ug/l	0.0005	0.0005	A
Endrin ketone	ND		ug/l	0.0005	0.0005	A
gamma-BHC	ND		ug/l	0.0005	0.0005	A
gamma-Chlordane	ND		ug/l	0.0005	0.0005	A
Heptachlor	ND		ug/l	0.0005	0.0005	A
Methoxychlor	ND		ug/l	0.0050	0.0050	A
Toxaphene	ND		ug/l	0.0250	0.0250	A
Chlordane	ND		ug/l	0.0250	0.0250	A
Heptachlor epoxide (B)	ND		ug/l	0.0005	0.0005	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 08/23/24 12:19
Analyst: DP

Extraction Method: EPA 3510C
Extraction Date: 08/19/24 09:35

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 05 Batch: WG1960925-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	85		30-150	A
DCB - Surrogate	83		30-150	A
TMX - Surrogate	94		30-150	B
DCB - Surrogate	75		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 09/11/24 18:22
Analyst: DMP

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962072-1						
4,4'-DDD	ND		mg/kg	0.00010	0.00010	A
4,4'-DDE	ND		mg/kg	0.00010	0.00010	A
4,4'-DDT	ND		mg/kg	0.00010	0.00010	A
Aldrin	ND		mg/kg	0.00010	0.00010	A
alpha-BHC	ND		mg/kg	0.00010	0.00010	A
alpha-Chlordane	ND		mg/kg	0.00010	0.00010	A
beta-BHC	ND		mg/kg	0.00010	0.00010	A
delta-BHC	ND		mg/kg	0.00010	0.00010	A
Dieldrin	ND		mg/kg	0.00010	0.00010	A
Endosulfan I	ND		mg/kg	0.00010	0.00010	A
Endosulfan II	ND		mg/kg	0.00010	0.00010	A
Endosulfan sulfate	ND		mg/kg	0.00010	0.00010	A
Endrin	ND		mg/kg	0.00010	0.00010	A
Endrin aldehyde	ND		mg/kg	0.00030	0.00030	A
Endrin ketone	ND		mg/kg	0.00010	0.00010	A
gamma-BHC	ND		mg/kg	0.00010	0.00010	A
gamma-Chlordane	ND		mg/kg	0.00010	0.00010	A
Heptachlor	ND		mg/kg	0.00010	0.00010	A
Methoxychlor	ND		mg/kg	0.00100	0.00100	A
Toxaphene	ND		mg/kg	0.00502	0.00502	A
Chlordane	ND		mg/kg	0.00502	0.00502	A
Heptachlor epoxide (B)	ND		mg/kg	0.00020	0.00020	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 09/11/24 18:22
Analyst: DMP

Extraction Method: EPA 3570
Extraction Date: 08/21/24 17:49
Cleanup Method: EPA 3630
Cleanup Date: 08/23/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1962072-1						

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	50		30-150	A
DCB - Surrogate	60		30-150	A
TMX - Surrogate	47		30-150	B
DCB - Surrogate	66		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 05 Batch: WG1960925-2 WG1960925-3									
4,4'-DDD	82		87		40-140	7		20	A
4,4'-DDE	91		97		40-140	7		20	A
4,4'-DDT	78		84		40-140	7		20	A
Aldrin	83		87		40-140	5		20	A
alpha-BHC	91		93		40-140	2		20	A
alpha-Chlordane	88		94		40-140	6		20	A
beta-BHC	82		85		40-140	4		20	A
delta-BHC	52		55		40-140	5		20	A
Dieldrin	95		101		40-140	6		20	A
Endosulfan I	87		92		40-140	6		20	A
Endosulfan II	86		92		40-140	7		20	A
Endosulfan sulfate	86		91		40-140	6		20	A
Endrin	84		89		40-140	6		20	A
Endrin aldehyde	75		79		40-140	5		20	A
Endrin ketone	102		109		40-140	7		20	A
gamma-BHC	91		94		40-140	3		20	A
gamma-Chlordane	88		94		40-140	6		20	A
Heptachlor	80		82		40-140	3		20	A
Methoxychlor	78		82		40-140	5		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 05 Batch: WG1960925-2 WG1960925-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	81		82		30-150	A
DCB - Surrogate	76		83		30-150	A
TMX - Surrogate	91		89		30-150	B
DCB - Surrogate	70		75		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 05 Batch: WG1960925-2 WG1960925-3									
Heptachlor epoxide (B)	93		97		40-140	4		20	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	81		82		30-150	A
DCB - Surrogate	76		83		30-150	A
TMX - Surrogate	91		89		30-150	B
DCB - Surrogate	70		75		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962072-2 WG1962072-3									
4,4'-DDD	72		78		40-140	8		30	A
4,4'-DDE	73		77		40-140	5		30	A
4,4'-DDT	79		82		40-140	4		30	A
Aldrin	69		70		40-140	1		30	A
alpha-BHC	71		76		40-140	7		30	A
alpha-Chlordane	69		70		40-140	1		30	A
beta-BHC	65		63		40-140	3		30	A
delta-BHC	42		46		40-140	9		30	A
Dieldrin	76		78		40-140	3		30	A
Endosulfan I	66		68		40-140	3		30	A
Endosulfan II	68		70		40-140	3		30	A
Endosulfan sulfate	70		74		40-140	6		30	A
Endrin	67		72		40-140	7		30	A
Endrin aldehyde	60		62		40-140	3		30	A
Endrin ketone	87		89		40-140	2		30	A
gamma-BHC	62		67		40-140	8		30	A
gamma-Chlordane	70		72		40-140	3		30	A
Heptachlor	65		68		40-140	5		30	A
Methoxychlor	72		75		40-140	4		30	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962072-2 WG1962072-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	61		59		30-150	A
DCB - Surrogate	65		65		30-150	A
TMX - Surrogate	55		57		30-150	B
DCB - Surrogate	72		74		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1962072-2 WG1962072-3									
Heptachlor epoxide (B)	74		78		40-140	5		30	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	61		59		30-150	A
DCB - Surrogate	65		65		30-150	A
TMX - Surrogate	55		57		30-150	B
DCB - Surrogate	72		74		30-150	B

Matrix Spike Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962072-4 WG1962072-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')													
4,4'-DDD	ND	0.03	0.0232	77		0.0189	65		30-150	20		30	A
4,4'-DDE	ND	0.03	0.0211	70		0.0178	61		30-150	17		30	A
4,4'-DDT	ND	0.03	0.0234	78		0.0200	69		30-150	16		30	A
Aldrin	ND	0.03	0.00835	**28**	Q	0.00947	32		30-150	13		30	A
alpha-BHC	ND	0.03	0.0212	71		0.0171	59		30-150	21		30	A
alpha-Chlordane	ND	0.03	0.0190	63		0.0159	55		30-150	18		30	A
beta-BHC	ND	0.03	0.0202	67		0.0151	52		30-150	29		30	A
delta-BHC	ND	0.03	0.0124	41		0.00937	32		30-150	28		30	A
Dieldrin	ND	0.03	0.0206	69		0.0153	52		30-150	30		30	A
Endosulfan I	ND	0.03	0.0184	61		0.0142	49		30-150	26		30	A
Endosulfan II	ND	0.03	0.0200	67		0.0129	44		30-150	**43**	Q	30	A
Endosulfan sulfate	ND	0.03	0.0196	65		0.0114	39		30-150	**53**	Q	30	A
Endrin	ND	0.03	0.0215	72		0.0160	55		30-150	29		30	A
Endrin aldehyde	ND	0.03	0.0147	49		0.00600	**21**	Q	30-150	**84**	Q	30	A
Endrin ketone	ND	0.03	0.0301	100		0.0190	65		30-150	**45**	Q	30	A
gamma-BHC	ND	0.03	0.0172	57		0.0135	46		30-150	24		30	A
gamma-Chlordane	ND	0.03	0.0199	66		0.0170	58		30-150	16		30	A
Heptachlor	ND	0.03	0.0221	74		0.0184	63		30-150	18		30	A
Heptachlor epoxide (B)	ND	0.03	0.0244	81		0.0192	66		30-150	24		30	B
Methoxychlor	ND	0.03	0.0202	67		0.00998	34		30-150	**68**	Q	30	A

Matrix Spike Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1962072-4 WG1962072-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria	Column
DCB - Surrogate	57		50		30-150	A
TMX - Surrogate	53		55		30-150	A
DCB - Surrogate	64		57		30-150	B
TMX - Surrogate	52		45		30-150	B

METALS

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS
Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4610		mg/kg	137	20.3	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Antimony, Total	ND		mg/kg	2.19	0.185	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Arsenic, Total	3.14		mg/kg	0.685	0.090	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Barium, Total	14.6		mg/kg	4.11	0.289	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Beryllium, Total	0.258	J	mg/kg	0.411	0.119	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Cadmium, Total	ND		mg/kg	0.274	0.036	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Calcium, Total	788		mg/kg	685	83.3	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Chromium, Total	13.0		mg/kg	2.74	0.641	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Cobalt, Total	3.40		mg/kg	0.685	0.073	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Copper, Total	3.42		mg/kg	2.74	0.266	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Iron, Total	10000		mg/kg	274	28.2	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Lead, Total	4.23		mg/kg	0.822	0.200	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Magnesium, Total	2130		mg/kg	137	16.9	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Manganese, Total	206		mg/kg	2.74	0.608	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Mercury, Total	0.009	J	mg/kg	0.015	0.002	5	09/10/24 01:52	09/10/24 11:46	EPA 7474	1,7474	RJP
Nickel, Total	8.42		mg/kg	1.37	0.366	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Potassium, Total	775		mg/kg	137	21.8	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Selenium, Total	1.36	J	mg/kg	2.74	1.04	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Silver, Total	ND		mg/kg	0.685	0.067	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Sodium, Total	1260		mg/kg	205	16.0	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Thallium, Total	ND		mg/kg	0.548	0.071	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Vanadium, Total	12.2		mg/kg	1.37	0.519	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC
Zinc, Total	21.1		mg/kg	13.7	3.56	10	09/16/24 13:23	09/17/24 19:36	EPA 3050B	1,6020B	MRC

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS
Sample Depth:
Matrix: Sediment
Percent Solids: 59%

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	11000		mg/kg	164	24.2	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Antimony, Total	ND		mg/kg	2.62	0.221	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Arsenic, Total	7.34		mg/kg	0.818	0.108	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Barium, Total	38.2		mg/kg	4.91	0.346	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Beryllium, Total	0.624		mg/kg	0.491	0.143	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Cadmium, Total	0.079	J	mg/kg	0.327	0.043	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Calcium, Total	2080		mg/kg	818	99.5	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Chromium, Total	30.9		mg/kg	3.27	0.766	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Cobalt, Total	8.18		mg/kg	0.818	0.087	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Copper, Total	7.73		mg/kg	3.27	0.318	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Iron, Total	23500		mg/kg	327	33.7	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Lead, Total	8.62		mg/kg	0.982	0.239	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Magnesium, Total	5360		mg/kg	164	20.2	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Manganese, Total	505		mg/kg	3.27	0.727	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Mercury, Total	0.022	J	mg/kg	0.025	0.003	5	09/10/24 01:52	09/10/24 11:49	EPA 7474	1,7474	RJP
Nickel, Total	18.6		mg/kg	1.64	0.437	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Potassium, Total	1890		mg/kg	164	26.0	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Selenium, Total	3.53		mg/kg	3.27	1.24	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Silver, Total	ND		mg/kg	0.818	0.080	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Sodium, Total	2420		mg/kg	246	19.2	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Thallium, Total	0.138	J	mg/kg	0.655	0.085	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Vanadium, Total	29.2		mg/kg	1.64	0.621	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC
Zinc, Total	48.3		mg/kg	16.4	4.26	10	09/16/24 13:23	09/17/24 19:59	EPA 3050B	1,6020B	MRC

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS
Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	2410		mg/kg	120	17.7	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	1.92	0.162	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Arsenic, Total	3.46		mg/kg	0.599	0.079	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Barium, Total	7.94		mg/kg	3.59	0.253	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.159	J	mg/kg	0.359	0.104	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Cadmium, Total	ND		mg/kg	0.240	0.032	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Calcium, Total	366	J	mg/kg	599	72.8	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Chromium, Total	6.85		mg/kg	2.40	0.560	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Cobalt, Total	2.29		mg/kg	0.599	0.064	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Copper, Total	1.64	J	mg/kg	2.40	0.232	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Iron, Total	7080		mg/kg	240	24.7	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Lead, Total	2.52		mg/kg	0.719	0.175	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Magnesium, Total	1230		mg/kg	120	14.8	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Manganese, Total	174		mg/kg	2.40	0.532	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Mercury, Total	0.007	J	mg/kg	0.018	0.002	5	09/10/24 01:52	09/10/24 11:20	EPA 7474	1,7474	RJP
Nickel, Total	4.55		mg/kg	1.20	0.320	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Potassium, Total	417		mg/kg	120	19.0	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Selenium, Total	0.932	J	mg/kg	2.40	0.906	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.599	0.058	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Sodium, Total	872		mg/kg	180	14.0	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Thallium, Total	0.123	J	mg/kg	0.479	0.062	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Vanadium, Total	6.93		mg/kg	1.20	0.454	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB
Zinc, Total	15.1		mg/kg	12.0	3.11	10	09/16/24 10:23	09/18/24 12:45	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS
Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 45%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	16500		mg/kg	214	31.7	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	3.43	0.290	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Arsenic, Total	8.34		mg/kg	1.07	0.141	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Barium, Total	48.9		mg/kg	6.43	0.453	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.864		mg/kg	0.643	0.187	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.074	J	mg/kg	0.429	0.057	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Calcium, Total	1850		mg/kg	1070	130.	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Chromium, Total	40.4		mg/kg	4.29	1.00	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Cobalt, Total	11.7		mg/kg	1.07	0.114	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Copper, Total	11.0		mg/kg	4.29	0.416	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Iron, Total	36200		mg/kg	429	44.2	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Lead, Total	12.1		mg/kg	1.29	0.313	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Magnesium, Total	5710		mg/kg	214	26.4	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Manganese, Total	342		mg/kg	4.29	0.952	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Mercury, Total	0.018	J	mg/kg	0.027	0.003	5	09/10/24 01:52	09/10/24 11:52	EPA 7474	1,7474	RJP
Nickel, Total	27.6		mg/kg	2.14	0.573	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Potassium, Total	2800		mg/kg	214	34.0	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Selenium, Total	4.76		mg/kg	4.29	1.62	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	1.07	0.105	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Sodium, Total	4690		mg/kg	322	25.1	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Thallium, Total	0.260	J	mg/kg	0.857	0.111	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Vanadium, Total	40.8		mg/kg	2.14	0.813	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB
Zinc, Total	77.5		mg/kg	21.4	5.57	10	09/16/24 10:23	09/18/24 13:08	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS
Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.00420	J	mg/l	0.0100	0.00327	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Antimony, Total	ND		mg/l	0.00400	0.00042	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Barium, Total	ND		mg/l	0.00050	0.00017	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Beryllium, Total	ND		mg/l	0.00030	0.00010	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Cadmium, Total	ND		mg/l	0.000200	0.000059	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Calcium, Total	ND		mg/l	0.100	0.0394	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Chromium, Total	0.00123		mg/l	0.00100	0.00017	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Copper, Total	ND		mg/l	0.00100	0.00038	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Iron, Total	ND		mg/l	0.0500	0.0191	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Lead, Total	ND		mg/l	0.00100	0.00034	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Manganese, Total	0.00114		mg/l	0.00100	0.00044	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Mercury, Total	ND		mg/l	0.00005	0.00002	1	09/11/24 11:25	09/12/24 11:52	EPA 7474	1,7474	RJP
Nickel, Total	ND		mg/l	0.00200	0.00055	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Potassium, Total	ND		mg/l	0.100	0.0309	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Selenium, Total	ND		mg/l	0.00500	0.00173	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Silver, Total	ND		mg/l	0.00040	0.00016	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Sodium, Total	ND		mg/l	0.100	0.0293	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Thallium, Total	ND		mg/l	0.00100	0.00014	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP
Zinc, Total	ND		mg/l	0.0100	0.00341	1	09/11/24 13:02	09/16/24 20:35	EPA 3005A	1,6020B	WKP

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS
Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	7190		mg/kg	147	21.7	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	2.35	0.199	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Arsenic, Total	6.58		mg/kg	0.734	0.097	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Barium, Total	27.6		mg/kg	4.41	0.310	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.389	J	mg/kg	0.441	0.128	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.055	J	mg/kg	0.294	0.039	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Calcium, Total	1170		mg/kg	734	89.3	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Chromium, Total	19.7		mg/kg	2.94	0.688	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Cobalt, Total	5.45		mg/kg	0.734	0.078	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Copper, Total	4.90		mg/kg	2.94	0.285	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Iron, Total	16600		mg/kg	294	30.3	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Lead, Total	5.55		mg/kg	0.881	0.214	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Magnesium, Total	3510		mg/kg	147	18.1	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Manganese, Total	516		mg/kg	2.94	0.652	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Mercury, Total	0.014	J	mg/kg	0.019	0.002	5	09/10/24 01:52	09/10/24 11:54	EPA 7474	1,7474	RJP
Nickel, Total	12.0		mg/kg	1.47	0.392	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Potassium, Total	1190		mg/kg	147	23.3	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Selenium, Total	2.92	J	mg/kg	2.94	1.11	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.734	0.072	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Sodium, Total	1340		mg/kg	220	17.2	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Thallium, Total	0.107	J	mg/kg	0.588	0.076	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Vanadium, Total	18.5		mg/kg	1.47	0.557	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB
Zinc, Total	32.1		mg/kg	14.7	3.82	10	09/16/24 10:23	09/18/24 13:12	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS
Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	976		mg/kg	108	16.0	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	1.73	0.146	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Arsenic, Total	1.76		mg/kg	0.540	0.071	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Barium, Total	5.57		mg/kg	3.24	0.228	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.104	J	mg/kg	0.324	0.094	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Cadmium, Total	ND		mg/kg	0.216	0.029	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Calcium, Total	426	J	mg/kg	540	65.7	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Chromium, Total	3.21		mg/kg	2.16	0.506	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Cobalt, Total	1.23		mg/kg	0.540	0.058	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Copper, Total	0.658	J	mg/kg	2.16	0.210	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Iron, Total	5770		mg/kg	216	22.2	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Lead, Total	1.23		mg/kg	0.648	0.158	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Magnesium, Total	502		mg/kg	108	13.3	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Manganese, Total	249		mg/kg	2.16	0.480	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Mercury, Total	0.004	J	mg/kg	0.014	0.002	5	09/10/24 01:52	09/10/24 11:57	EPA 7474	1,7474	RJP
Nickel, Total	1.91		mg/kg	1.08	0.289	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Potassium, Total	181		mg/kg	108	17.2	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Selenium, Total	ND		mg/kg	2.16	0.817	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.540	0.053	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Sodium, Total	272		mg/kg	162	12.7	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Thallium, Total	ND		mg/kg	0.432	0.056	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Vanadium, Total	5.34		mg/kg	1.08	0.410	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB
Zinc, Total	5.91	J	mg/kg	10.8	2.81	10	09/16/24 10:23	09/18/24 13:17	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS
Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	12400		mg/kg	172	25.4	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	2.75	0.232	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Arsenic, Total	11.5		mg/kg	0.859	0.113	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Barium, Total	45.2		mg/kg	5.15	0.363	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.709		mg/kg	0.515	0.150	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.102	J	mg/kg	0.343	0.045	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Calcium, Total	2460		mg/kg	859	104.	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Chromium, Total	34.1		mg/kg	3.43	0.804	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Cobalt, Total	9.90		mg/kg	0.859	0.091	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Copper, Total	9.85		mg/kg	3.43	0.333	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Iron, Total	27100		mg/kg	343	35.4	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Lead, Total	10.3		mg/kg	1.03	0.251	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Magnesium, Total	6170		mg/kg	172	21.2	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Manganese, Total	912		mg/kg	3.43	0.762	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Mercury, Total	0.024		mg/kg	0.018	0.002	5	09/10/24 01:52	09/10/24 12:00	EPA 7474	1,7474	RJP
Nickel, Total	21.8		mg/kg	1.72	0.459	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Potassium, Total	2080		mg/kg	172	27.3	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Selenium, Total	4.78		mg/kg	3.43	1.30	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.859	0.084	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Sodium, Total	2020		mg/kg	258	20.1	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Thallium, Total	0.175	J	mg/kg	0.687	0.089	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Vanadium, Total	32.1		mg/kg	1.72	0.651	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB
Zinc, Total	57.7		mg/kg	17.2	4.46	10	09/16/24 10:23	09/18/24 13:31	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS
Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	3420		mg/kg	129	19.1	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Antimony, Total	2.22		mg/kg	2.06	0.174	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Arsenic, Total	19.2		mg/kg	0.644	0.085	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Barium, Total	91.4		mg/kg	3.86	0.272	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.284	J	mg/kg	0.386	0.112	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.526		mg/kg	0.258	0.034	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Calcium, Total	614	J	mg/kg	644	78.3	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Chromium, Total	16.3		mg/kg	2.58	0.603	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Cobalt, Total	23.6		mg/kg	0.644	0.069	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Copper, Total	14.6		mg/kg	2.58	0.250	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Iron, Total	9780		mg/kg	258	26.5	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Lead, Total	32.0		mg/kg	0.773	0.188	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Magnesium, Total	1630		mg/kg	129	15.9	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Manganese, Total	2760		mg/kg	2.58	0.572	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Mercury, Total	0.043		mg/kg	0.017	0.002	5	09/10/24 01:52	09/10/24 12:02	EPA 7474	1,7474	RJP
Nickel, Total	17.0		mg/kg	1.29	0.344	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Potassium, Total	531		mg/kg	129	20.5	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Selenium, Total	1.65	J	mg/kg	2.58	0.974	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Silver, Total	0.064	J	mg/kg	0.644	0.063	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Sodium, Total	780		mg/kg	193	15.1	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Thallium, Total	0.187	J	mg/kg	0.515	0.067	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Vanadium, Total	12.9		mg/kg	1.29	0.488	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB
Zinc, Total	330		mg/kg	12.9	3.35	10	09/16/24 10:23	09/18/24 13:35	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446115
Project Number: 529393.0003.0000
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS
Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 55%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	12400		mg/kg	172	25.5	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	2.76	0.233	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Arsenic, Total	10.4		mg/kg	0.863	0.114	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Barium, Total	50.1		mg/kg	5.18	0.364	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.725		mg/kg	0.518	0.150	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.103	J	mg/kg	0.345	0.046	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Calcium, Total	2130		mg/kg	863	105.	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Chromium, Total	34.6		mg/kg	3.45	0.808	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Cobalt, Total	10.2		mg/kg	0.863	0.092	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Copper, Total	10.4		mg/kg	3.45	0.335	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Iron, Total	27600		mg/kg	345	35.6	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Lead, Total	11.8		mg/kg	1.04	0.252	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Magnesium, Total	6100		mg/kg	172	21.3	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Manganese, Total	930		mg/kg	3.45	0.766	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Mercury, Total	0.024		mg/kg	0.023	0.003	5	09/10/24 01:52	09/10/24 12:12	EPA 7474	1,7474	RJP
Nickel, Total	22.1		mg/kg	1.72	0.461	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Potassium, Total	2120		mg/kg	172	27.4	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Selenium, Total	4.73		mg/kg	3.45	1.30	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.863	0.084	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Sodium, Total	1840		mg/kg	259	20.2	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Thallium, Total	0.149	J	mg/kg	0.690	0.089	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Vanadium, Total	32.5		mg/kg	1.72	0.654	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB
Zinc, Total	64.6		mg/kg	17.2	4.49	10	09/16/24 10:23	09/18/24 13:40	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1969202-1										
Mercury, Total	0.003	J	mg/kg	0.013	0.002	5	09/10/24 01:52	09/10/24 11:03	1,7474	RJP

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 05 Batch: WG1969678-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Antimony, Total	ND		mg/l	0.00400	0.00042	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Barium, Total	ND		mg/l	0.00050	0.00017	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Beryllium, Total	ND		mg/l	0.00030	0.00010	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Cadmium, Total	ND		mg/l	0.000200	0.000059	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Calcium, Total	0.0583	J	mg/l	0.100	0.0394	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Chromium, Total	0.00095	J	mg/l	0.00100	0.00017	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Cobalt, Total	ND		mg/l	0.00050	0.00016	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Copper, Total	ND		mg/l	0.00100	0.00038	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Iron, Total	ND		mg/l	0.0500	0.0191	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Lead, Total	ND		mg/l	0.00100	0.00034	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Manganese, Total	ND		mg/l	0.00100	0.00044	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Nickel, Total	ND		mg/l	0.00200	0.00055	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Potassium, Total	ND		mg/l	0.100	0.0309	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Selenium, Total	ND		mg/l	0.00500	0.00173	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Silver, Total	ND		mg/l	0.00040	0.00016	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Sodium, Total	ND		mg/l	0.100	0.0293	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Thallium, Total	ND		mg/l	0.00100	0.00014	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Vanadium, Total	ND		mg/l	0.00500	0.00157	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP
Zinc, Total	ND		mg/l	0.0100	0.00341	1	09/11/24 13:02	09/16/24 20:31	1,6020B	WKP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446115
Report Date: 09/24/24

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 05 Batch: WG1969679-1										
Mercury, Total	ND		mg/l	0.00005	0.00002	1	09/11/24 11:25	09/12/24 11:46	1,7474	RJP

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,06-10 Batch: WG1971466-1										
Aluminum, Total	ND		mg/kg	100	14.8	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Antimony, Total	ND		mg/kg	1.60	0.135	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Arsenic, Total	ND		mg/kg	0.500	0.066	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Barium, Total	ND		mg/kg	3.00	0.211	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Beryllium, Total	ND		mg/kg	0.300	0.087	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Cadmium, Total	ND		mg/kg	0.200	0.026	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Calcium, Total	ND		mg/kg	500	60.8	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Chromium, Total	ND		mg/kg	2.00	0.468	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Cobalt, Total	ND		mg/kg	0.500	0.053	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Copper, Total	ND		mg/kg	2.00	0.194	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Iron, Total	ND		mg/kg	200	20.6	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Lead, Total	ND		mg/kg	0.600	0.146	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Magnesium, Total	ND		mg/kg	100	12.3	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Manganese, Total	ND		mg/kg	2.00	0.444	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Nickel, Total	ND		mg/kg	1.00	0.267	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Potassium, Total	ND		mg/kg	100	15.9	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Selenium, Total	ND		mg/kg	2.00	0.756	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Silver, Total	ND		mg/kg	0.500	0.049	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Sodium, Total	ND		mg/kg	150	11.7	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Thallium, Total	ND		mg/kg	0.400	0.052	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Vanadium, Total	ND	mg/kg	1.00	0.379	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Zinc, Total	ND	mg/kg	10.0	2.60	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1972144-1										
Aluminum, Total	ND		mg/kg	100	14.8	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Antimony, Total	ND		mg/kg	1.60	0.135	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Arsenic, Total	ND		mg/kg	0.500	0.066	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Barium, Total	ND		mg/kg	3.00	0.211	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Beryllium, Total	ND		mg/kg	0.300	0.087	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Cadmium, Total	ND		mg/kg	0.200	0.026	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Calcium, Total	ND		mg/kg	500	60.8	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Chromium, Total	ND		mg/kg	2.00	0.468	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Cobalt, Total	ND		mg/kg	0.500	0.053	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Copper, Total	ND		mg/kg	2.00	0.194	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Iron, Total	ND		mg/kg	200	20.6	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Lead, Total	ND		mg/kg	0.600	0.146	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Magnesium, Total	ND		mg/kg	100	12.3	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Manganese, Total	ND		mg/kg	2.00	0.444	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Nickel, Total	ND		mg/kg	1.00	0.267	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Potassium, Total	ND		mg/kg	100	15.9	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Selenium, Total	ND		mg/kg	2.00	0.756	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Silver, Total	ND		mg/kg	0.500	0.049	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Sodium, Total	ND		mg/kg	150	11.7	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Thallium, Total	ND		mg/kg	0.400	0.052	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Vanadium, Total	ND		mg/kg	1.00	0.379	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB
Zinc, Total	ND		mg/kg	10.0	2.60	10	09/16/24 13:23	09/17/24 14:11	1,6020B	NTB

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1969202-2 SRM Lot Number: D123-540								
Mercury, Total	96		-		67-132	-		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05 Batch: WG1969678-2					
Aluminum, Total	94	-	80-120	-	20
Antimony, Total	85	-	80-120	-	20
Arsenic, Total	96	-	80-120	-	20
Barium, Total	94	-	80-120	-	20
Beryllium, Total	94	-	80-120	-	20
Cadmium, Total	94	-	80-120	-	20
Calcium, Total	101	-	80-120	-	20
Chromium, Total	99	-	80-120	-	20
Cobalt, Total	99	-	80-120	-	20
Copper, Total	99	-	80-120	-	20
Iron, Total	120	-	80-120	-	20
Lead, Total	95	-	80-120	-	20
Magnesium, Total	100	-	80-120	-	20
Manganese, Total	99	-	80-120	-	20
Nickel, Total	99	-	80-120	-	20
Potassium, Total	98	-	80-120	-	20
Selenium, Total	92	-	80-120	-	20
Silver, Total	94	-	80-120	-	20
Sodium, Total	99	-	80-120	-	20
Thallium, Total	99	-	80-120	-	20
Vanadium, Total	97	-	80-120	-	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05 Batch: WG1969678-2					
Zinc, Total	97	-	80-120	-	20
Total Metals - Mansfield Lab Associated sample(s): 05 Batch: WG1969679-2 SRM Lot Number: HPHGAF					
Mercury, Total	96	-	80-120	-	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1971466-2					
Aluminum, Total	104	-	80-120	-	20
Antimony, Total	98	-	80-120	-	20
Arsenic, Total	106	-	80-120	-	20
Barium, Total	100	-	80-120	-	20
Beryllium, Total	99	-	80-120	-	20
Cadmium, Total	98	-	80-120	-	20
Calcium, Total	86	-	80-120	-	20
Chromium, Total	107	-	80-120	-	20
Cobalt, Total	110	-	80-120	-	20
Copper, Total	109	-	80-120	-	20
Iron, Total	113	-	80-120	-	20
Lead, Total	98	-	80-120	-	20
Magnesium, Total	104	-	80-120	-	20
Manganese, Total	114	-	80-120	-	20
Nickel, Total	110	-	80-120	-	20
Potassium, Total	100	-	80-120	-	20
Selenium, Total	102	-	80-120	-	20
Silver, Total	90	-	80-120	-	20
Sodium, Total	108	-	80-120	-	20
Thallium, Total	99	-	80-120	-	20
Vanadium, Total	104	-	80-120	-	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 Batch: WG1971466-2					
Zinc, Total	107	-	80-120	-	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1972144-2					
Aluminum, Total	94	-	80-120	-	20
Antimony, Total	97	-	80-120	-	20
Arsenic, Total	102	-	80-120	-	20
Barium, Total	100	-	80-120	-	20
Beryllium, Total	103	-	80-120	-	20
Cadmium, Total	97	-	80-120	-	20
Calcium, Total	120	-	80-120	-	20
Chromium, Total	110	-	80-120	-	20
Cobalt, Total	113	-	80-120	-	20
Copper, Total	110	-	80-120	-	20
Iron, Total	116	-	80-120	-	20
Lead, Total	95	-	80-120	-	20
Magnesium, Total	100	-	80-120	-	20
Manganese, Total	113	-	80-120	-	20
Nickel, Total	112	-	80-120	-	20
Potassium, Total	114	-	80-120	-	20
Selenium, Total	94	-	80-120	-	20
Silver, Total	91	-	80-120	-	20
Sodium, Total	102	-	80-120	-	20
Thallium, Total	105	-	80-120	-	20
Vanadium, Total	108	-	80-120	-	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1972144-2					
Zinc, Total	113	-	80-120	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1969202-6 WG1969202-7 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Mercury, Total	0.007J	0.922	0.820	89		0.725	89		80-120	12		20
Total Metals - Mansfield Lab Associated sample(s): 05 QC Batch ID: WG1969679-3 QC Sample: L2446115-05 Client ID: FB-081524												
Mercury, Total	ND	0.0025	0.00267	107		-	-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery		Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 (0-15.2')	QC Batch ID: WG1971466-3	WG1971466-4	QC Sample: L2446115-03	Client ID: VC-09							
Aluminum, Total	2410	200	2940	**264**	Q	2810	**206**	Q	75-125	5	20
Antimony, Total	ND	50.1	48.0	96		45.1	93		75-125	6	20
Arsenic, Total	3.46	12	16.3	107		15.4	102		75-125	6	20
Barium, Total	7.94	200	210	101		197	97		75-125	6	20
Beryllium, Total	0.159J	5.01	4.84	97		4.54	93		75-125	6	20
Cadmium, Total	ND	5.31	5.18	98		4.87	94		75-125	6	20
Calcium, Total	366J	1000	1230	123		1080	111		75-125	13	20
Chromium, Total	6.85	20	28.6	108		26.1	99		75-125	9	20
Cobalt, Total	2.29	50.1	56.0	107		50.8	100		75-125	10	20
Copper, Total	1.64J	25	28.1	112		26.0	107		75-125	8	20
Iron, Total	7080	100	7600	**519**	Q	7540	**473**	Q	75-125	1	20
Lead, Total	2.52	53.1	54.7	98		50.8	94		75-125	7	20
Magnesium, Total	1230	1000	2270	104		2120	92		75-125	7	20
Manganese, Total	174	50.1	229	110		226	107		75-125	1	20
Nickel, Total	4.55	50.1	58.3	107		53.5	101		75-125	9	20
Potassium, Total	417	1000	1370	95		1270	88		75-125	8	20
Selenium, Total	0.932J	12	13.1	109		11.9	102		75-125	10	20
Silver, Total	ND	5.01	4.52	90		4.22	87		75-125	7	20
Sodium, Total	872	1000	1950	108		1830	98		75-125	6	20
Thallium, Total	0.123J	12	12.0	100		11.2	96		75-125	7	20
Vanadium, Total	6.93	50.1	56.9	100		51.2	91		75-125	11	20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1971466-3 WG1971466-4 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')									
Zinc, Total	15.1	50.1	65.7	101	61.1	95	75-125	7	20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972144-3 QC Sample: L2446115-01 Client ID: VC-10 (0-14.5)										
Aluminum, Total	4610	216	5320	**329**	Q	-	-	75-125	-	20
Antimony, Total	ND	54	48.9	91		-	-	75-125	-	20
Arsenic, Total	3.14	12.9	13.6	81		-	-	75-125	-	20
Barium, Total	14.6	216	219	95		-	-	75-125	-	20
Beryllium, Total	0.258J	5.4	5.26	97		-	-	75-125	-	20
Cadmium, Total	ND	5.72	5.42	95		-	-	75-125	-	20
Calcium, Total	788	1080	1750	89		-	-	75-125	-	20
Chromium, Total	13.0	21.6	33.6	95		-	-	75-125	-	20
Cobalt, Total	3.40	54	55.5	96		-	-	75-125	-	20
Copper, Total	3.42	27	28.7	94		-	-	75-125	-	20
Iron, Total	10000	108	10200	**185**	Q	-	-	75-125	-	20
Lead, Total	4.23	57.2	56.2	91		-	-	75-125	-	20
Magnesium, Total	2130	1080	3220	101		-	-	75-125	-	20
Manganese, Total	206	54	244	**70**	Q	-	-	75-125	-	20
Nickel, Total	8.42	54	59.1	94		-	-	75-125	-	20
Potassium, Total	775	1080	1820	97		-	-	75-125	-	20
Selenium, Total	1.36J	12.9	11.5	89		-	-	75-125	-	20
Silver, Total	ND	5.4	4.96	92		-	-	75-125	-	20
Sodium, Total	1260	1080	2380	104		-	-	75-125	-	20
Thallium, Total	ND	12.9	11.8	91		-	-	75-125	-	20
Vanadium, Total	12.2	54	62.3	93		-	-	75-125	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972144-3 QC Sample: L2446115-01 Client ID: VC-10 (0-14.5)									
Zinc, Total	21.1	54	68.2	87	-	-	75-125	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05 QC Batch ID: WG1969679-4 QC Sample: L2446115-05 Client ID: FB-081524						
Mercury, Total	ND	ND	mg/l	NC		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972144-4 QC Sample: L2446115-01 Client ID: VC-10 (0-14.5)					
Aluminum, Total	4610	5000	mg/kg	8	20
Antimony, Total	ND	ND	mg/kg	NC	20
Arsenic, Total	3.14	3.26	mg/kg	4	20
Barium, Total	14.6	15.9	mg/kg	9	20
Beryllium, Total	0.258J	0.275J	mg/kg	NC	20
Cadmium, Total	ND	ND	mg/kg	NC	20
Calcium, Total	788	842	mg/kg	7	20
Chromium, Total	13.0	13.3	mg/kg	2	20
Cobalt, Total	3.40	3.63	mg/kg	7	20
Copper, Total	3.42	3.36	mg/kg	2	20
Iron, Total	10000	10600	mg/kg	6	20
Lead, Total	4.23	4.05	mg/kg	4	20
Magnesium, Total	2130	2380	mg/kg	11	20
Manganese, Total	206	192	mg/kg	7	20
Nickel, Total	8.42	8.37	mg/kg	1	20
Potassium, Total	775	858	mg/kg	10	20
Selenium, Total	1.36J	1.40J	mg/kg	NC	20
Silver, Total	ND	ND	mg/kg	NC	20
Sodium, Total	1260	1440	mg/kg	13	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972144-4 QC Sample: L2446115-01 Client ID: VC-10 (0-14.5)					
Thallium, Total	ND	0.112J	mg/kg	NC	20
Vanadium, Total	12.2	12.8	mg/kg	5	20
Zinc, Total	21.1	22.2	mg/kg	5	20

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,06-10 QC Batch ID: WG1971466-6 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')						
Iron, Total	7080	7410	mg/kg	5		20
Manganese, Total	174	182	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1972144-6 QC Sample: L2446115-01 Client ID: VC-10 (0-14.5)						
Aluminum, Total	4610	4910	mg/kg	7		20
Iron, Total	10000	10600	mg/kg	6		20
Manganese, Total	206	217	mg/kg	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-01
Client ID: VC-10 (0-14.5)
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:35
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	7720		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	8870		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	8290		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.3	0.28	1	08/27/24 12:20	08/27/24 16:02	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	70.8		%	0.100	0.100	1	-	09/01/24 11:55	121,2540G	KAR

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-02
Client ID: VC-10 (14.5'-17')
Sample Location: NJ WATERS

Date Collected: 08/14/24 10:50
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	15900		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	14600		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	15200		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.6	0.35	1	08/27/24 12:20	08/27/24 16:03	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	59.1		%	0.100	0.100	1	-	09/01/24 11:55	121,2540G	KAR

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-03
Client ID: VC-09 (0-15.2')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:00
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	3790		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	3530		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	3660		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.2	0.24	1	08/27/24 12:20	08/27/24 16:04	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	79.3		%	0.100	0.100	1	-	09/05/24 08:32	121,2540G	GRS

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-04
Client ID: VC-09 (15.2'-17')
Sample Location: NJ WATERS

Date Collected: 08/15/24 10:40
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	70500		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	76700		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	73600		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	2.1	0.45	1	08/27/24 12:20	08/27/24 16:09	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	45.1		%	0.100	0.100	1	-	09/05/24 08:32	121,2540G	GRS

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-05
Client ID: FB-081524
Sample Location: NJ WATERS

Date Collected: 08/15/24 14:15
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/l	0.005	0.001	1	08/28/24 14:00	08/28/24 17:09	1,9010C/9012B	JER
Total Organic Carbon	0.27	J	mg/l	0.50	0.10	1	-	08/23/24 04:22	1,9060A	DEW

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-06
Client ID: VC-08 (0-11.8')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:15
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	9660		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	12700		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	11200		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.4	0.30	1	08/27/24 12:20	08/27/24 16:10	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	65.5		%	0.100	0.100	1	-	09/04/24 16:31	121,2540G	MEB

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-07
Client ID: VC-08 (11.8'-13.9')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:40
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1940		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	2140		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	2040		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.0	0.22	1	08/27/24 12:20	08/27/24 16:11	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	89.7		%	0.100	0.100	1	-	09/04/24 16:31	121,2540G	MEB

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-08
Client ID: VC-08 (13.9'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 09:50
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	22500		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	20700		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	21600		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.6	0.34	1	08/27/24 12:20	08/27/24 16:12	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	57.0		%	0.100	0.100	1	-	09/04/24 16:31	121,2540G	MEB

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-09
Client ID: VC-07 (0-10')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:20
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	6660		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	7320		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	6980		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.3	0.27	1	08/27/24 12:20	08/27/24 16:13	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	74.0		%	0.100	0.100	1	-	09/04/24 16:31	121,2540G	MEB

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

SAMPLE RESULTS

Lab ID: L2446115-10
Client ID: VC-07 (10'-17')
Sample Location: NJ WATERS

Date Collected: 08/16/24 13:45
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	17700		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	16900		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	17300		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab										
Cyanide, Total	ND		mg/kg	1.7	0.37	1	08/27/24 12:20	08/27/24 16:14	1,9010C/9012B	JER
General Chemistry - Mansfield Lab										
Solids, Total	54.7		%	0.100	0.100	1	-	09/04/24 16:31	121,2540G	MEB

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446115

Project Number: 529393.0003.0000 **Report Date:** 09/24/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab for sample(s): 01-04,06-10 Batch: WG1961575-1										
Total Organic Carbon (Rep1)	ND		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Rep2)	ND		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
Total Organic Carbon (Average)	ND		mg/kg	500	500.	1	-	08/26/24 11:33	13,-	SPP
General Chemistry - Westborough Lab for sample(s): 05 Batch: WG1962384-1										
Total Organic Carbon	ND		mg/l	0.50	0.10	1	-	08/23/24 03:11	1,9060A	DEW
General Chemistry - Westborough Lab for sample(s): 01-04,06-10 Batch: WG1964353-1										
Cyanide, Total	ND		mg/kg	0.87	0.18	1	08/27/24 12:20	08/27/24 15:58	1,9010C/9012B	JER
General Chemistry - Westborough Lab for sample(s): 05 Batch: WG1965030-1										
Cyanide, Total	ND		mg/l	0.005	0.001	1	08/28/24 14:00	08/28/24 17:05	1,9010C/9012B	JER

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-04,06-10 Batch: WG1961575-2								
Total Organic Carbon (Rep1)	94		-		75-125	-		25
Total Organic Carbon (Rep2)	95		-		75-125	-		25
Total Organic Carbon (Average)	95		-		75-125	-		25
General Chemistry - Westborough Lab Associated sample(s): 05 Batch: WG1962384-2								
Total Organic Carbon	100		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 Batch: WG1964353-2 WG1964353-3								
Cyanide, Total	97		96		80-120	1		35
General Chemistry - Westborough Lab Associated sample(s): 05 Batch: WG1965030-2 WG1965030-3								
Cyanide, Total	92		102		85-115	10		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1961575-4 WG1961575-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Total Organic Carbon (Rep1)	3790	6080	9820	99		10000	96		75-125	2		25
Total Organic Carbon (Rep2)	3530	7300	10700	98		9860	100		75-125	8		25
General Chemistry - Westborough Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1964353-4 WG1964353-5 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')												
Cyanide, Total	ND	12	12	100		13	110		75-125	10		35

Lab Duplicate Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446115

Report Date: 09/24/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-04,06-10 QC Batch ID: WG1961575-3 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')						
Total Organic Carbon (Rep1)	3790	3500	mg/kg	8		25
Total Organic Carbon (Rep2)	3530	3050	mg/kg	15		25
Total Organic Carbon (Average)	3660	3280	mg/kg	11		25
General Chemistry - Mansfield Lab Associated sample(s): 06-10 QC Batch ID: WG1967283-1 QC Sample: L2446115-06 Client ID: VC-08 (0-11.8')						
Solids, Total	65.5	64.7	%	1		10
General Chemistry - Mansfield Lab Associated sample(s): 03-04 QC Batch ID: WG1967829-1 QC Sample: L2446115-03 Client ID: VC-09 (0-15.2')						
Solids, Total	79.3	78.9	%	1		10

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Sample Receipt and Container Information

Were project specific reporting limits specified? NO

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		NJ-8260HLW(14)
L2446115-01B	Vial water preserved	A	NA		2.3	Y	Absent	15-AUG-24 19:44	NJ-8260HLW(14)
L2446115-01C	Vial water preserved	A	NA		2.3	Y	Absent	15-AUG-24 19:44	NJ-8260HLW(14)
L2446115-01D	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14)
L2446115-01E	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		A2-TS(7)
L2446115-01F	Amber 120ml unpreserved	A	NA		2.3	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-01G	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14)
L2446115-01H	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-TL-6020T(180),A2-CR-6020T(180),A2-MN-6020T(180),A2-CO-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-CD-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-AL-6020T(180),A2-AG-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180)
L2446115-01I	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-NJ-SVOC-8270(14),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PEST-8081(14),A2-NJ-PCB-8082(14),A2-NJ-PAH-8270SIM(14)
L2446115-01J	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-01K	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446115-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		NJ-8260HLW(14)
L2446115-02B	Vial water preserved	A	NA		2.3	Y	Absent	15-AUG-24 19:44	NJ-8260HLW(14)
L2446115-02C	Vial water preserved	A	NA		2.3	Y	Absent	15-AUG-24 19:44	NJ-8260HLW(14)
L2446115-02D	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14)
L2446115-02E	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		A2-TS(7)
L2446115-02F	Amber 120ml unpreserved	A	NA		2.3	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-02G	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14)
L2446115-02H	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-BA-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-SB-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-TL-6020T(180),A2-CR-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-MG-6020T(180),A2-AL-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-CA-6020T(180),A2-PREP-3050:1T(180),A2-NA-6020T(180)
L2446115-02I	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-NJ-SVOC-8270(14),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PEST-8081(14),A2-NJ-PCB-8082(14),A2-NJ-PAH-8270SIM(14)
L2446115-02J	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446115-02K	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446115-03A	Vial MeOH preserved	B	NA		3.2	Y	Absent		NJ-8260HLW(14)
L2446115-03B	Vial water preserved	B	NA		3.2	Y	Absent	16-AUG-24 13:08	NJ-8260HLW(14)
L2446115-03C	Vial water preserved	B	NA		3.2	Y	Absent	16-AUG-24 13:08	NJ-8260HLW(14)
L2446115-03D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		A2-TS(7)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-03E	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-03F	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-03G	Amber 120ml unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-03H	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TCN-9010(14)
L2446115-03I	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-NJ-SVOC-8270(14),A2-NJ-PEST-8081(14),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PCB-8082(14),A2-NJ-PAH-8270SIM(14)
L2446115-03J	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-NJ-SVOC-8270(14),A2-NJ-PEST-8081(14),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PCB-8082(14),A2-NJ-PAH-8270SIM(14)
L2446115-03K	Glass 60ml unpreserved split	B	NA		3.2	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-TL-6020T(180),A2-CR-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-PREP-3050:1T(180),A2-CU-6020T(180),A2-AG-6020T(180),A2-AL-6020T(180),A2-CA-6020T(180),A2-NA-6020T(180)
L2446115-04A	Vial MeOH preserved	B	NA		3.2	Y	Absent		NJ-8260HLW(14)
L2446115-04B	Vial water preserved	B	NA		3.2	Y	Absent	16-AUG-24 13:08	NJ-8260HLW(14)
L2446115-04C	Vial water preserved	B	NA		3.2	Y	Absent	16-AUG-24 13:08	NJ-8260HLW(14)
L2446115-04D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		A2-TS(7)
L2446115-04E	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446115-04F	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446115-04G	Amber 120ml unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-04H	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TCN-9010(14)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-04I	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-NJ-SVOC-8270(14),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PEST-8081(14),A2-NJ-PCB-8082(14),A2-NJ-PAH-8270SIM(14)
L2446115-04J	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-NJ-SVOC-8270(14),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PEST-8081(14),A2-NJ-PCB-8082(14),A2-NJ-PAH-8270SIM(14)
L2446115-04K	Glass 60ml unpreserved split	B	NA		3.2	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-MN-6020T(180),A2-CO-6020T(180),A2-CD-6020T(180),A2-V-6020T(180),A2-BE-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-MG-6020T(180),A2-SE-6020T(180),A2-NA-6020T(180),A2-AG-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180),A2-AL-6020T(180)
L2446115-05A	Vial HCl preserved	B	NA		3.2	Y	Absent		NJ-8260(14)
L2446115-05B	Vial HCl preserved	B	NA		3.2	Y	Absent		NJ-8260(14)
L2446115-05C	Vial HCl preserved	B	NA		3.2	Y	Absent		NJ-8260(14)
L2446115-05D	Vial H2SO4 preserved	B	NA		3.2	Y	Absent		TOC-9060(28)
L2446115-05E	Vial H2SO4 preserved	B	NA		3.2	Y	Absent		TOC-9060(28)
L2446115-05F	Vial H2SO4 preserved	B	NA		3.2	Y	Absent		TOC-9060(28)
L2446115-05G	Plastic 120ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-SB-6020T(180),A2-BA-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-TL-6020T(180),A2-CR-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-MG-6020T(180),A2-SE-6020T(180),A2-PREP-3005(180),A2-NA-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-AG-6020T(180),A2-AL-6020T(180)
L2446115-05H	Plastic 250ml NaOH preserved	B	>12	>12	3.2	Y	Absent		TCN-9010(14)
L2446115-05I	Amber 500ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-PCB-8082(7)
L2446115-05J	Amber 500ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-PCB-8082(7)
L2446115-05K	Amber 500ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-PEST-8081(7)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-05L	Amber 500ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-PEST-8081(7)
L2446115-05M	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-SVOC-8270(7),A2-NJ-PAH-8270SIM(7)
L2446115-05N	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-SVOC-8270(7),A2-NJ-PAH-8270SIM(7)
L2446115-05O	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		A2-NJ-SVOC-8270(7),A2-NJ-PAH-8270SIM(7)
L2446115-05P	Amber 1000ml unpreserved	B	7	7	3.2	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		NJ-8260HLW(14)
L2446115-06B	Vial water preserved	A	NA		2.3	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-06C	Vial water preserved	A	NA		2.3	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-06D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		A2-TS(7)
L2446115-06E	Amber 120ml unpreserved	A	NA		2.3	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-06F	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-06G	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-06H	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-06I	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14)
L2446115-06J	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-NJ-SVOC-8270(14),A2-FE-6020T(180),A2-PB-6020T(180),A2-NJ-PEST-8081(14),A2-TOC-LK-2REPS-PPM(14),A2-ZN-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-BA-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-NJ-PCB-8082(14),A2-TL-6020T(180),A2-CR-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-NJ-PAH-8270SIM(14),A2-BE-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-V-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-CA-6020T(180),A2-AG-6020T(180),A2-PREP-3050:1T(180),A2-AL-6020T(180),A2-CU-6020T(180),A2-NA-6020T(180)
L2446115-07A	Vial MeOH preserved	B	NA		3.2	Y	Absent		NJ-8260HLW(14)
L2446115-07B	Vial water preserved	B	NA		3.2	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-07C	Vial water preserved	B	NA		3.2	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-07D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		A2-TS(7)
L2446115-07E	Amber 120ml unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365)

*Values in parentheses indicate holding time in days

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Project Number: 529393.0003.0000

Lab Number: L2446115
Report Date: 09/24/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-07F	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-07G	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-07H	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-07I	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TCN-9010(14)
L2446115-07J	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-NJ-SVOC-8270(14),A2-FE-6020T(180),A2-PB-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-NJ-PEST-8081(14),A2-TOC-LK-2REPS-PPM(14),A2-BA-6020T(180),A2-NI-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-NJ-PCB-8082(14),A2-MN-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-NJ-PAH-8270SIM(14),A2-BE-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-CD-6020T(180),A2-MG-6020T(180),A2-SE-6020T(180),A2-PREP-3050:2T(180),A2-PREP-3050:1T(180),A2-AL-6020T(180),A2-NA-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-AG-6020T(180)
L2446115-08A	Vial MeOH preserved	B	NA		3.2	Y	Absent		NJ-8260HLW(14)
L2446115-08B	Vial water preserved	B	NA		3.2	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-08C	Vial water preserved	B	NA		3.2	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-08D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		A2-TS(7)
L2446115-08E	Amber 120ml unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-08F	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-08G	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-08H	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-08I	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TCN-9010(14)

*Values in parentheses indicate holding time in days

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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-08J	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-NJ-SVOC-8270(14),A2-FE-6020T(180),A2-PB-6020T(180),A2-TOC-LK-2REPS-PPM(14),A2-SB-6020T(180),A2-NI-6020T(180),A2-NJ-PEST-8081(14),A2-BA-6020T(180),A2-ZN-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-NJ-PCB-8082(14),A2-CO-6020T(180),A2-MN-6020T(180),A2-NJ-PAH-8270SIM(14),A2-AS-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-BE-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AL-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-AG-6020T(180)
L2446115-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		NJ-8260HLW(14)
L2446115-09B	Vial water preserved	B	NA		3.2	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-09C	Vial water preserved	B	NA		3.2	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		A2-TS(7)
L2446115-09E	Amber 120ml unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-09F	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-09G	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-09H	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-09I	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TCN-9010(14)
L2446115-09J	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-PB-6020T(180),A2-NJ-SVOC-8270(14),A2-FE-6020T(180),A2-SB-6020T(180),A2-NI-6020T(180),A2-TOC-LK-2REPS-PPM(14),A2-NJ-PEST-8081(14),A2-ZN-6020T(180),A2-BA-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-NJ-PCB-8082(14),A2-CR-6020T(180),A2-TL-6020T(180),A2-CO-6020T(180),A2-NJ-PAH-8270SIM(14),A2-AS-6020T(180),A2-MN-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-MG-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180),A2-AL-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180),A2-CA-6020T(180)
L2446115-10A	Vial MeOH preserved	A	NA		2.3	Y	Absent		NJ-8260HLW(14)

*Values in parentheses indicate holding time in days

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Lab Number: L2446115
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Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446115-10B	Vial water preserved	A	NA		2.3	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-10C	Vial water preserved	A	NA		2.3	Y	Absent	17-AUG-24 16:46	NJ-8260HLW(14)
L2446115-10D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		A2-TS(7)
L2446115-10E	Amber 120ml unpreserved	A	NA		2.3	Y	Absent		SUB-DIOXIN-1613B(365)
L2446115-10F	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-10G	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446115-10H	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446115-10I	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TCN-9010(14)
L2446115-10J	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-FE-6020T(180),A2-NJ-SVOC-8270(14),A2-PB-6020T(180),A2-NI-6020T(180),A2-BA-6020T(180),A2-NJ-PEST-8081(14),A2-SB-6020T(180),A2-TOC-LK-2REPS-PPM(14),A2-ZN-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-NJ-PCB-8082(14),A2-TL-6020T(180),A2-CR-6020T(180),A2-AS-6020T(180),A2-NJ-PAH-8270SIM(14),A2-CO-6020T(180),A2-MN-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-BE-6020T(180),A2-V-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AL-6020T(180),A2-AG-6020T(180),A2-CA-6020T(180),A2-PREP-3050:1T(180),A2-NA-6020T(180),A2-CU-6020T(180)

*Values in parentheses indicate holding time in days

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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

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Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446115
Project Number:	529393.0003.0000	**Report Date:**	09/24/24

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 8/15/24

ALPHA Job #: L2446115

Client Information

Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information

Project Name: Silver Run Expansion
Project Location: NJ Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☑ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Billing Information

☑ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:

Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs	SVOCs, Pesticides, PCBs	TAL Metals, Cyanide, Total Solids	Dioxins/Furans, TOC		Grain Size (ASTM D6913)	Attenberg, TOC, TOM	Ash, Moisture, Spec Grav	Total Bottle
46115 01	VC-10(0-14.5')	8/14/24	1035	SE	TRC	X	X	X	X		X	X	X	
02	VC-10(14.5'-17')		1050	SE	TRC	X	X	X	X		X	X	X	
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									

Container Type: V | A | A | A | | P | P | P/A
Preservative: E/O | A | A | A | | A | A | A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Addison Ochs	8/14/24 1505	PACE	8/14 1505
	8/14 1800		8/14/24 1800
	8/14/24 2100	Anthony Green	AUG 14 2024 2141
Anthony Green			8/15/24 0115

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

8/15/24 0330

8/15/24 03:30

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581 — 8 Walkup Dr. — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA 02048 — 320 Forbes Blvd — TEL: 508-822-9300 — FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of

Date Rec'd in Lab: 8/16/24

ALPHA Job #: L2446115

Client Information

Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information

Project Name: Silver Run Expansion
Project Location: NJ Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Deliverables

☑ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Billing Information

☑ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
*RUN MS/MSD ON VC-09(0-15.2')
Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs	SVOCs, Pesticides, PCBs	TAL Metals, Cyanide, Total Solids	Dioxins/Furans, TOC		Grain Size (ASTM D6913)	Attenberg, TOC, TOM	Ash, Moisture, Spec Grav	Sample Specific Comments	Total Bottle
46115-03	VC-09 (0-15.2')	8/15/24	1000	SE	TRC	X	X	X	X		X	X	X	MS/MSD	
04	VC-09 (15.2'-17')	↓	1040	SE	[redacted]TRC	X	X	X	X		X	X	X		
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										
				[redacted]	[redacted]										

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Container Type	V	A	A	A		P	P/A	P	
Preservative	F/O	A	A	A		A	A	A	

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
M. Phillips	8/15/24 1450	Alex Lukashevich	8/16/24 1450
ALEX LUKASHEVICH	8/15/24 1800		8/15/24 1800
	8/15/24 2000	Anthony Green	AUG 15 2024 2000
Anthony Green			8/16/24 0305

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

Anthony Green 8/16/24 0305 8/16/24 03:05

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of

Date Rec'd in Lab: 8/16/24

ALPHA Job #: L2446115

Client Information

Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information

Project Name: Silver Run Expansion
Project Location: NJ Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

These samples have been previously analyzed by Alpha ☐

Deliverables

☑ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Billing Information

☑ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:

Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs	SVOCs, Pesticides, PCB	TAL Metals, Cyanide, Total Solids	Dioxins/Furans, TOC	~~Grain Size (ASTM D6913)~~	~~Alkalinity, TOC, TOM~~	~~Aeha Moisture Spec Grav~~	Total Bottle
46115-05	FB-081524	8/15/24	1415	W	TRC	X	X	X	X				
				SE	TRC								
				SE	TRC								
				SE	TRC								
				SE	TRC								
				SE	TRC								
				SE	TRC								
				SE	TRC								
				SE	TRC								
				SE	TRC								

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code:
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	V	A	A	A/G					
Preservative	B	A	C/A	A/G		A	A	A	

Relinquished By:	Date/Time	Received By:	Date/Time
M. Phillips	8/15/24/1450	Alex Lukashevich	8/15/24 14:50
ALEX LUKASHEVICH	8/15/24 1800		8/15/24 1800
	8/15/24 2100	Anthony Green	AUG 15 2024 21:00
Anthony Green		Christine Place	8/16/24 0005

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

Christine Place 8/16/24 0305

KG 8/16/24 03:05

L2446115 16SEP24
ESS – MA

NEW JERSEY CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab 08/17/24

Project Information

Project Name: Silver Run Expansion
Project Location: NJ Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☑ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☑ Same as Client Info
PO #

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

Client Information

Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:

Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

Sample Filtration

☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs	SVOCs, Pesticides, PCB	TAL Metals, Cyanide, Total Solids	Dioxins/Furans, TOC		Grain Size (ASTM D6913	Attenberg, TOC, TOM	Ash, Moisture, Spec Gra	Total Bottle
46115-06	VC-08 (0-11.8')	8/16/24	0915	SE	TRC	X	X	X	X		X	X	X	
-07	VC-08 (11.8'-13.9')		0940	SE	TRC	X	X	X	X		X	X	X	
-08	VC-08 (13.9'-17')		0950	SE	TRC	X	X	X	X		X	X	X	
-09	VC-07 (0-10')		1320	SE	TRC	X	X	X	X		X	X	X	
-10	VC-07 (10'-17')	↓	1345	SE	TRC	X	X	X	X		X	X	X	
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									

Container Type: V | A | A | A | | A | P/A | A
Preservative: F/O | A | A | A | | A | A | A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
M. Phillips	8/16/24 1500	Laura Cousins	8/16/24 15:01
Laura Cousins	8/16/24 18:20		8/16/24 1820
	8/16/24 2000	Anthony Green	AUG 16 2024 2030
Anthony Green		Claire Price	8/17/24 0320
Claire Price 8/17/24 0320		Tyler Fodrea	8-17-24 03:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

Subcontract Chain of Custody

ALPHA ANALYTICAL
World Class Chemistry

GeoTesting Express
125 Nagog Park
Acton, MA 01720

Alpha Job Number
L2446115

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.844.4124
Email: Liz.Porta@pacelabs.com

Project Information

Project Location: NJ
Project Manager: Elizabeth Porta

Turnaround & Deliverables Information

Due Date: 09/13/24
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-10 (0-14.5)	08-14-24 10:35	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-10 (14.5'-17')	08-14-24 10:50	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	~~VC-09 (0-15.2')~~	~~08-15-24 12:30~~	~~Sediment~~	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	MS;MSD
	~~VC-09 (15.2'-17')~~	08-15-24 13:50	~~Sediment~~	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture;	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	David DAVIS	8/16/24 2:26	David DAVIS	8/16/24 7:26
	David DAVIS	8-16-24 8:52		
Form No: AL_subcoc			David Norton	8/16/24 8:52

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

GeoTesting Express
125 Nagog Park
Acton, MA 01720

1 of 3

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	~~VC-10 (0-14.5)~~	~~08-14-24 10:35~~	~~Sediment~~	~~Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity~~	
	~~VC-10 (14.5'-17')~~	~~08-14-24 10:50~~	~~Sediment~~	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-09 (0-15.2')	08-15-24 10:00	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	MS;MSD
	VC-09 (15.2'-17')	08-15-24 10:40	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture;	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		8/19/24 13:19		8/19/24 1315
		8/19/24 1415		8/19/24 1419
Form No: AL_subcoc				

Subcontract Chain of Custody

GeoTesting Express
125 Nagog Park
Acton, MA 01720

2 OF 3
~~1 OF 2~~

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-08 (0-11.8')	08-16-24 09:15	SOIL	Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-08 (11.8'-13.9')	08-16-24 09:40	SOIL	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-08 (13.9'-17')	08-16-24 09:50	SOIL	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		8/19/24 13:19		8/19/24 1317
		8/19/24 1415		8/19/24 1419
Form No: AL_subcoc				

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

GeoTesting Express
125 Nagog Park
Acton, MA 01720

~~1 of 2~~ 3 of 3

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-07 (0-10')	08-16-24 13:20	SOIL	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-07 (10'-17')	08-16-24 13:45	SOIL	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		8/19/24 13:19		8/19/24 1319
		8/19/24 1415		8/19/24 1419
Form No: AL_subcoc				

ALPHA ANALYTICAL

Subcontract Chain of Custody

GeoTesting Express
125 Nagog Park
Acton, MA 01720

1 of 2

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

ADDITIONAL VOLUME FOR HIGHLIGHTED ANAL-

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-08 (0-11.8')	08-16-24 09:15	SOIL	Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture;	
	VC-08 (11.8'-13.9')	08-16-24 09:40	SOIL	Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture;	
	VC-08 (13.9'-17')	08-16-24 09:50	SOIL	Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture;	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	CAO	8/20/24 0950	PaG	8/20/24 0950
		8/20/24 1153		8/20/24 1153 AM
Form No: AL_subcoc				

ALPHA ANALYTICAL
World-Class Chemistry

Subcontract Chain of Custody

GeoTesting Express
125 Nagog Park
Acton, MA 01720

2 OF 2

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-07 (0-10')	08-16-24 13:20	SOIL	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-07 (10'-17')	08-16-24 13:45	SOIL	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		8-20-24 950	Page	8/20/24 0950
		8/20/24 1153		8/20/24 1153AM
Form No: AL_subcoc				

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	781898		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	VC- 10	0-14.5	Moist, dark gray clayey sand	39.7
---	VC- 10	14.5-17	Moist, very dark gray clay with sand	67.4

Notes: Temperature of Drying : 110º Celsius

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	---	Tested By:	cam
Sample ID:	---	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	781900		

Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content,%	Ash Content,%	Organic Matter,%
---	VC-10	0-14.5	Moist, dark gray clayey sand	40	98.4	1.6
---	VC-10	14.5-17	Moist, very dark gray clay with sand	67	96.0	4.0

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass; dried to a constant mass at temperature of 105º C
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440º C

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	781902		

Specific Gravity of Soils by ASTM D854

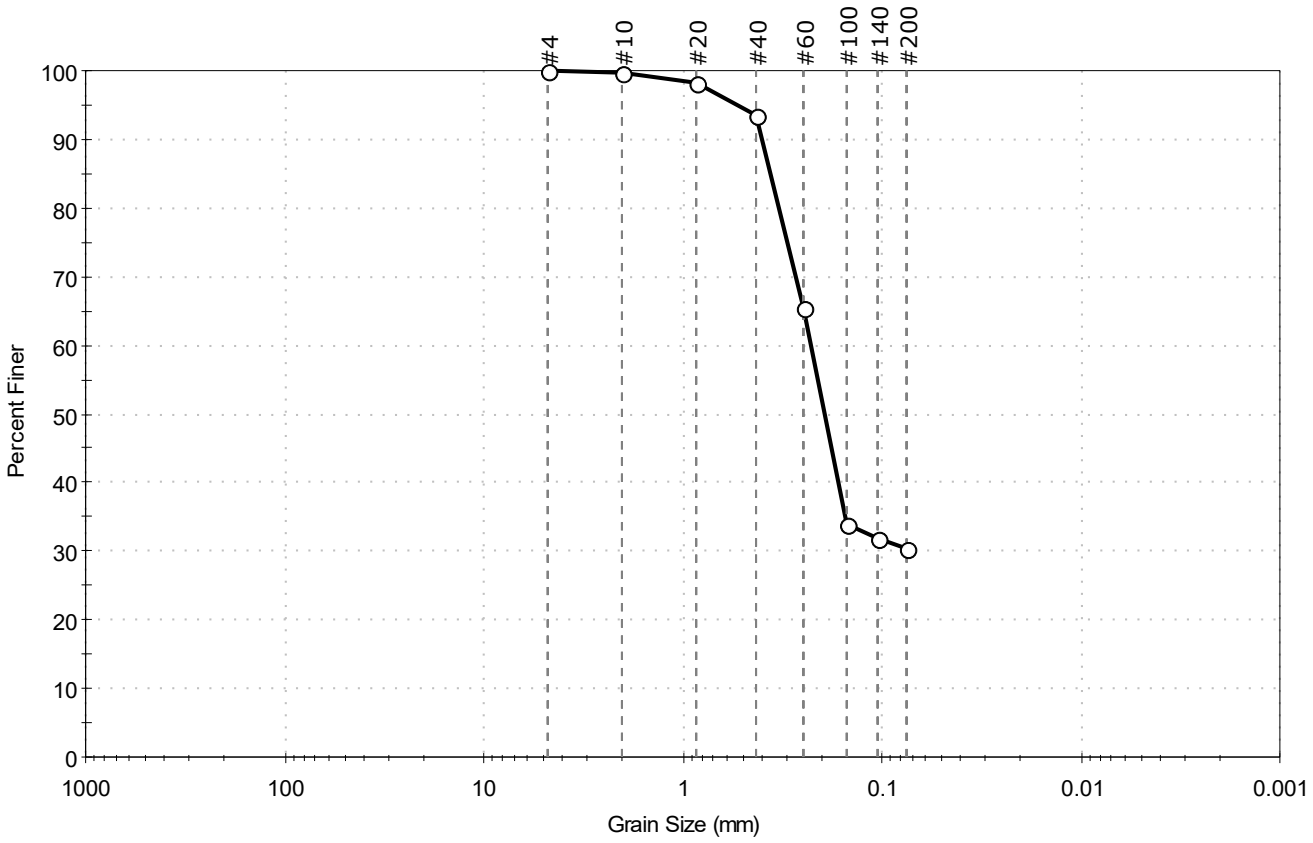
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	VC- 10	0-14.5	Moist, dark gray clayey sand	2.71	
---	VC- 10	14.5-17	Moist, very dark gray clay with sand	2.70	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-10	Test Date:	08/21/24	Checked By:	ank
Depth :	0-14.5	Test Id:	781895		
Test Comment:	---				
Visual Description:	Moist, dark gray clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	69.7	30.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	98		
#40	0.42	93		
#60	0.25	65		
#100	0.15	34		
#140	0.11	32		
#200	0.075	30		

Coefficients

D_{85} =0.3625 mm	D_{30} =N/A
D_{60} =0.2291 mm	D_{15} =N/A
D_{50} =0.1947 mm	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM Clayey SAND (SC)

AASHTO Clayey Gravel and Sand (A-2-6 (1))

Sample/Test Description

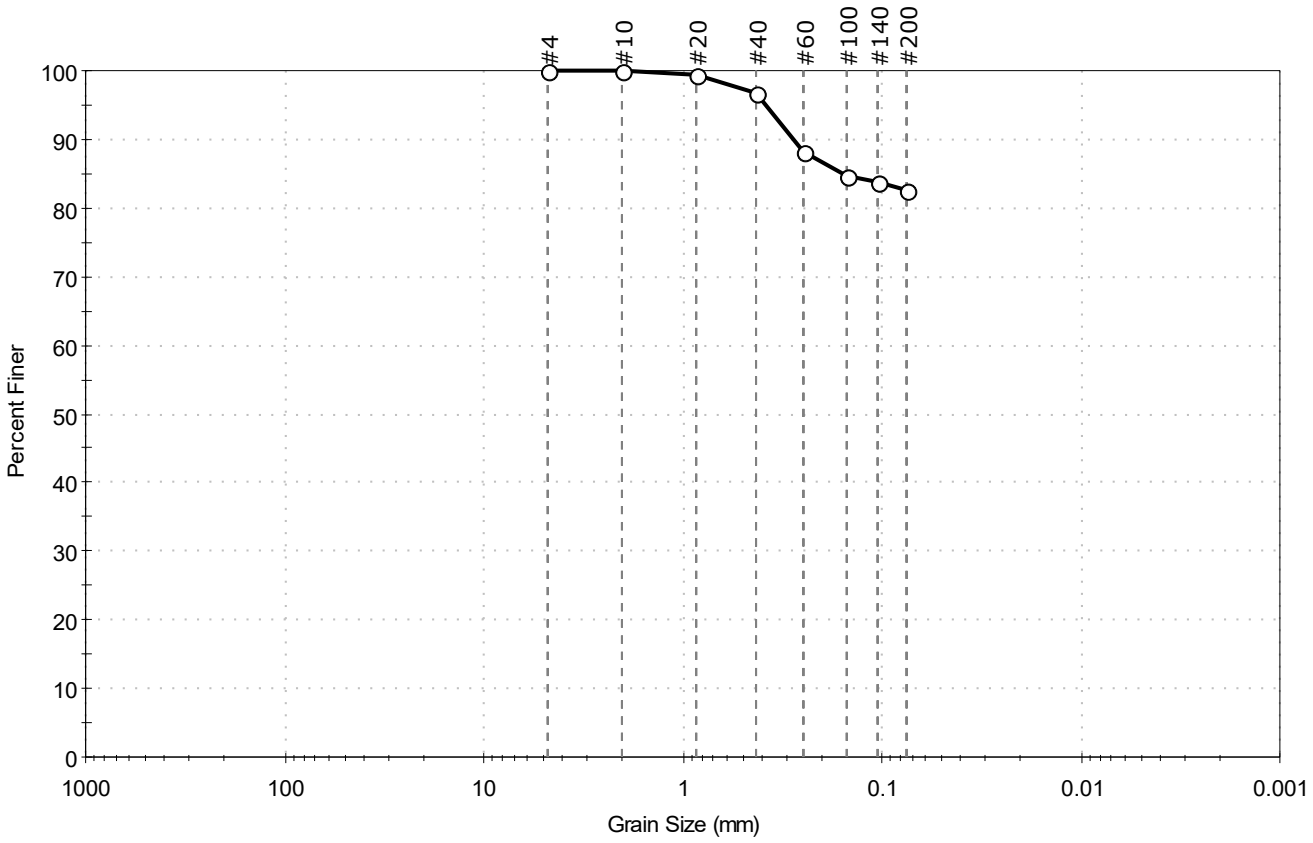
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-10	Test Date:	08/21/24	Checked By:	ank
Depth :	14.5-17	Test Id:	781896		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	17.5	82.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	97		
#60	0.25	88		
#100	0.15	85		
#140	0.11	84		
#200	0.075	83		

Coefficients

D_{85} = 0.1578 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY with Sand (CH)

AASHTO Clayey Soils (A-7-6 (46))

Sample/Test Description

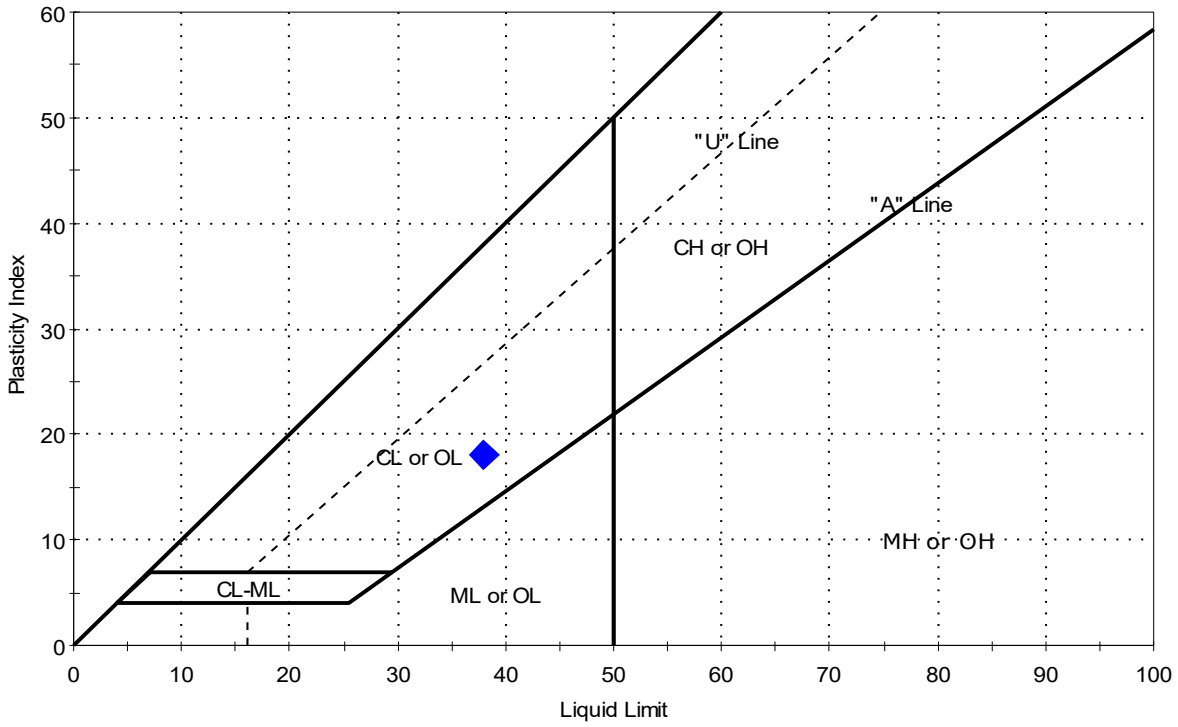
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-10	Test Date:	08/22/24	Checked By:	ank
Depth :	0-14.5	Test Id:	781893		
Test Comment:	---				
Visual Description:	Moist, dark gray clayey sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



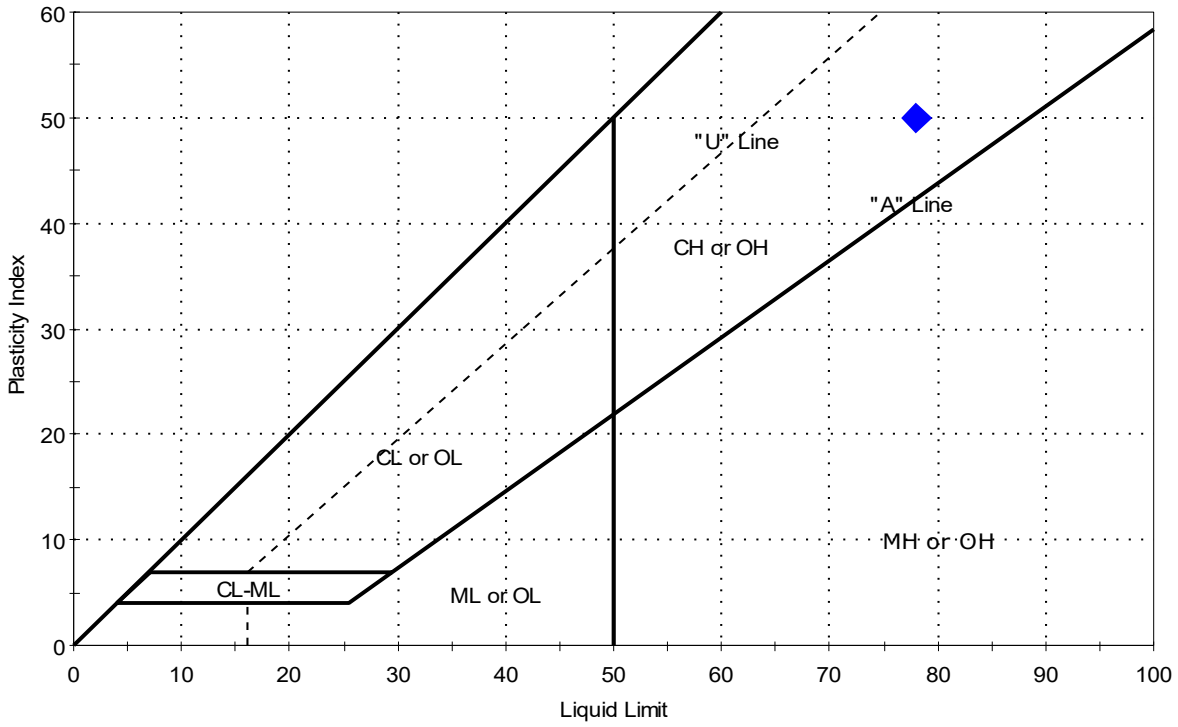
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-10	---	0-14.5	40	38	20	18	1.1	Clayey SAND (SC)

Sample Prepared using the WET method
7% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-10	Test Date:	08/22/24	Checked By:	ank
Depth :	14.5-17	Test Id:	781894		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay with sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-10	---	14.5-17	67	78	28	50	0.8	Fat CLAY with Sand (CH)

Sample Prepared using the WET method
3% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

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GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	782181		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	VC- 07	0-10'	Moist, very dark gray silty sand	37.9
---	VC- 07	10-17'	Moist, dark grayish brown clay	80.1
---	VC- 08	0-11.8'	Moist, very dark gray silty sand	55.1
---	VC- 08	11.9-13.9'	Moist, dark gray sand	13.6
---	VC- 08	13.9-17'	Moist, very dark brownish gray clay with organics	76.8
---	VC- 09	0-15.2'	Moist, very dark gray sand with silt	23.5
---	VC- 09	15.2-17'	Moist, very dark gray clay with organics	121.6

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	---	Tested By:	cam
Sample ID:	---	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	782184		

Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content,%	Ash Content,%	Organic Matter,%
---	VC-07	0-10'	Moist, very dark gray silty sand	38	98.3	1.7
---	VC-07	10-17'	Moist, dark grayish brown clay	80	96.6	3.4
---	VC-08	0-11.8'	Moist, very dark gray silty sand	56	97.9	2.1
---	VC-08	11.9-13.9'	Moist, dark gray sand	14	99.7	.3
---	VC-08	13.9-17'	Moist, very dark brownish gray clay	77	95.2	4.8
---	VC-09	0-15.2'	Moist, very dark gray sand with silt	23	99.4	.6
---	VC-09	15.2-17'	Moist, very dark gray clay with organics	122	86.0	14.0

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass; dried to a constant mass at temperature of 105º C
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440º C

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/28/24	Checked By:	ank
Depth :	---	Test Id:	782185		

Specific Gravity of Soils by ASTM D854

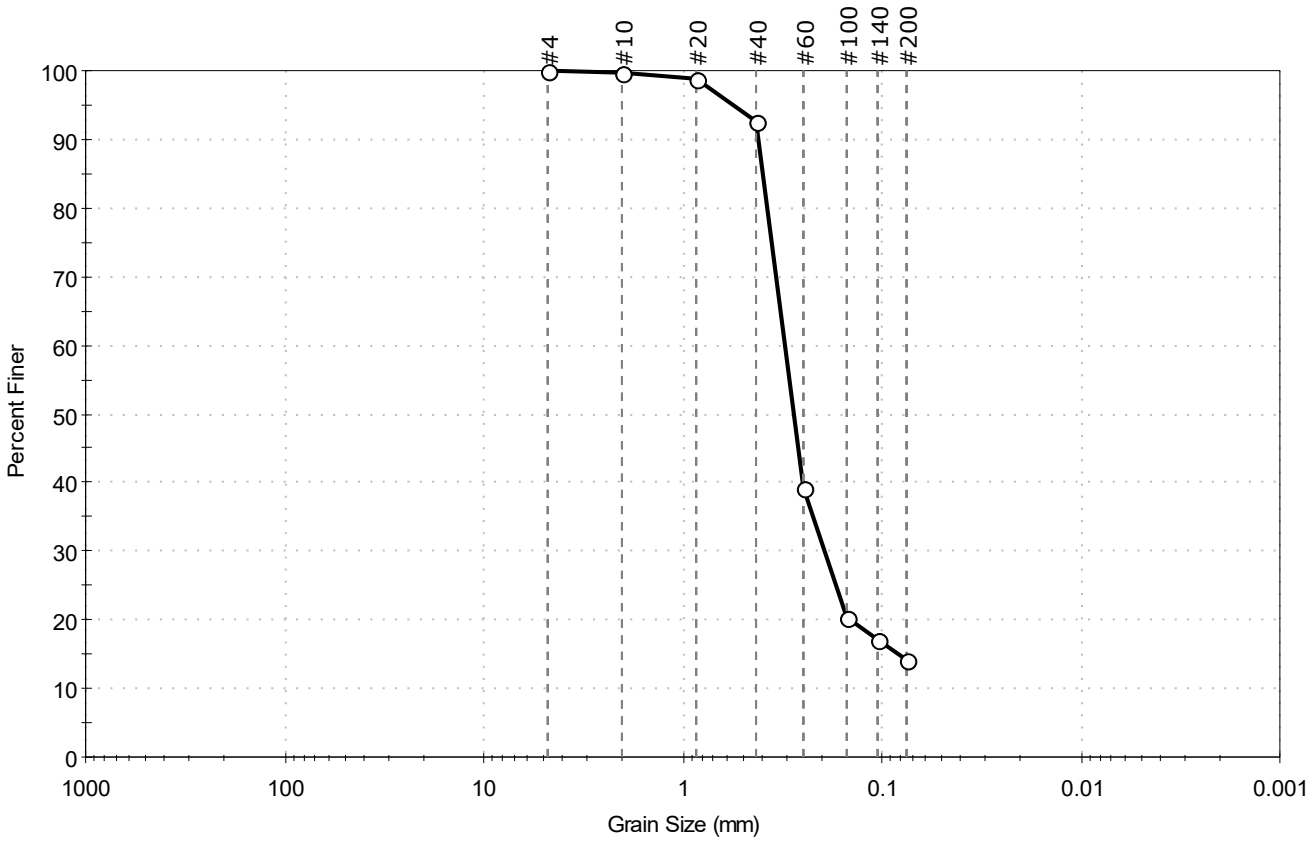
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	VC- 07	0-10'	Moist, very dark gray silty sand	2.66	
---	VC- 07	10-17'	Moist, dark grayish brown clay	2.69	
---	VC- 08	0-11.8'	Moist, very dark gray silty sand	2.64	
---	VC- 08	11.9-13.9'	Moist, dark gray sand	2.70	
---	VC- 08	13.9-17'	Moist, very dark brownish gray clay	2.60	
---	VC- 09	0-15.2'	Moist, very dark gray sand with silt	2.71	
---	VC- 09	15.2-17'	Moist, very dark gray clay with organics	2.56	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-07	Test Date:	08/27/24	Checked By:	ank
Depth :	0-10'	Test Id:	782203		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	86.0	14.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	93		
#60	0.25	39		
#100	0.15	20		
#140	0.11	17		
#200	0.075	14		

Coefficients

D_{85} = 0.3940 mm	D_{30} = 0.1944 mm
D_{60} = 0.3071 mm	D_{15} = 0.0833 mm
D_{50} = 0.2780 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

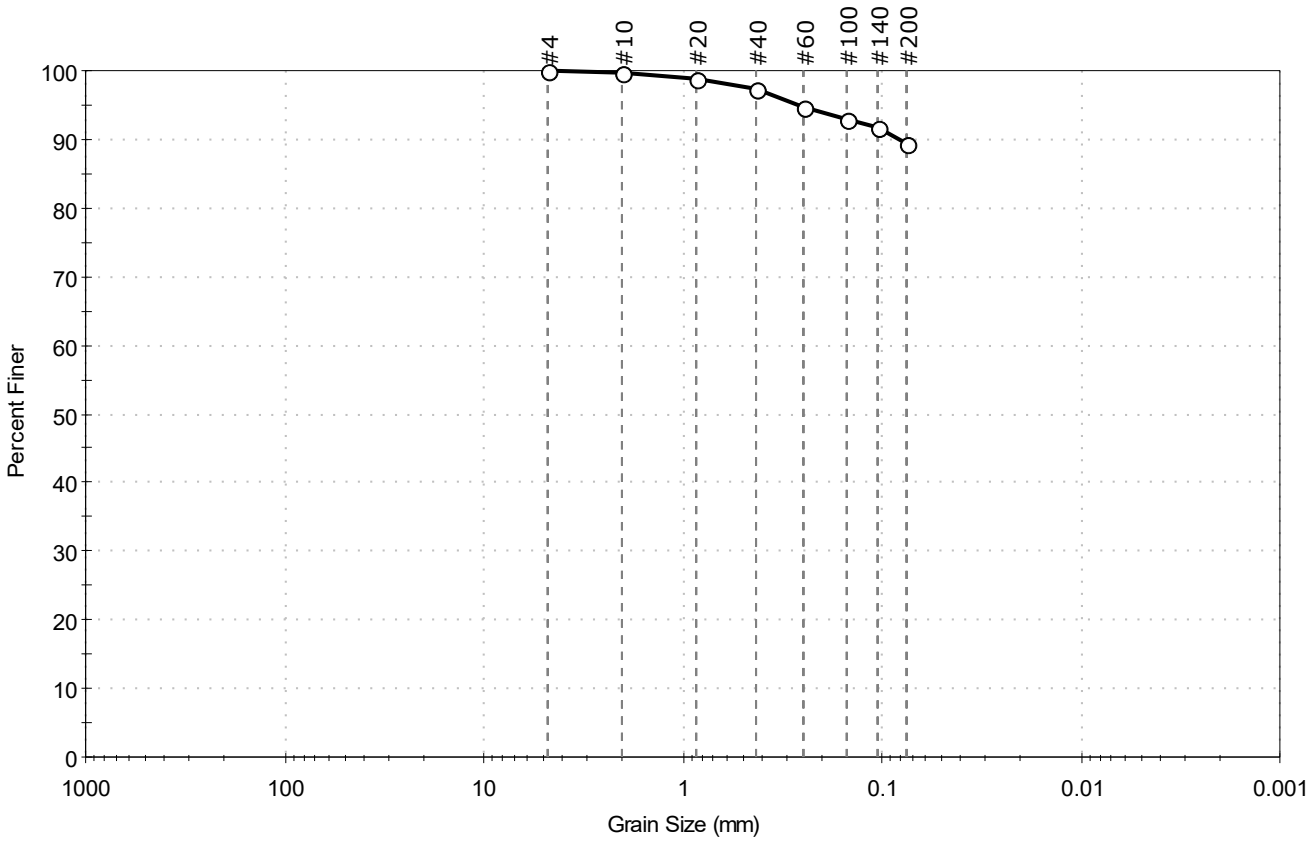
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-07	Test Date:	08/27/24	Checked By:	ank
Depth :	10-17'	Test Id:	782204		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	10.5	89.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	97		
#60	0.25	95		
#100	0.15	93		
#140	0.11	92		
#200	0.075	89		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-6 (58))

Sample/Test Description

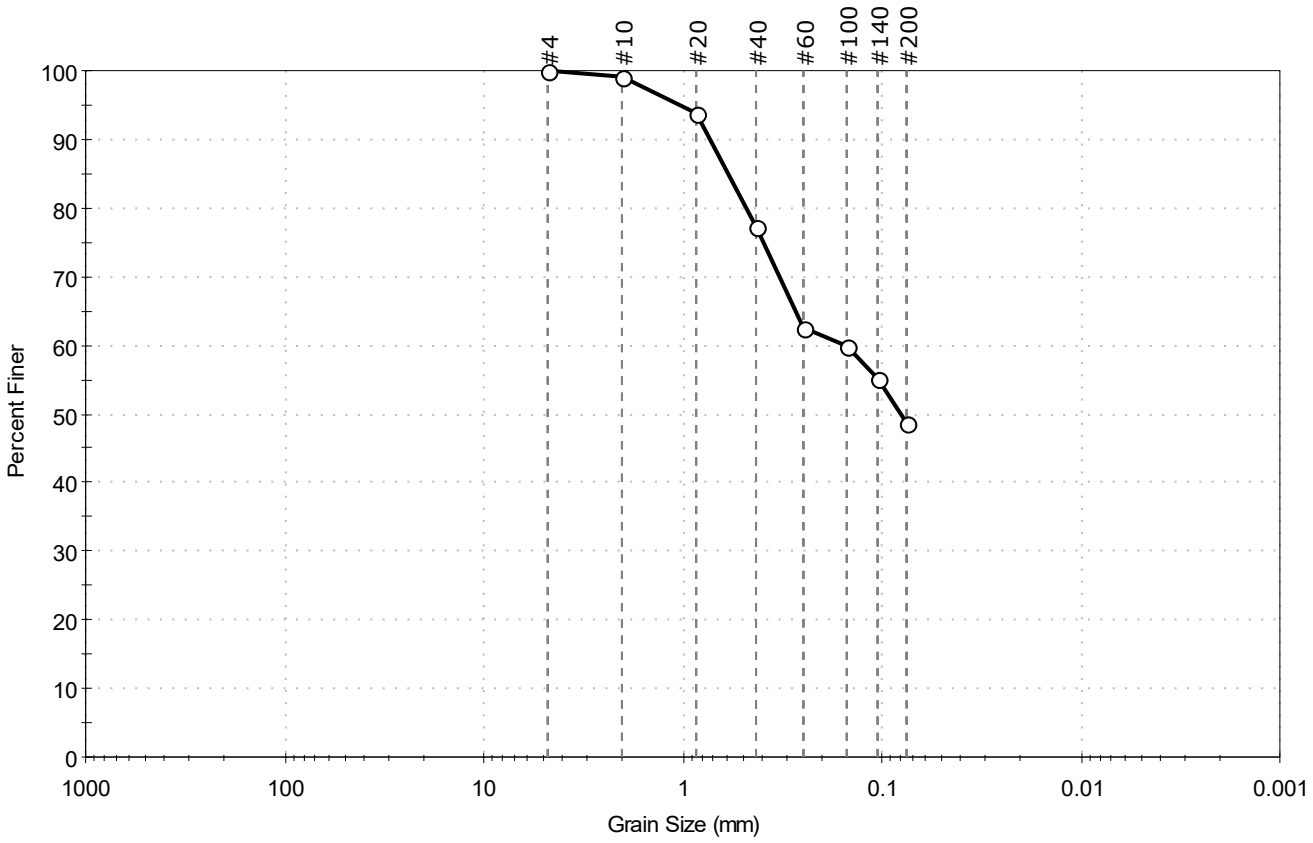
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-08	Test Date:	08/27/24	Checked By:	ank
Depth :	0-11.8'	Test Id:	782189		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	51.4	48.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	94		
#40	0.42	77		
#60	0.25	63		
#100	0.15	60		
#140	0.11	55		
#200	0.075	49		

Coefficients

D_{85} = 0.5855 mm	D_{30} = N/A
D_{60} = 0.1550 mm	D_{15} = N/A
D_{50} = 0.0808 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Silty SAND (SM)

AASHTO Clayey Soils (A-7-5 (5))

Sample/Test Description

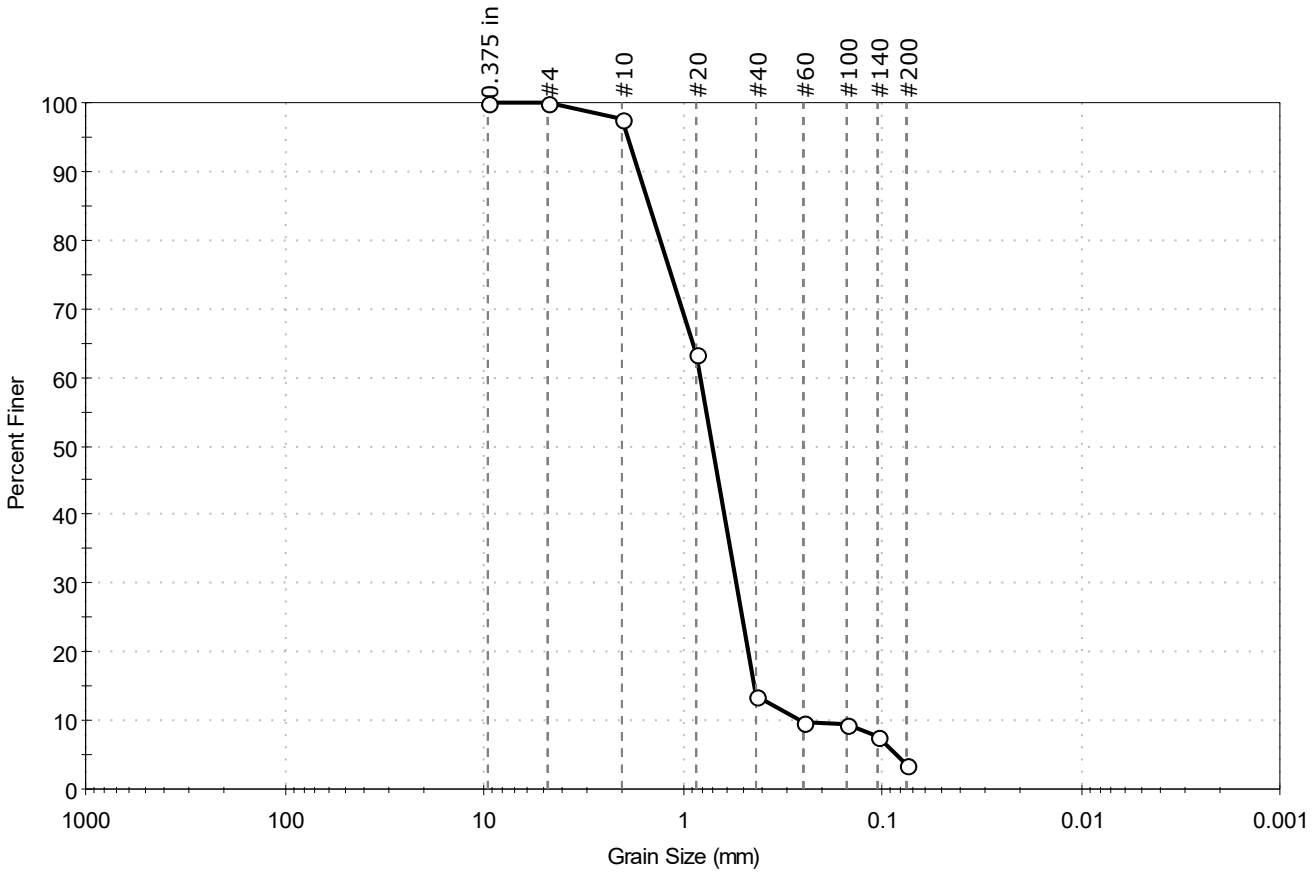
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-08	Test Date:	08/26/24	Checked By:	ank
Depth :	11.9-13.9'	Test Id:	782190		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.2	96.2	3.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	100		
#10	2.00	98		
#20	0.85	63		
#40	0.42	13		
#60	0.25	10		
#100	0.15	9		
#140	0.11	8		
#200	0.075	3.6		

Coefficients

D_{85} = 1.4585 mm	D_{30} = 0.5349 mm
D_{60} = 0.8116 mm	D_{15} = 0.4342 mm
D_{50} = 0.7063 mm	D_{10} = 0.2617 mm
C_u = 3.101	C_c = 1.347

Classification

ASTM — Poorly graded SAND (SP)

AASHTO — Stone Fragments, Gravel and Sand (A-1-b (1))

Sample/Test Description

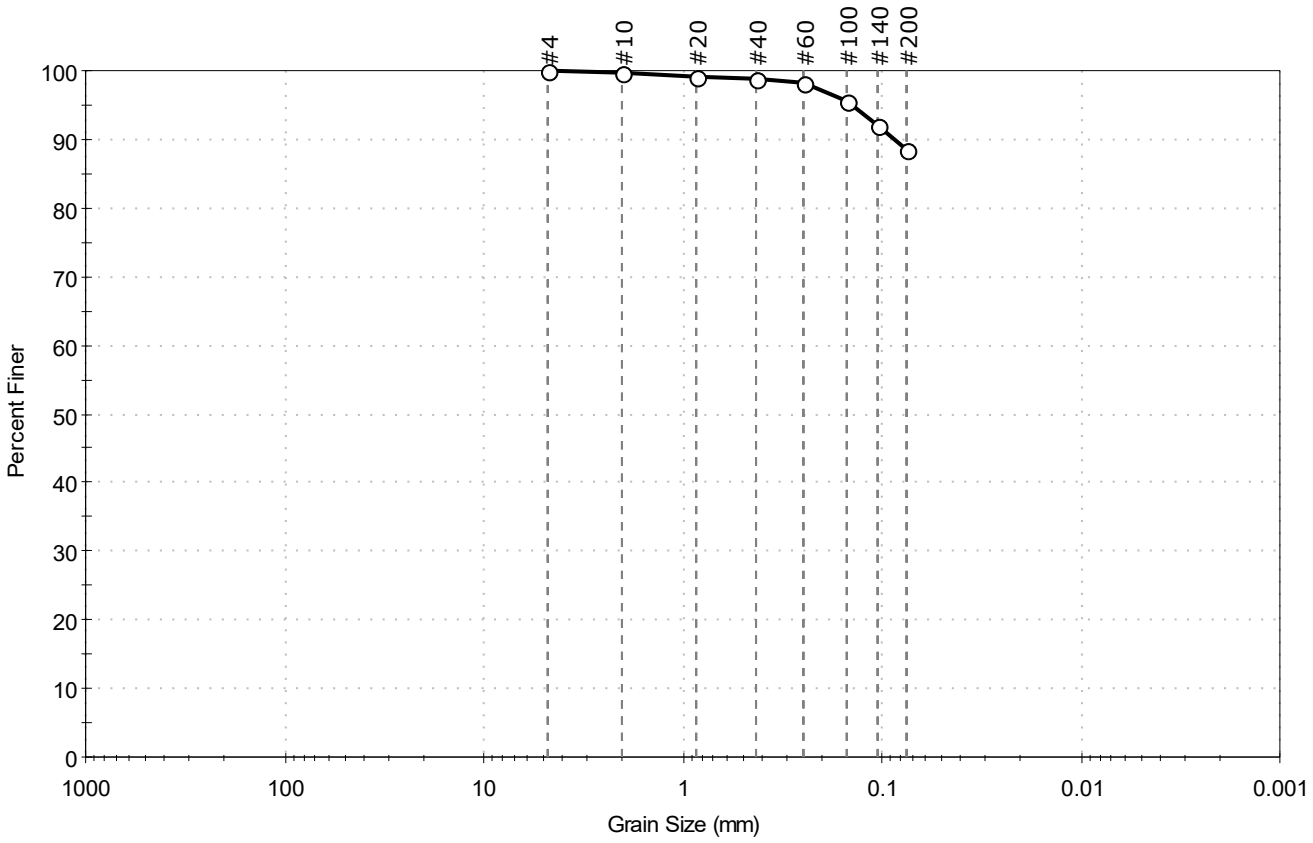
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-08	Test Date:	08/26/24	Checked By:	ank
Depth :	13.9-17'	Test Id:	782191		
Test Comment:	---				
Visual Description:	Moist, very dark brownish gray clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	11.4	88.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#140	0.11	92		
#200	0.075	89		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-5 (77))

Sample/Test Description

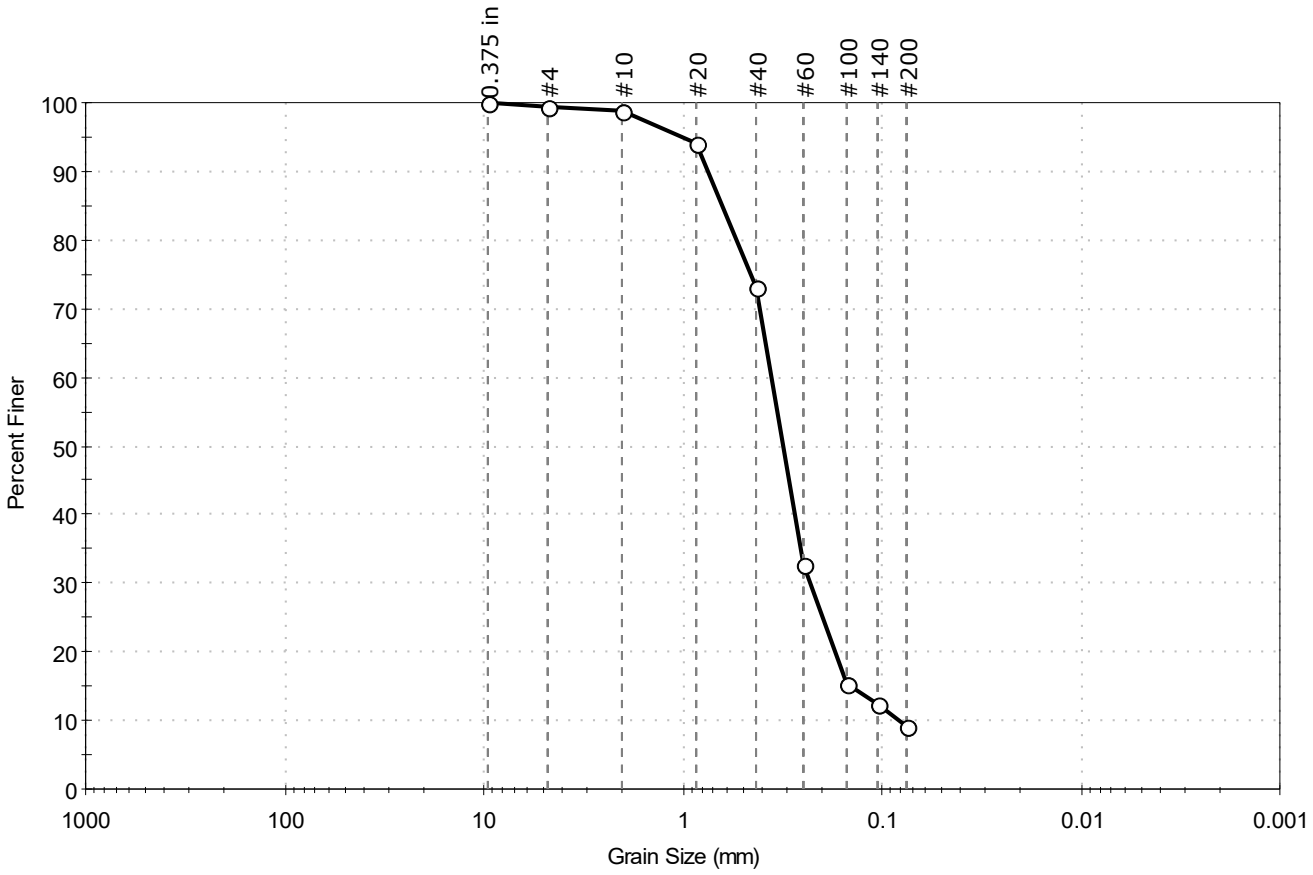
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-09	Test Date:	08/26/24	Checked By:	ank
Depth :	0-15.2'	Test Id:	782178		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand with silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.6	90.3	9.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	99		
#20	0.85	94		
#40	0.42	73		
#60	0.25	33		
#100	0.15	15		
#140	0.11	12		
#200	0.075	9.1		

Coefficients

D_{85} = 0.6275 mm	D_{30} = 0.2307 mm
D_{60} = 0.3573 mm	D_{15} = 0.1451 mm
D_{50} = 0.3135 mm	D_{10} = 0.0826 mm
C_u = 4.326	C_c = 1.803

Classification

ASTM Poorly graded SAND with Silt (SP-SM)

AASHTO Fine Sand (A-3 (1))

Sample/Test Description

Sand/Gravel Particle Shape : ---

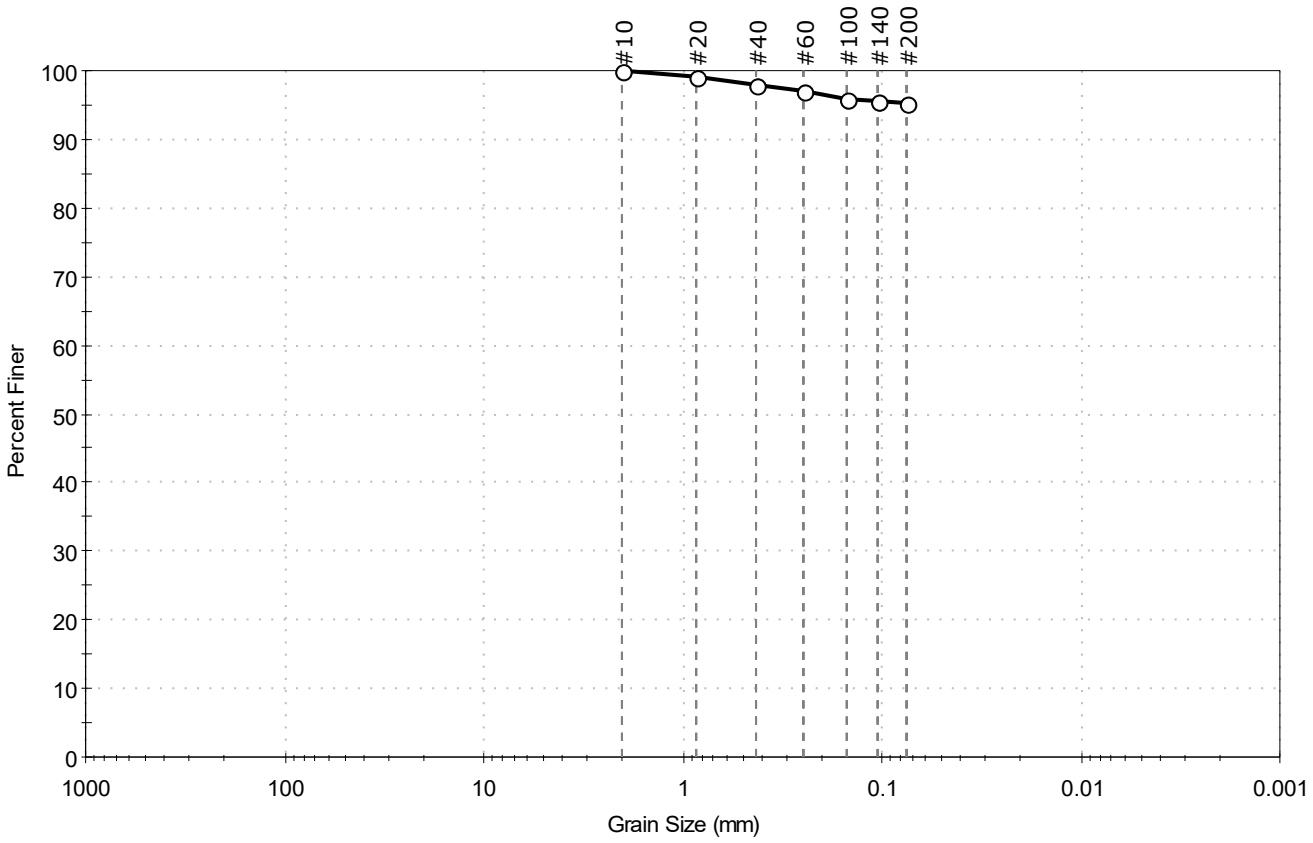
Sand/Gravel Hardness : ---

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GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-09	Test Date:	08/26/24	Checked By:	ank
Depth :	15.2-17'	Test Id:	782179		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay with organics				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	4.7	95.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	97		
#100	0.15	96		
#140	0.11	96		
#200	0.075	95		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-5 (125))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-07	Test Date:	08/22/24	Checked By:	ank
Depth :	0-10'	Test Id:	782201		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

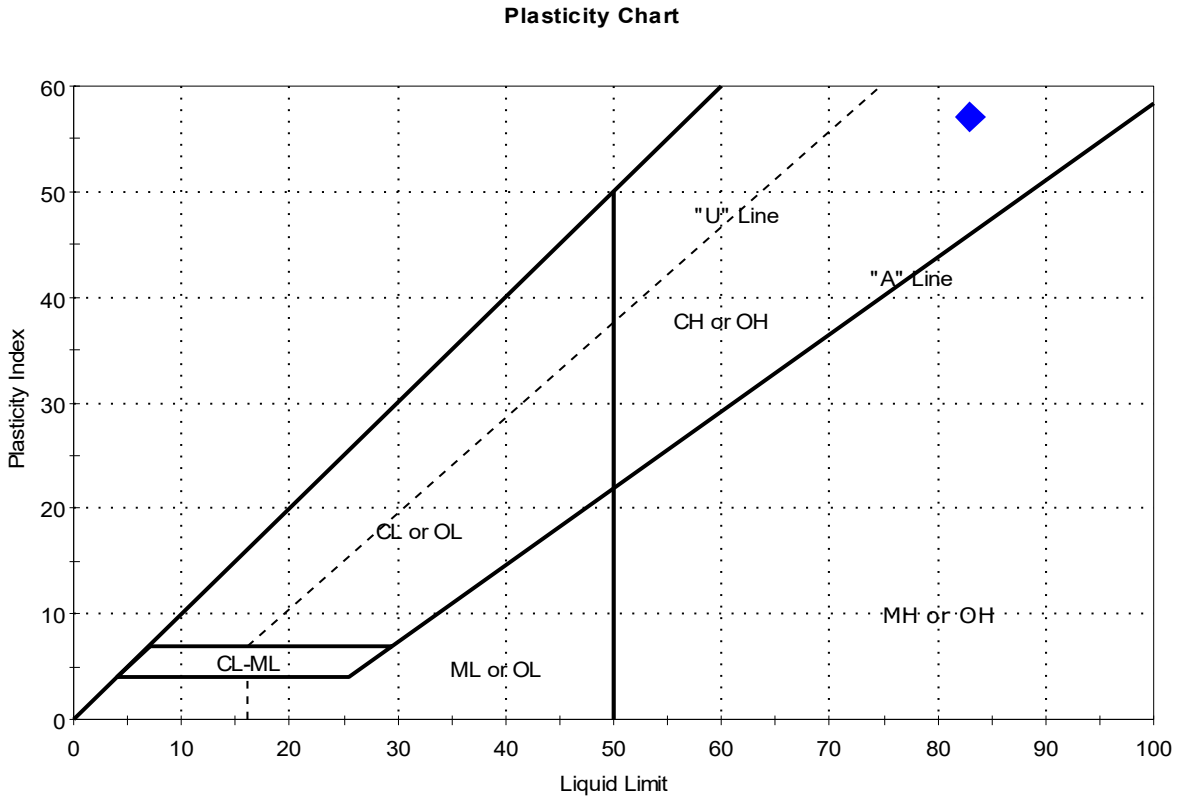
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-07	---	0-10'	38	n/a	n/a	n/a	n/a	Silty SAND (SM)

7% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-07	Test Date:	08/26/24	Checked By:	ank
Depth :	10-17'	Test Id:	782202		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



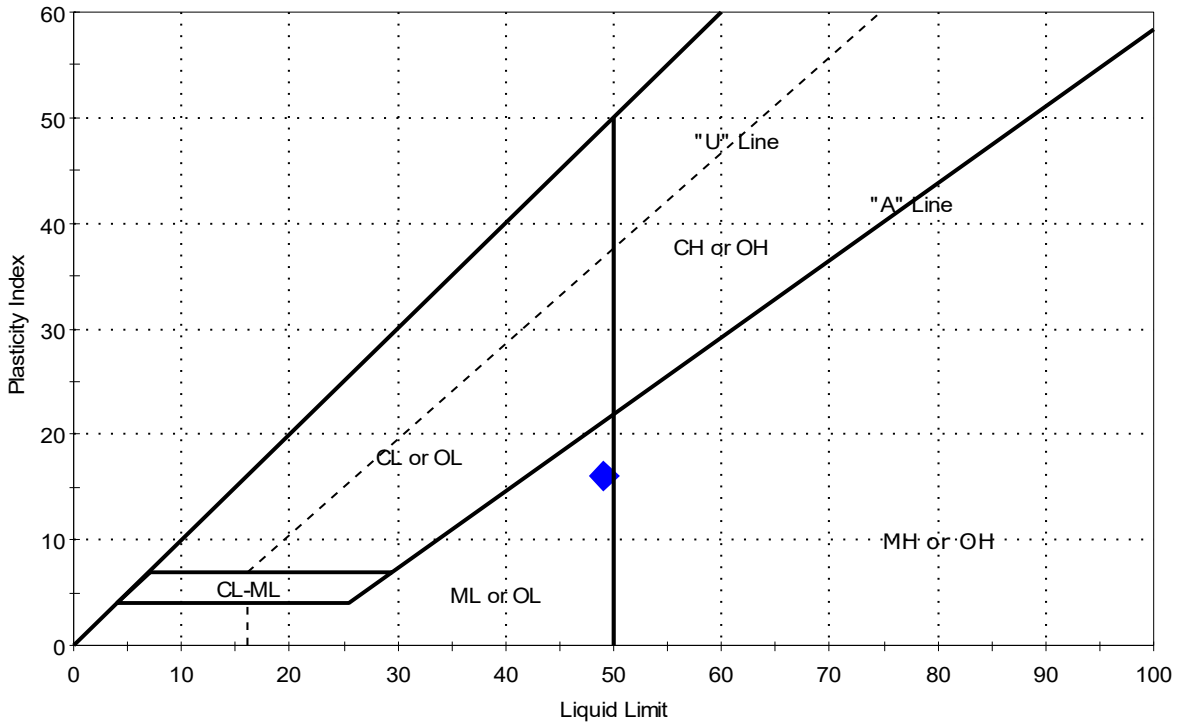
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-07	---	10-17'	80	83	26	57	0.9	Fat CLAY (CH)

Sample Prepared using the WET method
3% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-08	Test Date:	08/27/24	Checked By:	ank
Depth :	0-11.8'	Test Id:	782186		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-08	---	0-11.8'	55	49	33	16	1.4	Silty SAND (SM)

Sample Prepared using the WET method
23% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

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GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-08	Test Date:	08/22/24	Checked By:	ank
Depth :	11.9-13.9'	Test Id:	782187		
Test Comment:	---				
Visual Description:	Moist, dark gray sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

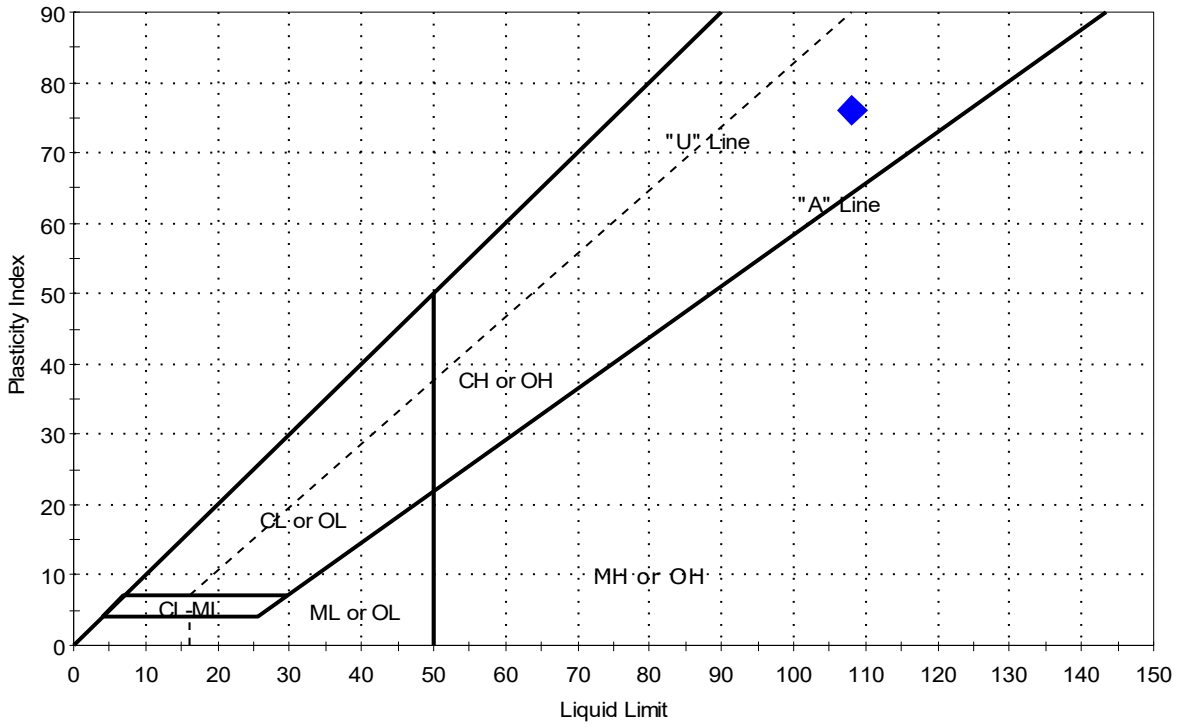
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-08	---	11.9-13.9	14	n/a	n/a	n/a	n/a	Poorly graded SAND (SP)

87% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-08	Test Date:	08/26/24	Checked By:	ank
Depth :	13.9-17'	Test Id:	782188		
Test Comment:	---				
Visual Description:	Moist, very dark brownish gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-08	---	13.9-17'	77	108	32	76	0.6	Fat CLAY (CH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-09	Test Date:	08/22/24	Checked By:	ank
Depth :	0-15.2'	Test Id:	782176		
Test Comment:	---				
Visual Description:	Moist, very dark gray sand with silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

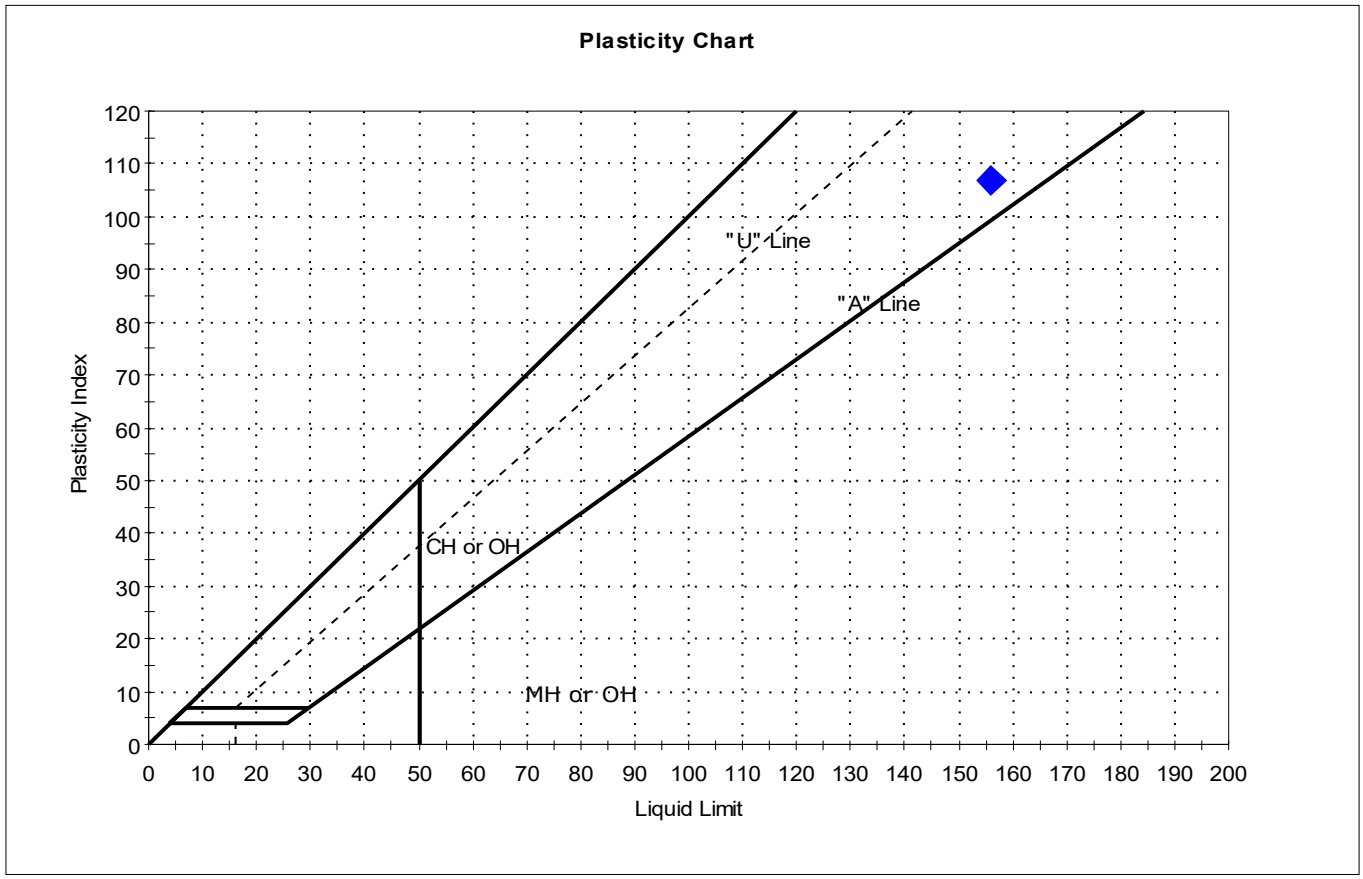
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-09	---	0-15.2'	23	n/a	n/a	n/a	n/a	Poorly graded SAND with Silt (SP-SM)

27% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446115				
Location:	NJ			Project No:	GTX-319643
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-09	Test Date:	08/26/24	Checked By:	ank
Depth :	15.2-17'	Test Id:	782177		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay with organics				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-09	---	15.2-17'	122	156	49	107	0.7	Fat CLAY (CH)

Sample Prepared using the WET method
2% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Pace Analytical™

www.pacelabs.com

Report Prepared for:

Elizabeth Porta
Alpha Analytical
Eight Walkup Drive
Westborough MA 015811019

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10705001
Sample Receipt Date: 08/20/2024
Client Project #: L2446115
Client Sub PO #: L2446115
State Cert #: MN002

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Isaac Johnson, your Pace Project Manager.

This report has been reviewed by:

Isaac Johnson

September 04, 2024

Isaac Johnson, Project Manager
(612) 607-1700
(612) 607-6444 (fax)
isaac.johnson@pacelabs.com

Report Prepared Date:

September 4, 2024

Report of Laboratory Analysis

This report should not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc.

The results relate only to the samples included in this report.

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on ten samples submitted by a representative of Alpha Analytical. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The reporting limits were set to correspond to the lowest calibration points and were adjusted for sample amount and dilution. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 56-120%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained. Values were flagged "P" where polychlorinated diphenyl ethers were present.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks to be free of PCDDs and PCDFs at the reporting limits.

Laboratory and matrix spike samples were also prepared using clean reference matrix or sample matrix that had been fortified with native standard materials. The results show that the spiked native compounds were generally recovered at 77-123% with relative percent differences (RPDs) of 0.0-87.9%. Three background-subtracted recovery values obtained for the matrix spike samples were outside the target range and flagged "R" on the results tables. Also, two RPD values were above the 20% target upper limit. These deviations may be due to the levels of the affected congeners in the sample material and/or sample inhomogeneity. Matrix spikes were not prepared with the water sample batch.

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street SE
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444
www.pacelabs.com

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-DW	27700
California	2929	North Carolina-WW	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (1700)	CL101
Georgia	959	Ohio-VAP (1800)	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon-Primary	MN300001
Illinois	200011	Oregon-Secondary	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-DEP	382
Minnesota	027-053-137	West Virginia-DW	9952C
Minnesota-Ag	via MN 027-053-137	Wisconsin	999407970
Minnesota-Petrofund	1240	Wyoming-UST	via A2LA 2926.01
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
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www.pacelabs.com

Appendix A

Sample Management

REPORT OF LABORATORY ANALYSIS

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Report No.....10705001_1613BFC_L2_dfr

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Pace Analytical (MN)
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com NJ "waters" "open ocean samples"

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-10 (0-14.5)	08-14-24 10:35	Sediment	Dioxins - EPA 1613B	
	VC-10 (14.5'-17')	08-14-24 10:50	Sediment	Dioxins - EPA 1613B	
	VC-09 (0-15.2')	08-15-24 10:00	Sediment	Dioxins - EPA 1613B	MS;MSD
	VC-09 (15.2'-17')	08-15-24 10:40	Sediment	Dioxins - EPA 1613B	
	FB-081524	08-15-24 14:15	WATER	Dioxins - EPA 1613B	
	VC-08 (0-11.8')	08-16-24 09:15	SOIL	Dioxins - EPA 1613B	
	VC-08 (11.8'-13.9')	08-16-24 09:40	SOIL	Dioxins - EPA 1613B	
	VC-08 (13.9'-17')	08-16-24 09:50	SOIL	Dioxins - EPA 1613B	

001 002 003 004 005 006 007 008

WO# : 10705001

10705001

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		8/19/24	Nicole V/Pace 2.4 T3	8/20/24 0940
Form No: AL_subcoc				

Pg 1 of 2

Report No.....10705001_1613BFC_L2_dfr

ALPHA ANALYTICAL
World Class Chemistry

Subcontract Chain of Custody

Pace Analytical (MN)
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Alpha Job Number
L2446115

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: NJ Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446115

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com NJ "waters" "open ocean samples"

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-07 (0-10') VC-07 (10'-17')	08-16-24 13:20 08-16-24 13:45	SOIL SOIL	Dioxins - EPA 1613B Dioxins - EPA 1613B	

009
010

	Relinquished By:	Date/Time:	Received By:	Date/Time:
		8/19/24		8/20/24 940
Form No: AL_subcoc				

79 1.2

ENV-FRM-MIN4-0150 v17_Sample Condition Upon Receipt

CLIENT NAME: Alpha Analytical Labs **PROJECT #:** **WO#: 10705001**

PM: IJJ **Due Date: 09/11/24**

CLIENT: Alpha

COURIER: ☐ Client ☐ Commercial ☑ FedEx ☐ Pace ☐ SpeeDee ☐ UPS ☐ USPS

TRACKING NUMBER: 778050756426 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☑ NO **Seals Intact:** ☐ YES ☑ NO **Biological Tissue Frozen:** ☐ YES ☐ NO ☑ N/A

Packing Material: ☑ Bubble Bags ☐ Bubble Wrap ☐ None ☐ Other **Temp Blank:** ☑ YES ☐ NO **Type of Ice:** ☐ Blue ☐ Dry ☑ Wet ☐ Melted ☐ None

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☑ T9 (0727) ☐ 01339252 (1710)

Did Samples Originate in West Virginia: ☐ YES ☑ NO	**Were All Container Temps taken:** ☐ YES ☐ NO ☑ N/A
Correction Factor: TQ-Tcorr **Cooler Temp Read w/Temp Blank:** 1.2 °C **Cooler Temp Corrected w/Temp Blank:** 1.2 °C	**Average Corrected Temp (no Temp Blank Only):** _____ °C
***NOTE:** Temp should be above freezing to 6°C.*	☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container
USDA Regulated Soil: ☐ N/A – Water Sample/Other (describe): Soil/Water/Sed	**Initials & Date of Person Examining Contents:** JMW 8/21/24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☑ NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☑ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): ☐ DULUTH ☑ MINNEAPOLIS ☐ VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	☑	☐		1.
Chain of Custody Relinquished?	☑	☐		2.
Sampler Name and/or Signature on COC?	☐	☐	☑	3.
Samples Arrived within Hold Time?	☑	☐		4. If Fecal: ☐ <8 hrs ☐ >8 hr, <24 hr ☐ No
Short Hold Time Analysis (<72 hr)?	☐	☑		5. ☐ BOD / cBOD ☐ Fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/*E. coli* ☐ Other: _____
Rush Turn Around Time Requested?	☐	☑		6.
Sufficient Sample Volume?	☑	☐		7.
Correct Containers Used?	☑	☐	☐	8.
– Pace Containers Used?	☐	☑		
Containers Intact?	☑	☐		9.
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☑	10. Is sediment visible in the dissolved container: ☐ YES ☐ NO
Is sufficient information available to reconcile the samples to the COC? **NOTE:** If ID/Date/Time don't match fill out section 11. Matrix: ☐ Oil ☑ Soil ☑ Water ☐ Other	☑	☐		11. **If NO, write ID/Date/Time of container below:** ☐ See Exceptions form ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐	☐	☑	12. Sample #:
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)	☐	☐	☑	☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	☐	☐	☑	Positive for Residual Chlorine: ☐ YES ☐ NO
NOTE: If adding preservation to the container, **verify with the PM first.** Clients may require adding preservative to the field and equipment blanks when this occurs.				**pH Paper Lot #**
				Residual Chlorine / 0-6 Roll / 0-6 Strip / 0-14 Strip
				☐ See Exceptions form ENV-FRM-MIN4-0142
Headspace in Methyl Mercury Container?	☐	☐	☑	13.
Extra labels present on soil VOA or WIDRO containers?	☐	☑	☐	14.
Headspace in VOA Vials (greater than 6mm)?	☐	☐	☑	☐ See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?	☐	☑	☐	15.
Trip Blank Custody Seals Present?	☐	☐	☑	Pace Trip Blank Lot # (if purchased): _____

CLIENT NOTIFICATION / RESOLUTION **FIELD DATA REQUIRED:** ☐ YES ☐ NO

Person Contacted: _____ Date & Time: _____

Comments / Resolution: _____

Project Manager Review: Isaac Johnson **Date:** 8/21/24

***NOTE:** When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).*

Labeled By: JMW **Line:** 3

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Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

H2 = Extracted outside of holding time

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-10 (0-14.5)		
Lab Sample ID	10705001001		
Filename	U240829B_09		
Injected By	SMT		
Total Amount Extracted	21.3 g	Matrix	SOLID
% Moisture	31.5	Dilution	NA
Dry Weight Extracted	14.6 g	Collected	08/14/2024 10:35
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/30/2024 03:53

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.68	2,3,7,8-TCDF-13C	2.00	107
Total TCDF	ND	-----	0.68	2,3,7,8-TCDD-13C	2.00	97
				1,2,3,7,8-PeCDF-13C	2.00	113
2,3,7,8-TCDD	ND	-----	0.68	2,3,4,7,8-PeCDF-13C	2.00	109
Total TCDD	1.2	-----	0.68	1,2,3,7,8-PeCDD-13C	2.00	118
				1,2,3,4,7,8-HxCDF-13C	2.00	102
1,2,3,7,8-PeCDF	ND	-----	3.4	1,2,3,6,7,8-HxCDF-13C	2.00	99
2,3,4,7,8-PeCDF	ND	-----	3.4	2,3,4,6,7,8-HxCDF-13C	2.00	99
Total PeCDF	ND	-----	3.4	1,2,3,7,8,9-HxCDF-13C	2.00	99
				1,2,3,4,7,8-HxCDD-13C	2.00	97
1,2,3,7,8-PeCDD	ND	-----	3.4	1,2,3,6,7,8-HxCDD-13C	2.00	100
Total PeCDD	ND	-----	3.4	1,2,3,4,6,7,8-HpCDF-13C	2.00	89
				1,2,3,4,7,8,9-HpCDF-13C	2.00	95
1,2,3,4,7,8-HxCDF	ND	-----	3.4	1,2,3,4,6,7,8-HpCDD-13C	2.00	111
1,2,3,6,7,8-HxCDF	ND	-----	3.4	OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	ND	-----	3.4			
1,2,3,7,8,9-HxCDF	ND	-----	3.4	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	3.4	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.4	2,3,7,8-TCDD-37Cl4	0.20	89
1,2,3,6,7,8-HxCDD	ND	-----	3.4			
1,2,3,7,8,9-HxCDD	ND	-----	3.4			
Total HxCDD	8.7	-----	3.4			
1,2,3,4,6,7,8-HpCDF	ND	-----	3.4	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.4	Equivalence: 0.096 ng/Kg		
Total HpCDF	ND	-----	3.4	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	6.6	-----	3.4			
Total HpCDD	25	-----	3.4			
OCDF	ND	-----	6.8			
OCDD	99	-----	6.8			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-10 (14.5'-17')		
Lab Sample ID	10705001002		
Filename	U240829B_10		
Injected By	SMT		
Total Amount Extracted	17.5 g	Matrix	SOLID
% Moisture	39.7	Dilution	NA
Dry Weight Extracted	10.6 g	Collected	08/14/2024 10:50
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/30/2024 04:40

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.95	2,3,7,8-TCDF-13C	2.00	99
Total TCDF	ND	-----	0.95	2,3,7,8-TCDD-13C	2.00	91
				1,2,3,7,8-PeCDF-13C	2.00	102
2,3,7,8-TCDD	ND	-----	0.95	2,3,4,7,8-PeCDF-13C	2.00	102
Total TCDD	3.3	-----	0.95	1,2,3,7,8-PeCDD-13C	2.00	108
				1,2,3,4,7,8-HxCDF-13C	2.00	88
1,2,3,7,8-PeCDF	ND	-----	4.7	1,2,3,6,7,8-HxCDF-13C	2.00	91
2,3,4,7,8-PeCDF	ND	-----	4.7	2,3,4,6,7,8-HxCDF-13C	2.00	88
Total PeCDF	ND	-----	4.7	1,2,3,7,8,9-HxCDF-13C	2.00	90
				1,2,3,4,7,8-HxCDD-13C	2.00	89
1,2,3,7,8-PeCDD	ND	-----	4.7	1,2,3,6,7,8-HxCDD-13C	2.00	93
Total PeCDD	ND	-----	4.7	1,2,3,4,6,7,8-HpCDF-13C	2.00	84
				1,2,3,4,7,8,9-HpCDF-13C	2.00	91
1,2,3,4,7,8-HxCDF	ND	-----	4.7	1,2,3,4,6,7,8-HpCDD-13C	2.00	110
1,2,3,6,7,8-HxCDF	ND	-----	4.7	OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	ND	-----	4.7			
1,2,3,7,8,9-HxCDF	ND	-----	4.7	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.7	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.7	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	ND	-----	4.7			
1,2,3,7,8,9-HxCDD	ND	-----	4.7			
Total HxCDD	39	-----	4.7			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.7	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.7	Equivalence: 0.39 ng/Kg		
Total HpCDF	ND	-----	4.7	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	26	-----	4.7			
Total HpCDD	99	-----	4.7			
OCDF	ND	-----	9.5			
OCDD	410	-----	9.5			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-09 (0-15.2')		
Lab Sample ID	10705001003		
Filename	U240829B_11		
Injected By	SMT		
Total Amount Extracted	18.0 g	Matrix	SOLID
% Moisture	21.4	Dilution	NA
Dry Weight Extracted	14.1 g	Collected	08/15/2024 10:00
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/30/2024 05:28

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.71	2,3,7,8-TCDF-13C	2.00	88
Total TCDF	ND	-----	0.71	2,3,7,8-TCDD-13C	2.00	79
				1,2,3,7,8-PeCDF-13C	2.00	93
2,3,7,8-TCDD	ND	-----	0.71	2,3,4,7,8-PeCDF-13C	2.00	93
Total TCDD	ND	-----	0.71	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	ND	-----	3.5	1,2,3,6,7,8-HxCDF-13C	2.00	79
2,3,4,7,8-PeCDF	ND	-----	3.5	2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	ND	-----	3.5	1,2,3,7,8,9-HxCDF-13C	2.00	80
				1,2,3,4,7,8-HxCDD-13C	2.00	81
1,2,3,7,8-PeCDD	ND	-----	3.5	1,2,3,6,7,8-HxCDD-13C	2.00	84
Total PeCDD	ND	-----	3.5	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	79
1,2,3,4,7,8-HxCDF	ND	-----	3.5	1,2,3,4,6,7,8-HpCDD-13C	2.00	99
1,2,3,6,7,8-HxCDF	ND	-----	3.5	OCDD-13C	4.00	71
2,3,4,6,7,8-HxCDF	ND	-----	3.5			
1,2,3,7,8,9-HxCDF	ND	-----	3.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	3.5	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.5	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	ND	-----	3.5			
1,2,3,7,8,9-HxCDD	ND	-----	3.5			
Total HxCDD	3.8	-----	3.5			
1,2,3,4,6,7,8-HpCDF	ND	-----	3.5	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.5	Equivalence: 0.011 ng/Kg		
Total HpCDF	ND	-----	3.5	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	3.5			
Total HpCDD	7.0	-----	3.5			
OCDF	ND	-----	7.1			
OCDD	38	-----	7.1			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-09 (15.2'-17')		
Lab Sample ID	10705001004		
Filename	U240829B_12		
Injected By	SMT		
Total Amount Extracted	17.8 g	Matrix	SOLID
% Moisture	55.6	Dilution	NA
Dry Weight Extracted	7.90 g	Collected	08/15/2024 10:40
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/30/2024 06:15

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.3	2,3,7,8-TCDF-13C	2.00	98
Total TCDF	ND	-----	1.3	2,3,7,8-TCDD-13C	2.00	91
				1,2,3,7,8-PeCDF-13C	2.00	103
2,3,7,8-TCDD	ND	-----	1.3	2,3,4,7,8-PeCDF-13C	2.00	104
Total TCDD	ND	-----	1.3	1,2,3,7,8-PeCDD-13C	2.00	109
				1,2,3,4,7,8-HxCDF-13C	2.00	90
1,2,3,7,8-PeCDF	ND	-----	6.3	1,2,3,6,7,8-HxCDF-13C	2.00	89
2,3,4,7,8-PeCDF	ND	-----	6.3	2,3,4,6,7,8-HxCDF-13C	2.00	90
Total PeCDF	ND	-----	6.3	1,2,3,7,8,9-HxCDF-13C	2.00	91
				1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	ND	-----	6.3	1,2,3,6,7,8-HxCDD-13C	2.00	95
Total PeCDD	ND	-----	6.3	1,2,3,4,6,7,8-HpCDF-13C	2.00	85
				1,2,3,4,7,8,9-HpCDF-13C	2.00	87
1,2,3,4,7,8-HxCDF	ND	-----	6.3	1,2,3,4,6,7,8-HpCDD-13C	2.00	110
1,2,3,6,7,8-HxCDF	ND	-----	6.3	OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	ND	-----	6.3			
1,2,3,7,8,9-HxCDF	ND	-----	6.3	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	6.3	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	6.3	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	ND	-----	6.3			
1,2,3,7,8,9-HxCDD	ND	-----	6.3			
Total HxCDD	36	-----	6.3			
1,2,3,4,6,7,8-HpCDF	ND	-----	6.3	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	6.3	Equivalence: 0.30 ng/Kg		
Total HpCDF	ND	-----	6.3	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	20	-----	6.3			
Total HpCDD	76	-----	6.3			
OCDF	ND	-----	13			
OCDD	310	-----	13			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	FB-081524		
Lab Sample ID	10705001005		
Filename	U240829B_08		
Injected By	SMT		
Total Amount Extracted	1020 mL	Matrix	WATER
% Moisture	NA	Dilution	NA
Dry Weight Extracted	NA	Collected	08/15/2024 14:15
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/23/2024 12:00
Method Blank ID	BLANK-114406	Analyzed	08/30/2024 03:06

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	9.8	2,3,7,8-TCDF-13C	2.00	73
Total TCDF	ND	-----	9.8	2,3,7,8-TCDD-13C	2.00	66
				1,2,3,7,8-PeCDF-13C	2.00	72
2,3,7,8-TCDD	ND	-----	9.8	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	ND	-----	9.8	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	71
1,2,3,7,8-PeCDF	ND	-----	49	1,2,3,6,7,8-HxCDF-13C	2.00	71
2,3,4,7,8-PeCDF	ND	-----	49	2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	ND	-----	49	1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	66
1,2,3,7,8-PeCDD	ND	-----	49	1,2,3,6,7,8-HxCDD-13C	2.00	72
Total PeCDD	ND	-----	49	1,2,3,4,6,7,8-HpCDF-13C	2.00	62
				1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	ND	-----	49	1,2,3,4,6,7,8-HpCDD-13C	2.00	77
1,2,3,6,7,8-HxCDF	ND	-----	49	OCDD-13C	4.00	56
2,3,4,6,7,8-HxCDF	ND	-----	49			
1,2,3,7,8,9-HxCDF	ND	-----	49	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	49	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	49	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	ND	-----	49			
1,2,3,7,8,9-HxCDD	ND	-----	49			
Total HxCDD	ND	-----	49			
1,2,3,4,6,7,8-HpCDF	ND	-----	49	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	49	Equivalence: 0.00 pg/L		
Total HpCDF	ND	-----	49	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	49			
Total HpCDD	ND	-----	49			
OCDF	ND	-----	98			
OCDD	ND	-----	98			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-08 (0-11.8')		
Lab Sample ID	10705001006		
Filename	U240829B_13		
Injected By	SMT		
Total Amount Extracted	19.7 g	Matrix	SOLID
% Moisture	34.1	Dilution	NA
Dry Weight Extracted	13.0 g	Collected	08/16/2024 09:15
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/30/2024 07:02

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.77	2,3,7,8-TCDF-13C	2.00	91
Total TCDF	ND	-----	0.77	2,3,7,8-TCDD-13C	2.00	84
				1,2,3,7,8-PeCDF-13C	2.00	97
2,3,7,8-TCDD	ND	-----	0.77	2,3,4,7,8-PeCDF-13C	2.00	96
Total TCDD	1.4	-----	0.77	1,2,3,7,8-PeCDD-13C	2.00	101
				1,2,3,4,7,8-HxCDF-13C	2.00	85
1,2,3,7,8-PeCDF	ND	-----	3.8	1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	ND	-----	3.8	2,3,4,6,7,8-HxCDF-13C	2.00	85
Total PeCDF	ND	-----	3.8	1,2,3,7,8,9-HxCDF-13C	2.00	84
				1,2,3,4,7,8-HxCDD-13C	2.00	82
1,2,3,7,8-PeCDD	ND	-----	3.8	1,2,3,6,7,8-HxCDD-13C	2.00	89
Total PeCDD	ND	-----	3.8	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	84
1,2,3,4,7,8-HxCDF	ND	-----	3.8	1,2,3,4,6,7,8-HpCDD-13C	2.00	101
1,2,3,6,7,8-HxCDF	ND	-----	3.8	OCDD-13C	4.00	74
2,3,4,6,7,8-HxCDF	ND	-----	3.8			
1,2,3,7,8,9-HxCDF	ND	-----	3.8	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	3.8	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.8	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	ND	-----	3.8			
1,2,3,7,8,9-HxCDD	ND	-----	3.8			
Total HxCDD	16	-----	3.8			
1,2,3,4,6,7,8-HpCDF	ND	-----	3.8	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.8	Equivalence: 0.16 ng/Kg		
Total HpCDF	ND	-----	3.8	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	11	-----	3.8			
Total HpCDD	41	-----	3.8			
OCDF	ND	-----	7.7			
OCDD	160	-----	7.7			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-08 (11.8'-13.9')		
Lab Sample ID	10705001007		
Filename	U240829B_14		
Injected By	SMT		
Total Amount Extracted	18.5 g	Matrix	SOLID
% Moisture	14.7	Dilution	NA
Dry Weight Extracted	15.8 g	Collected	08/16/2024 09:40
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_18	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/30/2024 07:49

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.63	2,3,7,8-TCDF-13C	2.00	87
Total TCDF	ND	-----	0.63	2,3,7,8-TCDD-13C	2.00	79
				1,2,3,7,8-PeCDF-13C	2.00	86
2,3,7,8-TCDD	ND	-----	0.63	2,3,4,7,8-PeCDF-13C	2.00	90
Total TCDD	ND	-----	0.63	1,2,3,7,8-PeCDD-13C	2.00	92
				1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	-----	3.2	1,2,3,6,7,8-HxCDF-13C	2.00	77
2,3,4,7,8-PeCDF	ND	-----	3.2	2,3,4,6,7,8-HxCDF-13C	2.00	76
Total PeCDF	ND	-----	3.2	1,2,3,7,8,9-HxCDF-13C	2.00	75
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	-----	3.2	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	-----	3.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	69
				1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	ND	-----	3.2	1,2,3,4,6,7,8-HpCDD-13C	2.00	89
1,2,3,6,7,8-HxCDF	ND	-----	3.2	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	ND	-----	3.2			
1,2,3,7,8,9-HxCDF	ND	-----	3.2	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	3.2	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.2	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	ND	-----	3.2			
1,2,3,7,8,9-HxCDD	ND	-----	3.2			
Total HxCDD	ND	-----	3.2			
1,2,3,4,6,7,8-HpCDF	ND	-----	3.2	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.2	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	-----	3.2	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	3.2			
Total HpCDD	ND	-----	3.2			
OCDF	ND	-----	6.3			
OCDD	ND	-----	6.3			

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-08 (13.9'-17')		
Lab Sample ID	10705001008		
Filename	U240829A_04		
Injected By	JF		
Total Amount Extracted	19.2 g	Matrix	SOLID
% Moisture	44.9	Dilution	NA
Dry Weight Extracted	10.6 g	Collected	08/16/2024 09:50
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/29/2024 09:47

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.94	2,3,7,8-TCDF-13C	2.00	95
Total TCDF	ND	-----	0.94	2,3,7,8-TCDD-13C	2.00	89
				1,2,3,7,8-PeCDF-13C	2.00	99
2,3,7,8-TCDD	ND	-----	0.94	2,3,4,7,8-PeCDF-13C	2.00	98
Total TCDD	3.5	-----	0.94	1,2,3,7,8-PeCDD-13C	2.00	104
				1,2,3,4,7,8-HxCDF-13C	2.00	89
1,2,3,7,8-PeCDF	ND	-----	4.7	1,2,3,6,7,8-HxCDF-13C	2.00	87
2,3,4,7,8-PeCDF	ND	-----	4.7	2,3,4,6,7,8-HxCDF-13C	2.00	87
Total PeCDF	ND	-----	4.7	1,2,3,7,8,9-HxCDF-13C	2.00	93
				1,2,3,4,7,8-HxCDD-13C	2.00	91
1,2,3,7,8-PeCDD	ND	-----	4.7	1,2,3,6,7,8-HxCDD-13C	2.00	90
Total PeCDD	ND	-----	4.7	1,2,3,4,6,7,8-HpCDF-13C	2.00	89
				1,2,3,4,7,8,9-HpCDF-13C	2.00	100
1,2,3,4,7,8-HxCDF	ND	-----	4.7	1,2,3,4,6,7,8-HpCDD-13C	2.00	116
1,2,3,6,7,8-HxCDF	ND	-----	4.7	OCDD-13C	4.00	95
2,3,4,6,7,8-HxCDF	ND	-----	4.7			
1,2,3,7,8,9-HxCDF	ND	-----	4.7	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.7	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.7	2,3,7,8-TCDD-37Cl4	0.20	80
1,2,3,6,7,8-HxCDD	ND	-----	4.7			
1,2,3,7,8,9-HxCDD	ND	-----	4.7			
Total HxCDD	26	-----	4.7			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.7	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.7	Equivalence: 0.25 ng/Kg		
Total HpCDF	ND	-----	4.7	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	17	-----	4.7			
Total HpCDD	62	-----	4.7			
OCDF	ND	-----	9.4			
OCDD	260	-----	9.4			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-07 (0-10')		
Lab Sample ID	10705001009		
Filename	U240829A_16		
Injected By	JF		
Total Amount Extracted	21.3 g	Matrix	SOLID
% Moisture	26.0	Dilution	NA
Dry Weight Extracted	15.8 g	Collected	08/16/2024 13:20
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/29/2024 19:14

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.63	2,3,7,8-TCDF-13C	2.00	85
Total TCDF	ND	-----	0.63	2,3,7,8-TCDD-13C	2.00	77
				1,2,3,7,8-PeCDF-13C	2.00	89
2,3,7,8-TCDD	ND	-----	0.63	2,3,4,7,8-PeCDF-13C	2.00	89
Total TCDD	0.92	-----	0.63	1,2,3,7,8-PeCDD-13C	2.00	95
				1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	ND	-----	3.2	1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	ND	-----	3.2	2,3,4,6,7,8-HxCDF-13C	2.00	80
Total PeCDF	ND	-----	3.2	1,2,3,7,8,9-HxCDF-13C	2.00	79
				1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	ND	-----	3.2	1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	-----	3.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	61
				1,2,3,4,7,8,9-HpCDF-13C	2.00	74
1,2,3,4,7,8-HxCDF	ND	-----	3.2	1,2,3,4,6,7,8-HpCDD-13C	2.00	89
1,2,3,6,7,8-HxCDF	ND	-----	3.2	OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	ND	-----	3.2			
1,2,3,7,8,9-HxCDF	ND	-----	3.2	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4.2	-----	3.2	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.2	2,3,7,8-TCDD-37Cl4	0.20	73
1,2,3,6,7,8-HxCDD	ND	-----	3.2			
1,2,3,7,8,9-HxCDD	ND	-----	3.2			
Total HxCDD	13	-----	3.2			
1,2,3,4,6,7,8-HpCDF	17	-----	3.2	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.2	Equivalence: 0.43 ng/Kg		
Total HpCDF	23	-----	3.2	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	13	-----	3.2			
Total HpCDD	37	-----	3.2			
OCDF	62	-----	6.3			
OCDD	360	-----	6.3			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-07 (10'-17')		
Lab Sample ID	10705001010		
Filename	U240829A_17		
Injected By	JF		
Total Amount Extracted	20.4 g	Matrix	SOLID
% Moisture	45.7	Dilution	NA
Dry Weight Extracted	11.1 g	Collected	08/16/2024 13:45
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240829A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	08/29/2024 20:01

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.90	2,3,7,8-TCDF-13C	2.00	97
Total TCDF	ND	-----	0.90	2,3,7,8-TCDD-13C	2.00	88
				1,2,3,7,8-PeCDF-13C	2.00	103
2,3,7,8-TCDD	ND	-----	0.90	2,3,4,7,8-PeCDF-13C	2.00	104
Total TCDD	2.1	-----	0.90	1,2,3,7,8-PeCDD-13C	2.00	110
				1,2,3,4,7,8-HxCDF-13C	2.00	99
1,2,3,7,8-PeCDF	ND	-----	4.5	1,2,3,6,7,8-HxCDF-13C	2.00	95
2,3,4,7,8-PeCDF	ND	-----	4.5	2,3,4,6,7,8-HxCDF-13C	2.00	95
Total PeCDF	ND	-----	4.5	1,2,3,7,8,9-HxCDF-13C	2.00	94
				1,2,3,4,7,8-HxCDD-13C	2.00	92
1,2,3,7,8-PeCDD	ND	-----	4.5	1,2,3,6,7,8-HxCDD-13C	2.00	99
Total PeCDD	ND	-----	4.5	1,2,3,4,6,7,8-HpCDF-13C	2.00	87
				1,2,3,4,7,8,9-HpCDF-13C	2.00	104
1,2,3,4,7,8-HxCDF	ND	-----	4.5	1,2,3,4,6,7,8-HpCDD-13C	2.00	120
1,2,3,6,7,8-HxCDF	ND	-----	4.5	OCDD-13C	4.00	96
2,3,4,6,7,8-HxCDF	ND	-----	4.5			
1,2,3,7,8,9-HxCDF	ND	-----	4.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.5	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.5	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	ND	-----	4.5			
1,2,3,7,8,9-HxCDD	ND	-----	4.5			
Total HxCDD	13	-----	4.5			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.5	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.5	Equivalence: 0.16 ng/Kg		
Total HpCDF	ND	-----	4.5	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	11	-----	4.5			
Total HpCDD	39	-----	4.5			
OCDF	ND	-----	9.0			
OCDD	170	-----	9.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKCS		
Lab Sample ID	BLANK-114406	Matrix	Water
Filename	L240828B_10	Dilution	NA
Total Amount Extracted	944 mL	Extracted	08/23/2024 12:00
ICAL ID	L240808	Analyzed	08/28/2024 21:03
CCal Filename(s)	L240828B_01	Injected By	SMT

Native Isomers	Conc pg/L	EMPC pg/L	RL pg/L	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	11	2,3,7,8-TCDF-13C	2.00	62
Total TCDF	ND	-----	11	2,3,7,8-TCDD-13C	2.00	52
				1,2,3,7,8-PeCDF-13C	2.00	47
2,3,7,8-TCDD	ND	-----	11	2,3,4,7,8-PeCDF-13C	2.00	54
Total TCDD	ND	-----	11	1,2,3,7,8-PeCDD-13C	2.00	54
				1,2,3,4,7,8-HxCDF-13C	2.00	52
1,2,3,7,8-PeCDF	ND	-----	53	1,2,3,6,7,8-HxCDF-13C	2.00	61
2,3,4,7,8-PeCDF	ND	-----	53	2,3,4,6,7,8-HxCDF-13C	2.00	61
Total PeCDF	ND	-----	53	1,2,3,7,8,9-HxCDF-13C	2.00	55
				1,2,3,4,7,8-HxCDD-13C	2.00	54
1,2,3,7,8-PeCDD	ND	-----	53	1,2,3,6,7,8-HxCDD-13C	2.00	61
Total PeCDD	ND	-----	53	1,2,3,4,6,7,8-HpCDF-13C	2.00	60
				1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	ND	-----	53	1,2,3,4,6,7,8-HpCDD-13C	2.00	59
1,2,3,6,7,8-HxCDF	ND	-----	53	OCDD-13C	4.00	59
2,3,4,6,7,8-HxCDF	ND	-----	53			
1,2,3,7,8,9-HxCDF	ND	-----	53	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	53	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	53	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	ND	-----	53			
1,2,3,7,8,9-HxCDD	ND	-----	53			
Total HxCDD	ND	-----	53			
1,2,3,4,6,7,8-HpCDF	ND	-----	53	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	53	Equivalence: 0.00 pg/L		
Total HpCDF	ND	-----	53	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	53			
Total HpCDD	ND	-----	53			
OCDF	ND	-----	110			
OCDD	ND	-----	110			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKCQ		
Lab Sample ID	BLANK-114400	Matrix	Solid/Wipe
Filename	L240828B_11	Dilution	NA
Total Amount Extracted	20.2 g	Extracted	08/22/2024 14:00
ICAL ID	L240808	Analyzed	08/28/2024 21:49
CCal Filename(s)	L240828B_01	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.50	2,3,7,8-TCDF-13C	2.00	76
Total TCDF	ND	-----	0.50	2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	ND	-----	0.50	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	-----	0.50	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	-----	2.5	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	-----	2.5	2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	ND	-----	2.5	1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	-----	2.5	1,2,3,6,7,8-HxCDD-13C	2.00	90
Total PeCDD	ND	-----	2.5	1,2,3,4,6,7,8-HpCDF-13C	2.00	84
				1,2,3,4,7,8,9-HpCDF-13C	2.00	87
1,2,3,4,7,8-HxCDF	ND	-----	2.5	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	-----	2.5	OCDD-13C	4.00	87
2,3,4,6,7,8-HxCDF	ND	-----	2.5			
1,2,3,7,8,9-HxCDF	ND	-----	2.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	2.5	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	2.5	2,3,7,8-TCDD-37Cl4	0.20	67
1,2,3,6,7,8-HxCDD	ND	-----	2.5			
1,2,3,7,8,9-HxCDD	ND	-----	2.5			
Total HxCDD	ND	-----	2.5			
1,2,3,4,6,7,8-HpCDF	ND	-----	2.5	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	2.5	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	-----	2.5	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	2.5			
Total HpCDD	ND	-----	2.5			
OCDF	ND	-----	5.0			
OCDD	ND	-----	5.0			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

Results reported on a total weight basis and are valid to no more than 2 significant figures.

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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-114401		
Filename	L240828B_04	Matrix	Solid/Wipe
Total Amount Extracted	20.2 g	Dilution	NA
ICAL ID	L240808	Extracted	08/22/2024 14:00
CCal Filename	L240828B_01	Analyzed	08/28/2024 16:30
Method Blank ID	BLANK-114400	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.0	7.5	15.8	90
2,3,7,8-TCDD	10	9.7	6.7	15.8	97
1,2,3,7,8-PeCDF	50	49	40.0	67.0	99
2,3,4,7,8-PeCDF	50	44	34.0	80.0	88
1,2,3,7,8-PeCDD	50	42	35.0	71.0	83
1,2,3,4,7,8-HxCDF	50	44	36.0	67.0	88
1,2,3,6,7,8-HxCDF	50	46	42.0	65.0	92
2,3,4,6,7,8-HxCDF	50	45	35.0	78.0	91
1,2,3,7,8,9-HxCDF	50	45	39.0	65.0	90
1,2,3,4,7,8-HxCDD	50	49	35.0	82.0	99
1,2,3,6,7,8-HxCDD	50	41	38.0	67.0	82
1,2,3,7,8,9-HxCDD	50	41	32.0	81.0	82
1,2,3,4,6,7,8-HpCDF	50	45	41.0	61.0	90
1,2,3,4,7,8,9-HpCDF	50	41	39.0	69.0	82
1,2,3,4,6,7,8-HpCDD	50	45	35.0	70.0	90
OCDF	100	97	63.0	170.0	97
OCDD	100	94	78.0	144.0	94
2,3,7,8-TCDD-37Cl4	10	7.3	3.1	19.1	73
2,3,7,8-TCDF-13C	100	88	22.0	152.0	88
2,3,7,8-TCDD-13C	100	81	20.0	175.0	81
1,2,3,7,8-PeCDF-13C	100	81	21.0	192.0	81
2,3,4,7,8-PeCDF-13C	100	88	13.0	328.0	88
1,2,3,7,8-PeCDD-13C	100	94	21.0	227.0	94
1,2,3,4,7,8-HxCDF-13C	100	90	19.0	202.0	90
1,2,3,6,7,8-HxCDF-13C	100	92	21.0	159.0	92
2,3,4,6,7,8-HxCDF-13C	100	91	22.0	176.0	91
1,2,3,7,8,9-HxCDF-13C	100	85	17.0	205.0	85
1,2,3,4,7,8-HxCDD-13C	100	84	21.0	193.0	84
1,2,3,6,7,8-HxCDD-13C	100	100	25.0	163.0	102
1,2,3,4,6,7,8-HpCDF-13C	100	90	21.0	158.0	90
1,2,3,4,7,8,9-HpCDF-13C	100	97	20.0	186.0	97
1,2,3,4,6,7,8-HpCDD-13C	100	87	26.0	166.0	87
OCDD-13C	200	180	26.0	397.0	90

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-114407		
Filename	L240828B_05	Matrix	Water
Total Amount Extracted	961 mL	Dilution	NA
ICAL ID	L240808	Extracted	08/23/2024 12:00
CCal Filename	L240828B_01	Analyzed	08/28/2024 17:16
Method Blank ID	BLANK-114406	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.9	7.5	15.8	99
2,3,7,8-TCDD	10	11	6.7	15.8	112
1,2,3,7,8-PeCDF	50	59	40.0	67.0	117
2,3,4,7,8-PeCDF	50	51	34.0	80.0	102
1,2,3,7,8-PeCDD	50	49	35.0	71.0	97
1,2,3,4,7,8-HxCDF	50	54	36.0	67.0	109
1,2,3,6,7,8-HxCDF	50	54	42.0	65.0	107
2,3,4,6,7,8-HxCDF	50	53	35.0	78.0	106
1,2,3,7,8,9-HxCDF	50	52	39.0	65.0	104
1,2,3,4,7,8-HxCDD	50	60	35.0	82.0	121
1,2,3,6,7,8-HxCDD	50	51	38.0	67.0	102
1,2,3,7,8,9-HxCDD	50	51	32.0	81.0	103
1,2,3,4,6,7,8-HpCDF	50	55	41.0	61.0	110
1,2,3,4,7,8,9-HpCDF	50	49	39.0	69.0	98
1,2,3,4,6,7,8-HpCDD	50	53	35.0	70.0	106
OCDF	100	120	63.0	170.0	123
OCDD	100	120	78.0	144.0	116
2,3,7,8-TCDD-37Cl4	10	7.0	3.1	19.1	70
2,3,7,8-TCDF-13C	100	57	22.0	152.0	57
2,3,7,8-TCDD-13C	100	51	20.0	175.0	51
1,2,3,7,8-PeCDF-13C	100	45	21.0	192.0	45
2,3,4,7,8-PeCDF-13C	100	53	13.0	328.0	53
1,2,3,7,8-PeCDD-13C	100	53	21.0	227.0	53
1,2,3,4,7,8-HxCDF-13C	100	49	19.0	202.0	49
1,2,3,6,7,8-HxCDF-13C	100	58	21.0	159.0	58
2,3,4,6,7,8-HxCDF-13C	100	61	22.0	176.0	61
1,2,3,7,8,9-HxCDF-13C	100	54	17.0	205.0	54
1,2,3,4,7,8-HxCDD-13C	100	53	21.0	193.0	53
1,2,3,6,7,8-HxCDD-13C	100	61	25.0	163.0	61
1,2,3,4,6,7,8-HpCDF-13C	100	57	21.0	158.0	57
1,2,3,4,7,8,9-HpCDF-13C	100	60	20.0	186.0	60
1,2,3,4,6,7,8-HpCDD-13C	100	47	26.0	166.0	47
OCDD-13C	200	110	26.0	397.0	56

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCSD-114408		
Filename	L240828B_06	Matrix	Water
Total Amount Extracted	962 mL	Dilution	NA
ICAL ID	L240808	Extracted	08/23/2024 12:00
CCal Filename	L240828B_01	Analyzed	08/28/2024 18:01
Method Blank ID	BLANK-114406	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10	7.5	15.8	101
2,3,7,8-TCDD	10	11	6.7	15.8	109
1,2,3,7,8-PeCDF	50	56	40.0	67.0	112
2,3,4,7,8-PeCDF	50	51	34.0	80.0	102
1,2,3,7,8-PeCDD	50	48	35.0	71.0	96
1,2,3,4,7,8-HxCDF	50	53	36.0	67.0	105
1,2,3,6,7,8-HxCDF	50	51	42.0	65.0	103
2,3,4,6,7,8-HxCDF	50	53	35.0	78.0	105
1,2,3,7,8,9-HxCDF	50	49	39.0	65.0	99
1,2,3,4,7,8-HxCDD	50	59	35.0	82.0	118
1,2,3,6,7,8-HxCDD	50	48	38.0	67.0	97
1,2,3,7,8,9-HxCDD	50	50	32.0	81.0	100
1,2,3,4,6,7,8-HpCDF	50	52	41.0	61.0	104
1,2,3,4,7,8,9-HpCDF	50	48	39.0	69.0	96
1,2,3,4,6,7,8-HpCDD	50	52	35.0	70.0	104
OCDF	100	110	63.0	170.0	114
OCDD	100	110	78.0	144.0	108
2,3,7,8-TCDD-37Cl4	10	7.4	3.1	19.1	74
2,3,7,8-TCDF-13C	100	78	22.0	152.0	78
2,3,7,8-TCDD-13C	100	70	20.0	175.0	70
1,2,3,7,8-PeCDF-13C	100	63	21.0	192.0	63
2,3,4,7,8-PeCDF-13C	100	72	13.0	328.0	72
1,2,3,7,8-PeCDD-13C	100	74	21.0	227.0	74
1,2,3,4,7,8-HxCDF-13C	100	66	19.0	202.0	66
1,2,3,6,7,8-HxCDF-13C	100	81	21.0	159.0	81
2,3,4,6,7,8-HxCDF-13C	100	81	22.0	176.0	81
1,2,3,7,8,9-HxCDF-13C	100	74	17.0	205.0	74
1,2,3,4,7,8-HxCDD-13C	100	72	21.0	193.0	72
1,2,3,6,7,8-HxCDD-13C	100	86	25.0	163.0	86
1,2,3,4,6,7,8-HpCDF-13C	100	79	21.0	158.0	79
1,2,3,4,7,8,9-HpCDF-13C	100	81	20.0	186.0	81
1,2,3,4,6,7,8-HpCDD-13C	100	73	26.0	166.0	73
OCDD-13C	200	160	26.0	397.0	80

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

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Method 1613B

Spike Recovery Relative Percent Difference (RPD) Results

Client	Alpha Analytical		
Spike 1 ID	LCS-114407	Spike 2 ID	LCSD-114408
Spike 1 Filename	L240828B_05	Spike 2 Filename	L240828B_06

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	99	101	2.0
2,3,7,8-TCDD	112	109	2.7
1,2,3,7,8-PeCDF	117	112	4.4
2,3,4,7,8-PeCDF	102	102	0.0
1,2,3,7,8-PeCDD	97	96	1.0
1,2,3,4,7,8-HxCDF	109	105	3.7
1,2,3,6,7,8-HxCDF	107	103	3.8
2,3,4,6,7,8-HxCDF	106	105	0.9
1,2,3,7,8,9-HxCDF	104	99	4.9
1,2,3,4,7,8-HxCDD	121	118	2.5
1,2,3,6,7,8-HxCDD	102	97	5.0
1,2,3,7,8,9-HxCDD	103	100	3.0
1,2,3,4,6,7,8-HpCDF	110	104	5.6
1,2,3,4,7,8,9-HpCDF	98	96	2.1
1,2,3,4,6,7,8-HpCDD	106	104	1.9
OCDF	123	114	7.6
OCDD	116	108	7.1

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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Method 1613B Spiked Sample Report

Client - Alpha Analytical

Client's Sample ID	VC-10 (14.5'-17')-MS		
Lab Sample ID	10705001002-MS		
Filename	U240829B_01	Matrix	SOLID
Total Amount Extracted	17.1 g	Dilution	NA
ICAL ID	U240423	Extracted	08/22/2024 14:00
CCal Filename(s)	U240829A_18	Analyzed	08/29/2024 21:35
Method Blank ID	BLANK-114400	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.18	88		2,3,7,8-TCDF-13C	2.00	94
Total TCDF					2,3,7,8-TCDD-13C	2.00	87
					1,2,3,7,8-PeCDF-13C	2.00	99
2,3,7,8-TCDD	0.20	0.19	94		2,3,4,7,8-PeCDF-13C	2.00	97
Total TCDD					1,2,3,7,8-PeCDD-13C	2.00	103
					1,2,3,4,7,8-HxCDF-13C	2.00	88
1,2,3,7,8-PeCDF	1.00	0.85	85		1,2,3,6,7,8-HxCDF-13C	2.00	85
2,3,4,7,8-PeCDF	1.00	0.81	81		2,3,4,6,7,8-HxCDF-13C	2.00	87
Total PeCDF					1,2,3,7,8,9-HxCDF-13C	2.00	88
					1,2,3,4,7,8-HxCDD-13C	2.00	89
1,2,3,7,8-PeCDD	1.00	0.81	81		1,2,3,6,7,8-HxCDD-13C	2.00	89
Total PeCDD					1,2,3,4,6,7,8-HpCDF-13C	2.00	84
					1,2,3,4,7,8,9-HpCDF-13C	2.00	93
1,2,3,4,7,8-HxCDF	1.00	0.80	80		1,2,3,4,6,7,8-HpCDD-13C	2.00	109
1,2,3,6,7,8-HxCDF	1.00	0.85	85		OCDD-13C	4.00	86
2,3,4,6,7,8-HxCDF	1.00	0.85	85				
1,2,3,7,8,9-HxCDF	1.00	0.83	83		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF					1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	0.85	85		2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	1.00	0.86	86				
1,2,3,7,8,9-HxCDD	1.00	0.85	85				
Total HxCDD							
1,2,3,4,6,7,8-HpCDF	1.00	0.84	84				
1,2,3,4,7,8,9-HpCDF	1.00	0.82	82				
Total HpCDF							
1,2,3,4,6,7,8-HpCDD	1.00	0.84	56	R			
Total HpCDD							
OCDF	2.00	1.54	77				
OCDD	2.00	3.08	0	R			

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent)

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Spiked Sample Report

Client - Alpha Analytical

Client's Sample ID	VC-10 (14.5'-17')-MSD		
Lab Sample ID	10705001002-MSD		
Filename	U240829B_02	Matrix	SOLID
Total Amount Extracted	17.3 g	Dilution	NA
ICAL ID	U240423	Extracted	08/22/2024 14:00
CCal Filename(s)	U240829A_18	Analyzed	08/29/2024 22:23
Method Blank ID	BLANK-114400	Injected By	SMT

Native Isomers	Qs (ng)	Qm (ng)	% Rec.		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.17	84	P	2,3,7,8-TCDF-13C	2.00	81
Total TCDF					2,3,7,8-TCDD-13C	2.00	75
					1,2,3,7,8-PeCDF-13C	2.00	85
2,3,7,8-TCDD	0.20	0.18	92		2,3,4,7,8-PeCDF-13C	2.00	89
Total TCDD					1,2,3,7,8-PeCDD-13C	2.00	92
					1,2,3,4,7,8-HxCDF-13C	2.00	74
1,2,3,7,8-PeCDF	1.00	0.83	83		1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	1.00	0.77	77		2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF					1,2,3,7,8,9-HxCDF-13C	2.00	68
					1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	1.00	0.80	80		1,2,3,6,7,8-HxCDD-13C	2.00	77
Total PeCDD					1,2,3,4,6,7,8-HpCDF-13C	2.00	71
					1,2,3,4,7,8,9-HpCDF-13C	2.00	80
1,2,3,4,7,8-HxCDF	1.00	0.79	79		1,2,3,4,6,7,8-HpCDD-13C	2.00	93
1,2,3,6,7,8-HxCDF	1.00	0.84	84		OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	1.00	0.82	82				
1,2,3,7,8,9-HxCDF	1.00	0.84	84		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF					1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	0.84	84		2,3,7,8-TCDD-37Cl4	0.20	71
1,2,3,6,7,8-HxCDD	1.00	0.78	78				
1,2,3,7,8,9-HxCDD	1.00	0.82	82				
Total HxCDD							
1,2,3,4,6,7,8-HpCDF	1.00	0.85	85				
1,2,3,4,7,8,9-HpCDF	1.00	0.79	79				
Total HpCDF							
1,2,3,4,6,7,8-HpCDD	1.00	1.14	86				
Total HpCDD							
OCDF	2.00	1.57	79				
OCDD	2.00	7.91	181	R			

Qs = Quantity Spiked Qm = Quantity Measured Rec. = Recovery (Expressed as Percent)

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Method 1613 Spike Sample Results

Client - Alpha Analytical

Client Sample ID	VC-10 (14.5'-17')		
Lab Sample ID	10705001002	Sample Filename	U240829B_10
MS ID	10705001002-MS	MS Filename	U240829B_01
MSD ID	10705001002-MSD	MSD Filename	U240829B_02

	Quantity	Unspiked Sample Contribution		Quantity Measured			Subtracted Recovery	
	Spiked	to MS	to MSD	MS	MSD		MS	MSD
Analyte	(ng)	(ng)	(ng)	(ng)	(ng)	RPD	(%)	(%)
2,3,7,8-TCDF	0.20	ND	ND	0.18	0.17	4.3	88	84
2,3,7,8-TCDD	0.20	ND	ND	0.19	0.18	2.8	94	92
1,2,3,7,8-PeCDF	1.00	ND	ND	0.85	0.83	2.4	85	83
2,3,4,7,8-PeCDF	1.00	ND	ND	0.81	0.77	4.7	81	77
1,2,3,7,8-PeCDD	1.00	ND	ND	0.81	0.80	2.1	81	80
1,2,3,4,7,8-HxCDF	1.00	ND	ND	0.80	0.79	0.7	80	79
1,2,3,6,7,8-HxCDF	1.00	ND	ND	0.85	0.84	1.3	85	84
2,3,4,6,7,8-HxCDF	1.00	ND	ND	0.85	0.82	3.3	85	82
1,2,3,7,8,9-HxCDF	1.00	ND	ND	0.83	0.84	1.2	83	84
1,2,3,4,7,8-HxCDD	1.00	ND	ND	0.85	0.84	0.4	85	84
1,2,3,6,7,8-HxCDD	1.00	ND	ND	0.86	0.78	9.6	86	78
1,2,3,7,8,9-HxCDD	1.00	ND	ND	0.85	0.82	3.1	85	82
1,2,3,4,6,7,8-HpCDF	1.00	ND	ND	0.84	0.85	1.5	84	85
1,2,3,4,7,8,9-HpCDF	1.00	ND	ND	0.82	0.79	3.3	82	79
1,2,3,4,6,7,8-HpCDD	1.00	0.274	0.277	0.84	1.14	30.1	56	86
OCDF	2.00	ND	ND	1.54	1.57	2.1	77	79
OCDD	2.00	4.25	4.30	3.08	7.91	87.9	0	181

Quantity Spiked - the amount of analyte spiked into the spiked samples
Unspiked Sample Contribution - calculated based on the amount found in the sample and the extracted amounts of the spiked and unspiked samples
Quantity Measured - the total amount of analyte measured in the spiked samples
RPD - the Relative Percent Difference of the spiked sample Quantity Measured values
Subtracted Recovery - calculated after subtracting the unspiked sample contribution

ANALYTICAL REPORT

Lab Number:	L2446143
Client:	TRC Companies, Inc. 404 Wyman Street Suite 375 Waltham, MA 02451
ATTN:	Payson Whitney
Phone:	(781) 419-7696
Project Name:	SILVER RUN EXPANSION
Project Number:	529393.0003.0000
Report Date:	10/18/24

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Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0826), IL (200077), IN (C-MA-03), KY (KY98045), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), OR (MA-1316), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #525-23-122-91930A1).

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2446143-01	VC-06 (0-26.6')	SEDIMENT	DE WATERS	08/14/24 14:15	08/14/24
L2446143-02	VC-106	SEDIMENT	DE WATERS	08/14/24 14:30	08/14/24
L2446143-03	VC-02 (0-4.7')	SEDIMENT	DE WATERS	08/15/24 12:30	08/15/24
L2446143-04	VC-02 (4.7'-17')	SEDIMENT	DE WATERS	08/15/24 13:50	08/15/24
L2446143-05	VC-04 (0-17')	SEDIMENT	DE WATERS	08/16/24 11:10	08/16/24
L2446143-06	VC-01 (0-4.3')	SEDIMENT	DE WATERS	08/17/24 08:20	08/19/24
L2446143-07	VC-01 (4.3'-17)	SEDIMENT	DE WATERS	08/17/24 10:00	08/19/24
L2446143-08	VC-05 (0-17')	SEDIMENT	DE WATERS	08/17/24 11:15	08/19/24
L2446143-09	VC-03 (0-17')	SEDIMENT	DE WATERS	08/17/24 13:15	08/19/24

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446143
Project Number:	529393.0003.0000	**Report Date:**	10/18/24

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments and solids are reported on a dry weight basis unless otherwise noted. Tissues are reported "as received" or on a wet weight basis, unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	SILVER RUN EXPANSION	**Lab Number:**	L2446143
Project Number:	529393.0003.0000	**Report Date:**	10/18/24

Case Narrative (continued)

Report Submission

October 14, 2024: The subcontract report has been revised.

The analysis of the Physical parameters was subcontracted to GeoTesting Express. The analysis of Dioxin/Furan by Method 1613B and PCBs by Method 1668 were subcontracted to Pace-MN. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The samples were frozen upon receipt in order to arrest the holding time.

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

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 10/18/24

ORGANICS

SEMIVOLATILES

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-01
Client ID: VC-06 (0-26.6')
Sample Location: DE WATERS

Date Collected: 08/14/24 14:15
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/26/24 16:56
Analyst: CNC
Percent Solids: 57%

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	ND		ug/kg	1.74	0.500	1
C1-Naphthalenes	ND		ug/kg	1.74	0.500	1
C2-Naphthalenes	0.845	J	ug/kg	1.74	0.500	1
C3-Naphthalenes	0.894	J	ug/kg	1.74	0.500	1
C4-Naphthalenes	ND		ug/kg	1.74	0.500	1
Acenaphthylene	ND		ug/kg	1.74	0.332	1
Acenaphthene	ND		ug/kg	1.74	0.307	1
Fluorene	0.714	J	ug/kg	1.74	0.464	1
C1-Fluorenes	0.649	J	ug/kg	1.74	0.464	1
C2-Fluorenes	1.41	J	ug/kg	1.74	0.464	1
C3-Fluorenes	ND		ug/kg	1.74	0.464	1
Phenanthrene	0.835	J	ug/kg	1.74	0.576	1
C1-Phenanthrenes/Anthracenes	1.37	J	ug/kg	1.74	0.576	1
C2-Phenanthrenes/Anthr BS	1.50	J	ug/kg	1.74	0.576	1
C3-Phenanthrenes/Anthracenes	1.33	J	ug/kg	1.74	0.576	1
C4-Phenanthrenes/Anthracenes	ND		ug/kg	1.74	0.576	1
Anthracene	ND		ug/kg	1.74	0.359	1
Fluoranthene	1.16	J	ug/kg	1.74	0.553	1
Pyrene	1.01	J	ug/kg	1.74	0.458	1
C1-Fluoranthenes/Pyrenes	1.56	J	ug/kg	1.74	0.458	1
Benz(a)anthracene	ND		ug/kg	1.74	0.355	1
Chrysene	0.547	J	ug/kg	1.74	0.352	1
C1-Chrysenes	0.670	J	ug/kg	1.74	0.352	1
C2-Chrysenes	ND		ug/kg	1.74	0.352	1
C3-Chrysenes	ND		ug/kg	1.74	0.352	1
C4-Chrysenes	ND		ug/kg	1.74	0.352	1
Benzo(b)fluoranthene	ND		ug/kg	1.74	0.452	1
Benzo(j)+(k)fluoranthene	ND		ug/kg	1.74	0.345	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-01 Date Collected: 08/14/24 14:15

Client ID: VC-06 (0-26.6') Date Received: 08/14/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	ND		ug/kg	1.74	0.359	1
Benzo(a)pyrene	ND		ug/kg	1.74	0.497	1
Perylene	180		ug/kg	1.74	0.336	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.74	0.472	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.74	0.470	1
Benzo(g,h,i)perylene	ND		ug/kg	1.74	0.462	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	59		50-130
Phenanthrene-d10	85		50-130
Benzo(a)pyrene-d12	109		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-02
Client ID: VC-106
Sample Location: DE WATERS

Date Collected: 08/14/24 14:30
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/26/24 18:21
Analyst: CNC
Percent Solids: 58%

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	ND		ug/kg	1.70	0.490	1
C1-Naphthalenes	ND		ug/kg	1.70	0.490	1
C2-Naphthalenes	1.41	J	ug/kg	1.70	0.490	1
C3-Naphthalenes	0.929	J	ug/kg	1.70	0.490	1
C4-Naphthalenes	ND		ug/kg	1.70	0.490	1
Acenaphthylene	ND		ug/kg	1.70	0.325	1
Acenaphthene	ND		ug/kg	1.70	0.300	1
Fluorene	1.24	J	ug/kg	1.70	0.455	1
C1-Fluorenes	1.00	J	ug/kg	1.70	0.455	1
C2-Fluorenes	ND		ug/kg	1.70	0.455	1
C3-Fluorenes	ND		ug/kg	1.70	0.455	1
Phenanthrene	1.28	J	ug/kg	1.70	0.565	1
C1-Phenanthrenes/Anthracenes	3.00		ug/kg	1.70	0.565	1
C2-Phenanthrenes/Anthr BS	2.26		ug/kg	1.70	0.565	1
C3-Phenanthrenes/Anthracenes	2.17		ug/kg	1.70	0.565	1
C4-Phenanthrenes/Anthracenes	2.08		ug/kg	1.70	0.565	1
Anthracene	0.462	J	ug/kg	1.70	0.351	1
Fluoranthene	2.04		ug/kg	1.70	0.542	1
Pyrene	1.67	J	ug/kg	1.70	0.448	1
C1-Fluoranthenes/Pyrenes	2.70		ug/kg	1.70	0.448	1
Benz(a)anthracene	ND		ug/kg	1.70	0.347	1
Chrysene	1.19	J	ug/kg	1.70	0.344	1
C1-Chrysenes	1.41	J	ug/kg	1.70	0.344	1
C2-Chrysenes	2.58		ug/kg	1.70	0.344	1
C3-Chrysenes	ND		ug/kg	1.70	0.344	1
C4-Chrysenes	ND		ug/kg	1.70	0.344	1
Benzo(b)fluoranthene	0.830	J	ug/kg	1.70	0.443	1
Benzo(j)+(k)fluoranthene	0.432	J	ug/kg	1.70	0.338	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-02 Date Collected: 08/14/24 14:30

Client ID: VC-106 Date Received: 08/14/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	0.637	J	ug/kg	1.70	0.352	1
Benzo(a)pyrene	ND		ug/kg	1.70	0.486	1
Perylene	428		ug/kg	1.70	0.329	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.70	0.463	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.70	0.460	1
Benzo(g,h,i)perylene	0.596	J	ug/kg	1.70	0.453	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	57		50-130
Phenanthrene-d10	81		50-130
Benzo(a)pyrene-d12	107		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-03
Client ID: VC-02 (0-4.7')
Sample Location: DE WATERS

Date Collected: 08/15/24 12:30
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/10/24 23:56
Analyst: CSP
Percent Solids: 57%

Extraction Method: ALPHA OP-013
Extraction Date: 08/29/24 11:32
Cleanup Method: EPA 3611B
Cleanup Date: 09/03/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	1.62	J	ug/kg	1.70	0.490	1
C1-Naphthalenes	0.696	J	ug/kg	1.70	0.490	1
C2-Naphthalenes	1.61	J	ug/kg	1.70	0.490	1
C3-Naphthalenes	1.33	J	ug/kg	1.70	0.490	1
C4-Naphthalenes	1.06	J	ug/kg	1.70	0.490	1
Acenaphthylene	ND		ug/kg	1.70	0.325	1
Acenaphthene	0.317	J	ug/kg	1.70	0.300	1
Fluorene	1.80		ug/kg	1.70	0.454	1
C1-Fluorenes	1.04	J	ug/kg	1.70	0.454	1
C2-Fluorenes	1.69	J	ug/kg	1.70	0.454	1
C3-Fluorenes	2.51		ug/kg	1.70	0.454	1
Phenanthrene	2.81		ug/kg	1.70	0.564	1
C1-Phenanthrenes/Anthracenes	2.23		ug/kg	1.70	0.564	1
C2-Phenanthrenes/Anthr BS	2.16		ug/kg	1.70	0.564	1
C3-Phenanthrenes/Anthracenes	1.91		ug/kg	1.70	0.564	1
C4-Phenanthrenes/Anthracenes	1.74		ug/kg	1.70	0.564	1
Anthracene	1.03	J	ug/kg	1.70	0.351	1
Fluoranthene	3.29		ug/kg	1.70	0.541	1
Pyrene	2.55		ug/kg	1.70	0.448	1
C1-Fluoranthenes/Pyrenes	2.56		ug/kg	1.70	0.448	1
Benz(a)anthracene	0.964	J	ug/kg	1.70	0.347	1
Chrysene	1.66	J	ug/kg	1.70	0.344	1
C1-Chrysenes	1.93		ug/kg	1.70	0.344	1
C2-Chrysenes	2.75		ug/kg	1.70	0.344	1
C3-Chrysenes	6.82		ug/kg	1.70	0.344	1
C4-Chrysenes	ND		ug/kg	1.70	0.344	1
Benzo(b)fluoranthene	1.79		ug/kg	1.70	0.443	1
Benzo(j)+(k)fluoranthene	1.24	J	ug/kg	1.70	0.338	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-03 Date Collected: 08/15/24 12:30

Client ID: VC-02 (0-4.7') Date Received: 08/15/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	1.36	J	ug/kg	1.70	0.352	1
Benzo(a)pyrene	1.23	J	ug/kg	1.70	0.486	1
Perylene	134		ug/kg	1.70	0.329	1
Indeno(1,2,3-cd)pyrene	1.46	J	ug/kg	1.70	0.462	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.70	0.460	1
Benzo(g,h,i)perylene	1.72		ug/kg	1.70	0.453	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	50		50-130
Phenanthrene-d10	59		50-130
Benzo(a)pyrene-d12	77		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-04
Client ID: VC-02 (4.7'-17')
Sample Location: DE WATERS

Date Collected: 08/15/24 13:50
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/26/24 19:45
Analyst: CNC
Percent Solids: 87%

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	ND		ug/kg	1.13	0.324	1
C1-Naphthalenes	ND		ug/kg	1.13	0.324	1
C2-Naphthalenes	ND		ug/kg	1.13	0.324	1
C3-Naphthalenes	ND		ug/kg	1.13	0.324	1
C4-Naphthalenes	ND		ug/kg	1.13	0.324	1
Acenaphthylene	ND		ug/kg	1.13	0.215	1
Acenaphthene	ND		ug/kg	1.13	0.199	1
Fluorene	ND		ug/kg	1.13	0.301	1
C1-Fluorenes	ND		ug/kg	1.13	0.301	1
C2-Fluorenes	ND		ug/kg	1.13	0.301	1
C3-Fluorenes	ND		ug/kg	1.13	0.301	1
Phenanthrene	ND		ug/kg	1.13	0.374	1
C1-Phenanthrenes/Anthracenes	ND		ug/kg	1.13	0.374	1
C2-Phenanthrenes/Anthr BS	0.482	J	ug/kg	1.13	0.374	1
C3-Phenanthrenes/Anthracenes	ND		ug/kg	1.13	0.374	1
C4-Phenanthrenes/Anthracenes	ND		ug/kg	1.13	0.374	1
Anthracene	ND		ug/kg	1.13	0.232	1
Fluoranthene	ND		ug/kg	1.13	0.358	1
Pyrene	ND		ug/kg	1.13	0.296	1
C1-Fluoranthenes/Pyrenes	ND		ug/kg	1.13	0.296	1
Benz(a)anthracene	ND		ug/kg	1.13	0.230	1
Chrysene	ND		ug/kg	1.13	0.228	1
C1-Chrysenes	ND		ug/kg	1.13	0.228	1
C2-Chrysenes	ND		ug/kg	1.13	0.228	1
C3-Chrysenes	ND		ug/kg	1.13	0.228	1
C4-Chrysenes	ND		ug/kg	1.13	0.228	1
Benzo(b)fluoranthene	ND		ug/kg	1.13	0.293	1
Benzo(j)+(k)fluoranthene	ND		ug/kg	1.13	0.224	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-04 Date Collected: 08/15/24 13:50

Client ID: VC-02 (4.7'-17') Date Received: 08/15/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	ND		ug/kg	1.13	0.233	1
Benzo(a)pyrene	ND		ug/kg	1.13	0.322	1
Perylene	5.12		ug/kg	1.13	0.218	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.13	0.306	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.13	0.304	1
Benzo(g,h,i)perylene	ND		ug/kg	1.13	0.300	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	63		50-130
Phenanthrene-d10	82		50-130
Benzo(a)pyrene-d12	104		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-05
Client ID: VC-04 (0-17')
Sample Location: DE WATERS

Date Collected: 08/16/24 11:10
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/26/24 21:10
Analyst: CNC
Percent Solids: 50%

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	0.895	J	ug/kg	1.97	0.567	1
C1-Naphthalenes	ND		ug/kg	1.97	0.567	1
C2-Naphthalenes	1.76	J	ug/kg	1.97	0.567	1
C3-Naphthalenes	1.13	J	ug/kg	1.97	0.567	1
C4-Naphthalenes	ND		ug/kg	1.97	0.567	1
Acenaphthylene	ND		ug/kg	1.97	0.377	1
Acenaphthene	ND		ug/kg	1.97	0.348	1
Fluorene	2.20		ug/kg	1.97	0.527	1
C1-Fluorenes	1.25	J	ug/kg	1.97	0.527	1
C2-Fluorenes	ND		ug/kg	1.97	0.527	1
C3-Fluorenes	ND		ug/kg	1.97	0.527	1
Phenanthrene	2.88		ug/kg	1.97	0.654	1
C1-Phenanthrenes/Anthracenes	4.48		ug/kg	1.97	0.654	1
C2-Phenanthrenes/Anthr BS	3.25		ug/kg	1.97	0.654	1
C3-Phenanthrenes/Anthracenes	2.27		ug/kg	1.97	0.654	1
C4-Phenanthrenes/Anthracenes	1.93	J	ug/kg	1.97	0.654	1
Anthracene	0.643	J	ug/kg	1.97	0.407	1
Fluoranthene	2.79		ug/kg	1.97	0.627	1
Pyrene	1.82	J	ug/kg	1.97	0.519	1
C1-Fluoranthenes/Pyrenes	2.68		ug/kg	1.97	0.519	1
Benz(a)anthracene	ND		ug/kg	1.97	0.402	1
Chrysene	1.16	J	ug/kg	1.97	0.399	1
C1-Chrysenes	0.915	J	ug/kg	1.97	0.399	1
C2-Chrysenes BS	ND		ug/kg	1.97	0.399	1
C3-Chrysenes	ND		ug/kg	1.97	0.399	1
C4-Chrysenes	ND		ug/kg	1.97	0.399	1
Benzo(b)fluoranthene	0.766	J	ug/kg	1.97	0.513	1
Benzo(j)+(k)fluoranthene	0.437	J	ug/kg	1.97	0.392	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-05 Date Collected: 08/16/24 11:10

Client ID: VC-04 (0-17') Date Received: 08/16/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	0.559	J	ug/kg	1.97	0.407	1
Benzo(a)pyrene	ND		ug/kg	1.97	0.564	1
Perylene	363		ug/kg	1.97	0.381	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.97	0.536	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.97	0.533	1
Benzo(g,h,i)perylene	0.615	J	ug/kg	1.97	0.524	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	64		50-130
Phenanthrene-d10	84		50-130
Benzo(a)pyrene-d12	107		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-06
Client ID: VC-01 (0-4.3')
Sample Location: DE WATERS

Date Collected: 08/17/24 08:20
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/21/24 20:19
Analyst: CNC
Percent Solids: 35%

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	2.31	J	ug/kg	2.86	0.822	1
C1-Naphthalenes	ND		ug/kg	2.86	0.822	1
C2-Naphthalenes	1.70	J	ug/kg	2.86	0.822	1
C3-Naphthalenes	ND		ug/kg	2.86	0.822	1
C4-Naphthalenes	ND		ug/kg	2.86	0.822	1
Acenaphthylene	ND		ug/kg	2.86	0.545	1
Acenaphthene	ND		ug/kg	2.86	0.504	1
Fluorene	1.62	J	ug/kg	2.86	0.762	1
C1-Fluorenes	ND		ug/kg	2.86	0.762	1
C2-Fluorenes	ND		ug/kg	2.86	0.762	1
C3-Fluorenes	ND		ug/kg	2.86	0.762	1
Phenanthrene	4.21		ug/kg	2.86	0.947	1
C1-Phenanthrenes/Anthracenes	1.79	J	ug/kg	2.86	0.947	1
C2-Phenanthrenes/Anthr BS	ND		ug/kg	2.86	0.947	1
C3-Phenanthrenes/Anthracenes	ND		ug/kg	2.86	0.947	1
C4-Phenanthrenes/Anthracenes	ND		ug/kg	2.86	0.947	1
Anthracene	ND		ug/kg	2.86	0.589	1
Fluoranthene	2.62	J	ug/kg	2.86	0.908	1
Pyrene	1.50	J	ug/kg	2.86	0.752	1
C1-Fluoranthenes/Pyrenes	1.36	J	ug/kg	2.86	0.752	1
Benz(a)anthracene	ND		ug/kg	2.86	0.583	1
Chrysene	ND		ug/kg	2.86	0.578	1
C1-Chrysenes	3.52		ug/kg	2.86	0.578	1
C2-Chrysenes	ND		ug/kg	2.86	0.578	1
C3-Chrysenes	ND		ug/kg	2.86	0.578	1
C4-Chrysenes	ND		ug/kg	2.86	0.578	1
Benzo(b)fluoranthene	ND		ug/kg	2.86	0.743	1
Benzo(j)+(k)fluoranthene	ND		ug/kg	2.86	0.567	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-06 Date Collected: 08/17/24 08:20

Client ID: VC-01 (0-4.3') Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	ND		ug/kg	2.86	0.590	1
Benzo(a)pyrene	ND		ug/kg	2.86	0.816	1
Perylene	64.7		ug/kg	2.86	0.552	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	2.86	0.776	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	2.86	0.772	1
Benzo(g,h,i)perylene	ND		ug/kg	2.86	0.759	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	60		50-130
Phenanthrene-d10	83		50-130
Benzo(a)pyrene-d12	107		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-07
Client ID: VC-01 (4.3'-17)
Sample Location: DE WATERS

Date Collected: 08/17/24 10:00
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/27/24 19:21
Analyst: MJS
Percent Solids: 79%

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	ND		ug/kg	1.24	0.355	1
C1-Naphthalenes	ND		ug/kg	1.24	0.355	1
C2-Naphthalenes	ND		ug/kg	1.24	0.355	1
C3-Naphthalenes	ND		ug/kg	1.24	0.355	1
C4-Naphthalenes	ND		ug/kg	1.24	0.355	1
Acenaphthylene	ND		ug/kg	1.24	0.236	1
Acenaphthene	ND		ug/kg	1.24	0.218	1
Fluorene	ND		ug/kg	1.24	0.330	1
C1-Fluorenes	ND		ug/kg	1.24	0.330	1
C2-Fluorenes	ND		ug/kg	1.24	0.330	1
C3-Fluorenes	ND		ug/kg	1.24	0.330	1
Phenanthrene	ND		ug/kg	1.24	0.410	1
C1-Phenanthrenes/Anthracenes	0.478	J	ug/kg	1.24	0.410	1
C2-Phenanthrenes/Anthr BS	ND		ug/kg	1.24	0.410	1
C3-Phenanthrenes/Anthracenes	ND		ug/kg	1.24	0.410	1
C4-Phenanthrenes/Anthracenes	ND		ug/kg	1.24	0.410	1
Anthracene	ND		ug/kg	1.24	0.255	1
Fluoranthene	ND		ug/kg	1.24	0.393	1
Pyrene	0.458	J	ug/kg	1.24	0.325	1
C1-Fluoranthenes/Pyrenes	0.806	J	ug/kg	1.24	0.325	1
Benz(a)anthracene	ND		ug/kg	1.24	0.252	1
Chrysene	ND		ug/kg	1.24	0.250	1
C1-Chrysenes	ND		ug/kg	1.24	0.250	1
C2-Chrysenes	ND		ug/kg	1.24	0.250	1
C3-Chrysenes	ND		ug/kg	1.24	0.250	1
C4-Chrysenes	ND		ug/kg	1.24	0.250	1
Benzo(b)fluoranthene	ND		ug/kg	1.24	0.322	1
Benzo(j)+(k)fluoranthene	ND		ug/kg	1.24	0.245	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-07 Date Collected: 08/17/24 10:00

Client ID: VC-01 (4.3'-17) Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	ND		ug/kg	1.24	0.255	1
Benzo(a)pyrene	ND		ug/kg	1.24	0.353	1
Perylene	62.3		ug/kg	1.24	0.239	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.24	0.336	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.24	0.334	1
Benzo(g,h,i)perylene	ND		ug/kg	1.24	0.328	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	61		50-130
Phenanthrene-d10	79		50-130
Benzo(a)pyrene-d12	101		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-08
Client ID: VC-05 (0-17')
Sample Location: DE WATERS

Date Collected: 08/17/24 11:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/11/24 08:20
Analyst: CSP
Percent Solids: 52%

Extraction Method: ALPHA OP-013
Extraction Date: 08/29/24 11:32
Cleanup Method: EPA 3611B
Cleanup Date: 09/03/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	0.650	J	ug/kg	1.89	0.544	1
C1-Naphthalenes	ND		ug/kg	1.89	0.544	1
C2-Naphthalenes	1.52	J	ug/kg	1.89	0.544	1
C3-Naphthalenes	1.26	J	ug/kg	1.89	0.544	1
C4-Naphthalenes	1.32	J	ug/kg	1.89	0.544	1
Acenaphthylene	ND		ug/kg	1.89	0.361	1
Acenaphthene	ND		ug/kg	1.89	0.334	1
Fluorene	1.72	J	ug/kg	1.89	0.505	1
C1-Fluorenes	1.11	J	ug/kg	1.89	0.505	1
C2-Fluorenes	2.41		ug/kg	1.89	0.505	1
C3-Fluorenes	3.41		ug/kg	1.89	0.505	1
Phenanthrene	2.32		ug/kg	1.89	0.627	1
C1-Phenanthrenes/Anthracenes	2.71		ug/kg	1.89	0.627	1
C2-Phenanthrenes/Anthr BS	2.36		ug/kg	1.89	0.627	1
C3-Phenanthrenes/Anthracenes	2.32		ug/kg	1.89	0.627	1
C4-Phenanthrenes/Anthracenes	1.88	J	ug/kg	1.89	0.627	1
Anthracene	0.572	J	ug/kg	1.89	0.390	1
Fluoranthene	2.38		ug/kg	1.89	0.602	1
Pyrene	1.79	J	ug/kg	1.89	0.498	1
C1-Fluoranthenes/Pyrenes	2.82		ug/kg	1.89	0.498	1
Benz(a)anthracene	ND		ug/kg	1.89	0.386	1
Chrysene	1.39	J	ug/kg	1.89	0.383	1
C1-Chrysenes	1.76	J	ug/kg	1.89	0.383	1
C2-Chrysenes	2.70		ug/kg	1.89	0.383	1
C3-Chrysenes	ND		ug/kg	1.89	0.383	1
C4-Chrysenes	ND		ug/kg	1.89	0.383	1
Benzo(b)fluoranthene	1.28	J	ug/kg	1.89	0.492	1
Benzo(j)+(k)fluoranthene	0.602	J	ug/kg	1.89	0.376	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-08 Date Collected: 08/17/24 11:15

Client ID: VC-05 (0-17') Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	0.813	J	ug/kg	1.89	0.391	1
Benzo(a)pyrene	ND		ug/kg	1.89	0.540	1
Perylene	583		ug/kg	1.89	0.365	1
Indeno(1,2,3-cd)pyrene	0.800	J	ug/kg	1.89	0.514	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.89	0.511	1
Benzo(g,h,i)perylene	1.12	J	ug/kg	1.89	0.503	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	50		50-130
Phenanthrene-d10	62		50-130
Benzo(a)pyrene-d12	81		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-09
Client ID: VC-03 (0-17')
Sample Location: DE WATERS

Date Collected: 08/17/24 13:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/11/24 09:44
Analyst: CSP
Percent Solids: 51%

Extraction Method: ALPHA OP-013
Extraction Date: 08/29/24 11:32
Cleanup Method: EPA 3611B
Cleanup Date: 09/03/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Naphthalene	0.780	J	ug/kg	1.92	0.553	1
C1-Naphthalenes	ND		ug/kg	1.92	0.553	1
C2-Naphthalenes	1.23	J	ug/kg	1.92	0.553	1
C3-Naphthalenes	0.949	J	ug/kg	1.92	0.553	1
C4-Naphthalenes	ND		ug/kg	1.92	0.553	1
Acenaphthylene	ND		ug/kg	1.92	0.367	1
Acenaphthene	ND		ug/kg	1.92	0.339	1
Fluorene	1.77	J	ug/kg	1.92	0.513	1
C1-Fluorenes	1.08	J	ug/kg	1.92	0.513	1
C2-Fluorenes	1.68	J	ug/kg	1.92	0.513	1
C3-Fluorenes	ND		ug/kg	1.92	0.513	1
Phenanthrene	2.44		ug/kg	1.92	0.638	1
C1-Phenanthrenes/Anthracenes	1.92		ug/kg	1.92	0.638	1
C2-Phenanthrenes/Anthr BS	2.42		ug/kg	1.92	0.638	1
C3-Phenanthrenes/Anthracenes	1.50	J	ug/kg	1.92	0.638	1
C4-Phenanthrenes/Anthracenes	1.56	J	ug/kg	1.92	0.638	1
Anthracene	0.640	J	ug/kg	1.92	0.397	1
Fluoranthene	2.27		ug/kg	1.92	0.612	1
Pyrene	1.38	J	ug/kg	1.92	0.506	1
C1-Fluoranthenes/Pyrenes	1.97		ug/kg	1.92	0.506	1
Benz(a)anthracene	ND		ug/kg	1.92	0.392	1
Chrysene	0.975	J	ug/kg	1.92	0.389	1
C1-Chrysenes	1.24	J	ug/kg	1.92	0.389	1
C2-Chrysenes	3.34		ug/kg	1.92	0.389	1
C3-Chrysenes	ND		ug/kg	1.92	0.389	1
C4-Chrysenes	ND		ug/kg	1.92	0.389	1
Benzo(b)fluoranthene	0.800	J	ug/kg	1.92	0.501	1
Benzo(j)+(k)fluoranthene	0.468	J	ug/kg	1.92	0.382	1

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-09 Date Collected: 08/17/24 13:15

Client ID: VC-03 (0-17') Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs - Mansfield Lab						
Benzo(e)pyrene	0.626	J	ug/kg	1.92	0.397	1
Benzo(a)pyrene	ND		ug/kg	1.92	0.549	1
Perylene	371		ug/kg	1.92	0.372	1
Indeno(1,2,3-cd)pyrene	0.598	J	ug/kg	1.92	0.522	1
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.92	0.520	1
Benzo(g,h,i)perylene	0.815	J	ug/kg	1.92	0.511	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	51		50-130
Phenanthrene-d10	59		50-130
Benzo(a)pyrene-d12	75		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/10/24 16:54
Analyst: CSP

Extraction Method: ALPHA OP-013
Extraction Date: 08/29/24 11:32
Cleanup Method: EPA 3611B
Cleanup Date: 09/03/24

Parameter	Result	Qualifier	Units	RL	MDL
PAHs - Mansfield Lab for sample(s): 03,08-09 Batch: WG1965537-1					
Naphthalene	ND		ug/kg	1.00	0.287
C1-Naphthalenes	ND		ug/kg	1.00	0.287
C2-Naphthalenes	ND		ug/kg	1.00	0.287
C3-Naphthalenes	ND		ug/kg	1.00	0.287
C4-Naphthalenes	ND		ug/kg	1.00	0.287
Acenaphthylene	ND		ug/kg	1.00	0.191
Acenaphthene	ND		ug/kg	1.00	0.176
Fluorene	ND		ug/kg	1.00	0.267
C1-Fluorenes	ND		ug/kg	1.00	0.267
C2-Fluorenes	ND		ug/kg	1.00	0.267
C3-Fluorenes	ND		ug/kg	1.00	0.267
Phenanthrene	ND		ug/kg	1.00	0.331
C1-Phenanthrenes/Anthracenes	ND		ug/kg	1.00	0.331
C2-Phenanthrenes/Anthr BS	ND		ug/kg	1.00	0.331
C3-Phenanthrenes/Anthracenes	ND		ug/kg	1.00	0.331
C4-Phenanthrenes/Anthracenes	ND		ug/kg	1.00	0.331
Anthracene	ND		ug/kg	1.00	0.206
Fluoranthene	ND		ug/kg	1.00	0.318
Pyrene	ND		ug/kg	1.00	0.263
C1-Fluoranthenes/Pyrenes	ND		ug/kg	1.00	0.263
Benz(a)anthracene	ND		ug/kg	1.00	0.204
Chrysene	ND		ug/kg	1.00	0.202
C1-Chrysenes	ND		ug/kg	1.00	0.202
C2-Chrysenes	ND		ug/kg	1.00	0.202
C3-Chrysenes	ND		ug/kg	1.00	0.202
C4-Chrysenes	ND		ug/kg	1.00	0.202
Benzo(b)fluoranthene	ND		ug/kg	1.00	0.260
Benzo(j)+(k)fluoranthene	ND		ug/kg	1.00	0.198
Benzo(e)pyrene	ND		ug/kg	1.00	0.206

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/10/24 16:54
Analyst: CSP

Extraction Method: ALPHA OP-013
Extraction Date: 08/29/24 11:32
Cleanup Method: EPA 3611B
Cleanup Date: 09/03/24

Parameter	Result	Qualifier	Units	RL	MDL
PAHs - Mansfield Lab for sample(s): 03,08-09 Batch: WG1965537-1					
Benzo(a)pyrene	ND		ug/kg	1.00	0.285
Perylene	ND		ug/kg	1.00	0.193
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.00	0.271
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.00	0.270
Benzo(g,h,i)perylene	ND		ug/kg	1.00	0.266

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	52		50-130
Phenanthrene-d10	60		50-130
Benzo(a)pyrene-d12	80		50-130

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/21/24 09:06
Analyst: CNC

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL
PAHs - Mansfield Lab for sample(s): 01-02,04-07 Batch: WG1972847-1					
Naphthalene	ND		ug/kg	1.00	0.287
C1-Naphthalenes	ND		ug/kg	1.00	0.287
C2-Naphthalenes	ND		ug/kg	1.00	0.287
C3-Naphthalenes	ND		ug/kg	1.00	0.287
C4-Naphthalenes	ND		ug/kg	1.00	0.287
Acenaphthylene	ND		ug/kg	1.00	0.191
Acenaphthene	ND		ug/kg	1.00	0.176
Fluorene	ND		ug/kg	1.00	0.267
C1-Fluorenes	ND		ug/kg	1.00	0.267
C2-Fluorenes	ND		ug/kg	1.00	0.267
C3-Fluorenes	ND		ug/kg	1.00	0.267
Phenanthrene	ND		ug/kg	1.00	0.331
C1-Phenanthrenes/Anthracenes	ND		ug/kg	1.00	0.331
C2-Phenanthrenes/Anthr BS	ND		ug/kg	1.00	0.331
C3-Phenanthrenes/Anthracenes	ND		ug/kg	1.00	0.331
C4-Phenanthrenes/Anthracenes	ND		ug/kg	1.00	0.331
Anthracene	ND		ug/kg	1.00	0.206
Fluoranthene	ND		ug/kg	1.00	0.318
Pyrene	ND		ug/kg	1.00	0.263
C1-Fluoranthenes/Pyrenes	ND		ug/kg	1.00	0.263
Benz(a)anthracene	ND		ug/kg	1.00	0.204
Chrysene	ND		ug/kg	1.00	0.202
C1-Chrysenes	ND		ug/kg	1.00	0.202
C2-Chrysenes	ND		ug/kg	1.00	0.202
C3-Chrysenes	ND		ug/kg	1.00	0.202
C4-Chrysenes	ND		ug/kg	1.00	0.202
Benzo(b)fluoranthene	ND		ug/kg	1.00	0.260
Benzo(j)+(k)fluoranthene	ND		ug/kg	1.00	0.198
Benzo(e)pyrene	ND		ug/kg	1.00	0.206

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 09/21/24 09:06
Analyst: CNC

Extraction Method: ALPHA OP-013
Extraction Date: 09/17/24 23:06
Cleanup Method: EPA 3611B
Cleanup Date: 09/19/24

Parameter	Result	Qualifier	Units	RL	MDL
PAHs - Mansfield Lab for sample(s): 01-02,04-07 Batch: WG1972847-1					
Benzo(a)pyrene	ND		ug/kg	1.00	0.285
Perylene	ND		ug/kg	1.00	0.193
Indeno(1,2,3-cd)pyrene	ND		ug/kg	1.00	0.271
Dibenz(a,h)+(a,c)anthracene	ND		ug/kg	1.00	0.270
Benzo(g,h,i)perylene	ND		ug/kg	1.00	0.266

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	59		50-130
Phenanthrene-d10	81		50-130
Benzo(a)pyrene-d12	96		50-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs - Mansfield Lab Associated sample(s): 03,08-09 Batch: WG1965537-2 WG1965537-3								
Naphthalene	55		58		50-130	5		30
Acenaphthylene	62		63		50-130	2		30
Acenaphthene	60		62		50-130	3		30
Fluorene	64		66		50-130	3		30
Phenanthrene	61		62		50-130	2		30
Anthracene	69		73		50-130	6		30
Fluoranthene	66		65		50-130	2		30
Pyrene	66		66		50-130	0		30
Benz(a)anthracene	66		66		50-130	0		30
Chrysene	60		60		50-130	0		30
Benzo(b)fluoranthene	71		70		50-130	1		30
Benzo(j)+(k)fluoranthene	71		69		50-130	3		30
Benzo(a)pyrene	73		71		50-130	3		30
Indeno(1,2,3-cd)pyrene	86		82		50-130	5		30
Dibenz(a,h)+(a,c)anthracene	88		84		50-130	5		30
Benzo(g,h,i)perylene	80		76		50-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Naphthalene-d8	59		60		50-130
Phenanthrene-d10	64		66		50-130
Benzo(a)pyrene-d12	83		84		50-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs - Mansfield Lab Associated sample(s): 01-02,04-07 Batch: WG1972847-2 WG1972847-3								
Naphthalene	61		64		50-130	5		30
Acenaphthylene	68		71		50-130	4		30
Acenaphthene	70		73		50-130	4		30
Fluorene	79		81		50-130	3		30
Phenanthrene	74		77		50-130	4		30
Anthracene	84		87		50-130	4		30
Fluoranthene	81		82		50-130	1		30
Pyrene	82		83		50-130	1		30
Benz(a)anthracene	77		78		50-130	1		30
Chrysene	72		72		50-130	0		30
Benzo(b)fluoranthene	77		81		50-130	5		30
Benzo(j)+(k)fluoranthene	80		78		50-130	3		30
Benzo(a)pyrene	78		77		50-130	1		30
Indeno(1,2,3-cd)pyrene	91		89		50-130	2		30
Dibenz(a,h)+(a,c)anthracene	92		93		50-130	1		30
Benzo(g,h,i)perylene	83		82		50-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Naphthalene-d8	67		68		50-130
Phenanthrene-d10	84		85		50-130
Benzo(a)pyrene-d12	97		98		50-130

PESTICIDES

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-01
Client ID: VC-06 (0-26.6')
Sample Location: DE WATERS

Date Collected: 08/14/24 14:15
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/30/24 17:37
Analyst: DP
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.169	0.169	1	A
Hexachlorobenzene	ND		ug/kg	0.338	0.338	1	A
beta-BHC	ND		ug/kg	0.169	0.169	1	A
gamma-BHC	ND		ug/kg	0.169	0.169	1	A
delta-BHC	ND		ug/kg	0.169	0.169	1	A
Heptachlor	ND		ug/kg	0.169	0.169	1	A
Aldrin	ND		ug/kg	0.169	0.169	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.338	0.338	1	B
Oxychlordane	ND		ug/kg	0.338	0.338	1	B
gamma-Chlordane	ND		ug/kg	0.169	0.169	1	A
2,4'-DDE	ND		ug/kg	0.169	0.169	1	A
Endosulfan I	ND		ug/kg	0.169	0.169	1	A
alpha-Chlordane	ND		ug/kg	0.169	0.169	1	A
trans-Nonachlor	ND		ug/kg	0.169	0.169	1	A
4,4'-DDE	ND		ug/kg	0.169	0.169	1	A
Dieldrin	ND		ug/kg	0.169	0.169	1	A
2,4'-DDD	ND		ug/kg	0.169	0.169	1	A
Endrin	ND		ug/kg	0.169	0.169	1	A
Endosulfan II	ND		ug/kg	0.169	0.169	1	A
4,4'-DDD	ND		ug/kg	0.169	0.169	1	A
2,4'-DDT	ND		ug/kg	0.169	0.169	1	A
cis-Nonachlor	ND		ug/kg	0.169	0.169	1	A
Endrin aldehyde	ND		ug/kg	0.507	0.507	1	A
Endosulfan sulfate	ND		ug/kg	0.169	0.169	1	A
4,4'-DDT	ND		ug/kg	0.169	0.169	1	A
Endrin ketone	ND		ug/kg	0.169	0.169	1	A
Methoxychlor	ND		ug/kg	1.69	1.69	1	A
Mirex	ND		ug/kg	0.169	0.169	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-01 Date Collected: 08/14/24 14:15

Client ID: VC-06 (0-26.6') Date Received: 08/14/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	8.49	8.49	1	A
Chlordane	ND		ug/kg	8.49	8.49	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	73		30-150	A
DCB - Surrogate	79		30-150	A
TMX - Surrogate	84		30-150	B
DCB - Surrogate	71		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-02
Client ID: VC-106
Sample Location: DE WATERS

Date Collected: 08/14/24 14:30
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/30/24 18:11
Analyst: DP
Percent Solids: 58%

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.163	0.163	1	A
Hexachlorobenzene	ND		ug/kg	0.326	0.326	1	A
beta-BHC	ND		ug/kg	0.163	0.163	1	A
gamma-BHC	ND		ug/kg	0.163	0.163	1	A
delta-BHC	ND		ug/kg	0.163	0.163	1	A
Heptachlor	ND		ug/kg	0.163	0.163	1	A
Aldrin	ND		ug/kg	0.163	0.163	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.326	0.326	1	B
Oxychlordane	ND		ug/kg	0.326	0.326	1	B
gamma-Chlordane	ND		ug/kg	0.163	0.163	1	A
2,4'-DDE	ND		ug/kg	0.163	0.163	1	A
Endosulfan I	ND		ug/kg	0.163	0.163	1	A
alpha-Chlordane	ND		ug/kg	0.163	0.163	1	A
trans-Nonachlor	ND		ug/kg	0.163	0.163	1	A
4,4'-DDE	ND		ug/kg	0.163	0.163	1	A
Dieldrin	ND		ug/kg	0.163	0.163	1	A
2,4'-DDD	ND		ug/kg	0.163	0.163	1	A
Endrin	ND		ug/kg	0.163	0.163	1	A
Endosulfan II	ND		ug/kg	0.163	0.163	1	A
4,4'-DDD	ND		ug/kg	0.163	0.163	1	A
2,4'-DDT	ND		ug/kg	0.163	0.163	1	A
cis-Nonachlor	ND		ug/kg	0.163	0.163	1	A
Endrin aldehyde	ND		ug/kg	0.489	0.489	1	A
Endosulfan sulfate	ND		ug/kg	0.163	0.163	1	A
4,4'-DDT	ND		ug/kg	0.163	0.163	1	A
Endrin ketone	ND		ug/kg	0.163	0.163	1	A
Methoxychlor	ND		ug/kg	1.63	1.63	1	A
Mirex	ND		ug/kg	0.163	0.163	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-02 Date Collected: 08/14/24 14:30

Client ID: VC-106 Date Received: 08/14/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	8.18	8.18	1	A
Chlordane	ND		ug/kg	8.18	8.18	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	69		30-150	A
DCB - Surrogate	73		30-150	A
TMX - Surrogate	79		30-150	B
DCB - Surrogate	67		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-03
Client ID: VC-02 (0-4.7')
Sample Location: DE WATERS

Date Collected: 08/15/24 12:30
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/30/24 18:46
Analyst: DP
Percent Solids: 57%

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.172	0.172	1	A
Hexachlorobenzene	ND		ug/kg	0.344	0.344	1	A
beta-BHC	ND		ug/kg	0.172	0.172	1	A
gamma-BHC	ND		ug/kg	0.172	0.172	1	A
delta-BHC	ND		ug/kg	0.172	0.172	1	A
Heptachlor	ND		ug/kg	0.172	0.172	1	A
Aldrin	ND		ug/kg	0.172	0.172	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.344	0.344	1	B
Oxychlordane	ND		ug/kg	0.344	0.344	1	B
gamma-Chlordane	ND		ug/kg	0.172	0.172	1	A
2,4'-DDE	ND		ug/kg	0.172	0.172	1	A
Endosulfan I	ND		ug/kg	0.172	0.172	1	A
alpha-Chlordane	ND		ug/kg	0.172	0.172	1	A
trans-Nonachlor	ND		ug/kg	0.172	0.172	1	A
4,4'-DDE	ND		ug/kg	0.172	0.172	1	A
Dieldrin	ND		ug/kg	0.172	0.172	1	A
2,4'-DDD	ND		ug/kg	0.172	0.172	1	A
Endrin	ND		ug/kg	0.172	0.172	1	A
Endosulfan II	ND		ug/kg	0.172	0.172	1	A
4,4'-DDD	ND		ug/kg	0.172	0.172	1	A
2,4'-DDT	ND		ug/kg	0.172	0.172	1	A
cis-Nonachlor	ND		ug/kg	0.172	0.172	1	A
Endrin aldehyde	ND		ug/kg	0.516	0.516	1	A
Endosulfan sulfate	ND		ug/kg	0.172	0.172	1	A
4,4'-DDT	ND		ug/kg	0.172	0.172	1	A
Endrin ketone	ND		ug/kg	0.172	0.172	1	A
Methoxychlor	ND		ug/kg	1.72	1.72	1	A
Mirex	ND		ug/kg	0.172	0.172	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-03 Date Collected: 08/15/24 12:30

Client ID: VC-02 (0-4.7') Date Received: 08/15/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	8.64	8.64	1	A
Chlordane	ND		ug/kg	8.64	8.64	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	42		30-150	A
DCB - Surrogate	48		30-150	A
TMX - Surrogate	51		30-150	B
DCB - Surrogate	43		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-04
Client ID: VC-02 (4.7'-17')
Sample Location: DE WATERS

Date Collected: 08/15/24 13:50
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/30/24 19:20
Analyst: DP
Percent Solids: 87%

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.113	0.113	1	A
Hexachlorobenzene	ND		ug/kg	0.225	0.225	1	A
beta-BHC	ND		ug/kg	0.113	0.113	1	A
gamma-BHC	ND		ug/kg	0.113	0.113	1	A
delta-BHC	ND		ug/kg	0.113	0.113	1	A
Heptachlor	ND		ug/kg	0.113	0.113	1	A
Aldrin	ND		ug/kg	0.113	0.113	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.225	0.225	1	B
Oxychlordane	ND		ug/kg	0.225	0.225	1	B
gamma-Chlordane	ND		ug/kg	0.113	0.113	1	A
2,4'-DDE	ND		ug/kg	0.113	0.113	1	A
Endosulfan I	ND		ug/kg	0.113	0.113	1	A
alpha-Chlordane	ND		ug/kg	0.113	0.113	1	A
trans-Nonachlor	ND		ug/kg	0.113	0.113	1	A
4,4'-DDE	ND		ug/kg	0.113	0.113	1	A
Dieldrin	ND		ug/kg	0.113	0.113	1	A
2,4'-DDD	ND		ug/kg	0.113	0.113	1	A
Endrin	ND		ug/kg	0.113	0.113	1	A
Endosulfan II	ND		ug/kg	0.113	0.113	1	A
4,4'-DDD	ND		ug/kg	0.113	0.113	1	A
2,4'-DDT	ND		ug/kg	0.113	0.113	1	A
cis-Nonachlor	ND		ug/kg	0.113	0.113	1	A
Endrin aldehyde	ND		ug/kg	0.338	0.338	1	A
Endosulfan sulfate	ND		ug/kg	0.113	0.113	1	A
4,4'-DDT	ND		ug/kg	0.113	0.113	1	A
Endrin ketone	ND		ug/kg	0.113	0.113	1	A
Methoxychlor	ND		ug/kg	1.13	1.13	1	A
Mirex	ND		ug/kg	0.113	0.113	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-04 Date Collected: 08/15/24 13:50

Client ID: VC-02 (4.7'-17') Date Received: 08/15/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	5.66	5.66	1	A
Chlordane	ND		ug/kg	5.66	5.66	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	63		30-150	A
DCB - Surrogate	67		30-150	A
TMX - Surrogate	73		30-150	B
DCB - Surrogate	61		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-05
Client ID: VC-04 (0-17')
Sample Location: DE WATERS

Date Collected: 08/16/24 11:10
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 08/30/24 19:55
Analyst: DP
Percent Solids: 50%

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.189	0.189	1	A
Hexachlorobenzene	ND		ug/kg	0.379	0.379	1	A
beta-BHC	ND		ug/kg	0.189	0.189	1	A
gamma-BHC	ND		ug/kg	0.189	0.189	1	A
delta-BHC	ND		ug/kg	0.189	0.189	1	A
Heptachlor	ND		ug/kg	0.189	0.189	1	A
Aldrin	ND		ug/kg	0.189	0.189	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.379	0.379	1	B
Oxychlordane	ND		ug/kg	0.379	0.379	1	B
gamma-Chlordane	ND		ug/kg	0.189	0.189	1	A
2,4'-DDE	ND		ug/kg	0.189	0.189	1	A
Endosulfan I	ND		ug/kg	0.189	0.189	1	A
alpha-Chlordane	ND		ug/kg	0.189	0.189	1	A
trans-Nonachlor	ND		ug/kg	0.189	0.189	1	A
4,4'-DDE	ND		ug/kg	0.189	0.189	1	A
Dieldrin	ND		ug/kg	0.189	0.189	1	A
2,4'-DDD	ND		ug/kg	0.189	0.189	1	A
Endrin	ND		ug/kg	0.189	0.189	1	A
Endosulfan II	ND		ug/kg	0.189	0.189	1	A
4,4'-DDD	ND		ug/kg	0.189	0.189	1	A
2,4'-DDT	ND		ug/kg	0.189	0.189	1	A
cis-Nonachlor	ND		ug/kg	0.189	0.189	1	A
Endrin aldehyde	ND		ug/kg	0.568	0.568	1	A
Endosulfan sulfate	ND		ug/kg	0.189	0.189	1	A
4,4'-DDT	ND		ug/kg	0.189	0.189	1	A
Endrin ketone	ND		ug/kg	0.189	0.189	1	A
Methoxychlor	ND		ug/kg	1.89	1.89	1	A
Mirex	ND		ug/kg	0.189	0.189	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-05 Date Collected: 08/16/24 11:10

Client ID: VC-04 (0-17') Date Received: 08/16/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	9.51	9.51	1	A
Chlordane	ND		ug/kg	9.51	9.51	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	65		30-150	A
DCB - Surrogate	69		30-150	A
TMX - Surrogate	75		30-150	B
DCB - Surrogate	62		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-06
Client ID: VC-01 (0-4.3')
Sample Location: DE WATERS

Date Collected: 08/17/24 08:20
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 01:18
Analyst: DP
Percent Solids: 35%

Extraction Method: EPA 3570
Extraction Date: 08/29/24 16:30
Cleanup Method: EPA 3630
Cleanup Date: 08/30/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.274	0.274	1	A
Hexachlorobenzene	ND		ug/kg	0.548	0.548	1	A
beta-BHC	ND		ug/kg	0.274	0.274	1	A
gamma-BHC	ND		ug/kg	0.274	0.274	1	A
delta-BHC	ND		ug/kg	0.274	0.274	1	A
Heptachlor	ND		ug/kg	0.274	0.274	1	A
Aldrin	ND		ug/kg	0.274	0.274	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.548	0.548	1	B
Oxychlordane	ND		ug/kg	0.548	0.548	1	B
gamma-Chlordane	ND		ug/kg	0.274	0.274	1	A
2,4'-DDE	ND		ug/kg	0.274	0.274	1	A
Endosulfan I	ND		ug/kg	0.274	0.274	1	A
alpha-Chlordane	ND		ug/kg	0.274	0.274	1	A
trans-Nonachlor	ND		ug/kg	0.274	0.274	1	A
4,4'-DDE	ND		ug/kg	0.274	0.274	1	A
Dieldrin	ND		ug/kg	0.274	0.274	1	A
2,4'-DDD	ND		ug/kg	0.274	0.274	1	A
Endrin	ND		ug/kg	0.274	0.274	1	A
Endosulfan II	ND		ug/kg	0.274	0.274	1	A
4,4'-DDD	ND		ug/kg	0.274	0.274	1	A
2,4'-DDT	ND		ug/kg	0.274	0.274	1	A
cis-Nonachlor	ND		ug/kg	0.274	0.274	1	A
Endrin aldehyde	ND		ug/kg	0.822	0.822	1	A
Endosulfan sulfate	ND		ug/kg	0.274	0.274	1	A
4,4'-DDT	ND		ug/kg	0.274	0.274	1	A
Endrin ketone	ND		ug/kg	0.274	0.274	1	A
Methoxychlor	ND		ug/kg	2.74	2.74	1	A
Mirex	ND		ug/kg	0.274	0.274	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-06 Date Collected: 08/17/24 08:20

Client ID: VC-01 (0-4.3') Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	13.8	13.8	1	A
Chlordane	ND		ug/kg	13.8	13.8	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	57		30-150	A
DCB - Surrogate	61		30-150	A
TMX - Surrogate	71		30-150	B
DCB - Surrogate	57		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-07
Client ID: VC-01 (4.3'-17)
Sample Location: DE WATERS

Date Collected: 08/17/24 10:00
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 01:52
Analyst: DP
Percent Solids: 79%

Extraction Method: EPA 3570
Extraction Date: 08/29/24 16:30
Cleanup Method: EPA 3630
Cleanup Date: 08/30/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.124	0.124	1	A
Hexachlorobenzene	ND		ug/kg	0.248	0.248	1	A
beta-BHC	ND		ug/kg	0.124	0.124	1	A
gamma-BHC	ND		ug/kg	0.124	0.124	1	A
delta-BHC	ND		ug/kg	0.124	0.124	1	A
Heptachlor	ND		ug/kg	0.124	0.124	1	A
Aldrin	ND		ug/kg	0.124	0.124	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.248	0.248	1	B
Oxychlordane	ND		ug/kg	0.248	0.248	1	B
gamma-Chlordane	ND		ug/kg	0.124	0.124	1	A
2,4'-DDE	ND		ug/kg	0.124	0.124	1	A
Endosulfan I	ND		ug/kg	0.124	0.124	1	A
alpha-Chlordane	ND		ug/kg	0.124	0.124	1	A
trans-Nonachlor	ND		ug/kg	0.124	0.124	1	A
4,4'-DDE	ND		ug/kg	0.124	0.124	1	A
Dieldrin	ND		ug/kg	0.124	0.124	1	A
2,4'-DDD	ND		ug/kg	0.124	0.124	1	A
Endrin	ND		ug/kg	0.124	0.124	1	A
Endosulfan II	ND		ug/kg	0.124	0.124	1	A
4,4'-DDD	ND		ug/kg	0.124	0.124	1	A
2,4'-DDT	ND		ug/kg	0.124	0.124	1	A
cis-Nonachlor	ND		ug/kg	0.124	0.124	1	A
Endrin aldehyde	ND		ug/kg	0.373	0.373	1	A
Endosulfan sulfate	ND		ug/kg	0.124	0.124	1	A
4,4'-DDT	ND		ug/kg	0.124	0.124	1	A
Endrin ketone	ND		ug/kg	0.124	0.124	1	A
Methoxychlor	ND		ug/kg	1.24	1.24	1	A
Mirex	ND		ug/kg	0.124	0.124	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-07 Date Collected: 08/17/24 10:00

Client ID: VC-01 (4.3'-17) Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	6.24	6.24	1	A
Chlordane	ND		ug/kg	6.24	6.24	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	66		30-150	A
DCB - Surrogate	64		30-150	A
TMX - Surrogate	72		30-150	B
DCB - Surrogate	59		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-08
Client ID: VC-05 (0-17')
Sample Location: DE WATERS

Date Collected: 08/17/24 11:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 02:27
Analyst: DP
Percent Solids: 52%

Extraction Method: EPA 3570
Extraction Date: 08/29/24 16:30
Cleanup Method: EPA 3630
Cleanup Date: 08/30/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.186	0.186	1	A
Hexachlorobenzene	ND		ug/kg	0.372	0.372	1	A
beta-BHC	ND		ug/kg	0.186	0.186	1	A
gamma-BHC	ND		ug/kg	0.186	0.186	1	A
delta-BHC	ND		ug/kg	0.186	0.186	1	A
Heptachlor	ND		ug/kg	0.186	0.186	1	A
Aldrin	ND		ug/kg	0.186	0.186	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.372	0.372	1	B
Oxychlordane	ND		ug/kg	0.372	0.372	1	B
gamma-Chlordane	ND		ug/kg	0.186	0.186	1	A
2,4'-DDE	ND		ug/kg	0.186	0.186	1	A
Endosulfan I	ND		ug/kg	0.186	0.186	1	A
alpha-Chlordane	ND		ug/kg	0.186	0.186	1	A
trans-Nonachlor	ND		ug/kg	0.186	0.186	1	A
4,4'-DDE	ND		ug/kg	0.186	0.186	1	A
Dieldrin	ND		ug/kg	0.186	0.186	1	A
2,4'-DDD	ND		ug/kg	0.186	0.186	1	A
Endrin	ND		ug/kg	0.186	0.186	1	A
Endosulfan II	ND		ug/kg	0.186	0.186	1	A
4,4'-DDD	ND		ug/kg	0.186	0.186	1	A
2,4'-DDT	ND		ug/kg	0.186	0.186	1	A
cis-Nonachlor	ND		ug/kg	0.186	0.186	1	A
Endrin aldehyde	ND		ug/kg	0.557	0.557	1	A
Endosulfan sulfate	ND		ug/kg	0.186	0.186	1	A
4,4'-DDT	ND		ug/kg	0.186	0.186	1	A
Endrin ketone	ND		ug/kg	0.186	0.186	1	A
Methoxychlor	ND		ug/kg	1.86	1.86	1	A
Mirex	ND		ug/kg	0.186	0.186	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-08 Date Collected: 08/17/24 11:15

Client ID: VC-05 (0-17') Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	9.33	9.33	1	A
Chlordane	ND		ug/kg	9.33	9.33	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	70		30-150	A
DCB - Surrogate	76		30-150	A
TMX - Surrogate	84		30-150	B
DCB - Surrogate	72		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-09
Client ID: VC-03 (0-17')
Sample Location: DE WATERS

Date Collected: 08/17/24 13:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Analytical Method: 1,8081B
Analytical Date: 09/12/24 03:01
Analyst: DP
Percent Solids: 51%

Extraction Method: EPA 3570
Extraction Date: 08/29/24 16:30
Cleanup Method: EPA 3630
Cleanup Date: 08/30/24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
alpha-BHC	ND		ug/kg	0.192	0.192	1	A
Hexachlorobenzene	ND		ug/kg	0.384	0.384	1	A
beta-BHC	ND		ug/kg	0.192	0.192	1	A
gamma-BHC	ND		ug/kg	0.192	0.192	1	A
delta-BHC	ND		ug/kg	0.192	0.192	1	A
Heptachlor	ND		ug/kg	0.192	0.192	1	A
Aldrin	ND		ug/kg	0.192	0.192	1	A
Heptachlor epoxide (B)	ND		ug/kg	0.384	0.384	1	B
Oxychlordane	ND		ug/kg	0.384	0.384	1	B
gamma-Chlordane	ND		ug/kg	0.192	0.192	1	A
2,4'-DDE	ND		ug/kg	0.192	0.192	1	A
Endosulfan I	ND		ug/kg	0.192	0.192	1	A
alpha-Chlordane	ND		ug/kg	0.192	0.192	1	A
trans-Nonachlor	ND		ug/kg	0.192	0.192	1	A
4,4'-DDE	ND		ug/kg	0.192	0.192	1	A
Dieldrin	ND		ug/kg	0.192	0.192	1	A
2,4'-DDD	ND		ug/kg	0.192	0.192	1	A
Endrin	ND		ug/kg	0.192	0.192	1	A
Endosulfan II	ND		ug/kg	0.192	0.192	1	A
4,4'-DDD	ND		ug/kg	0.192	0.192	1	A
2,4'-DDT	ND		ug/kg	0.192	0.192	1	A
cis-Nonachlor	ND		ug/kg	0.192	0.192	1	A
Endrin aldehyde	ND		ug/kg	0.576	0.576	1	A
Endosulfan sulfate	ND		ug/kg	0.192	0.192	1	A
4,4'-DDT	ND		ug/kg	0.192	0.192	1	A
Endrin ketone	ND		ug/kg	0.192	0.192	1	A
Methoxychlor	ND		ug/kg	1.92	1.92	1	A
Mirex	ND		ug/kg	0.192	0.192	1	A

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-09 Date Collected: 08/17/24 13:15

Client ID: VC-03 (0-17') Date Received: 08/19/24

Sample Location: DE WATERS Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Organochlorine Pesticides by GC - Mansfield Lab							
Toxaphene	ND		ug/kg	9.63	9.63	1	A
Chlordane	ND		ug/kg	9.63	9.63	1	A

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	73		30-150	A
DCB - Surrogate	77		30-150	A
TMX - Surrogate	78		30-150	B
DCB - Surrogate	71		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 08/30/24 14:44
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 01-05 Batch: WG1963397-1						
alpha-BHC	ND		ug/kg	0.100	0.100	A
Hexachlorobenzene	ND		ug/kg	0.200	0.200	A
beta-BHC	ND		ug/kg	0.100	0.100	A
gamma-BHC	ND		ug/kg	0.100	0.100	A
delta-BHC	ND		ug/kg	0.100	0.100	A
Heptachlor	ND		ug/kg	0.100	0.100	A
Aldrin	ND		ug/kg	0.100	0.100	A
gamma-Chlordane	ND		ug/kg	0.100	0.100	A
2,4'-DDE	ND		ug/kg	0.100	0.100	A
Endosulfan I	ND		ug/kg	0.100	0.100	A
alpha-Chlordane	ND		ug/kg	0.100	0.100	A
trans-Nonachlor	ND		ug/kg	0.100	0.100	A
4,4'-DDE	ND		ug/kg	0.100	0.100	A
Dieldrin	ND		ug/kg	0.100	0.100	A
2,4'-DDD	ND		ug/kg	0.100	0.100	A
Endrin	ND		ug/kg	0.100	0.100	A
Endosulfan II	ND		ug/kg	0.100	0.100	A
4,4'-DDD	ND		ug/kg	0.100	0.100	A
2,4'-DDT	ND		ug/kg	0.100	0.100	A
cis-Nonachlor	ND		ug/kg	0.100	0.100	A
Endrin aldehyde	ND		ug/kg	0.300	0.300	A
Endosulfan sulfate	ND		ug/kg	0.100	0.100	A
4,4'-DDT	ND		ug/kg	0.100	0.100	A
Endrin ketone	ND		ug/kg	0.100	0.100	A
Methoxychlor	ND		ug/kg	1.00	1.00	A
Mirex	ND		ug/kg	0.100	0.100	A
Toxaphene	ND		ug/kg	5.02	5.02	A
Chlordane	ND		ug/kg	5.02	5.02	A
Heptachlor epoxide (B)	ND		ug/kg	0.200	0.200	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 08/30/24 14:44
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/24/24 16:39
Cleanup Method: EPA 3630
Cleanup Date: 08/29/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 01-05 Batch: WG1963397-1						
Oxychlordane	ND		ug/kg	0.200	0.200	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	70		30-150	A
DCB - Surrogate	82		30-150	A
TMX - Surrogate	86		30-150	B
DCB - Surrogate	75		30-150	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 09/11/24 15:32
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/29/24 16:30
Cleanup Method: EPA 3630
Cleanup Date: 08/30/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 06-09 Batch: WG1965691-1						
alpha-BHC	ND		ug/kg	0.100	0.100	A
Hexachlorobenzene	ND		ug/kg	0.200	0.200	A
beta-BHC	ND		ug/kg	0.100	0.100	A
gamma-BHC	ND		ug/kg	0.100	0.100	A
delta-BHC	ND		ug/kg	0.100	0.100	A
Heptachlor	ND		ug/kg	0.100	0.100	A
Aldrin	ND		ug/kg	0.100	0.100	A
gamma-Chlordane	ND		ug/kg	0.100	0.100	A
2,4'-DDE	ND		ug/kg	0.100	0.100	A
Endosulfan I	ND		ug/kg	0.100	0.100	A
alpha-Chlordane	ND		ug/kg	0.100	0.100	A
trans-Nonachlor	ND		ug/kg	0.100	0.100	A
4,4'-DDE	ND		ug/kg	0.100	0.100	A
Dieldrin	ND		ug/kg	0.100	0.100	A
2,4'-DDD	ND		ug/kg	0.100	0.100	A
Endrin	ND		ug/kg	0.100	0.100	A
Endosulfan II	ND		ug/kg	0.100	0.100	A
4,4'-DDD	ND		ug/kg	0.100	0.100	A
2,4'-DDT	ND		ug/kg	0.100	0.100	A
cis-Nonachlor	ND		ug/kg	0.100	0.100	A
Endrin aldehyde	ND		ug/kg	0.300	0.300	A
Endosulfan sulfate	ND		ug/kg	0.100	0.100	A
4,4'-DDT	ND		ug/kg	0.100	0.100	A
Endrin ketone	ND		ug/kg	0.100	0.100	A
Methoxychlor	ND		ug/kg	1.00	1.00	A
Mirex	ND		ug/kg	0.100	0.100	A
Toxaphene	ND		ug/kg	5.02	5.02	A
Chlordane	ND		ug/kg	5.02	5.02	A
Heptachlor epoxide (B)	ND		ug/kg	0.200	0.200	B

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8081B
Analytical Date: 09/11/24 15:32
Analyst: DP

Extraction Method: EPA 3570
Extraction Date: 08/29/24 16:30
Cleanup Method: EPA 3630
Cleanup Date: 08/30/24

Parameter	Result	Qualifier	Units	RL	MDL	Column
Organochlorine Pesticides by GC - Mansfield Lab for sample(s): 06-09 Batch: WG1965691-1						
Oxychlordane	ND		ug/kg	0.200	0.200	B

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
TMX - Surrogate	90		30-150	A
DCB - Surrogate	96		30-150	A
TMX - Surrogate	105		30-150	B
DCB - Surrogate	90		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1963397-2 WG1963397-3									
alpha-BHC	98		94		40-140	4		50	A
Hexachlorobenzene	93		90		40-140	3		50	A
beta-BHC	84		83		40-140	1		50	A
gamma-BHC	92		86		40-140	7		50	A
delta-BHC	58		55		40-140	5		50	A
Heptachlor	100		96		40-140	4		50	A
Aldrin	94		91		40-140	3		50	A
gamma-Chlordane	99		96		40-140	3		50	A
2,4'-DDE	84		82		40-140	2		50	A
Endosulfan I	93		90		40-140	3		50	A
alpha-Chlordane	93		90		40-140	3		50	A
trans-Nonachlor	96		94		40-140	2		50	A
4,4'-DDE	96		93		40-140	3		50	A
Dieldrin	100		98		40-140	2		50	A
2,4'-DDD	96		93		40-140	3		50	A
Endrin	90		88		40-140	2		50	A
Endosulfan II	89		86		40-140	3		50	A
4,4'-DDD	94		91		40-140	3		50	A
2,4'-DDT	105		102		40-140	3		50	A
cis-Nonachlor	84		82		40-140	2		50	A
Endrin aldehyde	75		72		40-140	4		50	A
Endosulfan sulfate	91		88		40-140	3		50	A
4,4'-DDT	98		96		40-140	2		50	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1963397-2 WG1963397-3									
Endrin ketone	105		102		40-140	3		50	A
Methoxychlor	81		80		40-140	1		50	A
Mirex	78		78		40-140	0		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	77		72		30-150	A
DCB - Surrogate	87		84		30-150	A
TMX - Surrogate	90		82		30-150	B
DCB - Surrogate	77		76		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 01-05 Batch: WG1963397-2 WG1963397-3									
Heptachlor epoxide (B)	96		94		40-140	2		50	B
Oxychlordane	111		108		40-140	3		50	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	77		72		30-150	A
DCB - Surrogate	87		84		30-150	A
TMX - Surrogate	90		82		30-150	B
DCB - Surrogate	77		76		30-150	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 06-09 Batch: WG1965691-2 WG1965691-3									
alpha-BHC	123		116		40-140	6		50	A
Hexachlorobenzene	110		104		40-140	6		50	A
beta-BHC	106		103		40-140	3		50	A
gamma-BHC	116		105		40-140	10		50	A
delta-BHC	72		68		40-140	6		50	A
Heptachlor	123		118		40-140	4		50	A
Aldrin	118		112		40-140	5		50	A
gamma-Chlordane	124		119		40-140	4		50	A
2,4'-DDE	105		102		40-140	3		50	A
Endosulfan I	117		111		40-140	5		50	A
alpha-Chlordane	116		112		40-140	4		50	A
trans-Nonachlor	119		114		40-140	4		50	A
4,4'-DDE	122		118		40-140	3		50	A
Dieldrin	126		119		40-140	6		50	A
2,4'-DDD	116		113		40-140	3		50	A
Endrin	112		107		40-140	5		50	A
Endosulfan II	113		106		40-140	6		50	A
4,4'-DDD	116		114		40-140	2		50	A
2,4'-DDT	129		126		40-140	2		50	A
cis-Nonachlor	106		103		40-140	3		50	A
Endrin aldehyde	95		88		40-140	8		50	A
Endosulfan sulfate	117		112		40-140	4		50	A
4,4'-DDT	121		118		40-140	3		50	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 06-09 Batch: WG1965691-2 WG1965691-3									
Endrin ketone	130		125		40-140	4		50	A
Methoxychlor	106		98		40-140	8		50	A
Mirex	103		100		40-140	3		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	94		91		30-150	A
DCB - Surrogate	96		94		30-150	A
TMX - Surrogate	105		104		30-150	B
DCB - Surrogate	86		88		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Organochlorine Pesticides by GC - Mansfield Lab Associated sample(s): 06-09 Batch: WG1965691-2 WG1965691-3									
Heptachlor epoxide (B)	119		118		40-140	1		50	B
Oxychlordane	136		135		40-140	1		50	B

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
TMX - Surrogate	94		91		30-150	A
DCB - Surrogate	96		94		30-150	A
TMX - Surrogate	105		104		30-150	B
DCB - Surrogate	86		88		30-150	B

METALS

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-01
Client ID: VC-06 (0-26.6')
Sample Location: DE WATERS
Date Collected: 08/14/24 14:15
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	13900		mg/kg	168	24.9	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	2.70	0.228	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Arsenic, Total	9.20		mg/kg	0.842	0.111	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Barium, Total	54.1		mg/kg	5.05	0.356	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.777		mg/kg	0.505	0.147	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.093	J	mg/kg	0.337	0.045	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Calcium, Total	2400		mg/kg	842	102.	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Chromium, Total	36.8		mg/kg	3.37	0.788	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Cobalt, Total	11.2		mg/kg	0.842	0.090	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Copper, Total	10.9		mg/kg	3.37	0.327	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Iron, Total	28200		mg/kg	337	34.7	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Lead, Total	12.1		mg/kg	1.01	0.246	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Magnesium, Total	6910		mg/kg	168	20.8	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Manganese, Total	834		mg/kg	3.37	0.748	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Mercury, Total	0.017	J	mg/kg	0.026	0.003	5	09/09/24 23:13	09/11/24 12:12	EPA 7474	1,7474	RJP
Nickel, Total	24.8		mg/kg	1.68	0.450	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Potassium, Total	2290		mg/kg	168	26.8	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Selenium, Total	5.21		mg/kg	3.37	1.27	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.842	0.082	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Sodium, Total	1460		mg/kg	253	19.7	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Thallium, Total	0.153	J	mg/kg	0.674	0.087	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Vanadium, Total	33.8		mg/kg	1.68	0.639	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB
Zinc, Total	64.7		mg/kg	16.8	4.38	10	09/16/24 10:23	09/18/24 13:44	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-02
Client ID: VC-106
Sample Location: DE WATERS
Date Collected: 08/14/24 14:30
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 58%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	14200		mg/kg	164	24.3	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	2.63	0.222	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Arsenic, Total	8.79		mg/kg	0.821	0.108	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Barium, Total	54.3		mg/kg	4.93	0.347	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.799		mg/kg	0.493	0.143	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.091	J	mg/kg	0.328	0.043	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Calcium, Total	2430		mg/kg	821	99.8	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Chromium, Total	37.2		mg/kg	3.28	0.768	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Cobalt, Total	11.3		mg/kg	0.821	0.087	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Copper, Total	11.3		mg/kg	3.28	0.318	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Iron, Total	28000		mg/kg	328	33.8	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Lead, Total	12.0		mg/kg	0.985	0.240	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Magnesium, Total	7020		mg/kg	164	20.2	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Manganese, Total	806		mg/kg	3.28	0.729	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Mercury, Total	0.018	J	mg/kg	0.023	0.003	5	09/09/24 23:13	09/11/24 12:14	EPA 7474	1,7474	RJP
Nickel, Total	25.0		mg/kg	1.64	0.439	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Potassium, Total	2370		mg/kg	164	26.1	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Selenium, Total	5.48		mg/kg	3.28	1.24	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.821	0.080	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Sodium, Total	1490		mg/kg	246	19.2	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Thallium, Total	0.149	J	mg/kg	0.657	0.085	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Vanadium, Total	34.1		mg/kg	1.64	0.623	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB
Zinc, Total	66.6		mg/kg	16.4	4.27	10	09/16/24 10:23	09/18/24 13:49	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-03
Client ID: VC-02 (0-4.7')
Sample Location: DE WATERS
Date Collected: 08/15/24 12:30
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 57%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	11100		mg/kg	164	24.3	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	2.63	0.222	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Arsenic, Total	7.84		mg/kg	0.822	0.108	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Barium, Total	47.1		mg/kg	4.93	0.347	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.613		mg/kg	0.493	0.143	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.071	J	mg/kg	0.329	0.043	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Calcium, Total	2190		mg/kg	822	99.9	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Chromium, Total	30.9		mg/kg	3.29	0.769	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Cobalt, Total	8.66		mg/kg	0.822	0.087	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Copper, Total	8.41		mg/kg	3.29	0.319	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Iron, Total	24100		mg/kg	329	33.8	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Lead, Total	8.88		mg/kg	0.986	0.240	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Magnesium, Total	5360		mg/kg	164	20.2	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Manganese, Total	257		mg/kg	3.29	0.730	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Mercury, Total	0.015	J	mg/kg	0.024	0.003	5	09/09/24 23:13	09/11/24 12:17	EPA 7474	1,7474	RJP
Nickel, Total	19.7		mg/kg	1.64	0.439	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Potassium, Total	1890		mg/kg	164	26.1	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Selenium, Total	3.96		mg/kg	3.29	1.24	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.822	0.080	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Sodium, Total	1900		mg/kg	246	19.2	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Thallium, Total	0.127	J	mg/kg	0.657	0.085	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Vanadium, Total	27.2		mg/kg	1.64	0.623	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB
Zinc, Total	54.9		mg/kg	16.4	4.27	10	09/16/24 10:23	09/18/24 13:53	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-04
Client ID: VC-02 (4.7'-17')
Sample Location: DE WATERS
Date Collected: 08/15/24 13:50
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	3670		mg/kg	113	16.7	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Antimony, Total	0.378	J	mg/kg	1.80	0.152	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Arsenic, Total	3.33		mg/kg	0.564	0.074	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Barium, Total	10.4		mg/kg	3.38	0.238	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.360		mg/kg	0.338	0.098	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.058	J	mg/kg	0.226	0.030	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Calcium, Total	366	J	mg/kg	564	68.6	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Chromium, Total	49.4		mg/kg	2.26	0.528	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Cobalt, Total	3.04		mg/kg	0.564	0.060	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Copper, Total	3.19		mg/kg	2.26	0.219	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Iron, Total	15000		mg/kg	226	23.2	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Lead, Total	3.57		mg/kg	0.677	0.165	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Magnesium, Total	1010		mg/kg	113	13.9	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Manganese, Total	125		mg/kg	2.26	0.501	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Mercury, Total	ND		mg/kg	0.015	0.002	5	09/09/24 23:13	09/11/24 12:20	EPA 7474	1,7474	RJP
Nickel, Total	6.09		mg/kg	1.13	0.301	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Potassium, Total	1110		mg/kg	113	17.9	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Selenium, Total	1.16	J	mg/kg	2.26	0.853	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.564	0.055	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Sodium, Total	479		mg/kg	169	13.2	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Thallium, Total	ND		mg/kg	0.451	0.058	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Vanadium, Total	32.1		mg/kg	1.13	0.428	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB
Zinc, Total	24.7		mg/kg	11.3	2.93	10	09/16/24 10:23	09/18/24 13:57	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-05
Client ID: VC-04 (0-17')
Sample Location: DE WATERS
Date Collected: 08/16/24 11:10
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 50%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	11800		mg/kg	194	28.8	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	3.11	0.263	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Arsenic, Total	8.08		mg/kg	0.973	0.128	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Barium, Total	39.4		mg/kg	5.84	0.411	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.689		mg/kg	0.584	0.170	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.088	J	mg/kg	0.389	0.051	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Calcium, Total	1950		mg/kg	973	118.	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Chromium, Total	34.3		mg/kg	3.89	0.910	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Cobalt, Total	9.32		mg/kg	0.973	0.104	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Copper, Total	8.77		mg/kg	3.89	0.377	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Iron, Total	27200		mg/kg	389	40.1	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Lead, Total	9.83		mg/kg	1.17	0.284	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Magnesium, Total	6080		mg/kg	194	24.0	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Manganese, Total	641		mg/kg	3.89	0.864	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Mercury, Total	0.016	J	mg/kg	0.027	0.003	5	09/09/24 23:13	09/11/24 12:22	EPA 7474	1,7474	RJP
Nickel, Total	21.4		mg/kg	1.94	0.520	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Potassium, Total	2190		mg/kg	194	30.9	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Selenium, Total	4.18		mg/kg	3.89	1.47	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.973	0.095	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Sodium, Total	2170		mg/kg	292	22.8	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Thallium, Total	0.121	J	mg/kg	0.778	0.100	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Vanadium, Total	30.2		mg/kg	1.94	0.738	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB
Zinc, Total	59.2		mg/kg	19.4	5.06	10	09/16/24 10:23	09/18/24 14:02	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-06
Client ID: VC-01 (0-4.3')
Sample Location: DE WATERS
Date Collected: 08/17/24 08:20
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 35%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	10200		mg/kg	273	40.5	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	4.38	0.370	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Arsenic, Total	5.34		mg/kg	1.37	0.180	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Barium, Total	30.2		mg/kg	8.20	0.578	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.786	J	mg/kg	0.820	0.238	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Cadmium, Total	ND		mg/kg	0.547	0.072	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Calcium, Total	1900		mg/kg	1370	166.	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Chromium, Total	38.9		mg/kg	5.47	1.28	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Cobalt, Total	5.79		mg/kg	1.37	0.145	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Copper, Total	5.67		mg/kg	5.47	0.530	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Iron, Total	23500		mg/kg	547	56.3	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Lead, Total	6.67		mg/kg	1.64	0.399	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Magnesium, Total	4670		mg/kg	273	33.7	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Manganese, Total	148		mg/kg	5.47	1.21	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Mercury, Total	0.013	J	mg/kg	0.037	0.005	5	09/09/24 23:13	09/11/24 12:31	EPA 7474	1,7474	RJP
Nickel, Total	15.1		mg/kg	2.73	0.731	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Potassium, Total	1760		mg/kg	273	43.4	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Selenium, Total	4.05	J	mg/kg	5.47	2.07	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	1.37	0.133	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Sodium, Total	3470		mg/kg	410	32.0	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Thallium, Total	ND		mg/kg	1.09	0.141	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Vanadium, Total	32.0		mg/kg	2.73	1.04	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB
Zinc, Total	35.4		mg/kg	27.3	7.11	10	09/16/24 10:23	09/18/24 14:06	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-07
Client ID: VC-01 (4.3'-17)
Sample Location: DE WATERS
Date Collected: 08/17/24 10:00
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	4340		mg/kg	120	17.8	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Antimony, Total	0.626	J	mg/kg	1.93	0.163	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Arsenic, Total	6.80		mg/kg	0.602	0.080	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Barium, Total	5.46		mg/kg	3.62	0.254	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.597		mg/kg	0.362	0.105	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.040	J	mg/kg	0.241	0.032	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Calcium, Total	160	J	mg/kg	602	73.3	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Chromium, Total	107		mg/kg	24.1	5.64	100	09/16/24 10:23	09/18/24 14:49	EPA 3050B	1,6020B	NTB
Cobalt, Total	5.16		mg/kg	0.602	0.064	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Copper, Total	2.29	J	mg/kg	2.41	0.234	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Iron, Total	26200		mg/kg	241	24.8	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Lead, Total	5.51		mg/kg	0.723	0.176	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Magnesium, Total	842		mg/kg	120	14.8	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Manganese, Total	176		mg/kg	2.41	0.535	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Mercury, Total	0.006	J	mg/kg	0.018	0.002	5	09/09/24 23:13	09/11/24 12:34	EPA 7474	1,7474	RJP
Nickel, Total	18.3		mg/kg	1.20	0.322	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Potassium, Total	1260		mg/kg	120	19.1	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Selenium, Total	1.83	J	mg/kg	2.41	0.911	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.602	0.059	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Sodium, Total	358		mg/kg	181	14.1	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Thallium, Total	ND		mg/kg	0.482	0.062	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB
Vanadium, Total	67.3		mg/kg	12.0	4.57	100	09/16/24 10:23	09/18/24 14:49	EPA 3050B	1,6020B	NTB
Zinc, Total	87.5		mg/kg	12.0	3.13	10	09/16/24 10:23	09/18/24 14:11	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-08
Client ID: VC-05 (0-17')
Sample Location: DE WATERS
Date Collected: 08/17/24 11:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 52%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	14600		mg/kg	191	28.2	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	3.05	0.258	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Arsenic, Total	8.72		mg/kg	0.955	0.126	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Barium, Total	50.6		mg/kg	5.73	0.403	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.765		mg/kg	0.573	0.166	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.078	J	mg/kg	0.382	0.050	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Calcium, Total	2300		mg/kg	955	116.	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Chromium, Total	37.7		mg/kg	3.82	0.894	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Cobalt, Total	10.3		mg/kg	0.955	0.102	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Copper, Total	9.92		mg/kg	3.82	0.370	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Iron, Total	28000		mg/kg	382	39.3	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Lead, Total	10.9		mg/kg	1.14	0.279	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Magnesium, Total	7000		mg/kg	191	23.5	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Manganese, Total	780		mg/kg	3.82	0.848	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Mercury, Total	0.017	J	mg/kg	0.027	0.003	5	09/09/24 23:13	09/11/24 12:36	EPA 7474	1,7474	RJP
Nickel, Total	23.5		mg/kg	1.91	0.510	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Potassium, Total	2450		mg/kg	191	30.3	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Selenium, Total	4.87		mg/kg	3.82	1.44	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.955	0.093	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Sodium, Total	1890		mg/kg	286	22.4	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Thallium, Total	0.158	J	mg/kg	0.764	0.099	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Vanadium, Total	34.8		mg/kg	1.91	0.724	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB
Zinc, Total	63.5		mg/kg	19.1	4.96	10	09/16/24 10:23	09/18/24 14:35	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Lab Number: L2446143
Project Number: 529393.0003.0000
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-09
Client ID: VC-03 (0-17')
Sample Location: DE WATERS
Date Collected: 08/17/24 13:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment
Percent Solids: 51%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	12300		mg/kg	188	27.8	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Antimony, Total	ND		mg/kg	3.01	0.254	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Arsenic, Total	7.36		mg/kg	0.941	0.124	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Barium, Total	37.6		mg/kg	5.65	0.398	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Beryllium, Total	0.642		mg/kg	0.565	0.164	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Cadmium, Total	0.072	J	mg/kg	0.376	0.050	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Calcium, Total	2170		mg/kg	941	114.	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Chromium, Total	33.1		mg/kg	3.76	0.881	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Cobalt, Total	8.70		mg/kg	0.941	0.100	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Copper, Total	7.89		mg/kg	3.76	0.365	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Iron, Total	24900		mg/kg	376	38.8	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Lead, Total	8.55		mg/kg	1.13	0.275	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Magnesium, Total	6260		mg/kg	188	23.2	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Manganese, Total	545		mg/kg	3.76	0.836	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Mercury, Total	0.015	J	mg/kg	0.028	0.004	5	09/09/24 23:13	09/11/24 12:39	EPA 7474	1,7474	RJP
Nickel, Total	20.2		mg/kg	1.88	0.503	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Potassium, Total	2260		mg/kg	188	29.9	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Selenium, Total	4.04		mg/kg	3.76	1.42	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Silver, Total	ND		mg/kg	0.941	0.092	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Sodium, Total	2220		mg/kg	282	22.1	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Thallium, Total	0.130	J	mg/kg	0.753	0.097	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Vanadium, Total	30.3		mg/kg	1.88	0.714	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB
Zinc, Total	53.6		mg/kg	18.8	4.89	10	09/16/24 10:23	09/18/24 14:40	EPA 3050B	1,6020B	NTB

Project Name: SILVER RUN EXPANSION **Lab Number:** L2446143

Project Number: 529393.0003.0000 **Report Date:** 10/18/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG1969287-1										
Mercury, Total	ND		mg/kg	0.013	0.002	5	09/09/24 23:13	09/11/24 11:57	1,7474	RJP

Prep Information

Digestion Method: EPA 7474

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG1971466-1										
Aluminum, Total	ND		mg/kg	100	14.8	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Antimony, Total	ND		mg/kg	1.60	0.135	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Arsenic, Total	ND		mg/kg	0.500	0.066	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Barium, Total	ND		mg/kg	3.00	0.211	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Beryllium, Total	ND		mg/kg	0.300	0.087	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Cadmium, Total	ND		mg/kg	0.200	0.026	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Calcium, Total	ND		mg/kg	500	60.8	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Chromium, Total	ND		mg/kg	2.00	0.468	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Cobalt, Total	ND		mg/kg	0.500	0.053	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Copper, Total	ND		mg/kg	2.00	0.194	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Iron, Total	ND		mg/kg	200	20.6	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Lead, Total	ND		mg/kg	0.600	0.146	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Magnesium, Total	ND		mg/kg	100	12.3	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Manganese, Total	ND		mg/kg	2.00	0.444	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Nickel, Total	ND		mg/kg	1.00	0.267	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Potassium, Total	ND		mg/kg	100	15.9	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Selenium, Total	ND		mg/kg	2.00	0.756	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Silver, Total	ND		mg/kg	0.500	0.049	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Sodium, Total	ND		mg/kg	150	11.7	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Thallium, Total	ND		mg/kg	0.400	0.052	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Vanadium, Total	ND		mg/kg	1.00	0.379	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB
Zinc, Total	ND		mg/kg	10.0	2.60	10	09/16/24 10:23	09/18/24 12:36	1,6020B	NTB

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1969287-2 SRM Lot Number: D123-540								
Mercury, Total	107		-		67-132	-		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1971466-2					
Aluminum, Total	104	-	80-120	-	20
Antimony, Total	98	-	80-120	-	20
Arsenic, Total	106	-	80-120	-	20
Barium, Total	100	-	80-120	-	20
Beryllium, Total	99	-	80-120	-	20
Cadmium, Total	98	-	80-120	-	20
Calcium, Total	86	-	80-120	-	20
Chromium, Total	107	-	80-120	-	20
Cobalt, Total	110	-	80-120	-	20
Copper, Total	109	-	80-120	-	20
Iron, Total	113	-	80-120	-	20
Lead, Total	98	-	80-120	-	20
Magnesium, Total	104	-	80-120	-	20
Manganese, Total	114	-	80-120	-	20
Nickel, Total	110	-	80-120	-	20
Potassium, Total	100	-	80-120	-	20
Selenium, Total	102	-	80-120	-	20
Silver, Total	90	-	80-120	-	20
Sodium, Total	108	-	80-120	-	20
Thallium, Total	99	-	80-120	-	20
Vanadium, Total	104	-	80-120	-	20

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1971466-2					
Zinc, Total	107	-	80-120	-	20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1969287-3 QC Sample: L2446956-01 Client ID: MS Sample												
Mercury, Total	0.016J	0.806	0.658	82		-	-		80-120	-		20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery		MSD Found	MSD %Recovery		Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1971466-3 WG1971466-4 QC Sample: L2446115-03 Client ID: MS Sample											
Aluminum, Total	2410	200	2940	**264**	Q	2810	**206**	Q	75-125	5	20
Antimony, Total	ND	50.1	48.0	96		45.1	93		75-125	6	20
Arsenic, Total	3.46	12	16.3	107		15.4	102		75-125	6	20
Barium, Total	7.94	200	210	101		197	97		75-125	6	20
Beryllium, Total	0.159J	5.01	4.84	97		4.54	93		75-125	6	20
Cadmium, Total	ND	5.31	5.18	98		4.87	94		75-125	6	20
Calcium, Total	366J	1000	1230	123		1080	111		75-125	13	20
Chromium, Total	6.85	20	28.6	108		26.1	99		75-125	9	20
Cobalt, Total	2.29	50.1	56.0	107		50.8	100		75-125	10	20
Copper, Total	1.64J	25	28.1	112		26.0	107		75-125	8	20
Iron, Total	7080	100	7600	**519**	Q	7540	**473**	Q	75-125	1	20
Lead, Total	2.52	53.1	54.7	98		50.8	94		75-125	7	20
Magnesium, Total	1230	1000	2270	104		2120	92		75-125	7	20
Manganese, Total	174	50.1	229	110		226	107		75-125	1	20
Nickel, Total	4.55	50.1	58.3	107		53.5	101		75-125	9	20
Potassium, Total	417	1000	1370	95		1270	88		75-125	8	20
Selenium, Total	0.932J	12	13.1	109		11.9	102		75-125	10	20
Silver, Total	ND	5.01	4.52	90		4.22	87		75-125	7	20
Sodium, Total	872	1000	1950	108		1830	98		75-125	6	20
Thallium, Total	0.123J	12	12.0	100		11.2	96		75-125	7	20
Vanadium, Total	6.93	50.1	56.9	100		51.2	91		75-125	11	20

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Found	MSD %Recovery	Recovery Limits	RPD	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1971466-3 WG1971466-4 QC Sample: L2446115-03 Client ID: MS Sample									
Zinc, Total	15.1	50.1	65.7	101	61.1	95	75-125	7	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1969287-4 QC Sample: L2446956-01 Client ID: DUP Sample						
Mercury, Total	0.016J	0.014J	mg/kg	NC		20

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2446143
Report Date: 10/18/24

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1971466-6 QC Sample: L2446115-03 Client ID: DUP Sample						
Iron, Total	7080	7410	mg/kg	5		20
Manganese, Total	174	182	mg/kg	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-01
Client ID: VC-06 (0-26.6')
Sample Location: DE WATERS
Sample Depth:
Matrix: Sediment

Date Collected: 08/14/24 14:15
Date Received: 08/14/24
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.70		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	1.61		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	1.65		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	370		mg/kg	13	4.7	1	09/03/24 06:40	09/03/24 15:06	121,4500NH3-BH	JRO
Phosphorus, Total	880		mg/kg	39	13.	4.5	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	57.3		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-02
Client ID: VC-106
Sample Location: DE WATERS

Date Collected: 08/14/24 14:30
Date Received: 08/14/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.70		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	1.64		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	1.67		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	370		mg/kg	13	4.8	1	09/03/24 06:40	09/03/24 15:06	121,4500NH3-BH	JRO
Phosphorus, Total	920		mg/kg	46	15.	5.3	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	57.8		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-03
Client ID: VC-02 (0-4.7')
Sample Location: DE WATERS

Date Collected: 08/15/24 12:30
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.44		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	1.40		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	1.42		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	31		mg/kg	12	4.6	1	09/03/24 06:40	09/03/24 15:07	121,4500NH3-BH	JRO
Phosphorus, Total	620		mg/kg	40	13.	4.6	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	57.2		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-04
Client ID: VC-02 (4.7'-17')
Sample Location: DE WATERS

Date Collected: 08/15/24 13:50
Date Received: 08/15/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.094		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	0.115		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	0.105		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	11		mg/kg	8.4	3.1	1	09/03/24 06:40	09/03/24 15:08	121,4500NH3-BH	JRO
Phosphorus, Total	220		mg/kg	25	8.5	4.4	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	86.5		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-05
Client ID: VC-04 (0-17')
Sample Location: DE WATERS

Date Collected: 08/16/24 11:10
Date Received: 08/16/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.89		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	1.92		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	1.90		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	350		mg/kg	15	5.5	1	09/03/24 06:40	09/03/24 15:09	121,4500NH3-BH	JRO
Phosphorus, Total	700		mg/kg	46	15.	4.6	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	50.0		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-06
Client ID: VC-01 (0-4.3')
Sample Location: DE WATERS

Date Collected: 08/17/24 08:20
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	8.65		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	10.3		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	9.49		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	86		mg/kg	21	7.9	1	09/03/24 06:40	09/03/24 15:10	121,4500NH3-BH	JRO
Phosphorus, Total	440		mg/kg	76	26.	5.3	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	34.6		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-07
Client ID: VC-01 (4.3'-17)
Sample Location: DE WATERS

Date Collected: 08/17/24 10:00
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	0.518		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	0.437		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	0.478		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	11		mg/kg	8.7	3.2	1	09/03/24 06:40	09/03/24 15:11	121,4500NH3-BH	JRO
Phosphorus, Total	420		mg/kg	28	9.3	4.4	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	79.3		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-08
Client ID: VC-05 (0-17')
Sample Location: DE WATERS

Date Collected: 08/17/24 11:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.74		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	1.71		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	1.72		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	400		mg/kg	14	5.2	1	09/03/24 06:40	09/03/24 15:15	121,4500NH3-BH	JRO
Phosphorus, Total	800		mg/kg	44	15.	4.6	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	52.0		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

SAMPLE RESULTS

Lab ID: L2446143-09
Client ID: VC-03 (0-17')
Sample Location: DE WATERS

Date Collected: 08/17/24 13:15
Date Received: 08/19/24
Field Prep: Not Specified

Sample Depth:
Matrix: Sediment

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Organic Carbon - Mansfield Lab										
Total Organic Carbon (Rep1)	1.49		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	1.46		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	1.48		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Westborough Lab										
Nitrogen, Ammonia	350		mg/kg	14	5.2	1	09/03/24 06:40	09/03/24 15:16	121,4500NH3-BH	JRO
Phosphorus, Total	840		mg/kg	49	16.	5	-	08/21/24 16:00	121,4500P-E	MEF
General Chemistry - Mansfield Lab										
Solids, Total	51.2		%	0.100	0.100	1	-	09/04/24 01:00	121,2540G	MEB
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000
Lab Number: L2446143
Report Date: 10/18/24

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01-09 Batch: WG1961707-1										
Phosphorus, Total	ND		mg/kg	4.5	1.5	.9	-	08/21/24 16:00	121,4500P-E	MEF
Total Organic Carbon - Mansfield Lab for sample(s): 01-09 Batch: WG1965564-1										
Total Organic Carbon (Rep1)	ND		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Rep2)	ND		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
Total Organic Carbon (Average)	ND		%	0.050	0.050	1	-	09/04/24 12:23	13,-	SPP
General Chemistry - Mansfield Lab for sample(s): 01-07 Batch: WG1965574-1										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/09/24 10:58	91,-	SPP
General Chemistry - Westborough Lab for sample(s): 01-09 Batch: WG1966715-1										
Nitrogen, Ammonia	ND		mg/kg	7.5	0.02	1	09/03/24 06:40	09/03/24 15:03	121,4500NH3-BH	JRO
General Chemistry - Mansfield Lab for sample(s): 08-09 Batch: WG1969854-1										
% Soot (Rep 1)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP
% Soot (Rep 2)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP
% Soot (Average)	ND		%	0.050	NA	1	-	09/15/24 14:15	91,-	SPP

Lab Control Sample Analysis

Batch Quality Control

Project Name: SILVER RUN EXPANSION

Project Number: 529393.0003.0000

Lab Number: L2446143

Report Date: 10/18/24

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 Batch: WG1961707-2								
Phosphorus, Total	107		-		52-148	-		20
Total Organic Carbon - Mansfield Lab Associated sample(s): 01-09 Batch: WG1965564-2								
Total Organic Carbon (Rep1)	100		-		75-125	-		25
Total Organic Carbon (Rep2)	103		-		75-125	-		25
Total Organic Carbon (Average)	101		-		75-125	-		25
General Chemistry - Mansfield Lab Associated sample(s): 01-07 Batch: WG1965574-2								
% Soot (Rep 1)	113		-		75-125	-		25
% Soot (Rep 2)	104		-		75-125	-		25
General Chemistry - Westborough Lab Associated sample(s): 01-09 Batch: WG1966715-2								
Nitrogen, Ammonia	99		-		83-115	-		20
General Chemistry - Mansfield Lab Associated sample(s): 08-09 Batch: WG1969854-2								
% Soot (Rep 1)	98		-		75-125	-		25
% Soot (Rep 2)	114		-		75-125	-		25

Matrix Spike Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1961707-4 QC Sample: L2446256-01 Client ID: MS Sample												
Phosphorus, Total	3900	242	4400	**210**	Q	-	-		75-125	-		20
General Chemistry - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1965574-4 QC Sample: L2446143-05 Client ID: VC-04 (0-17')												
% Soot (Rep 1)	ND	0.681	0.747	110		-	-		75-125	-		25
% Soot (Rep 2)	ND	0.599	0.679	113		-	-		75-125	-		25
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1966715-4 QC Sample: L2448560-01 Client ID: MS Sample												
Nitrogen, Ammonia	ND	440	460	105		-	-		55-144	-		20
General Chemistry - Mansfield Lab Associated sample(s): 08-09 QC Batch ID: WG1969854-4 QC Sample: L2446143-09 Client ID: VC-03 (0-17')												
% Soot (Rep 1)	ND	0.484	0.543	112		-	-		75-125	-		25
% Soot (Rep 2)	ND	0.756	0.835	110		-	-		75-125	-		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1961707-3 QC Sample: L2446256-01 Client ID: DUP Sample						
Phosphorus, Total	3900	4300	mg/kg	10		20
General Chemistry - Mansfield Lab Associated sample(s): 01-07 QC Batch ID: WG1965574-3 QC Sample: L2446143-05 Client ID: VC-04 (0-17')						
% Soot (Rep 1)	ND	ND	%	NC		25
% Soot (Rep 2)	ND	ND	%	NC		25
% Soot (Average)	ND	ND	%	NC		25
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1966715-3 QC Sample: L2448560-01 Client ID: DUP Sample						
Nitrogen, Ammonia	ND	14	mg/kg	NC		20
General Chemistry - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1967110-1 QC Sample: L2446143-04 Client ID: VC-02 (4.7'-17')						
Solids, Total	86.5	86.3	%	0		10
General Chemistry - Mansfield Lab Associated sample(s): 08-09 QC Batch ID: WG1969854-3 QC Sample: L2446143-09 Client ID: VC-03 (0-17')						
% Soot (Rep 1)	ND	ND	%	NC		25
% Soot (Rep 2)	ND	ND	%	NC		25
% Soot (Average)	ND	ND	%	NC		25

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
A1	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446143-01A	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-BA-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-SB-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-MN-6020T(180),A2-CO-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-PREP-3050:1T(180),A2-NA-6020T(180),A2-AG-6020T(180),A2-AL-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180)
L2446143-01B	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TS(7),A2-TOC-LK-2REPS(14),A2-SOOT-LK-2REPS(14)
L2446143-01C	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		SUB-PCB-1668()
L2446143-01D	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-01E	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-01F	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-01G	Glass 60ml unpreserved split	A	NA		2.3	Y	Absent		SUB-DIOXIN-1613B(365)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446143-02A	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-SB-6020T(180),A2-BA-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AL-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180),A2-AG-6020T(180)
L2446143-02B	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TS(7),A2-TOC-LK-2REPS(14),A2-SOOT-LK-2REPS(14)
L2446143-02C	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		SUB-PCB-1668()
L2446143-02D	Glass 250ml/8oz unpreserved	A	NA		2.3	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-02E	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-GRAIN SIZE(28)
L2446143-02F	Plastic 8oz unpreserved for Grain Size	A	NA		2.3	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-GRAIN SIZE(28)
L2446143-02G	Glass 60ml unpreserved split	A	NA		2.3	Y	Absent		SUB-DIOXIN-1613B(365)
L2446143-03A	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-03B	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-03C	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365),SUB-PCB-1668()
L2446143-03D	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-SB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-TL-6020T(180),A2-CR-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-PREP-3050:2T(180),A2-MG-6020T(180),A2-SE-6020T(180),A2-CU-6020T(180),A2-NA-6020T(180),A2-AG-6020T(180),A2-PREP-3050:1T(180),A2-AL-6020T(180),A2-CA-6020T(180)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446143-03E	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TS(7),A2-TOC-LK-2REPS(14),A2-SOOT-LK-2REPS(14)
L2446143-03F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-04A	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446143-04B	Plastic 8oz unpreserved for Grain Size	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)
L2446143-04C	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365),SUB-PCB-1668()
L2446143-04D	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-NI-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-TL-6020T(180),A2-CR-6020T(180),A2-MN-6020T(180),A2-CO-6020T(180),A2-AS-6020T(180),A2-V-6020T(180),A2-CD-6020T(180),A2-BE-6020T(180),A2-HGPREP-AF(28),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-NA-6020T(180),A2-CA-6020T(180),A2-PREP-3050:1T(180),A2-CU-6020T(180),A2-AG-6020T(180),A2-AL-6020T(180)
L2446143-04E	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TS(7),A2-TOC-LK-2REPS(14),A2-SOOT-LK-2REPS(14)
L2446143-04F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-05A	Plastic 8oz unpreserved	B	NA		3.2	Y	Absent		A2-TS(7)
L2446143-05B	Plastic 8oz unpreserved	B	NA		3.2	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-05C	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-DIOXIN-1613B(365),SUB-PCB-1668()
L2446143-05D	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-MOISTURE(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-GRAIN SIZE(28),SUB-GTX-ORGCONTENT(28)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446143-05E	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-PEST-8081(14),A2-SB-6020T(180),A2-HG-7474T(28),A2-ALKPAH(14),A2-K-6020T(180),A2-TOC-LK-2REPS(14),A2-CR-6020T(180),A2-TL-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-SOOT-LK-2REPS(14),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CA-6020T(180),A2-NA-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180),A2-AL-6020T(180)
L2446143-05F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-HG-7474T(28),A2-ALKPAH(14),A2-K-6020T(180),A2-TOC-LK-2REPS(14),A2-CR-6020T(180),A2-TL-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-BE-6020T(180),A2-V-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-SOOT-LK-2REPS(14),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-AG-6020T(180),A2-CA-6020T(180),A2-NA-6020T(180),A2-CU-6020T(180),A2-PREP-3050:1T(180),A2-AL-6020T(180)
L2446143-06A	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-PCB-1668(),SUB-DIOXIN-1613B(365)
L2446143-06B	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-06C	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446143-06D	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TS(7),A2-TOC-LK-2REPS(14),A2-SOOT-LK-2REPS(14)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
Project Number: 529393.0003.0000

Lab Number: L2446143
Report Date: 10/18/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446143-06E	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-K-6020T(180),A2-HG-7474T(28),A2-CR-6020T(180),A2-TL-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-HGPREP-AF(28),A2-CD-6020T(180),A2-V-6020T(180),A2-BE-6020T(180),A2-PREP-3050:2T(180),A2-MG-6020T(180),A2-SE-6020T(180),A2-AL-6020T(180),A2-PREP-3050:1T(180),A2-CA-6020T(180),A2-NA-6020T(180),A2-AG-6020T(180),A2-CU-6020T(180)
L2446143-06F	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-07A	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-PCB-1668(),SUB-DIOXIN-1613B(365)
L2446143-07B	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-07C	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446143-07D	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TOC-LK-2REPS(14),A2-TS(7),A2-SOOT-LK-2REPS(14)
L2446143-07E	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		A2-PB-6020T(180),A2-FE-6020T(180),A2-BA-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-SB-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-TL-6020T(180),A2-CR-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-MN-6020T(180),A2-V-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-HGPREP-AF(28),A2-MG-6020T(180),A2-PREP-3050:2T(180),A2-SE-6020T(180),A2-PREP-3050:1T(180),A2-AG-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-AL-6020T(180),A2-NA-6020T(180)
L2446143-07F	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-08A	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-DIOXIN-1613B(365),SUB-PCB-1668()
L2446143-08B	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-08C	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446143-08D	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TS(7),A2-TOC-LK-2REPS(14),A2-SOOT-LK-2REPS(14)

*Values in parentheses indicate holding time in days

Project Name: SILVER RUN EXPANSION
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Report Date: 10/18/24

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2446143-08E	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-NI-6020T(180),A2-ZN-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-CR-6020T(180),A2-TL-6020T(180),A2-CO-6020T(180),A2-AS-6020T(180),A2-MN-6020T(180),A2-HGPREP-AF(28),A2-V-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-MG-6020T(180),A2-SE-6020T(180),A2-PREP-3050:2T(180),A2-AG-6020T(180),A2-AL-6020T(180),A2-CA-6020T(180),A2-CU-6020T(180),A2-NA-6020T(180),A2-PREP-3050:1T(180)
L2446143-08F	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		TPHOS-4500(28),NH3-4500(28)
L2446143-09A	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-PCB-1668(),SUB-DIOXIN-1613B(365)
L2446143-09B	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		SUB-GTX-ATTERBURG(28),SUB-GTX-SP GRAVITY(28),SUB-GTX-ORGCONTENT(28)
L2446143-09C	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		SUB-GTX-MOISTURE(28),SUB-GTX-GRAIN SIZE(28)
L2446143-09D	Plastic 8oz unpreserved for Grain Size	A1	NA		4.5	Y	Absent		A2-PEST-8081(14),A2-ALKPAH(14),A2-TOC-LK-2REPS(14),A2-TS(7),A2-SOOT-LK-2REPS(14)
L2446143-09E	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		A2-FE-6020T(180),A2-PB-6020T(180),A2-BA-6020T(180),A2-SB-6020T(180),A2-ZN-6020T(180),A2-NI-6020T(180),A2-HG-7474T(28),A2-K-6020T(180),A2-TL-6020T(180),A2-CR-6020T(180),A2-MN-6020T(180),A2-AS-6020T(180),A2-CO-6020T(180),A2-BE-6020T(180),A2-CD-6020T(180),A2-V-6020T(180),A2-HGPREP-AF(28),A2-MG-6020T(180),A2-SE-6020T(180),A2-PREP-3050:2T(180),A2-CU-6020T(180),A2-AL-6020T(180),A2-AG-6020T(180),A2-CA-6020T(180),A2-PREP-3050:1T(180),A2-NA-6020T(180)
L2446143-09F	Glass 250ml/8oz unpreserved	A1	NA		4.5	Y	Absent		TPHOS-4500(28),NH3-4500(28)

*Values in parentheses indicate holding time in days

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GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

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Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Report Format: DU Report with 'J' Qualifiers

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Data Qualifiers

Identified Compounds (TICs). For calculated parameters, this represents that one or more values used in the calculation were estimated.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

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Project Number:	529393.0003.0000	**Report Date:**	10/18/24

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

13 Determination of Total Organic Carbon in Sediment. U.S. EPA, Region II. July 27, 1988.

91 Analysis of Soot following ES&T publications by Accardi-Dey and Gschwend, 2003; and Gustafsson (et. al.), 1997.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625.1: alpha-Terpineol
EPA 8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol, Azobenzene; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Nonpotable Water: EPA RSK-175 Dissolved Gases
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 524.2: THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables).
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW JERSEY CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 8/15/24

ALPHA Job #: L2446143

Client Information

Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information

Project Name: Silver Run Expansion
Project Location: DE Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☒ Other

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Billing Information

☑ Same as Client Info
PO #

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB Congeners	SVOCs, Pesticides	TAL Metals, Total Phosphurus	Dioxins/Furans, TOC & BC	Ammonia-Nitrogen, Total Solids	Grain Size (ASTM D6913,	Attenberg, TOM	Ash, Moisture, Spec Grav	Total Bottle
46143 01	VC-06 (0-26.6')	8/14/24	1415	SE	TRC	X	X	X	X	X	X	X	X	
02	VC-106	8/14/24	1430	SE	TRC	X	X	X	X	X	X	X		
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									
				SE	TRC									

Container Type: A A A A A P P/A A
Preservative: A A A A A A A A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
Addison Colus	8/14/24 1505	PACE	8/14 1505
	8/14 1800		8/14/24 1800
	8/14/24 2100	Anthony Green	AUG 14 2024 21:41
Anthony Green		Christian Baez	8/16/24 0330
Christian Baez 8/16/24 0330		Taylor Zoeller	8/15/24 03:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

NEW JERSEY CHAIN OF CUSTODY

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of

Date Rec'd in Lab: 8/16/24

ALPHA Job #: L2446143

Client Information

Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information

Project Name: Silver Run Expansion
Project Location: DE Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time

Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables

☐ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☐ Other

Billing Information

☑ Same as Client Info
PO #

Regulatory Requirement

☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Site Information

Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

Sample Specific Comments

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB Congeners	SVOCs, Pesticides,	TAL Metals, Total Phosphurus	Dioxins/Furans, TOC & BC	Ammonia-Nitrogen, Total Solids	Grain Size (ASTM D6913,	Attenberg, TOM	Ash, Moisture, Spec Gra	Total Bottle
46143-03	VC-02(0~4.7')	8/15/24	1230	SE	TRC	X	X	X	X	X	X	X	X	
04	VC-02(4.7'-17')	"	1350	SE	TRC	X	X	X	X	X	X	X	X	

Container Type: A A A A A A A A
Preservative: A A A A A A A

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
M. Phillips	8/15/24 1450	HLA LaGuardia	8/15/24 1450
ALEX LUKASHEVICH	8/15/24 1800		8/15/24 1800
	8/15/24 2100	Anthony Green	AUG 15 2024 2100
Anthony Green		Client Pick Up	8/16/24 0305

Client Pick Up 8/16/24 0305 HLA 8/16/24 0305

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

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ALPHA ANALYTICAL

NEW JERSEY CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
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FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

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Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab 08/17/24

ALPHA Job # L2446143

Client Information
Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information
Project Name: Silver Run Expansion
Project Location: DE Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☑ Other

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Billing Information
☑ Same as Client Info
PO #

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB Congeners	SVOCs, Pesticides	TAL Metals, Total Phosphurus	Dioxins/Furans, TOC & BC	Ammonia-Nitrogen, Total Solids	Grain Size (ASTM D6913,	Attenberg, TOM	Ash, Moisture, Spec Gra	Sample Specific Comments	Total Bottle
46143-05	VC-04(0-17')	8/16/24	1110	SE	TRC	X	X	X	X	X	X	X	X		
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										

Container Type	A	A	A	A	P/A	P	P/A	P
Preservative	A	A	A	A	A/E	A	A	A

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
M. Phillips	8/16/24 1500	Samantha Coughlin	8/16/24 15:00
Samantha Coughlin	8/16/24 18:20	[illegible]	8/16/24 1820
[illegible]	8/16/24 2100	Anthony Green	AUG 16 2024 0035
Anthony Green		Christine Pace	8/17/24 0110
Christine Pace 8/17/24 0320		Tyler Doherty	8-17-24 03:20

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

L2446143 17SEP24
ESS – MA

NEW JERSEY CHAIN OF CUSTODY

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
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Page 1 of 1

Date Rec'd in Lab 8/19/24

Client Information
Client: TRC Companies Inc.
Address: 404 Wyman Street, Suite 375
Waltham, MA
Phone: 781-419-7719
Fax:
Email: Michael.Phillips@TRCcompanies

Project Information
Project Name: Silver Run Expansion
Project Location: DE Waters
Project #: 529393.0003.0000
(Use Project name as Project #) ☐
Project Manager: Payson Whitney
ALPHAQuote #: Q26663_R1

Turn-Around Time
Standard ☑ Due Date:
Rush (only if pre approved) ☐ # of Days:

Deliverables
☐ NJ Full / Reduced
☐ EQuIS (1 File) ☐ EQuIS (4 File)
☒ Other

Billing Information
☑ Same as Client Info
PO #

Regulatory Requirement
☐ SRS Residential/Non Residential
☐ SRS Impact to Groundwater
☐ NJ Ground Water Quality Standards
☐ NJ IGW SPLP Leachate Criteria
☑ Other

Site Information
Is this site impacted by Petroleum? Yes ☐
Petroleum Product:

These samples have been previously analyzed by Alpha ☐

For EPH, selection is REQUIRED:
☐ Category 1
☐ Category 2

For VOC, selection is REQUIRED:
☑ 1,4-Dioxane
☐ 8011

Other project specific requirements/comments:
Please specify Metals or TAL.
PCBs analysis - arochlors; TOC - 2 runs

Sample Filtration
☐ Done
☐ Lab to do
Preservation
☐ Lab to do
(Please Specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB Congeners	SVOCs, Pesticides,	TAL Metals, Total Phosphurus	Dioxins/Furans, TOC & BC	Ammonia-Nitrogen, Total Solids	Grain Size (ASTM D6913,	Attenberg, TOM	Ash, Moisture, Spec Grav	Sample Specific Comments	Total Bottle
46143 -06	VC-01 (0-4.3')	8/17/24	0820	SE	TRC	X	X	X	X	X	X	X	X		
-07	VC-01 (4.3'-17')		1000	SE	TRC	X	X	X	X	X	X	X	X		
-08	VC-05 (0-17')		1115	SE	TRC	X	X	X	X	X	X	X	X		
-09	VC-03 (0-17')	↓	1315	SE	TRC	X	X	X	X	X	X	X	X		
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										
				SE	TRC										

Container Type	A	A	A	A	A	P	S/A	P	
Preservative	A	A	A	A	A	A	A	A	

Preservative Code: A = None; B = HCl; C = HNO_3; D = H_2SO_4; E = NaOH; F = MeOH; G = $NaHSO_4$; H = $Na_2S_2O_3$; K/E = Zn Ac/NaOH; O = Other

Container Code: P = Plastic; A = Amber Glass; V = Vial; G = Glass; B = Bacteria Cup; C = Cube; O = Other; E = Encore; D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
M. Phillips	8/19 10:26	TRC	8/19 10:26
TRC	8/19 1500		8-19 15:45
	8-19-24 19:30		8/19 1930

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.

Form No: 01-14 (rev. 30-Sept-2013)

Subcontract Chain of Custody

ALPHA ANALYTICAL
World Class Chemistry

GeoTesting Express
125 Nagog Park
Acton, MA 01720

Alpha Job Number
L2446143

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.844.4124
Email: Liz.Porta@pacelabs.com

Project Information

Project Location: DE
Project Manager: Elizabeth Porta

Turnaround & Deliverables Information

Due Date: 09/13/24
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-06 (0-26.6')	08-14-24 14:15	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-106	08-14-24 14:30	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size	
	~~VC-02 (0-4.7')~~	~~08-15-24 12:30~~	~~Sediment~~	~~Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity~~	
	~~VC-02 (4.7'-17')~~	~~08-15-24 13:50~~	Sediment	~~Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity~~	

Relinquished By:	Date/Time:	Received By:	Date/Time:
	8/16/24 7:20		
J Allen DAVIS	8-16-24 8:52	J Allen DAVIS	8/16/24 7:24
		David Norton	8/16/24 8:52

Form No: AL_subcoc

Subcontract Chain of Custody

ALPHA ANALYTICAL — World Class Chemistry

GeoTesting Express
125 Nagog Park
Acton, MA 01720

1 of 2

Alpha Job Number
L2446143

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: DE Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	~~VC-06 (0-26.6')~~	~~08-14-24 14:15~~	Sediment	~~Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity~~	
	~~VC-10S~~	~~08-14-24 14:30~~	~~Sediment~~	~~Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size~~	
	VC-02 (0-4.7')	08-15-24 12:30	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	
	VC-02 (4.7'-17')	08-15-24 13:50	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	[signature]	8/19/24 13:19	[signature]	8/19/24 13:19
	[signature]	8/19/24 14:15	[signature]	8/19/24 14:15
Form No: AL_subcoc				

Subcontract Chain of Custody

ALPHA ANALYTICAL — World Class Chemistry

GeoTesting Express
125 Nagog Park
Acton, MA 01720

2 of 2

Alpha Job Number
L2446143

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: DE Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/16/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-04 (0-17')	08-16-24 11:10	Sediment	Subcontract to GeoTesting Express Labs for Atterburg;Subcontract to GeoTesting Express Labs for Grain Size;Subcontract to GeoTesting Express Labs for Moisture; Subcontract to GeoTesting Express Labs for Organic Content;Subcontract to GeoTesting Express Labs for Specific Gravity	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	MEM	8/19/24 13:19	MEM	8/19/24 1319
		8/19/24 1411	RDB	8/19/24 1419
Form No: AL_subcoc				

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-06	Test Date:	08/21/24	Checked By:	ank
Depth :	0-26.6	Test Id:	781907		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	VC- 06	0-26.6	Moist, very dark gray clay	81.7

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-06	Test Date:	08/21/24	Checked By:	ank
Depth :	0-26.6	Test Id:	781909		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content,%	Ash Content,%	Organic Matter,%
---	VC-06	0-26.6	Moist, very dark gray clay	82	95.9	4.1

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass;
dried to a constant mass at temperature of 105º C
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440º C

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-06	Test Date:	08/21/24	Checked By:	ank
Depth :	0-26.6	Test Id:	781911		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Specific Gravity of Soils by ASTM D854

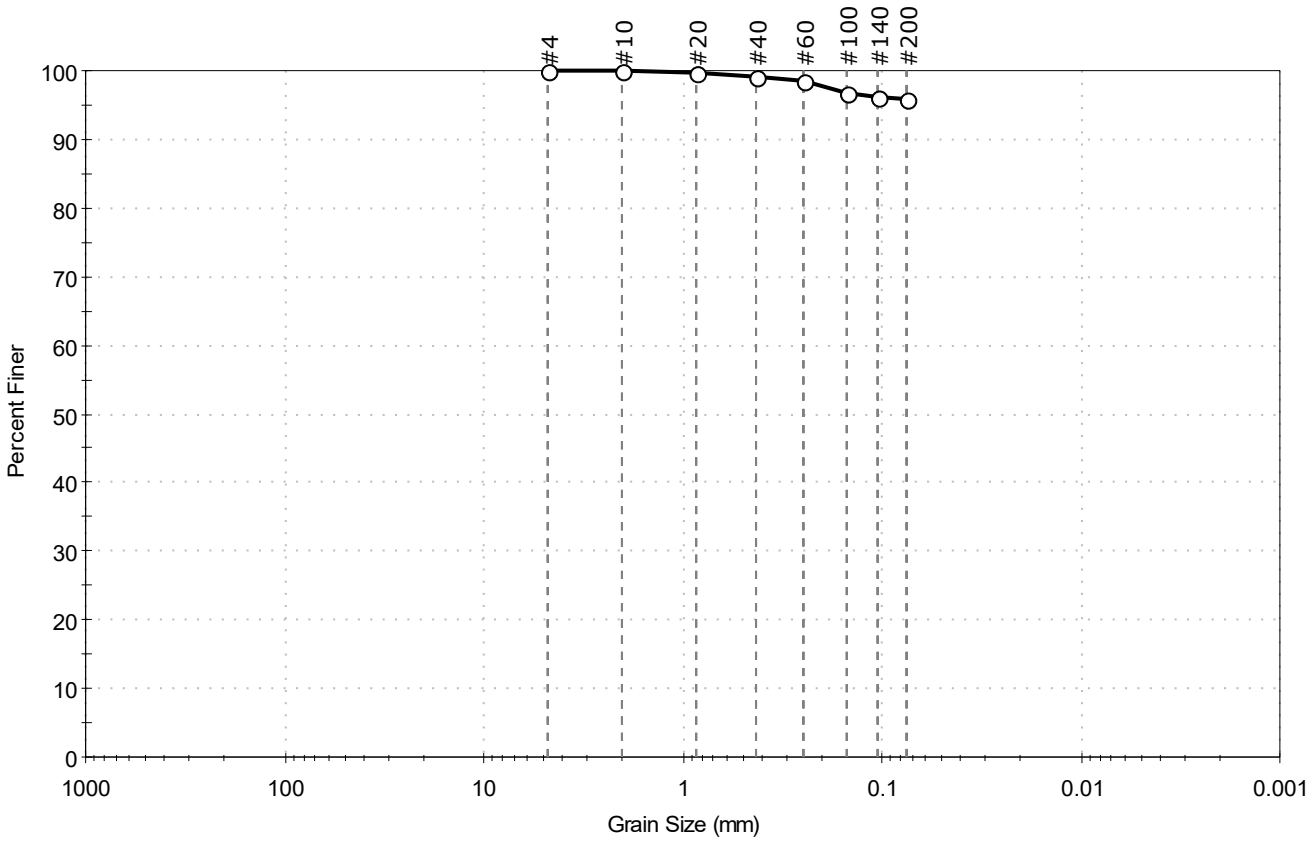
Boring ID	Sample ID	Depth	Visual Description	Specific Gravity
---	VC- 06	0-26.6	Moist, very dark gray clay	2.68

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-06	Test Date:	08/23/24	Checked By:	ank
Depth :	0-26.6	Test Id:	782391		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	4.2	95.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	98		
#100	0.15	97		
#140	0.11	96		
#200	0.075	96		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-5 (60))

Sample/Test Description

Sand/Gravel Particle Shape : ---

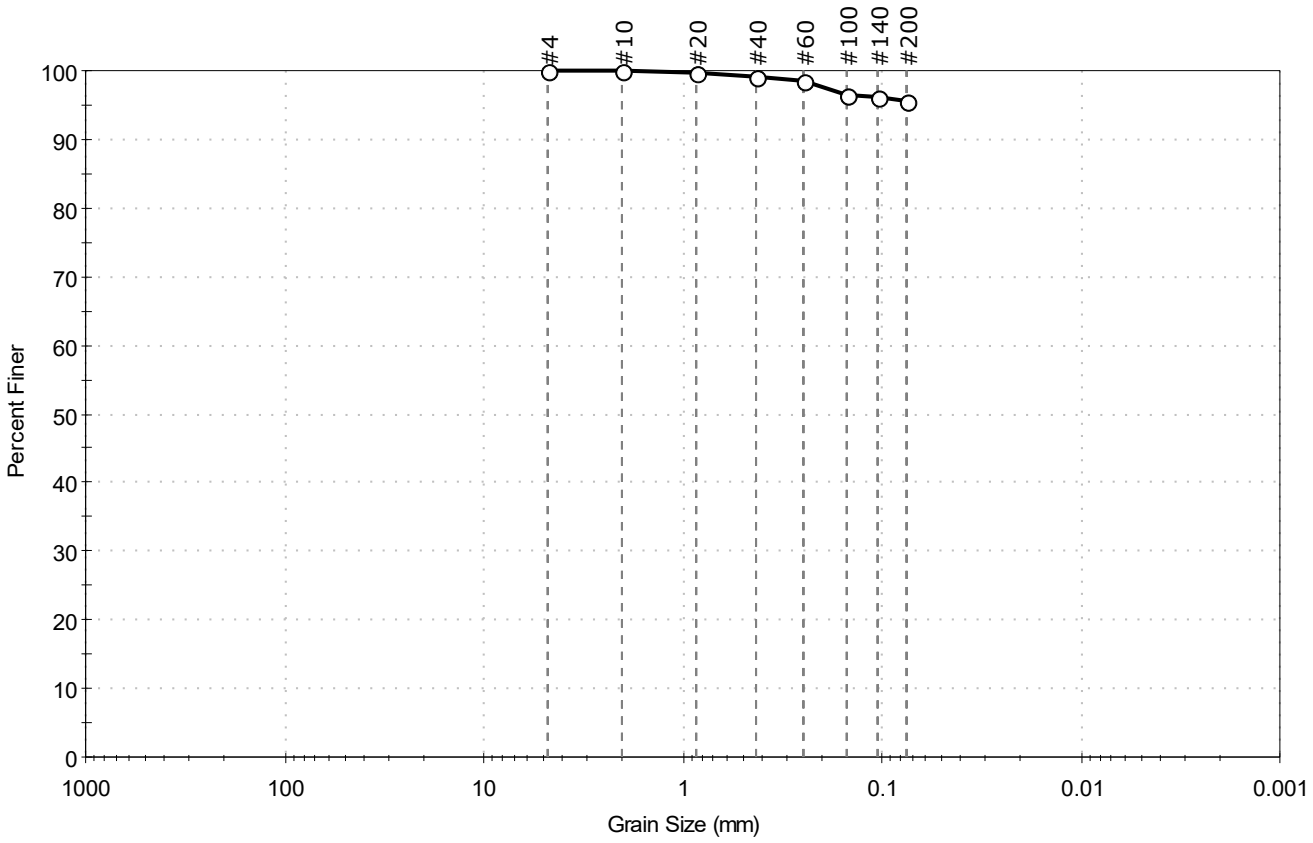
Sand/Gravel Hardness : ---

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GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-106	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	781906		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	4.5	95.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	98		
#100	0.15	97		
#140	0.11	96		
#200	0.075	95		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-6 (60))

Sample/Test Description

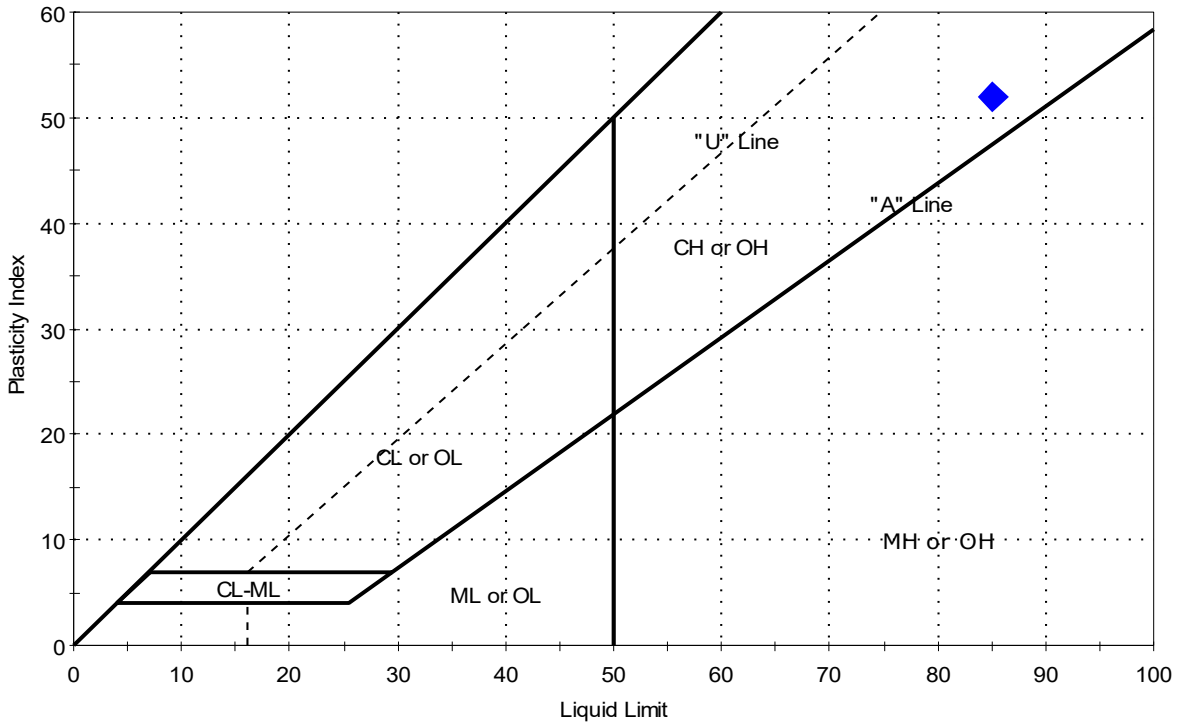
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-06	Test Date:	08/22/24	Checked By:	ank
Depth :	0-26.6	Test Id:	781903		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



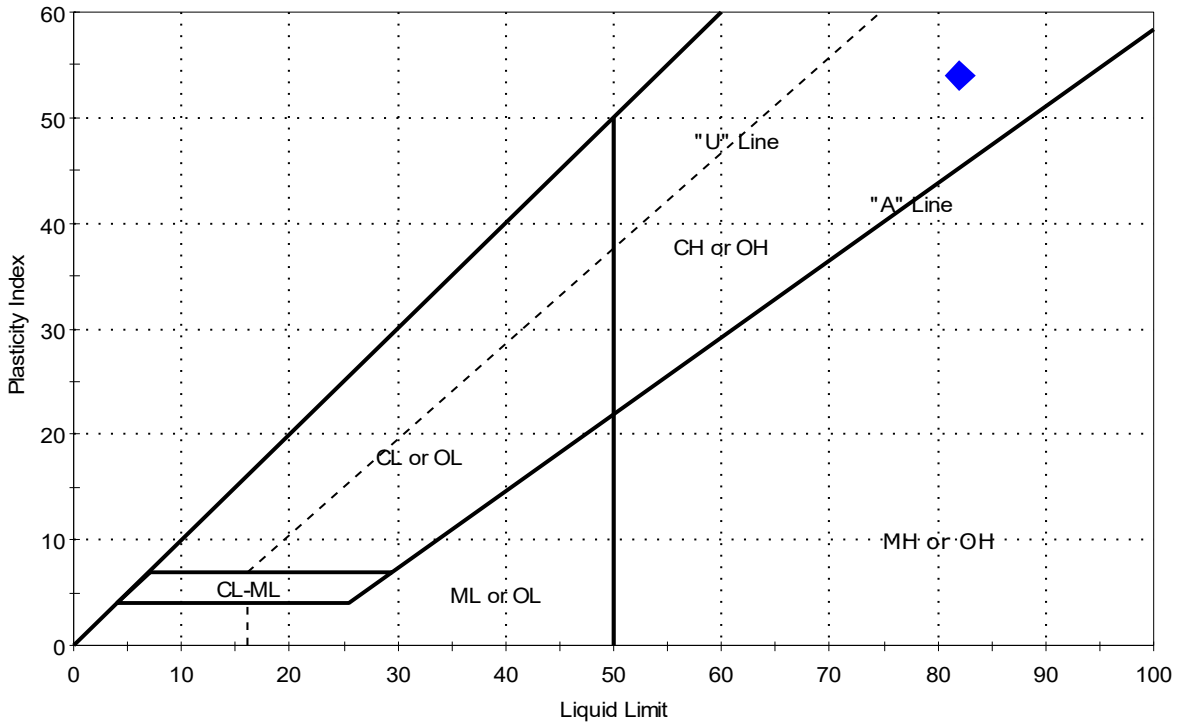
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-06	---	0-26.6	82	85	33	52	0.9	Fat CLAY (CH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-106	Test Date:	08/22/24	Checked By:	ank
Depth :	---	Test Id:	781904		
Test Comment:	---				
Visual Description:	Moist, very dark gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-106	---	---	78	82	28	54	0.9	Fat CLAY (CH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/21/24	Checked By:	ank
Depth :	---	Test Id:	782236		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	VC- 02	0-4.7'	Moist, gray clay	90.6
---	VC- 02	4.7-17'	Moist, brown silty sand with gravel	17.6
---	VC- 04	0-17'	Moist, dark grayish brown silt	102.7

Notes: Temperature of Drying : 110º Celsius

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	---	Tested By:	cam
Sample ID:	---	Test Date:	08/22/24	Checked By:	ank
Depth :	---	Test Id:	782237		

Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content,%	Ash Content,%	Organic Matter,%
---	VC-02	0-4.7'	Moist, gray clay	91	97.6	2.4
---	VC-02	4.7-17'	Moist, brown silty sand with gravel	18	99.6	.4
---	VC-04	0-17'	Moist, dark grayish brown silt	103	95.4	4.6

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass; dried to a constant mass at temperature of 105º C
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440º C

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/23/24	Checked By:	ank
Depth :	---	Test Id:	782238		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	VC- 02	0-4.7'	Moist, gray clay	2.64	
---	VC- 02	4.7-17'	Moist, brown silty sand with gravel	2.68	
---	VC- 04	0-17'	Moist, dark grayish brown silt	2.67	

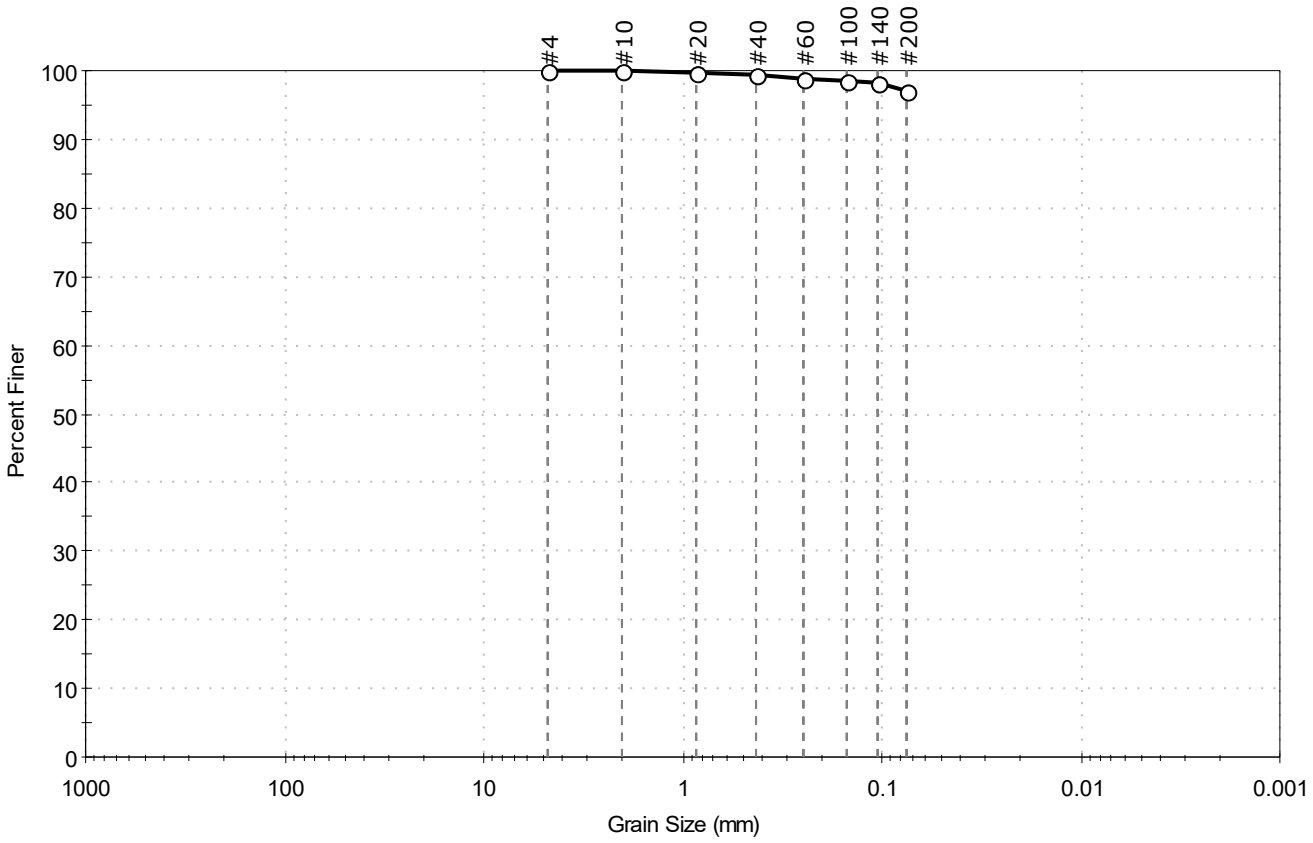
Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-02	Test Date:	08/23/24	Checked By:	ank
Depth :	0-4.7'	Test Id:	782226		

Test Comment: ---
Visual Description: Moist, gray clay
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	2.9	97.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	99		
#100	0.15	98		
#140	0.11	98		
#200	0.075	97		

Coefficients

D_{85} = N/A D_{30} = N/A
D_{60} = N/A D_{15} = N/A
D_{50} = N/A D_{10} = N/A
C_u = N/A C_c = N/A

Classification

ASTM Fat CLAY (CH)

AASHTO Clayey Soils (A-7-6 (87))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

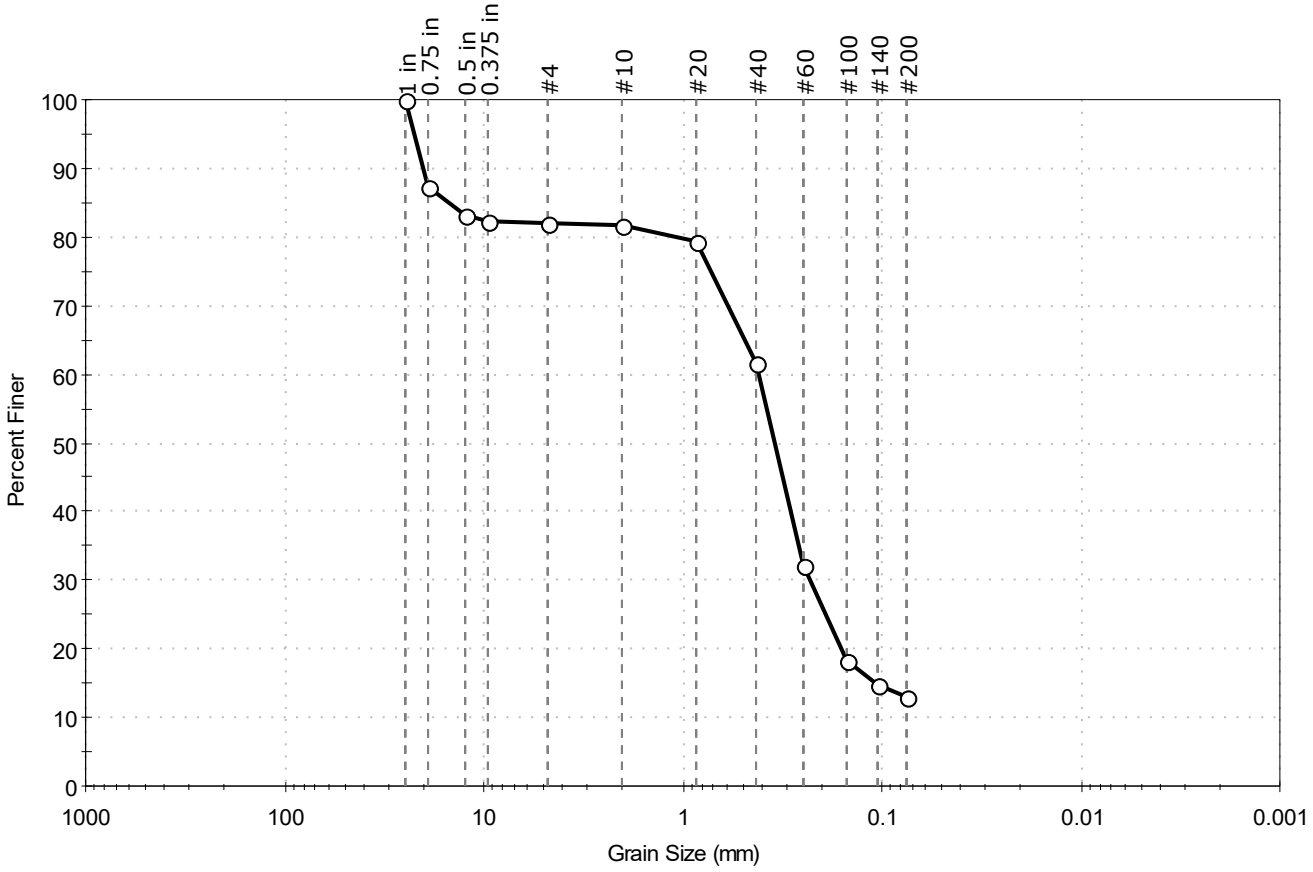
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GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-02	Test Date:	08/23/24	Checked By:	ank
Depth :	4.7-17'	Test Id:	782227		

Test Comment: ---
Visual Description: Moist, brown silty sand with gravel
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	18.0	68.9	13.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	87		
0.5 in	12.50	83		
0.375 in	9.50	82		
#4	4.75	82		
#10	2.00	82		
#20	0.85	79		
#40	0.42	62		
#60	0.25	32		
#100	0.15	18		
#140	0.11	15		
#200	0.075	13		

Coefficients

D_{85} = 14.9919 mm
D_{30} = 0.2314 mm
D_{60} = 0.4117 mm
D_{15} = 0.1090 mm
D_{50} = 0.3443 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM Silty SAND with Gravel (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR
Sand/Gravel Hardness : HARD

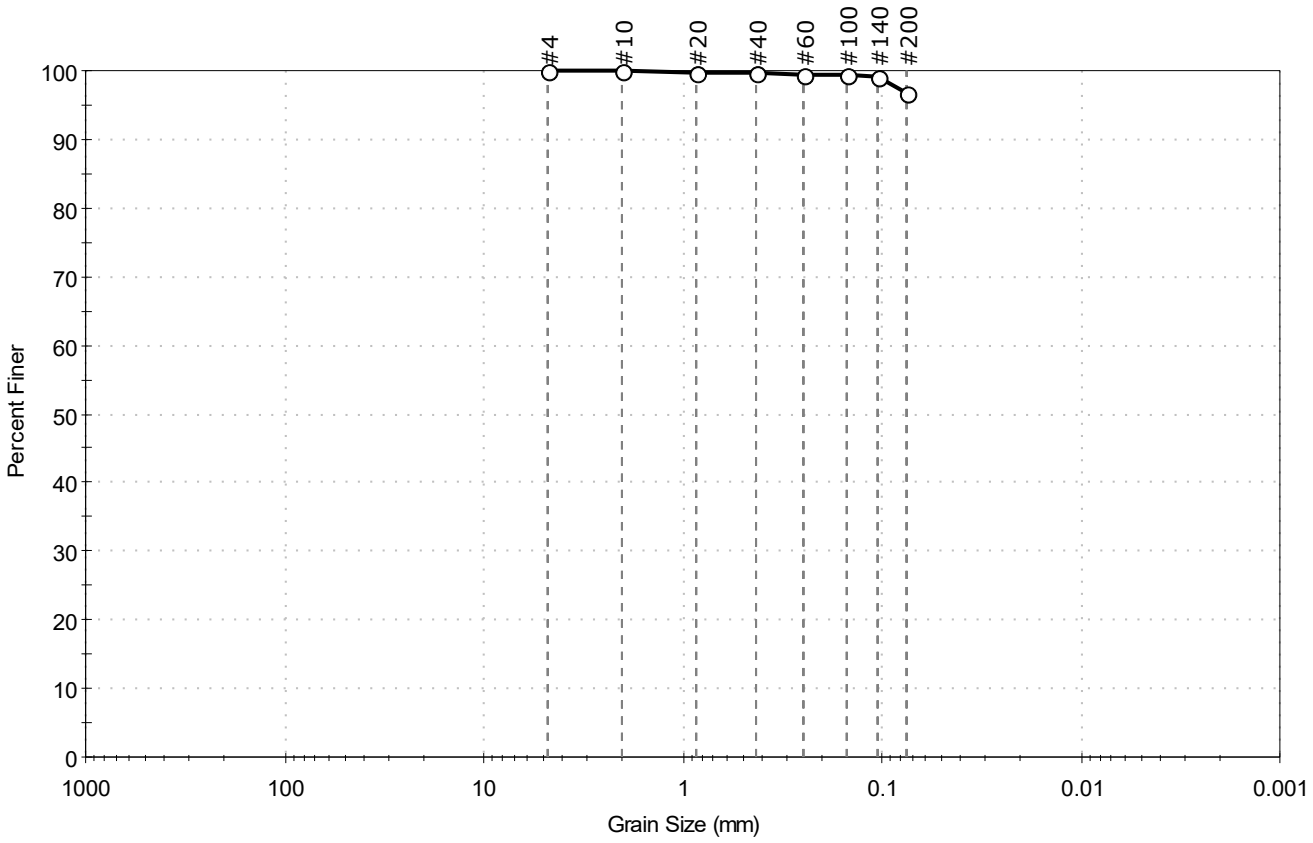
printed 8/26/2024 12:38:55 PM

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-04	Test Date:	08/23/24	Checked By:	ank
Depth :	0-17'	Test Id:	782235		

Test Comment: ---
Visual Description: Moist, dark grayish brown silt
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	3.3	96.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	99		
#100	0.15	99		
#140	0.11	99		
#200	0.075	97		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (54))

Sample/Test Description

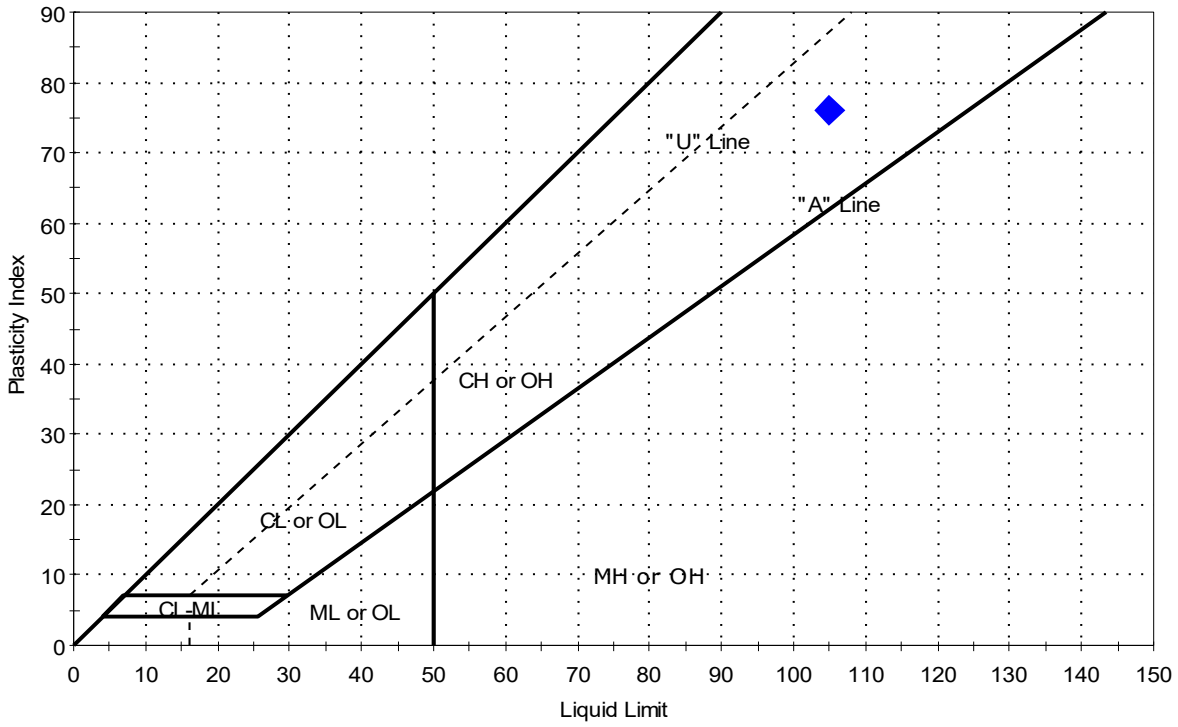
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-02	Test Date:	08/26/24	Checked By:	ank
Depth :	0-4.7'	Test Id:	782224		
Test Comment:	---				
Visual Description:	Moist, gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-02	---	0-4.7'	91	105	29	76	0.8	Fat CLAY (CH)

Sample Prepared using the WET method
1% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-02	Test Date:	08/21/24	Checked By:	ank
Depth :	4.7-17'	Test Id:	782225		
Test Comment:	---				
Visual Description:	Moist, brown silty sand with gravel				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

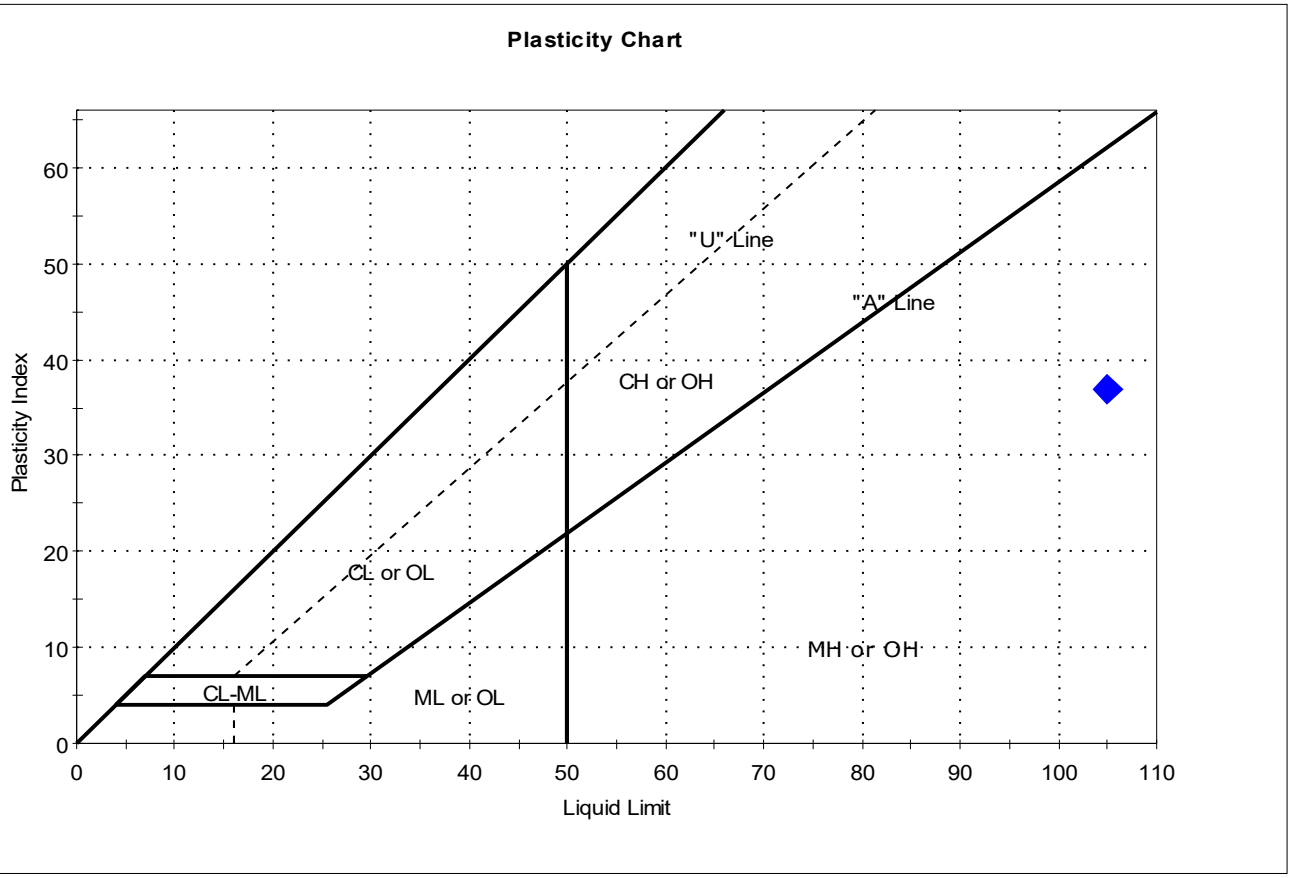
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-02	---	4.7-17'	18	n/a	n/a	n/a	n/a	Silty SAND with Gravel (SM)

38% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-04	Test Date:	08/26/24	Checked By:	ank
Depth :	0-17'	Test Id:	782234		
Test Comment:	---				
Visual Description:	Moist, dark grayish brown silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-04	---	0-17'	103	105	68	37	0.9	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/28/24	Checked By:	ank
Depth :	---	Test Id:	782682		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content,%
---	VC- 01	0-4.3'	Moist, very dark brown silt with sand and organics	174.6
---	VC- 01	4.3-17'	Moist, brown silty sand	28.7
---	VC- 03	0-17'	Moist, dark gray silt	86.0
---	VC- 05	0-17'	Moist, brownish gray silt	91.1

Notes: Temperature of Drying : 110º Celsius

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	---	Tested By:	cam
Sample ID:	---	Test Date:	08/28/24	Checked By:	ank
Depth :	---	Test Id:	782950		

Moisture, Ash, and Organic Matter - ASTM D2974

Boring ID	Sample ID	Depth	Description	Moisture Content,%	Ash Content,%	Organic Matter,%
---	VC-01	0-4.3'	Moist, very dark brown silt with sand and organics	177	81.5	18.5
---	VC-01	4.3-17'	Moist, brown silty sand	28	99.0	1.0
---	VC-03	0-17'	Moist, dark gray silt	86	96.7	3.3
---	VC-05	0-17'	Moist, brownish gray silt	90	96.3	3.7

Notes: Moisture content determined by Method A and reported as a percentage of oven-dried mass;
dried to a constant mass at temperature of 105º C
Ash content and organic matter determined by Method C; dried to constant mass at temperature 440º C

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	---	Tested By:	ajl
Sample ID:	---	Test Date:	08/30/24	Checked By:	ank
Depth :	---	Test Id:	782686		

Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
---	VC- 01	0-4.3'	Moist, very dark brown silt with sand and organics	2.28	
---	VC- 01	4.3-17'	Moist, brown silty sand	2.70	
---	VC- 03	0-17'	Moist, dark gray silt	2.67	
---	VC- 05	0-17'	Moist, brownish gray silt	2.68	

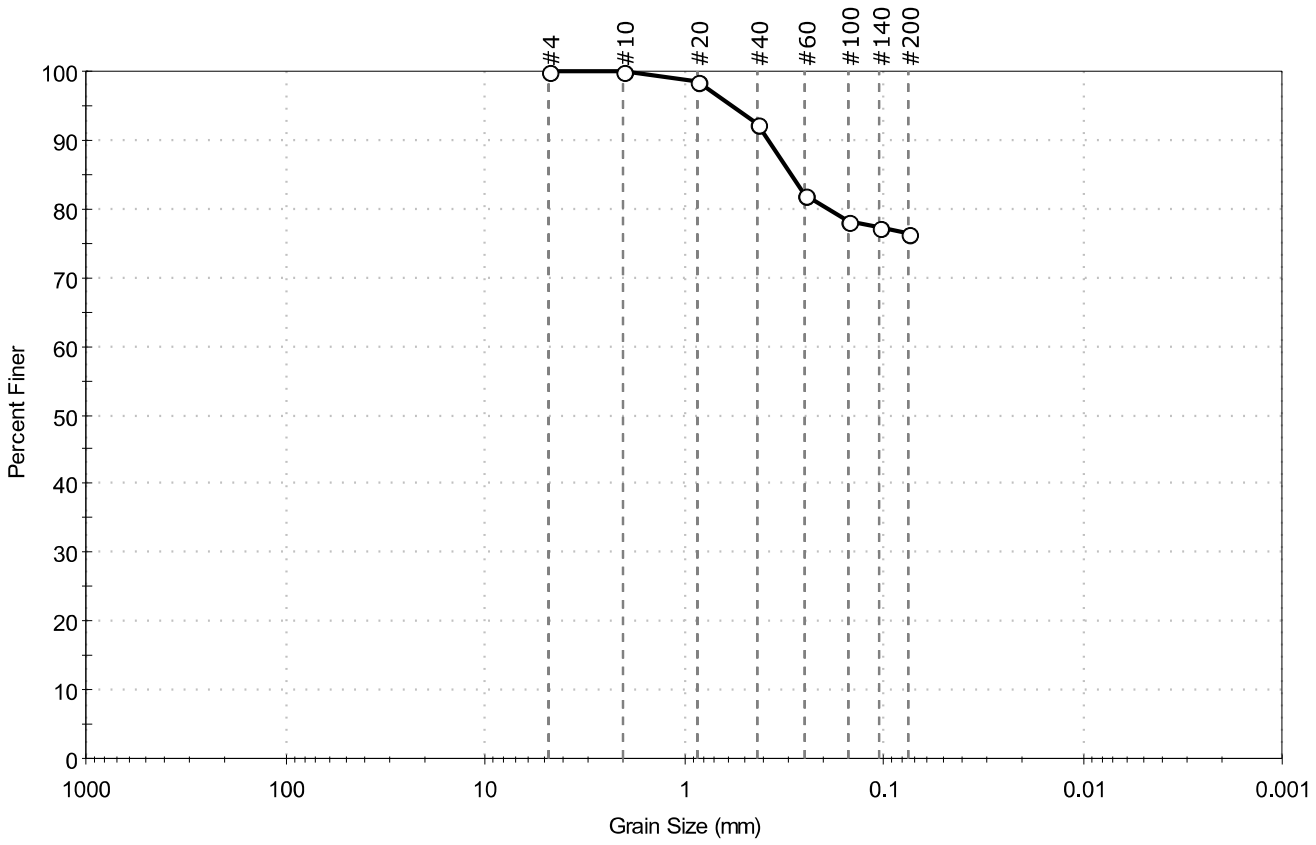
Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-01	Test Date:	08/28/24	Checked By:	ank
Depth :	0-4.3'	Test Id:	782676		

Test Comment: ---
Visual Description: Moist, very dark brown silt with sand and organics
Sample Comment: ---

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.0	23.6	76.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	92		
#60	0.25	82		
#100	0.15	78		
#140	0.11	77		
#200	0.075	76		

Coefficients

D_{85} = 0.2921 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Elastic SILT with Sand (MH)

AASHTO Clayey Soils (A-7-5 (60))

Sample/Test Description

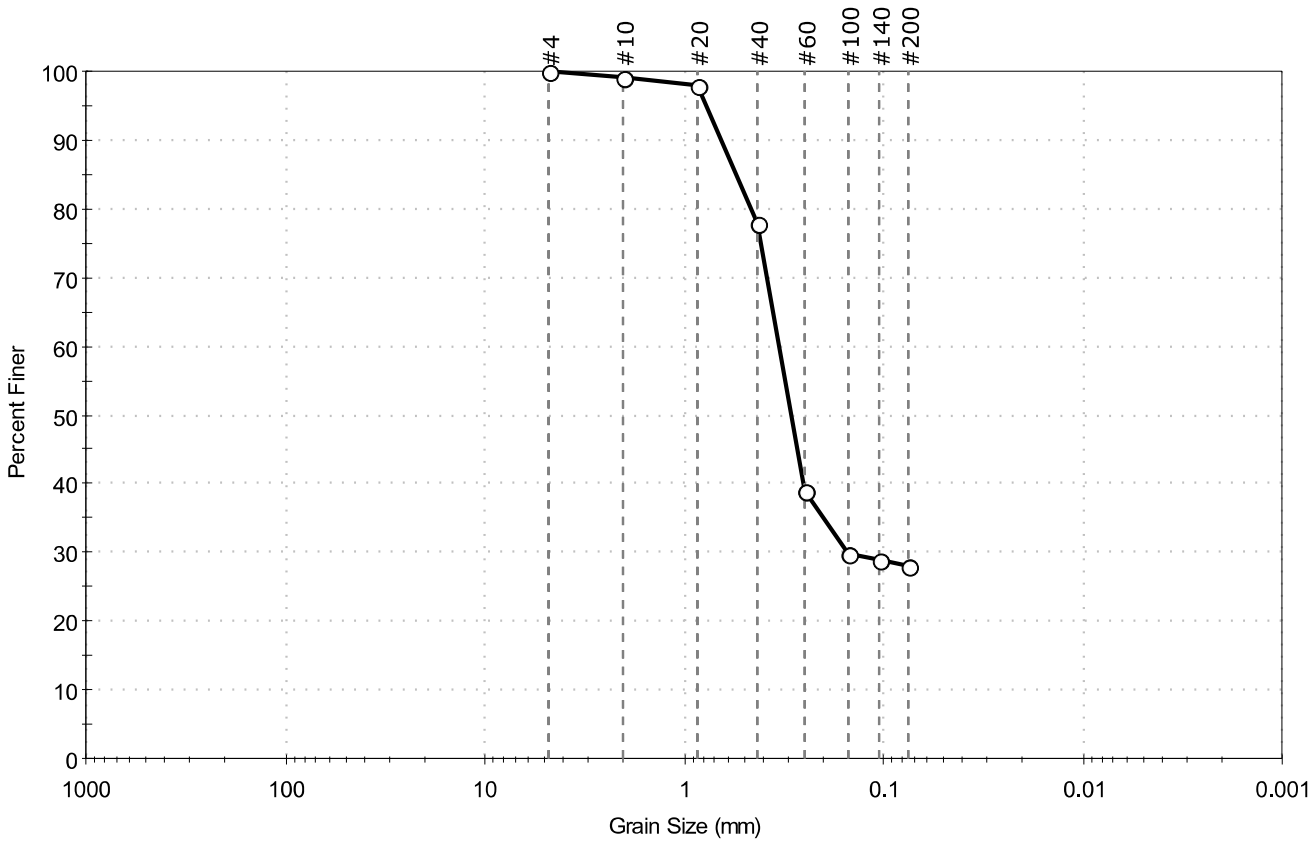
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-01	Test Date:	08/28/24	Checked By:	ank
Depth :	4.3-17'	Test Id:	782677		
Test Comment:	---				
Visual Description:	Moist, brown silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.0	71.9	28.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	99		
#20	0.85	98		
#40	0.42	78		
#60	0.25	39		
#100	0.15	30		
#140	0.11	29		
#200	0.075	28		

Coefficients

D_{85} = 0.5434 mm	D_{30} = 0.1511 mm
D_{60} = 0.3329 mm	D_{15} = N/A
D_{50} = 0.2905 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Silty SAND (SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample/Test Description

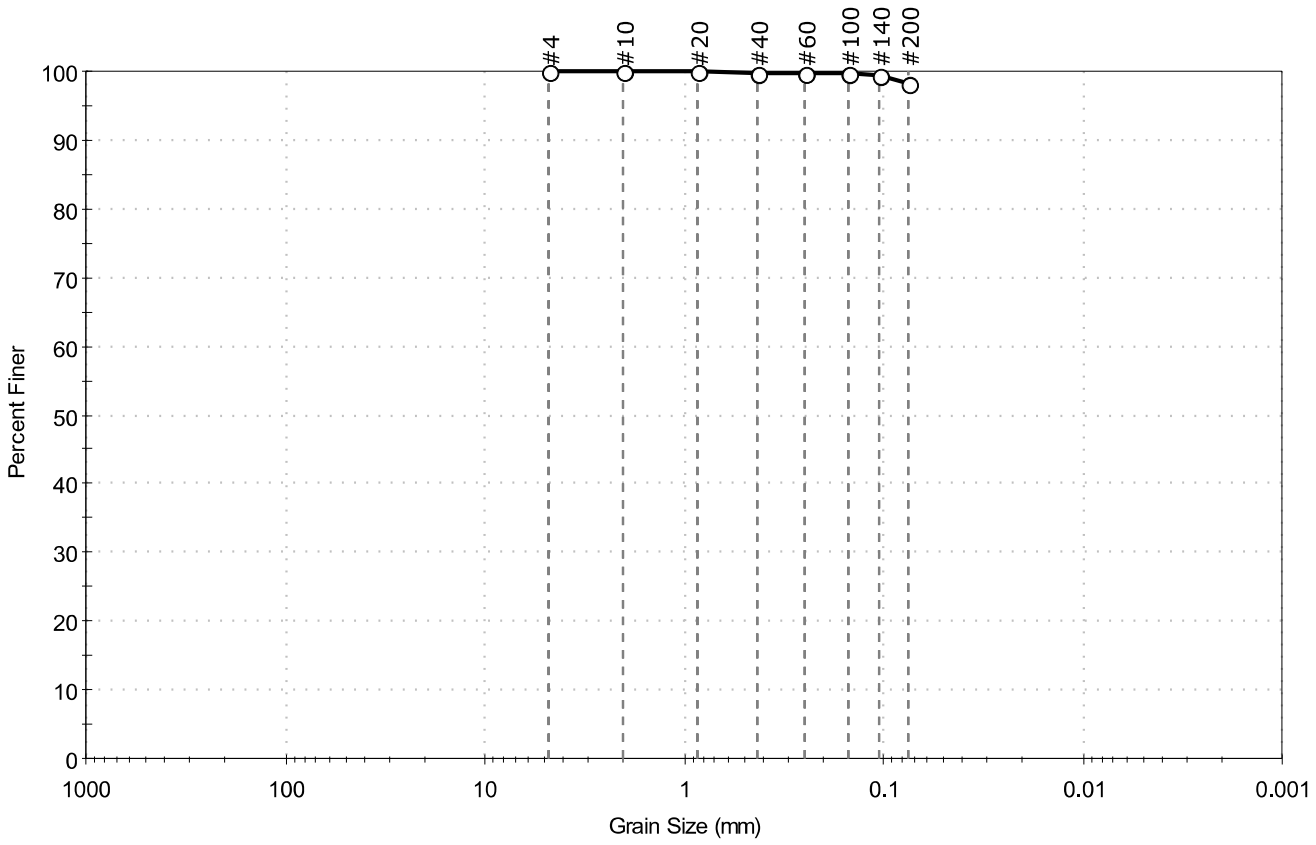
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-03	Test Date:	08/28/24	Checked By:	ank
Depth :	0-17'	Test Id:	782679		
Test Comment:	---				
Visual Description:	Moist, dark gray silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.0	1.9	98.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#140	0.11	99		
#200	0.075	98		

Coefficients

D_{85} =N/A	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (47))

Sample/Test Description

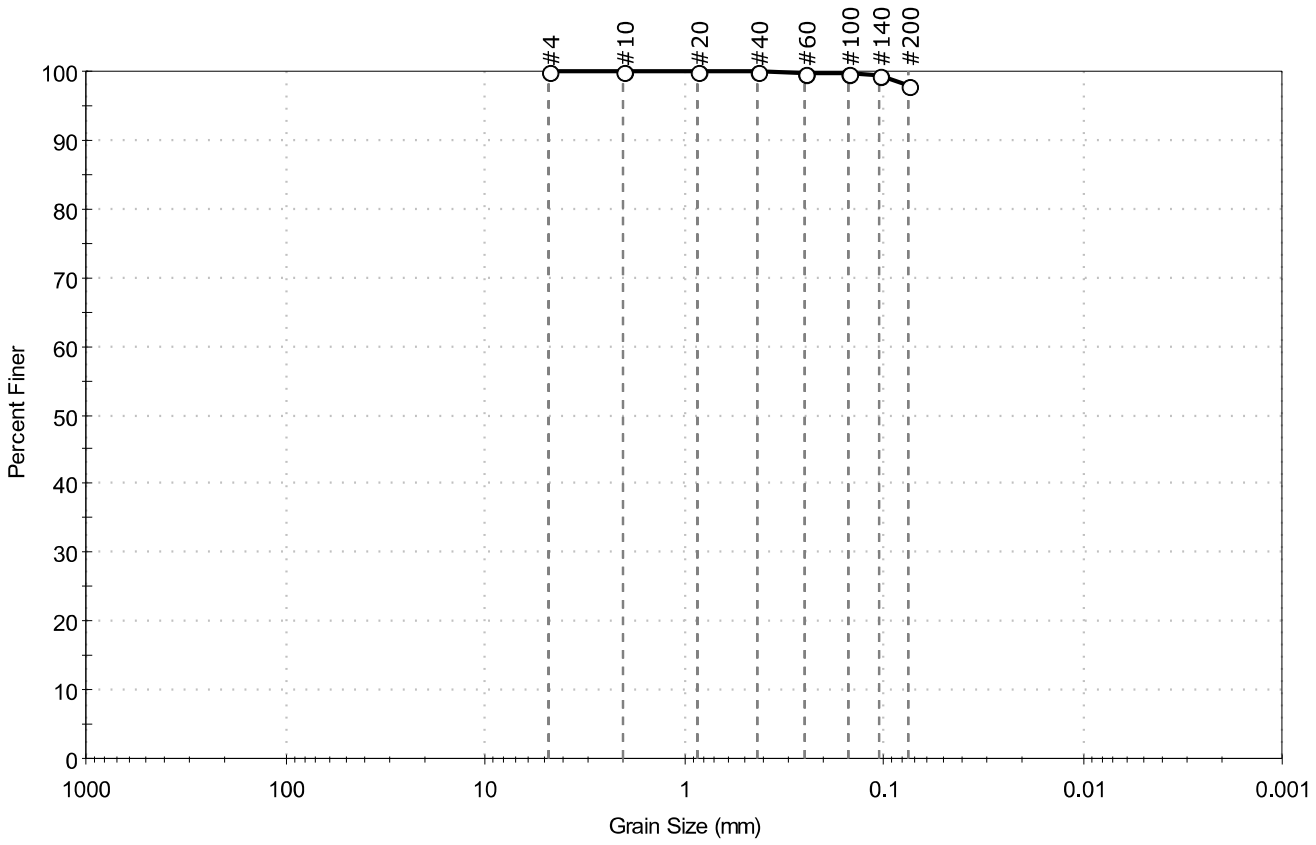
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	ajl
Sample ID:	VC-05	Test Date:	08/28/24	Checked By:	ank
Depth :	0-17'	Test Id:	782678		
Test Comment:	---				
Visual Description:	Moist, brownish gray silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	0.0	2.0	98.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	100		
#60	0.25	100		
#100	0.15	100		
#140	0.11	100		
#200	0.075	98		

Coefficients

D_{85} =N/A	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM Elastic SILT (MH)

AASHTO Clayey Soils (A-7-5 (44))

Sample/Test Description

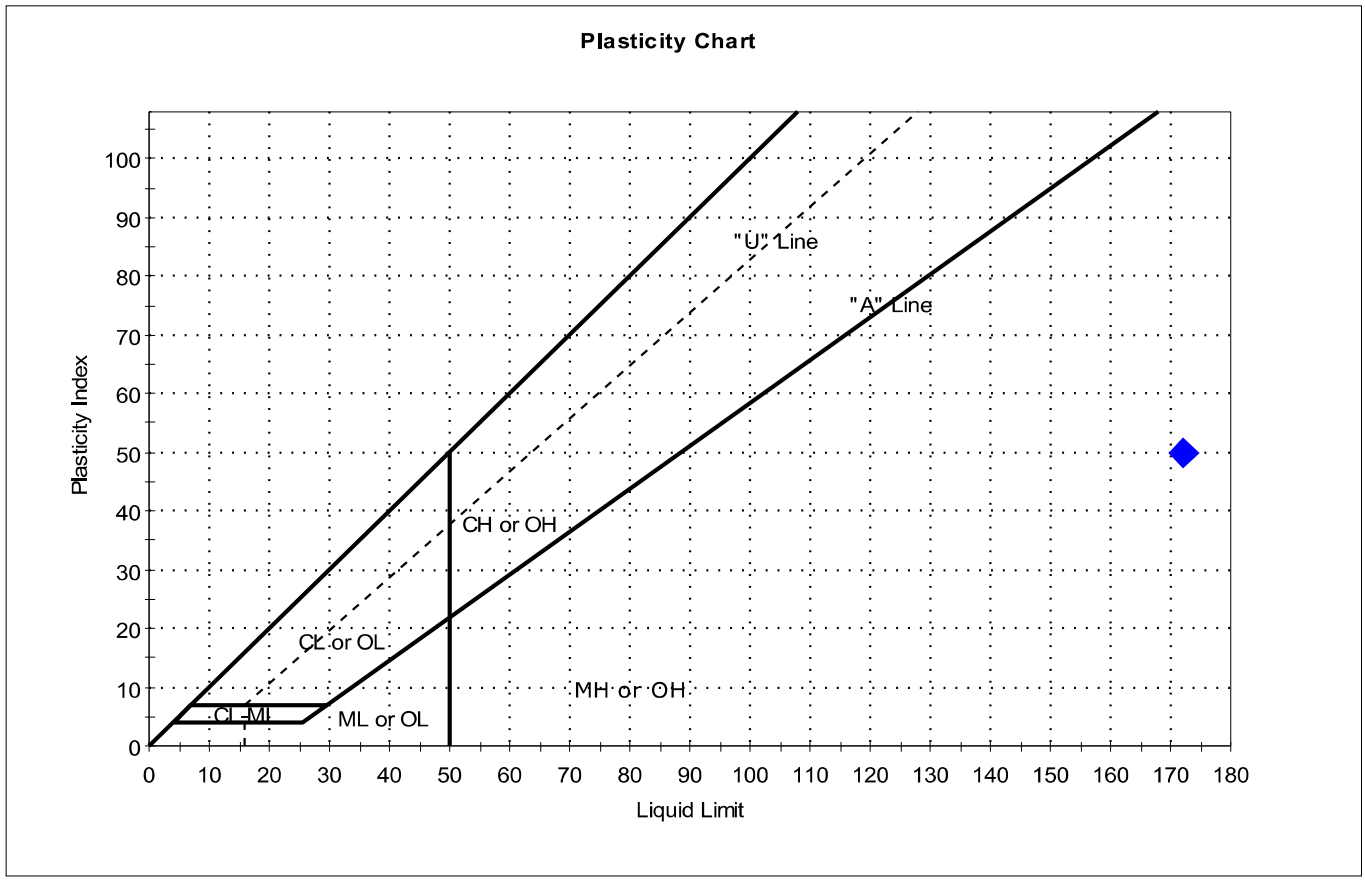
Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-01	Test Date:	08/29/24	Checked By:	ank
Depth :	0-4.3'	Test Id:	782672		
Test Comment:	---				
Visual Description:	Moist, very dark brown silt with sand and organics				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-01	---	0-4.3'	175	172	122	50	1.1	Elastic SILT with Sand (MH)

Sample Prepared using the WET method
8% Retained on #40 Sieve
Dry Strength: HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-01	Test Date:	08/29/24	Checked By:	ank
Depth :	4.3-17'	Test Id:	782673		
Test Comment:	---				
Visual Description:	Moist, brown silty sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318

Sample Determined to be non-plastic

Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-01	---	4.3-17'	29	n/a	n/a	n/a	n/a	Silty SAND (SM)

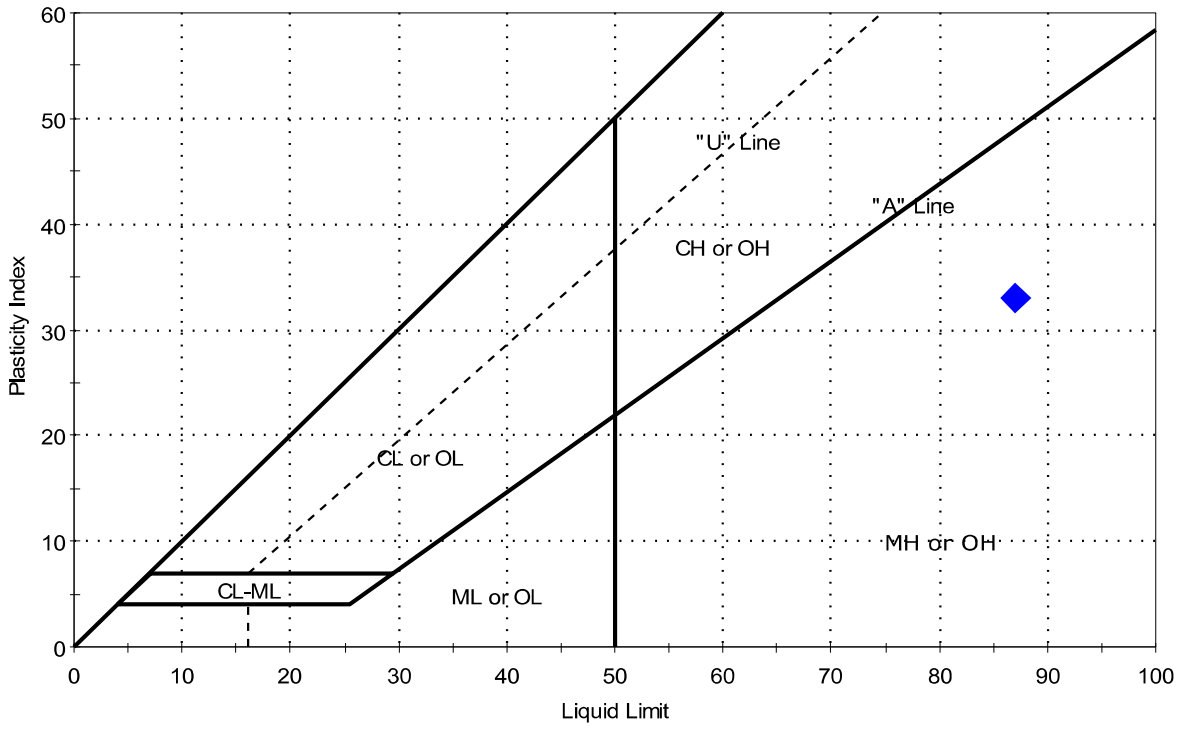
22% Retained on #40 Sieve
Dry Strength: LOW
Dilatancy: RAPID
Toughness: n/a
The sample was determined to be Non-Plastic

printed 8/29/2024 11:57:01 AM

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-03	Test Date:	08/29/24	Checked By:	ank
Depth :	0-17'	Test Id:	782675		
Test Comment:	---				
Visual Description:	Moist, dark gray silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



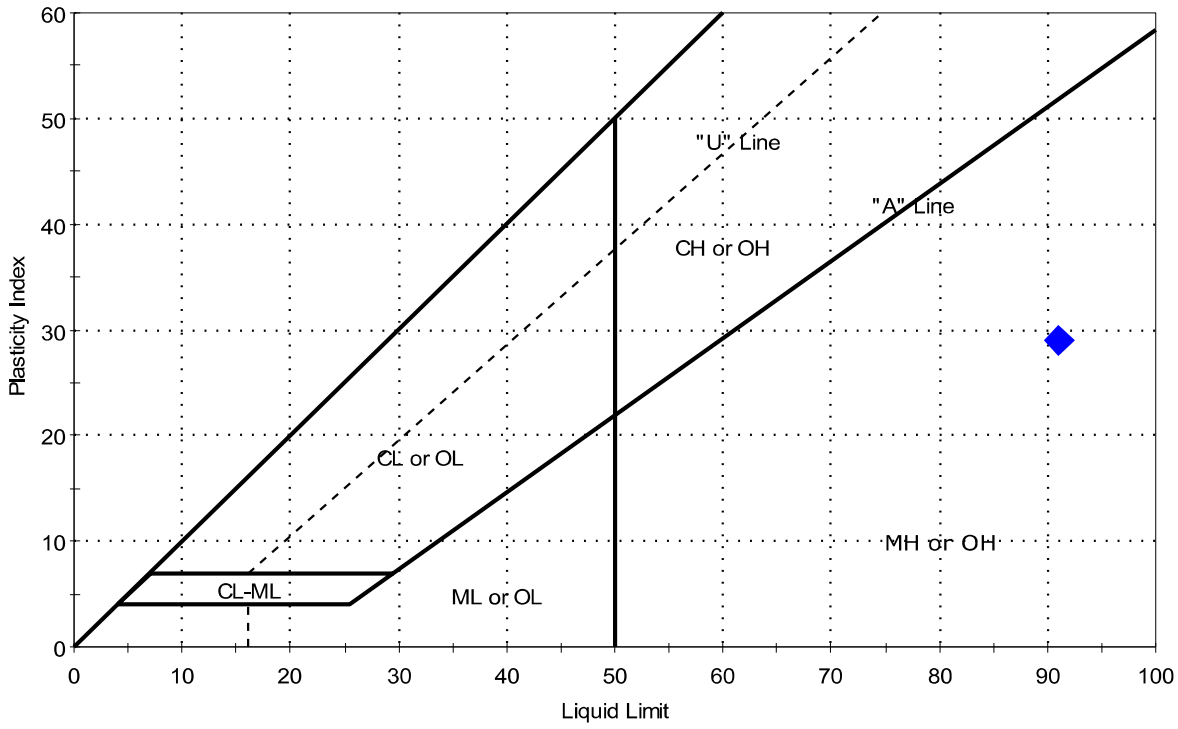
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-03	---	0-17'	86	87	54	33	1	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

GeoTesting EXPRESS
A Sercel Business

Client:	Alpha Analytical				
Project:	L2446143				
Location:	---			Project No:	GTX-319644
Boring ID:	---	Sample Type:	Jar	Tested By:	cam
Sample ID:	VC-05	Test Date:	08/29/24	Checked By:	ank
Depth :	0-17'	Test Id:	782674		
Test Comment:	---				
Visual Description:	Moist, brownish gray silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	VC-05	---	0-17'	91	91	62	29	1	Elastic SILT (MH)

Sample Prepared using the WET method
0% Retained on #40 Sieve
Dry Strength: VERY HIGH
Dilatancy: SLOW
Toughness: LOW

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Pace Analytical™

www.pacelabs.com

Report Prepared for:

Elizabeth Porta
Alpha Analytical
Eight Walkup Drive
Westborough MA 015811019

REPORT OF LABORATORY ANALYSIS FOR PCDD/PCDF

Report Information:

Pace Project #: 10705003
Sample Receipt Date: 08/20/2024
Client Project #: L2446143
Client Sub PO #: L2446143
State Cert #:

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCDD/PCDF Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Isaac Johnson, your Pace Project Manager.

This report has been reviewed by:

Isaac Johnson

September 16, 2024

Isaac Johnson, Project Manager
(612) 607-1700
(612) 607-6444 (fax)
isaac.johnson@pacelabs.com

Report Prepared Date:

September 5, 2024

Report of Laboratory Analysis

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The results relate only to the samples included in this report.

Pace Analytical Services, LLC.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on nine samples submitted by a representative of Alpha Analytical. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using USEPA Method 1613B. The reporting limits were set to correspond to the lowest calibration points and were adjusted for sample amount and dilution. Estimated maximum possible concentration (EMPC) values were treated as positives in the toxic equivalence calculations.

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 52-110%. All of the labeled standard recoveries obtained for this project were within the target ranges specified in Method 1613B. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for recovery and accurate values were obtained.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks to be free of PCDDs and PCDFs at the reporting limits.

Laboratory spike samples were also prepared with each sample batch using clean reference matrix that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 82-108% with relative percent differences of 0.0-10.8%. These results were within the target ranges for the method. Matrix spikes were not prepared with the sample batch extracted on 08/27/24. Matrix spikes were prepared with the sample batch extracted on 08/22/24 using sample material from a separate project; results from these analyses will be provided upon request.

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www.pacelabs.com

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-DW	27700
California	2929	North Carolina-WW	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (1700)	CL101
Georgia	959	Ohio-VAP (1800)	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon-Primary	MN300001
Illinois	200011	Oregon-Secondary	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-DEP	382
Minnesota	027-053-137	West Virginia-DW	9952C
Minnesota-Ag	via MN 027-053-137	Wisconsin	999407970
Minnesota-Petrofund	1240	Wyoming-UST	via A2LA 2926.01
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

REPORT OF LABORATORY ANALYSIS

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Subcontract Chain of Custody

Pace Analytical (MN)
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Alpha Job Number
L2446143

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 508.844.4124 Email: Liz.Porta@pacelabs.com	Project Location: DE Project Manager: Elizabeth Porta **Turnaround & Deliverables Information** Due Date: 09/17/24 Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com DE "Waters" (open ocean)

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-06 (0-26.6')	08-14-24 14:15	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-106	08-14-24 14:30	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-02 (0-4.7')	08-15-24 12:30	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-02 (4.7'-17')	08-15-24 13:50	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-04 (0-17')	08-16-24 11:10	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-01 (0-4.3')	08-17-24 08:20	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-01 (4.3'-17)	08-17-24 10:00	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-05 (0-17')	08-17-24 11:15	Sediment	Dioxins - EPA 1613B; PCB by 1668	

8122 24 006 007 008

WO# : 10705003

10705003

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	C Tebeau		[illegible]	8/22/24 850
Form No: AL_subcoc				

2.7 (19)

Subcontract Chain of Custody

Pace Analytical (MN)
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Alpha Job Number
L2446143

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.844.4124
Email: Liz.Porta@pacelabs.com

Project Information

Project Location: DE
Project Manager: Elizabeth Porta

Turnaround & Deliverables Information

Due Date: 09/17/24
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com DE "Waters" (open ocean)

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
009	VC-03 (0-17')	08-17-24 13:15	Sediment	Dioxins - EPA 1613B; PCB by 1668	

WO# : 10705003

10705003

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	CJ Telvan		M Lin	8/22/24 850
Form No: AL_subcoc				

2.7 (9)

ENV-FRM-MIN4-0150 v17_Sample Condition Upon Receipt

CLIENT NAME: Alpha Analytical **PROJECT #:**

WO#: 10705003

PM: IJJ **Due Date: 09/19/24**

CLIENT: Alpha

COURIER: ☐ Client ☐ Commercial ☑ FedEx ☐ Pace ☐ SpeeDee ☐ UPS ☐ USPS

TRACKING NUMBER: 7781 0142 6257 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO **Seals Intact:** ☐ YES ☒ NO **Biological Tissue Frozen:** ☐ YES ☐ NO ☒ N/A

Packing Material: ☑ Bubble Bags ☐ Bubble Wrap ☐ None ☐ Other **Temp Blank:** ☐ YES ☑ NO **Type of Ice:** ☐ Blue ☐ Dry ☑ Wet ☐ Melted ☐ None

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☒ T9 (0727) ☐ 01339252 (1710)

Did Samples Originate in West Virginia: ☐ YES ☒ NO	**Were All Container Temps taken:** ☐ YES ☐ NO ☒ N/A
Correction Factor: NA **Cooler Temp Read w/Temp Blank:** ____ °C **Cooler Temp Corrected w/Temp Blank:** ____ °C	**Average Corrected Temp (no Temp Blank Only):** 2.1 °C
NOTE: *Temp should be above freezing to 6°C.*	☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container
USDA Regulated Soil: ☐ N/A – Water Sample/Other (describe): ____	**Initials & Date of Person Examining Contents:** MHC 8/22/24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☒ NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☒ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): ☐ DULUTH ☒ MINNEAPOLIS ☐ VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	☒	☐		1.
Chain of Custody Relinquished?	☒	☐		2.
Sampler Name and/or Signature on COC?	☐	☐	☒	3.
Samples Arrived within Hold Time?	☒	☐		4. If Fecal: ☐ <8 hrs ☐ >8 hr, <24 hr ☐ No
Short Hold Time Analysis (<72 hr)?	☐	☒		5. ☐ BOD / cBOD ☐ Fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/*E. coli* ☐ Other: ____
Rush Turn Around Time Requested?	☐	☒		6.
Sufficient Sample Volume?	☒	☐		7.
Correct Containers Used? – Pace Containers Used?	☒ ☐	☐ ☐	☐	8.
Containers Intact?	☒	☐		9.
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☒	10. Is sediment visible in the dissolved container: ☐ YES ☐ NO
Is sufficient information available to reconcile the samples to the COC? **NOTE:** If ID/Date/Time don't match fill out section 11. Matrix: ☐ Oil ☒ Soil ☐ Water ☐ Other	☒	☐		**11. If NO, write ID/Date/Time of container below:** ☐ See Exceptions form ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐	☐	☒	12. Sample #:
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)	☐	☐	☒	☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	☐	☐	☒	Positive for Residual Chlorine: ☐ YES ☐ NO
NOTE: If adding preservation to the container, **verify with the PM first.** Clients may require adding preservative to the field and equipment blanks when this occurs.				**pH Paper Lot #**
				Residual Chlorine | 0-6 Roll | 0-6 Strip | 0-14 Strip
				☐ See Exceptions form ENV-FRM-MIN4-0142
Headspace in Methyl Mercury Container?	☐	☐	☒	13.
Extra labels present on soil VOA or WIDRO containers?	☐	☐	☒	14.
Headspace in VOA Vials (greater than 6mm)?	☐	☐	☒	☐ See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?	☐	☐	☒	15.
Trip Blank Custody Seals Present?	☐	☐	☒	Pace Trip Blank Lot # (if purchased): ____

CLIENT NOTIFICATION / RESOLUTION **FIELD DATA REQUIRED:** ☐ YES ☐ NO

Person Contacted: ____ Date & Time: ____

Comments / Resolution: ____

Project Manager Review: Isaac Johnson **Date:** 8/23/24

NOTE: *When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).*

Labeled By: MHC **Line:** 2

Pace Analytical Services, LLC
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Minneapolis, MN 55414
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Fax: 612.607.6444
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Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

H2 = Extracted outside of holding time

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

REPORT OF LABORATORY ANALYSIS

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Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-06 (0-26.6')		
Lab Sample ID	10705003001		
Filename	L240904A_17		
Injected By	JF		
Total Amount Extracted	21.5 g	Matrix	SOLID
% Moisture	44.8	Dilution	NA
Dry Weight Extracted	11.9 g	Collected	08/14/2024 14:15
ICAL ID	L240808	Received	08/20/2024 09:40
CCal Filename(s)	L240904A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	09/04/2024 19:45

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.84	2,3,7,8-TCDF-13C	2.00	85
Total TCDF	ND	-----	0.84	2,3,7,8-TCDD-13C	2.00	77
				1,2,3,7,8-PeCDF-13C	2.00	79
2,3,7,8-TCDD	ND	-----	0.84	2,3,4,7,8-PeCDF-13C	2.00	82
Total TCDD	2.6	-----	0.84	1,2,3,7,8-PeCDD-13C	2.00	92
				1,2,3,4,7,8-HxCDF-13C	2.00	95
1,2,3,7,8-PeCDF	ND	-----	4.2	1,2,3,6,7,8-HxCDF-13C	2.00	97
2,3,4,7,8-PeCDF	ND	-----	4.2	2,3,4,6,7,8-HxCDF-13C	2.00	93
Total PeCDF	ND	-----	4.2	1,2,3,7,8,9-HxCDF-13C	2.00	79
				1,2,3,4,7,8-HxCDD-13C	2.00	81
1,2,3,7,8-PeCDD	ND	-----	4.2	1,2,3,6,7,8-HxCDD-13C	2.00	102
Total PeCDD	ND	-----	4.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	77
				1,2,3,4,7,8,9-HpCDF-13C	2.00	71
1,2,3,4,7,8-HxCDF	ND	-----	4.2	1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	ND	-----	4.2	OCDD-13C	4.00	52
2,3,4,6,7,8-HxCDF	ND	-----	4.2			
1,2,3,7,8,9-HxCDF	ND	-----	4.2	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.2	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.2	2,3,7,8-TCDD-37Cl4	0.20	68
1,2,3,6,7,8-HxCDD	ND	-----	4.2			
1,2,3,7,8,9-HxCDD	ND	-----	4.2			
Total HxCDD	25	-----	4.2			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.2	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.2	Equivalence: 0.23 ng/Kg		
Total HpCDF	ND	-----	4.2	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	16	-----	4.2			
Total HpCDD	65	-----	4.2			
OCDF	ND	-----	8.4			
OCDD	250	-----	8.4			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

Results reported on a dry weight basis and are valid to no more than 2 significant figures.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-106		
Lab Sample ID	10705003002		
Filename	U240901A_14		
Injected By	JRH		
Total Amount Extracted	20.2 g	Matrix	SOLID
% Moisture	44.0	Dilution	NA
Dry Weight Extracted	11.3 g	Collected	08/14/2024 14:30
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240901A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	09/01/2024 23:43

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.88	2,3,7,8-TCDF-13C	2.00	93
Total TCDF	ND	-----	0.88	2,3,7,8-TCDD-13C	2.00	84
				1,2,3,7,8-PeCDF-13C	2.00	95
2,3,7,8-TCDD	ND	-----	0.88	2,3,4,7,8-PeCDF-13C	2.00	98
Total TCDD	5.8	-----	0.88	1,2,3,7,8-PeCDD-13C	2.00	104
				1,2,3,4,7,8-HxCDF-13C	2.00	87
1,2,3,7,8-PeCDF	ND	-----	4.4	1,2,3,6,7,8-HxCDF-13C	2.00	87
2,3,4,7,8-PeCDF	ND	-----	4.4	2,3,4,6,7,8-HxCDF-13C	2.00	86
Total PeCDF	ND	-----	4.4	1,2,3,7,8,9-HxCDF-13C	2.00	89
				1,2,3,4,7,8-HxCDD-13C	2.00	83
1,2,3,7,8-PeCDD	ND	-----	4.4	1,2,3,6,7,8-HxCDD-13C	2.00	86
Total PeCDD	ND	-----	4.4	1,2,3,4,6,7,8-HpCDF-13C	2.00	76
				1,2,3,4,7,8,9-HpCDF-13C	2.00	88
1,2,3,4,7,8-HxCDF	ND	-----	4.4	1,2,3,4,6,7,8-HpCDD-13C	2.00	103
1,2,3,6,7,8-HxCDF	ND	-----	4.4	OCDD-13C	4.00	83
2,3,4,6,7,8-HxCDF	ND	-----	4.4			
1,2,3,7,8,9-HxCDF	ND	-----	4.4	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.4	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.4	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,6,7,8-HxCDD	ND	-----	4.4			
1,2,3,7,8,9-HxCDD	ND	-----	4.4			
Total HxCDD	52	-----	4.4			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.4	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.4	Equivalence: 0.47 ng/Kg		
Total HpCDF	ND	-----	4.4	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	31	-----	4.4			
Total HpCDD	120	-----	4.4			
OCDF	ND	-----	8.8			
OCDD	540	-----	8.8			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
EMPC = Estimated Maximum Possible Concentration
RL = Reporting Limit

ND = Not Detected
NA = Not Applicable
NC = Not Calculated

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-02 (0-4.7')		
Lab Sample ID	10705003003		
Filename	U240901A_15		
Injected By	JRH		
Total Amount Extracted	22.6 g	Matrix	SOLID
% Moisture	47.1	Dilution	NA
Dry Weight Extracted	11.9 g	Collected	08/15/2024 12:30
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240901A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	09/02/2024 00:30

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.84	2,3,7,8-TCDF-13C	2.00	100
Total TCDF	ND	-----	0.84	2,3,7,8-TCDD-13C	2.00	87
				1,2,3,7,8-PeCDF-13C	2.00	102
2,3,7,8-TCDD	ND	-----	0.84	2,3,4,7,8-PeCDF-13C	2.00	105
Total TCDD	1.7	-----	0.84	1,2,3,7,8-PeCDD-13C	2.00	110
				1,2,3,4,7,8-HxCDF-13C	2.00	94
1,2,3,7,8-PeCDF	ND	-----	4.2	1,2,3,6,7,8-HxCDF-13C	2.00	93
2,3,4,7,8-PeCDF	ND	-----	4.2	2,3,4,6,7,8-HxCDF-13C	2.00	92
Total PeCDF	ND	-----	4.2	1,2,3,7,8,9-HxCDF-13C	2.00	91
				1,2,3,4,7,8-HxCDD-13C	2.00	86
1,2,3,7,8-PeCDD	ND	-----	4.2	1,2,3,6,7,8-HxCDD-13C	2.00	96
Total PeCDD	ND	-----	4.2	1,2,3,4,6,7,8-HpCDF-13C	2.00	83
				1,2,3,4,7,8,9-HpCDF-13C	2.00	92
1,2,3,4,7,8-HxCDF	ND	-----	4.2	1,2,3,4,6,7,8-HpCDD-13C	2.00	109
1,2,3,6,7,8-HxCDF	ND	-----	4.2	OCDD-13C	4.00	86
2,3,4,6,7,8-HxCDF	ND	-----	4.2			
1,2,3,7,8,9-HxCDF	ND	-----	4.2	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.2	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.2	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	ND	-----	4.2			
1,2,3,7,8,9-HxCDD	ND	-----	4.2			
Total HxCDD	20	-----	4.2			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.2	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.2	Equivalence: 0.19 ng/Kg		
Total HpCDF	ND	-----	4.2	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	13	-----	4.2			
Total HpCDD	45	-----	4.2			
OCDF	ND	-----	8.4			
OCDD	200	-----	8.4			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-02 (4.7'-17')		
Lab Sample ID	10705003004		
Filename	U240901A_16		
Injected By	JRH		
Total Amount Extracted	17.7 g	Matrix	SOLID
% Moisture	17.0	Dilution	NA
Dry Weight Extracted	14.7 g	Collected	08/15/2024 13:50
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240901A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	09/02/2024 01:17

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.68	2,3,7,8-TCDF-13C	2.00	96
Total TCDF	ND	-----	0.68	2,3,7,8-TCDD-13C	2.00	80
				1,2,3,7,8-PeCDF-13C	2.00	103
2,3,7,8-TCDD	ND	-----	0.68	2,3,4,7,8-PeCDF-13C	2.00	101
Total TCDD	2.1	-----	0.68	1,2,3,7,8-PeCDD-13C	2.00	107
				1,2,3,4,7,8-HxCDF-13C	2.00	91
1,2,3,7,8-PeCDF	ND	-----	3.4	1,2,3,6,7,8-HxCDF-13C	2.00	90
2,3,4,7,8-PeCDF	ND	-----	3.4	2,3,4,6,7,8-HxCDF-13C	2.00	87
Total PeCDF	ND	-----	3.4	1,2,3,7,8,9-HxCDF-13C	2.00	89
				1,2,3,4,7,8-HxCDD-13C	2.00	86
1,2,3,7,8-PeCDD	ND	-----	3.4	1,2,3,6,7,8-HxCDD-13C	2.00	91
Total PeCDD	ND	-----	3.4	1,2,3,4,6,7,8-HpCDF-13C	2.00	84
				1,2,3,4,7,8,9-HpCDF-13C	2.00	89
1,2,3,4,7,8-HxCDF	ND	-----	3.4	1,2,3,4,6,7,8-HpCDD-13C	2.00	105
1,2,3,6,7,8-HxCDF	ND	-----	3.4	OCDD-13C	4.00	87
2,3,4,6,7,8-HxCDF	ND	-----	3.4			
1,2,3,7,8,9-HxCDF	ND	-----	3.4	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	3.4	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.4	2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,6,7,8-HxCDD	ND	-----	3.4			
1,2,3,7,8,9-HxCDD	ND	-----	3.4			
Total HxCDD	5.1	-----	3.4			
1,2,3,4,6,7,8-HpCDF	ND	-----	3.4	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.4	Equivalence: 0.070 ng/Kg		
Total HpCDF	ND	-----	3.4	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	4.6	-----	3.4			
Total HpCDD	14	-----	3.4			
OCDF	ND	-----	6.8			
OCDD	79	-----	6.8			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-04 (0-17')		
Lab Sample ID	10705003005		
Filename	U240901A_17		
Injected By	JRH		
Total Amount Extracted	21.4 g	Matrix	SOLID
% Moisture	50.6	Dilution	NA
Dry Weight Extracted	10.6 g	Collected	08/16/2024 11:10
ICAL ID	U240423	Received	08/20/2024 09:40
CCal Filename(s)	U240901A_02	Extracted	08/22/2024 14:00
Method Blank ID	BLANK-114400	Analyzed	09/02/2024 02:04

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.94	2,3,7,8-TCDF-13C	2.00	89
Total TCDF	ND	-----	0.94	2,3,7,8-TCDD-13C	2.00	78
				1,2,3,7,8-PeCDF-13C	2.00	92
2,3,7,8-TCDD	ND	-----	0.94	2,3,4,7,8-PeCDF-13C	2.00	91
Total TCDD	2.2	-----	0.94	1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	ND	-----	4.7	1,2,3,6,7,8-HxCDF-13C	2.00	83
2,3,4,7,8-PeCDF	ND	-----	4.7	2,3,4,6,7,8-HxCDF-13C	2.00	84
Total PeCDF	ND	-----	4.7	1,2,3,7,8,9-HxCDF-13C	2.00	83
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	-----	4.7	1,2,3,6,7,8-HxCDD-13C	2.00	87
Total PeCDD	ND	-----	4.7	1,2,3,4,6,7,8-HpCDF-13C	2.00	78
				1,2,3,4,7,8,9-HpCDF-13C	2.00	87
1,2,3,4,7,8-HxCDF	ND	-----	4.7	1,2,3,4,6,7,8-HpCDD-13C	2.00	99
1,2,3,6,7,8-HxCDF	ND	-----	4.7	OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	ND	-----	4.7			
1,2,3,7,8,9-HxCDF	ND	-----	4.7	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.7	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.7	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	ND	-----	4.7			
1,2,3,7,8,9-HxCDD	ND	-----	4.7			
Total HxCDD	25	-----	4.7			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.7	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.7	Equivalence: 0.24 ng/Kg		
Total HpCDF	ND	-----	4.7	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	17	-----	4.7			
Total HpCDD	59	-----	4.7			
OCDF	ND	-----	9.4			
OCDD	240	-----	9.4			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-01 (0-4.3')		
Lab Sample ID	10705003006		
Filename	U240902A_03		
Injected By	JRH		
Total Amount Extracted	18.3 g	Matrix	SOLID
% Moisture	66.2	Dilution	NA
Dry Weight Extracted	6.18 g	Collected	08/17/2024 08:20
ICAL ID	U240423	Received	08/22/2024 08:50
CCal Filename(s)	U240902A_01	Extracted	08/27/2024 14:00
Method Blank ID	BLANK-114434	Analyzed	09/02/2024 05:13

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	1.6	2,3,7,8-TCDF-13C	2.00	76
Total TCDF	3.2	-----	1.6	2,3,7,8-TCDD-13C	2.00	71
				1,2,3,7,8-PeCDF-13C	2.00	78
2,3,7,8-TCDD	ND	-----	1.6	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	5.8	-----	1.6	1,2,3,7,8-PeCDD-13C	2.00	83
				1,2,3,4,7,8-HxCDF-13C	2.00	70
1,2,3,7,8-PeCDF	ND	-----	8.1	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	ND	-----	8.1	2,3,4,6,7,8-HxCDF-13C	2.00	68
Total PeCDF	ND	-----	8.1	1,2,3,7,8,9-HxCDF-13C	2.00	72
				1,2,3,4,7,8-HxCDD-13C	2.00	64
1,2,3,7,8-PeCDD	ND	-----	8.1	1,2,3,6,7,8-HxCDD-13C	2.00	73
Total PeCDD	ND	-----	8.1	1,2,3,4,6,7,8-HpCDF-13C	2.00	68
				1,2,3,4,7,8,9-HpCDF-13C	2.00	72
1,2,3,4,7,8-HxCDF	ND	-----	8.1	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	-----	8.1	OCDD-13C	4.00	71
2,3,4,6,7,8-HxCDF	ND	-----	8.1			
1,2,3,7,8,9-HxCDF	ND	-----	8.1	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	8.1	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	8.1	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	ND	-----	8.1			
1,2,3,7,8,9-HxCDD	ND	-----	8.1			
Total HxCDD	33	-----	8.1			
1,2,3,4,6,7,8-HpCDF	ND	-----	8.1	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	8.1	Equivalence: 1.1 ng/Kg		
Total HpCDF	ND	-----	8.1	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	40	-----	8.1			
Total HpCDD	110	-----	8.1			
OCDF	ND	-----	16			
OCDD	2300	-----	16			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Minneapolis, MN 55414

Tel: 612-607-1700
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Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-01 (4.3-17')		
Lab Sample ID	10705003007		
Filename	U240902A_04		
Injected By	JRH		
Total Amount Extracted	18.5 g	Matrix	SOLID
% Moisture	23.6	Dilution	NA
Dry Weight Extracted	14.1 g	Collected	08/17/2024 10:00
ICAL ID	U240423	Received	08/22/2024 08:50
CCal Filename(s)	U240902A_01	Extracted	08/27/2024 14:00
Method Blank ID	BLANK-114434	Analyzed	09/02/2024 06:00

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.71	2,3,7,8-TCDF-13C	2.00	74
Total TCDF	ND	-----	0.71	2,3,7,8-TCDD-13C	2.00	68
				1,2,3,7,8-PeCDF-13C	2.00	76
2,3,7,8-TCDD	ND	-----	0.71	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	140	-----	0.71	1,2,3,7,8-PeCDD-13C	2.00	81
				1,2,3,4,7,8-HxCDF-13C	2.00	73
1,2,3,7,8-PeCDF	ND	-----	3.5	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	-----	3.5	2,3,4,6,7,8-HxCDF-13C	2.00	71
Total PeCDF	ND	-----	3.5	1,2,3,7,8,9-HxCDF-13C	2.00	71
				1,2,3,4,7,8-HxCDD-13C	2.00	63
1,2,3,7,8-PeCDD	ND	-----	3.5	1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	29	-----	3.5	1,2,3,4,6,7,8-HpCDF-13C	2.00	68
				1,2,3,4,7,8,9-HpCDF-13C	2.00	76
1,2,3,4,7,8-HxCDF	ND	-----	3.5	1,2,3,4,6,7,8-HpCDD-13C	2.00	87
1,2,3,6,7,8-HxCDF	ND	-----	3.5	OCDD-13C	4.00	73
2,3,4,6,7,8-HxCDF	ND	-----	3.5			
1,2,3,7,8,9-HxCDF	ND	-----	3.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	3.5	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	3.5	2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,6,7,8-HxCDD	ND	-----	3.5			
1,2,3,7,8,9-HxCDD	ND	-----	3.5			
Total HxCDD	76	-----	3.5			
1,2,3,4,6,7,8-HpCDF	ND	-----	3.5	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	3.5	Equivalence: 0.91 ng/Kg		
Total HpCDF	ND	-----	3.5	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	51	-----	3.5			
Total HpCDD	120	-----	3.5			
OCDF	ND	-----	7.1			
OCDD	1300	-----	7.1			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-05 (0-17')		
Lab Sample ID	10705003008		
Filename	U240902A_05		
Injected By	JRH		
Total Amount Extracted	20.8 g	Matrix	SOLID
% Moisture	47.4	Dilution	NA
Dry Weight Extracted	10.9 g	Collected	08/17/2024 11:15
ICAL ID	U240423	Received	08/22/2024 08:50
CCal Filename(s)	U240902A_01	Extracted	08/27/2024 14:00
Method Blank ID	BLANK-114434	Analyzed	09/02/2024 06:47

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.91	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	ND	-----	0.91	2,3,7,8-TCDD-13C	2.00	73
				1,2,3,7,8-PeCDF-13C	2.00	81
2,3,7,8-TCDD	ND	-----	0.91	2,3,4,7,8-PeCDF-13C	2.00	82
Total TCDD	4.7	-----	0.91	1,2,3,7,8-PeCDD-13C	2.00	88
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	-----	4.6	1,2,3,6,7,8-HxCDF-13C	2.00	78
2,3,4,7,8-PeCDF	ND	-----	4.6	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	ND	-----	4.6	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	69
1,2,3,7,8-PeCDD	ND	-----	4.6	1,2,3,6,7,8-HxCDD-13C	2.00	79
Total PeCDD	ND	-----	4.6	1,2,3,4,6,7,8-HpCDF-13C	2.00	70
				1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	ND	-----	4.6	1,2,3,4,6,7,8-HpCDD-13C	2.00	89
1,2,3,6,7,8-HxCDF	ND	-----	4.6	OCDD-13C	4.00	70
2,3,4,6,7,8-HxCDF	ND	-----	4.6			
1,2,3,7,8,9-HxCDF	ND	-----	4.6	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.6	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.6	2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	ND	-----	4.6			
1,2,3,7,8,9-HxCDD	ND	-----	4.6			
Total HxCDD	46	-----	4.6			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.6	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.6	Equivalence: 0.44 ng/Kg		
Total HpCDF	ND	-----	4.6	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	30	-----	4.6			
Total HpCDD	110	-----	4.6			
OCDF	ND	-----	9.1			
OCDD	460	-----	9.1			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Method 1613B Sample Analysis Results

Client - Alpha Analytical

Client's Sample ID	VC-03 (0-17')		
Lab Sample ID	10705003009		
Filename	U240902A_06		
Injected By	JRH		
Total Amount Extracted	23.0 g	Matrix	SOLID
% Moisture	46.4	Dilution	NA
Dry Weight Extracted	12.3 g	Collected	08/17/2024 13:15
ICAL ID	U240423	Received	08/22/2024 08:50
CCal Filename(s)	U240902A_01	Extracted	08/27/2024 14:00
Method Blank ID	BLANK-114434	Analyzed	09/02/2024 07:34

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.81	2,3,7,8-TCDF-13C	2.00	79
Total TCDF	ND	-----	0.81	2,3,7,8-TCDD-13C	2.00	71
				1,2,3,7,8-PeCDF-13C	2.00	80
2,3,7,8-TCDD	ND	-----	0.81	2,3,4,7,8-PeCDF-13C	2.00	83
Total TCDD	1.5	-----	0.81	1,2,3,7,8-PeCDD-13C	2.00	86
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	-----	4.1	1,2,3,6,7,8-HxCDF-13C	2.00	78
2,3,4,7,8-PeCDF	ND	-----	4.1	2,3,4,6,7,8-HxCDF-13C	2.00	76
Total PeCDF	ND	-----	4.1	1,2,3,7,8,9-HxCDF-13C	2.00	75
				1,2,3,4,7,8-HxCDD-13C	2.00	69
1,2,3,7,8-PeCDD	ND	-----	4.1	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	-----	4.1	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	78
1,2,3,4,7,8-HxCDF	ND	-----	4.1	1,2,3,4,6,7,8-HpCDD-13C	2.00	91
1,2,3,6,7,8-HxCDF	ND	-----	4.1	OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	ND	-----	4.1			
1,2,3,7,8,9-HxCDF	ND	-----	4.1	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	4.1	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	4.1	2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,6,7,8-HxCDD	ND	-----	4.1			
1,2,3,7,8,9-HxCDD	ND	-----	4.1			
Total HxCDD	19	-----	4.1			
1,2,3,4,6,7,8-HpCDF	ND	-----	4.1	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	4.1	Equivalence: 0.17 ng/Kg		
Total HpCDF	ND	-----	4.1	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	12	-----	4.1			
Total HpCDD	46	-----	4.1			
OCDF	ND	-----	8.1			
OCDD	180	-----	8.1			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).
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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKCQ		
Lab Sample ID	BLANK-114400	Matrix	Solid/Wipe
Filename	L240828B_11	Dilution	NA
Total Amount Extracted	20.2 g	Extracted	08/22/2024 14:00
ICAL ID	L240808	Analyzed	08/28/2024 21:49
CCal Filename(s)	L240828B_01	Injected By	SMT

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.50	2,3,7,8-TCDF-13C	2.00	76
Total TCDF	ND	-----	0.50	2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	ND	-----	0.50	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	-----	0.50	1,2,3,7,8-PeCDD-13C	2.00	80
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	-----	2.5	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	-----	2.5	2,3,4,6,7,8-HxCDF-13C	2.00	81
Total PeCDF	ND	-----	2.5	1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	75
1,2,3,7,8-PeCDD	ND	-----	2.5	1,2,3,6,7,8-HxCDD-13C	2.00	90
Total PeCDD	ND	-----	2.5	1,2,3,4,6,7,8-HpCDF-13C	2.00	84
				1,2,3,4,7,8,9-HpCDF-13C	2.00	87
1,2,3,4,7,8-HxCDF	ND	-----	2.5	1,2,3,4,6,7,8-HpCDD-13C	2.00	80
1,2,3,6,7,8-HxCDF	ND	-----	2.5	OCDD-13C	4.00	87
2,3,4,6,7,8-HxCDF	ND	-----	2.5			
1,2,3,7,8,9-HxCDF	ND	-----	2.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	2.5	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	2.5	2,3,7,8-TCDD-37Cl4	0.20	67
1,2,3,6,7,8-HxCDD	ND	-----	2.5			
1,2,3,7,8,9-HxCDD	ND	-----	2.5			
Total HxCDD	ND	-----	2.5			
1,2,3,4,6,7,8-HpCDF	ND	-----	2.5	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	2.5	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	-----	2.5	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	2.5			
Total HpCDD	ND	-----	2.5			
OCDF	ND	-----	5.0			
OCDD	ND	-----	5.0			

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Method 1613B Blank Analysis Results

Lab Sample Name	DFBLKDB		
Lab Sample ID	BLANK-114434	Matrix	Solid
Filename	U240829A_13	Dilution	NA
Total Amount Extracted	20.2 g	Extracted	08/27/2024 14:00
ICAL ID	U240423	Analyzed	08/29/2024 16:52
CCal Filename(s)	U240829A_02	Injected By	JF

Native Isomers	Conc ng/Kg	EMPC ng/Kg	RL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	-----	0.50	2,3,7,8-TCDF-13C	2.00	83
Total TCDF	ND	-----	0.50	2,3,7,8-TCDD-13C	2.00	77
				1,2,3,7,8-PeCDF-13C	2.00	85
2,3,7,8-TCDD	ND	-----	0.50	2,3,4,7,8-PeCDF-13C	2.00	86
Total TCDD	ND	-----	0.50	1,2,3,7,8-PeCDD-13C	2.00	93
				1,2,3,4,7,8-HxCDF-13C	2.00	77
1,2,3,7,8-PeCDF	ND	-----	2.5	1,2,3,6,7,8-HxCDF-13C	2.00	76
2,3,4,7,8-PeCDF	ND	-----	2.5	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	-----	2.5	1,2,3,7,8,9-HxCDF-13C	2.00	79
				1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	ND	-----	2.5	1,2,3,6,7,8-HxCDD-13C	2.00	80
Total PeCDD	ND	-----	2.5	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	74
1,2,3,4,7,8-HxCDF	ND	-----	2.5	1,2,3,4,6,7,8-HpCDD-13C	2.00	96
1,2,3,6,7,8-HxCDF	ND	-----	2.5	OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	ND	-----	2.5			
1,2,3,7,8,9-HxCDF	ND	-----	2.5	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	-----	2.5	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	2.5	2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,6,7,8-HxCDD	ND	-----	2.5			
1,2,3,7,8,9-HxCDD	ND	-----	2.5			
Total HxCDD	ND	-----	2.5			
1,2,3,4,6,7,8-HpCDF	ND	-----	2.5	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	-----	2.5	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	-----	2.5	(Lower-bound - Using 2005 WHO Factors)		
1,2,3,4,6,7,8-HpCDD	ND	-----	2.5			
Total HpCDD	ND	-----	2.5			
OCDF	ND	-----	5.0			
OCDD	ND	-----	5.0			

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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-114401		
Filename	L240828B_04	Matrix	Solid/Wipe
Total Amount Extracted	20.2 g	Dilution	NA
ICAL ID	L240808	Extracted	08/22/2024 14:00
CCal Filename	L240828B_01	Analyzed	08/28/2024 16:30
Method Blank ID	BLANK-114400	Injected By	SMT

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.0	7.5	15.8	90
2,3,7,8-TCDD	10	9.7	6.7	15.8	97
1,2,3,7,8-PeCDF	50	49	40.0	67.0	99
2,3,4,7,8-PeCDF	50	44	34.0	80.0	88
1,2,3,7,8-PeCDD	50	42	35.0	71.0	83
1,2,3,4,7,8-HxCDF	50	44	36.0	67.0	88
1,2,3,6,7,8-HxCDF	50	46	42.0	65.0	92
2,3,4,6,7,8-HxCDF	50	45	35.0	78.0	91
1,2,3,7,8,9-HxCDF	50	45	39.0	65.0	90
1,2,3,4,7,8-HxCDD	50	49	35.0	82.0	99
1,2,3,6,7,8-HxCDD	50	41	38.0	67.0	82
1,2,3,7,8,9-HxCDD	50	41	32.0	81.0	82
1,2,3,4,6,7,8-HpCDF	50	45	41.0	61.0	90
1,2,3,4,7,8,9-HpCDF	50	41	39.0	69.0	82
1,2,3,4,6,7,8-HpCDD	50	45	35.0	70.0	90
OCDF	100	97	63.0	170.0	97
OCDD	100	94	78.0	144.0	94
2,3,7,8-TCDD-37Cl4	10	7.3	3.1	19.1	73
2,3,7,8-TCDF-13C	100	88	22.0	152.0	88
2,3,7,8-TCDD-13C	100	81	20.0	175.0	81
1,2,3,7,8-PeCDF-13C	100	81	21.0	192.0	81
2,3,4,7,8-PeCDF-13C	100	88	13.0	328.0	88
1,2,3,7,8-PeCDD-13C	100	94	21.0	227.0	94
1,2,3,4,7,8-HxCDF-13C	100	90	19.0	202.0	90
1,2,3,6,7,8-HxCDF-13C	100	92	21.0	159.0	92
2,3,4,6,7,8-HxCDF-13C	100	91	22.0	176.0	91
1,2,3,7,8,9-HxCDF-13C	100	85	17.0	205.0	85
1,2,3,4,7,8-HxCDD-13C	100	84	21.0	193.0	84
1,2,3,6,7,8-HxCDD-13C	100	100	25.0	163.0	102
1,2,3,4,6,7,8-HpCDF-13C	100	90	21.0	158.0	90
1,2,3,4,7,8,9-HpCDF-13C	100	97	20.0	186.0	97
1,2,3,4,6,7,8-HpCDD-13C	100	87	26.0	166.0	87
OCDD-13C	200	180	26.0	397.0	90

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

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Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCS-114435		
Filename	U240829A_10	Matrix	Solid
Total Amount Extracted	20.0 g	Dilution	NA
ICAL ID	U240423	Extracted	08/27/2024 14:00
CCal Filename	U240829A_02	Analyzed	08/29/2024 14:31
Method Blank ID	BLANK-114434	Injected By	JF

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	9.4	7.5	15.8	94
2,3,7,8-TCDD	10	11	6.7	15.8	107
1,2,3,7,8-PeCDF	50	48	40.0	67.0	96
2,3,4,7,8-PeCDF	50	45	34.0	80.0	91
1,2,3,7,8-PeCDD	50	46	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47	36.0	67.0	93
1,2,3,6,7,8-HxCDF	50	48	42.0	65.0	97
2,3,4,6,7,8-HxCDF	50	49	35.0	78.0	97
1,2,3,7,8,9-HxCDF	50	48	39.0	65.0	95
1,2,3,4,7,8-HxCDD	50	48	35.0	82.0	96
1,2,3,6,7,8-HxCDD	50	48	38.0	67.0	96
1,2,3,7,8,9-HxCDD	50	49	32.0	81.0	97
1,2,3,4,6,7,8-HpCDF	50	50	41.0	61.0	99
1,2,3,4,7,8,9-HpCDF	50	47	39.0	69.0	93
1,2,3,4,6,7,8-HpCDD	50	45	35.0	70.0	89
OCDF	100	94	63.0	170.0	94
OCDD	100	110	78.0	144.0	107
2,3,7,8-TCDD-37Cl4	10	7.6	3.1	19.1	76
2,3,7,8-TCDF-13C	100	81	22.0	152.0	81
2,3,7,8-TCDD-13C	100	75	20.0	175.0	75
1,2,3,7,8-PeCDF-13C	100	84	21.0	192.0	84
2,3,4,7,8-PeCDF-13C	100	86	13.0	328.0	86
1,2,3,7,8-PeCDD-13C	100	94	21.0	227.0	94
1,2,3,4,7,8-HxCDF-13C	100	82	19.0	202.0	82
1,2,3,6,7,8-HxCDF-13C	100	80	21.0	159.0	80
2,3,4,6,7,8-HxCDF-13C	100	78	22.0	176.0	78
1,2,3,7,8,9-HxCDF-13C	100	79	17.0	205.0	79
1,2,3,4,7,8-HxCDD-13C	100	74	21.0	193.0	74
1,2,3,6,7,8-HxCDD-13C	100	78	25.0	163.0	78
1,2,3,4,6,7,8-HpCDF-13C	100	67	21.0	158.0	67
1,2,3,4,7,8,9-HpCDF-13C	100	73	20.0	186.0	73
1,2,3,4,6,7,8-HpCDD-13C	100	86	26.0	166.0	86
OCDD-13C	200	140	26.0	397.0	72

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

REPORT OF LABORATORY ANALYSIS

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1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B Laboratory Control Spike Results

Lab Sample ID	LCSD-114440		
Filename	U240829A_11	Matrix	Solid
Total Amount Extracted	20.2 g	Dilution	NA
ICAL ID	U240423	Extracted	08/27/2024 14:00
CCal Filename	U240829A_02	Analyzed	08/29/2024 15:18
Method Blank ID	BLANK-114434	Injected By	JF

Compound	Cs	Cr	Lower Limit	Upper Limit	% Rec.
2,3,7,8-TCDF	10	10	7.5	15.8	101
2,3,7,8-TCDD	10	11	6.7	15.8	108
1,2,3,7,8-PeCDF	50	47	40.0	67.0	94
2,3,4,7,8-PeCDF	50	46	34.0	80.0	92
1,2,3,7,8-PeCDD	50	46	35.0	71.0	92
1,2,3,4,7,8-HxCDF	50	47	36.0	67.0	95
1,2,3,6,7,8-HxCDF	50	50	42.0	65.0	99
2,3,4,6,7,8-HxCDF	50	50	35.0	78.0	100
1,2,3,7,8,9-HxCDF	50	50	39.0	65.0	99
1,2,3,4,7,8-HxCDD	50	54	35.0	82.0	107
1,2,3,6,7,8-HxCDD	50	48	38.0	67.0	96
1,2,3,7,8,9-HxCDD	50	49	32.0	81.0	99
1,2,3,4,6,7,8-HpCDF	50	50	41.0	61.0	101
1,2,3,4,7,8,9-HpCDF	50	47	39.0	69.0	94
1,2,3,4,6,7,8-HpCDD	50	45	35.0	70.0	89
OCDF	100	94	63.0	170.0	94
OCDD	100	110	78.0	144.0	107
2,3,7,8-TCDD-37Cl4	10	7.9	3.1	19.1	79
2,3,7,8-TCDF-13C	100	81	22.0	152.0	81
2,3,7,8-TCDD-13C	100	77	20.0	175.0	77
1,2,3,7,8-PeCDF-13C	100	87	21.0	192.0	87
2,3,4,7,8-PeCDF-13C	100	89	13.0	328.0	89
1,2,3,7,8-PeCDD-13C	100	96	21.0	227.0	96
1,2,3,4,7,8-HxCDF-13C	100	83	19.0	202.0	83
1,2,3,6,7,8-HxCDF-13C	100	79	21.0	159.0	79
2,3,4,6,7,8-HxCDF-13C	100	77	22.0	176.0	77
1,2,3,7,8,9-HxCDF-13C	100	78	17.0	205.0	78
1,2,3,4,7,8-HxCDD-13C	100	72	21.0	193.0	72
1,2,3,6,7,8-HxCDD-13C	100	79	25.0	163.0	79
1,2,3,4,6,7,8-HpCDF-13C	100	69	21.0	158.0	69
1,2,3,4,7,8,9-HpCDF-13C	100	72	20.0	186.0	72
1,2,3,4,6,7,8-HpCDD-13C	100	85	26.0	166.0	85
OCDD-13C	200	140	26.0	397.0	72

Cs = Concentration Spiked (ng/mL)
Cr = Concentration Recovered (ng/mL)
Rec. = Recovery (Expressed as Percent)
Control Limit Reference: Method 1613, Table 6, 10/94 Revision
R = Recovery outside of control limits
Nn = Value obtained from additional analysis
* = See Discussion

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Method 1613B

Spike Recovery Relative Percent Difference (RPD) Results

Client	Alpha Analytical		
Spike 1 ID	LCS-114435	Spike 2 ID	LCSD-114440
Spike 1 Filename	U240829A_10	Spike 2 Filename	U240829A_11

Compound	Spike 1 %REC	Spike 2 %REC	%RPD
2,3,7,8-TCDF	94	101	7.2
2,3,7,8-TCDD	107	108	0.9
1,2,3,7,8-PeCDF	96	94	2.1
2,3,4,7,8-PeCDF	91	92	1.1
1,2,3,7,8-PeCDD	92	92	0.0
1,2,3,4,7,8-HxCDF	93	95	2.1
1,2,3,6,7,8-HxCDF	97	99	2.0
2,3,4,6,7,8-HxCDF	97	100	3.0
1,2,3,7,8,9-HxCDF	95	99	4.1
1,2,3,4,7,8-HxCDD	96	107	10.8
1,2,3,6,7,8-HxCDD	96	96	0.0
1,2,3,7,8,9-HxCDD	97	99	2.0
1,2,3,4,6,7,8-HpCDF	99	101	2.0
1,2,3,4,7,8,9-HpCDF	93	94	1.1
1,2,3,4,6,7,8-HpCDD	89	89	0.0
OCDF	94	94	0.0
OCDD	107	107	0.0

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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Pace Analytical™

www.pacelabs.com

Report Prepared for:

Elizabeth Porta
Alpha Analytical
Eight Walkup Drive
Westborough MA 015811019

REPORT OF LABORATORY ANALYSIS FOR PCBs

Report Information:

Pace Project #: 10705003
Sample Receipt Date: 08/20/2024
Client Project #: L2446143
Client Sub PO #: L2446143
State Cert #:

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 PCB Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Isaac Johnson, your Pace Project Manager.

This report has been reviewed by:

Isaac Johnson

September 16, 2024

Isaac Johnson, Project Manager
(612) 607-1700
(612) 607-6444 (fax)
isaac.johnson@pacelabs.com

Report Prepared Date:
September 16, 2024

Report of Laboratory Analysis

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The results relate only to the samples included in this report.

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1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

DISCUSSION

This report presents the results from the analyses performed on nine samples submitted by a representative of Alpha Analytical. The samples were analyzed for the presence or absence of selected polychlorinated biphenyl (PCB) congeners using USEPA Method 1668A. Reporting limits were set to the statistical method detection limits and were adjusted for the amount of sample extracted. Quantitation limits were also provided on the results tables. Reporting limits determined based on the signal to noise ratio were flagged "A", with levels below the calibration range flagged "J" as estimated concentrations.

All of the recoveries obtained for this project were within the target ranges specified in the method. Since the quantification of the native PCB congeners was based on internal standard and isotope dilution methodology, the data were automatically corrected for variation in recovery and accurate values were obtained. Incorrect isotope ratios were obtained for selected PCB congeners. The affected congeners were flagged "I" on the results tables.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show the blanks to contain trace levels of selected PCB congeners. The sample extracts contained similar levels of some congeners, which may have originated in the laboratory. Congeners present at similar levels in both the method blank and sample extracts were flagged "B" on the sample results tables.

Laboratory and/or matrix spike samples were also prepared with each sample batch using reference or sample material that had been fortified with native standards. The results show that the spiked native compounds were recovered at 90-113%, with relative percent differences of 0.0-7.1%. All of the recoveries in the spikes were within method limits.

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Fax: 612.607.6444
www.pacelabs.com

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
		Missouri	10100
A2LA	2926.01	Montana	CERT0092
Alabama	40770	Nebraska	NE-OS-18-06
Alaska-DW	MN00064	Nevada	MN00064
Alaska-UST	17-009	New Hampshire	2081
Arizona	AZ0014	New Jersey	MN002
Arkansas - WW	88-0680	New York	11647
Arkansas-DW	MN00064	North Carolina-DW	27700
California	2929	North Carolina-WW	530
Colorado	MN00064	North Dakota	R-036
Connecticut	PH-0256	Ohio-DW	41244
Florida	E87605	Ohio-VAP (1700)	CL101
Georgia	959	Ohio-VAP (1800)	CL110
Hawaii	MN00064	Oklahoma	9507
Idaho	MN00064	Oregon-Primary	MN300001
Illinois	200011	Oregon-Secondary	MN200001
Indiana	C-MN-01	Pennsylvania	68-00563
Iowa	368	Puerto Rico	MN00064
Kansas	E-10167	South Carolina	74003
Kentucky-DW	90062	Tennessee	TN02818
Kentucky-WW	90062	Texas	T104704192
Louisiana-DEQ	AI-84596	Utah	MN00064
Louisiana-DW	MN00064	Vermont	VT-027053137
Maine	MN00064	Virginia	460163
Maryland	322	Washington	C486
Michigan	9909	West Virginia-DEP	382
Minnesota	027-053-137	West Virginia-DW	9952C
Minnesota-Ag	via MN 027-053-137	Wisconsin	999407970
Minnesota-Petrofund	1240	Wyoming-UST	via A2LA 2926.01
Mississippi	MN00064		

REPORT OF LABORATORY ANALYSIS

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Appendix A

Sample Management

REPORT OF LABORATORY ANALYSIS

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Subcontract Chain of Custody

Pace Analytical (MN)
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Alpha Job Number
L2446143

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.844.4124
Email: Liz.Porta@pacelabs.com

Project Information

Project Location: DE
Project Manager: Elizabeth Porta

Turnaround & Deliverables Information

Due Date: 09/17/24
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Invoices to: invoices@pacelabs.coupahost.com Reports to: west.subreports@pacelabs.com DE "Waters" (open ocean)

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
	VC-06 (0-26.6')	08-14-24 14:15	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-106	08-14-24 14:30	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-02 (0-4.7')	08-15-24 12:30	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-02 (4.7'-17')	08-15-24 13:50	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-04 (0-17')	08-16-24 11:10	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-01 (0-4.3')	08-17-24 08:20	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-01 (4.3'-17)	08-17-24 10:00	Sediment	Dioxins - EPA 1613B; PCB by 1668	
	VC-05 (0-17')	08-17-24 11:15	Sediment	Dioxins - EPA 1613B; PCB by 1668	

8122 U 006 007 008 003

WO# : 10705003

10705003

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	C Tebeau		[illegible]	8/22/24 850
Form No: AL_subcoc				

2.7 (19)

Subcontract Chain of Custody

Pace Analytical (MN)
1700 Elm Street, Suite 200
Minneapolis, MN 55414

Alpha Job Number
L2446143

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 508.844.4124
Email: Liz.Porta@pacelabs.com

Project Information

Project Location: DE
Project Manager: Elizabeth Porta

Turnaround & Deliverables Information

Due Date: 09/17/24
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2446143

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com DE "Waters" (open ocean)

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
009	VC-03 (0-17')	08-17-24 13:15	Sediment	Dioxins - EPA 1613B; PCB by 1668	

WO# : 10705003

10705003

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	CJ Telvan		M Lin	8/22/24 850
Form No: AL_subcoc				

2.7 (19)

ENV-FRM-MIN4-0150 v17_Sample Condition Upon Receipt

CLIENT NAME: Alpha Analytical **PROJECT #:**

WO#: 10705003

PM: IJJ **Due Date: 09/19/24**

CLIENT: Alpha

COURIER: ☐ Client ☐ Commercial ☑ FedEx ☐ Pace ☐ SpeeDee ☐ UPS ☐ USPS

TRACKING NUMBER: 7781 0142 6257 ☐ See Exceptions form ENV-FRM-MIN4-0142

Custody Seal on Cooler/Box Present: ☐ YES ☒ NO **Seals Intact:** ☐ YES ☒ NO **Biological Tissue Frozen:** ☐ YES ☐ NO ☒ N/A

Packing Material: ☑ Bubble Bags ☐ Bubble Wrap ☐ None ☐ Other **Temp Blank:** ☐ YES ☑ NO **Type of Ice:** ☐ Blue ☐ Dry ☑ Wet ☐ Melted ☐ None

Thermometer: ☐ T1 (0461) ☐ T2 (0436) ☐ T3 (0459) ☐ T4 (0402) ☐ T5 (0178) ☐ T6 (0235) ☐ T7 (0042) ☐ T8 (0775) ☒ T9 (0727) ☐ 01339252 (1710)

Did Samples Originate in West Virginia: ☐ YES ☒ NO	**Were All Container Temps taken:** ☐ YES ☐ NO ☒ N/A
Correction Factor: NA **Cooler Temp Read w/Temp Blank:** ____ °C **Cooler Temp Corrected w/Temp Blank:** ____ °C	**Average Corrected Temp (no Temp Blank Only):** 2.1 °C
NOTE: *Temp should be above freezing to 6°C.*	☐ See Exceptions Form ENV-FRM-MIN4-0142 ☐ 1 Container
USDA Regulated Soil: ☐ N/A – Water Sample/Other (describe): ____	**Initials & Date of Person Examining Contents:** MHC 8/22/24
Did Samples originate from one of the following states (check maps) – AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX, or VA: ☐ YES ☒ NO	Did samples originate from a foreign source (international, including Hawaii and Puerto Rico): ☐ YES ☒ NO
NOTE: If YES to either question, fill out a Regulated Soil Checklist (ENV-FRM-MIN4-0154) and include with SCUR/COC paperwork.	

LOCATION (check one): ☐ DULUTH ☒ MINNEAPOLIS ☐ VIRGINIA	YES	NO	N/A	COMMENT(S)
Chain of Custody Present and Filled Out?	☑	☐		1.
Chain of Custody Relinquished?	☑	☐		2.
Sampler Name and/or Signature on COC?	☐	☐	☒	3.
Samples Arrived within Hold Time?	☑	☐		4. If Fecal: ☐ <8 hrs ☐ >8 hr, <24 hr ☐ No
Short Hold Time Analysis (<72 hr)?	☐	☒		5. ☐ BOD / cBOD ☐ Fecal coliform ☐ Hex Chrom ☐ HPC ☐ Nitrate ☐ Nitrite ☐ Ortho Phos ☐ Total coliform/*E. coli* ☐ Other: ____
Rush Turn Around Time Requested?	☐	☒		6.
Sufficient Sample Volume?	☑	☐		7.
Correct Containers Used? – Pace Containers Used?	☑ ☐	☐ ☐	☐	8.
Containers Intact?	☑	☐		9.
Field Filtered Volume Received for Dissolved Tests?	☐	☐	☒	10. Is sediment visible in the dissolved container: ☐ YES ☐ NO
Is sufficient information available to reconcile the samples to the COC? **NOTE:** If ID/Date/Time don't match fill out section 11. Matrix: ☐ Oil ☒ Soil ☐ Water ☐ Other	☑	☐		**11. If NO, write ID/Date/Time of container below:** ☐ See Exceptions form ENV-FRM-MIN4-0142
All containers needing acid/base preservation have been checked?	☐	☐	☒	12. Sample #:
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, < 2 pH, NaOH > 9 Sulfide, NaOH > 10 Cyanide)	☐	☐	☒	☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ Zinc Acetate
Exceptions: VOA, Coliform, TOC/DOC, Oil & Grease, DRO/8015 (water) and Dioxins/PFAS	☐	☐	☑	Positive for Residual Chlorine: ☐ YES ☐ NO
NOTE: If adding preservation to the container, **verify with the PM first.** Clients may require adding preservative to the field and equipment blanks when this occurs.				**pH Paper Lot #** (Residual Chlorine / 0-6 Roll / 0-6 Strip / 0-14 Strip) ☐ See Exceptions form ENV-FRM-MIN4-0142
Headspace in Methyl Mercury Container?	☐	☐	☑	13.
Extra labels present on soil VOA or WIDRO containers?	☐	☐	☑	14.
Headspace in VOA Vials (greater than 6mm)?	☐	☐	☑	☐ See Exceptions form ENV-FRM-MIN4-0140
Trip Blanks Present?	☐	☐	☑	15.
Trip Blank Custody Seals Present?	☐	☐	☑	Pace Trip Blank Lot # (if purchased): ____

CLIENT NOTIFICATION / RESOLUTION **FIELD DATA REQUIRED:** ☐ YES ☐ NO

Person Contacted: ____ Date & Time: ____

Comments / Resolution: ____

Project Manager Review: Isaac Johnson **Date:** 8/23/24

NOTE: *When there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEQ Certification Office (i.e., out of hold, incorrect preservative, out of temp, incorrect containers).*

Labeled By: MHC **Line:** 2

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Reporting Flags

A = Reporting Limit based on signal to noise (EDL)

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

H2 = Extracted outside of holding time

I = Isotope ratio out of specification

J = Estimated value

L = Suppressive interference, analyte may be biased low

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

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Appendix B

Sample Analysis Summary

REPORT OF LABORATORY ANALYSIS

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.26	3.04	2.00	0.959	48	
1	PCB-003L	13.17	3.32	2.00	1.14	57	
2	PCB-004L	13.48	1.49	2.00	1.08	54	
2	PCB-015L	20.66	1.65	2.00	1.51	75	
3	PCB-019L	17.37	1.11	2.00	1.31	66	
3	PCB-037L	28.48	1.00	2.00	1.81	90	
4	PCB-054L	21.02	0.77	2.00	1.24	62	
4	PCB-077L	36.18	0.79	2.00	2.09	104	
4	PCB-081L	35.60	0.82	2.00	2.09	105	
5	PCB-104L	27.17	1.54	2.00	1.43	72	
5	PCB-105L	39.76	1.65	2.00	1.82	91	
5	PCB-114L	39.12	1.53	2.00	1.80	90	
5	PCB-118L	38.57	1.62	2.00	1.87	94	
5	PCB-123L	38.22	1.59	2.00	1.79	90	
5	PCB-126L	42.91	1.59	2.00	2.04	102	
6	PCB-155L	33.23	1.29	2.00	1.48	74	
6	PCB-156/157L	45.97	1.27	4.00	3.65	91	
6	PCB-167L	44.79	1.30	2.00	1.83	91	
6	PCB-169L	49.24	1.29	2.00	1.99	99	
7	PCB-188L	39.10	1.04	2.00	1.58	79	
7	PCB-189L	51.79	1.07	2.00	1.82	91	
8	PCB-202L	44.56	0.95	2.00	1.52	76	
8	PCB-205L	54.38	0.91	2.00	1.58	79	
9	PCB-206L	56.15	0.83	2.00	1.54	77	
9	PCB-208L	51.32	0.82	2.00	1.48	74	
10	PCB-209L	57.76	0.71	2.00	1.58	79	
Recovery Standards							
2	PCB-009L	15.99	1.54	2.00	2.07	N/A	
4	PCB-052L	26.12	0.77	2.00	2.20	N/A	
5	PCB-101L	33.43	1.61	2.00	2.26	N/A	
6	PCB-138L	41.74	1.24	2.00	2.33	N/A	
8	PCB-194L	53.90	0.88	2.00	2.35	N/A	
Cleanup Standards							
3	PCB-028L	24.12	1.03	2.00	1.68	84	
5	PCB-111L	36.22	1.57	2.00	1.57	79	
7	PCB-178L	42.19	1.06	2.00	1.71	86	

REPORT OF LABORATORY ANALYSIS

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Fax: 612.607.6444
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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		22.3	3.20	
1	PCB-002	12.95	3.25	7.33	J	22.3	3.36	
1	PCB-003			ND		22.3	3.37	
2	PCB-004			ND	A	22.3	3.82	
2	PCB-005			ND		22.3	2.35	
2	PCB-006			ND		22.3	3.51	
2	PCB-007			ND		22.3	3.15	
2	PCB-008			ND		22.3	6.12	
2	PCB-009			ND		22.3	3.02	
2	PCB-010			ND	A	22.3	3.31	
2	PCB-011	19.98	1.40	98.7	BJ	219	81.8	
2	PCB-012/013			ND		44.7	6.27	
2	PCB-014			ND		22.3	2.57	
2	PCB-015			ND		29.5	5.83	
3	PCB-016			ND		22.3	6.35	
3	PCB-017			ND		22.3	7.12	
3	PCB-018/030			ND		44.7	16.0	
3	PCB-019			ND		22.3	2.48	
3	PCB-020/028			ND		115	24.0	
3	PCB-021/033			ND		121	13.1	
3	PCB-022			ND		84.9	11.2	
3	PCB-023			ND		22.3	2.49	
3	PCB-024			ND		22.3	3.51	
3	PCB-025			ND		22.3	3.11	
3	PCB-026/029			ND		44.7	5.70	
3	PCB-027			ND		22.3	4.31	
3	PCB-031			ND		116	20.3	
3	PCB-032			ND		22.3	6.95	
3	PCB-034			ND		22.3	2.73	
3	PCB-035			ND		22.3	3.31	
3	PCB-036			ND		22.3	2.47	
3	PCB-037			ND		47.4	5.30	
3	PCB-038			ND		22.3	2.11	
3	PCB-039			ND		22.3	2.76	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		67.0	12.4	
4	PCB-042			ND		22.3	4.95	
4	PCB-043/073			ND		44.7	10.1	
4	PCB-044/047/065			ND		67.0	18.8	
4	PCB-045/051			ND		44.7	9.29	
4	PCB-046			ND		22.3	3.11	
4	PCB-048			ND		22.3	3.79	
4	PCB-069/049			ND		44.7	9.92	
4	PCB-050/053			ND		44.7	7.50	
4	PCB-052			ND		115	20.6	
4	PCB-054			ND		22.3	2.20	
4	PCB-055			ND		22.3	3.00	
4	PCB-056			ND		22.3	5.06	
4	PCB-057			ND		22.3	2.28	
4	PCB-058			ND		22.3	1.95	
4	PCB-059/062/075			ND		67.0	5.26	
4	PCB-060			ND		22.3	5.15	
4	PCB-061/070/074/076			ND		89.4	15.4	
4	PCB-063			ND		22.3	2.40	
4	PCB-064			ND		22.3	5.33	
4	PCB-066			ND		52.7	13.0	
4	PCB-067			ND		22.3	2.18	
4	PCB-068			ND		22.3	2.44	
4	PCB-072			ND		22.3	2.08	
4	PCB-077			ND		22.3	2.85	
4	PCB-078			ND		22.3	2.62	
4	PCB-079			ND		22.3	2.65	
4	PCB-080			ND		22.3	1.61	
4	PCB-081			ND		22.3	2.12	
5	PCB-082			ND		22.3	6.60	
5	PCB-083			ND		22.3	2.69	
5	PCB-084			ND		22.3	4.03	
5	PCB-085/116/117			ND		67.0	6.64	
5	PCB-086/087/097/108/119/12			ND		134	12.2	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		44.7	5.96	
5	PCB-089			ND		22.3	3.04	
5	PCB-090/101/113			ND		67.0	11.7	
5	PCB-092			ND		22.3	3.36	
5	PCB-093/098/100/102			ND		89.4	8.59	
5	PCB-094			ND		22.3	2.03	
5	PCB-095			ND		62.6	14.3	
5	PCB-096			ND		22.3	3.82	
5	PCB-099			ND		22.3	4.50	
5	PCB-103			ND		22.3	2.91	
5	PCB-104			ND		22.3	2.59	
5	PCB-105			ND		22.3	3.97	
5	PCB-106			ND		22.3	2.34	
5	PCB-107/124			ND		44.7	4.00	
5	PCB-109			ND		22.3	3.09	
5	PCB-110/115			ND		44.7	8.01	
5	PCB-111			ND		22.3	2.39	
5	PCB-112			ND		22.3	2.43	
5	PCB-114			ND		22.3	2.14	
5	PCB-118			ND		34.9	5.73	
5	PCB-120			ND		22.3	2.54	
5	PCB-121			ND		22.3	2.14	
5	PCB-122			ND		22.3	3.51	
5	PCB-123			ND		22.3	2.48	
5	PCB-126			ND		22.3	2.25	
5	PCB-127			ND		22.3	2.51	
6	PCB-128/166			ND		44.7	4.89	
6	PCB-129/138/163			ND		67.0	9.74	
6	PCB-130			ND		22.3	2.68	
6	PCB-131			ND		22.3	2.95	
6	PCB-132			ND		22.3	4.27	
6	PCB-133			ND		22.3	2.82	
6	PCB-134/143			ND		44.7	4.12	
6	PCB-135/151			ND		44.7	8.29	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		22.3	4.27	
6	PCB-137			ND		22.3	3.23	
6	PCB-139/140			ND		44.7	3.95	
6	PCB-141			ND		22.3	3.62	
6	PCB-142			ND		22.3	2.62	
6	PCB-144			ND		22.3	3.61	
6	PCB-145			ND		22.3	2.35	
6	PCB-146			ND		22.3	3.53	
6	PCB-147/149			ND		44.7	10.4	
6	PCB-148			ND		22.3	4.90	
6	PCB-150			ND		22.3	2.65	
6	PCB-152			ND		22.3	2.88	
6	PCB-153/168			ND		44.7	6.83	
6	PCB-154			ND		22.3	2.97	
6	PCB-155			ND		22.3	2.66	
6	PCB-156/157			ND		44.7	3.82	
6	PCB-158			ND		22.3	2.08	
6	PCB-159			ND		22.3	2.49	
6	PCB-160			ND		22.3	2.55	
6	PCB-161			ND		22.3	2.05	
6	PCB-162			ND		22.3	2.29	
6	PCB-164			ND		22.3	2.66	
6	PCB-165			ND		22.3	1.89	
6	PCB-167			ND		22.3	2.63	
6	PCB-169			ND		22.3	2.90	
7	PCB-170			ND		22.3	4.55	
7	PCB-171/173			ND		44.7	4.22	
7	PCB-172			ND		22.3	2.89	
7	PCB-174			ND		22.3	4.75	
7	PCB-175			ND		22.3	2.22	
7	PCB-176			ND		22.3	3.12	
7	PCB-177			ND		22.3	3.86	
7	PCB-178			ND		22.3	3.11	
7	PCB-179			ND		22.3	3.46	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		44.7	8.23	
7	PCB-181			ND		22.3	2.57	
7	PCB-182			ND		22.3	2.87	
7	PCB-183/185			ND		44.7	5.55	
7	PCB-184			ND		22.3	2.45	
7	PCB-186			ND		22.3	2.61	
7	PCB-187			ND		22.3	5.08	
7	PCB-188			ND		22.3	1.96	
7	PCB-189			ND		22.3	2.98	
7	PCB-190			ND		22.3	2.48	
7	PCB-191			ND		22.3	1.99	
7	PCB-192			ND		22.3	2.53	
8	PCB-194			ND		22.3	3.03	
8	PCB-195			ND		22.3	2.68	
8	PCB-196			ND		22.3	2.52	
8	PCB-197/200			ND		44.7	5.41	
8	PCB-198/199			ND		44.7	4.16	
8	PCB-201			ND		22.3	2.20	
8	PCB-202			ND		22.3	1.56	
8	PCB-203			ND		22.3	3.05	
8	PCB-204			ND		22.3	2.05	
8	PCB-205			ND		22.3	2.49	
9	PCB-206			ND		22.3	2.58	
9	PCB-207			ND		22.3	2.04	
9	PCB-208			ND		22.3	2.17	
10	PCB-209			ND		22.3	3.33	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-06 (0-26.6')**
Lab Sample ID: 10705003001
Lab File ID: Y240901B_11
Matrix: Solid
Percent Solids: 55.17%
Date Collected: 08/14/2024 14:15
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 00:29
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.3g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	7.33	J
Total DiCB	98.7	BJ
Total TrCB	ND	
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	106	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.24	2.72	2.00	1.31	65	
1	PCB-003L	13.15	3.05	2.00	1.50	75	
2	PCB-004L	13.47	1.67	2.00	1.38	69	
2	PCB-015L	20.65	1.57	2.00	1.74	87	
3	PCB-019L	17.36	1.06	2.00	1.55	78	
3	PCB-037L	28.46	1.04	2.00	1.94	97	
4	PCB-054L	21.02	0.80	2.00	1.43	71	
4	PCB-077L	36.18	0.79	2.00	2.25	112	
4	PCB-081L	35.58	0.79	2.00	2.17	109	
5	PCB-104L	27.16	1.62	2.00	1.58	79	
5	PCB-105L	39.76	1.61	2.00	2.02	101	
5	PCB-114L	39.10	1.62	2.00	2.06	103	
5	PCB-118L	38.55	1.66	2.00	2.11	105	
5	PCB-123L	38.22	1.60	2.00	1.96	98	
5	PCB-126L	42.89	1.54	2.00	2.24	112	
6	PCB-155L	33.23	1.27	2.00	1.64	82	
6	PCB-156/157L	45.97	1.26	4.00	3.87	97	
6	PCB-167L	44.79	1.27	2.00	1.92	96	
6	PCB-169L	49.22	1.33	2.00	2.04	102	
7	PCB-188L	39.10	1.07	2.00	1.68	84	
7	PCB-189L	51.79	1.06	2.00	1.89	95	
8	PCB-202L	44.54	0.89	2.00	1.65	82	
8	PCB-205L	54.38	0.87	2.00	1.69	85	
9	PCB-206L	56.12	0.78	2.00	1.65	82	
9	PCB-208L	51.32	0.84	2.00	1.60	80	
10	PCB-209L	57.76	0.73	2.00	1.68	84	
Recovery Standards							
2	PCB-009L	15.98	1.60	2.00	1.95	N/A	
4	PCB-052L	26.10	0.78	2.00	2.14	N/A	
5	PCB-101L	33.43	1.60	2.00	2.13	N/A	
6	PCB-138L	41.74	1.24	2.00	2.29	N/A	
8	PCB-194L	53.90	0.93	2.00	2.27	N/A	
Cleanup Standards							
3	PCB-028L	24.10	1.05	2.00	1.68	84	
5	PCB-111L	36.23	1.58	2.00	1.66	83	
7	PCB-178L	42.19	1.12	2.00	1.75	88	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		22.3	3.19	
1	PCB-002	12.94	3.07	9.48	J	22.3	3.36	
1	PCB-003	13.17	2.57 *		JI	22.3	3.36	4.31
2	PCB-004			ND	A	22.3	3.81	
2	PCB-005			ND	A	22.3	2.35	
2	PCB-006			ND	A	22.3	3.51	
2	PCB-007			ND	A	22.3	3.14	
2	PCB-008			ND		22.3	6.11	
2	PCB-009			ND	A	22.3	3.02	
2	PCB-010			ND	A	22.3	3.30	
2	PCB-011	19.97	1.55	93.5	BJ	219	81.6	
2	PCB-012/013			ND		44.6	6.26	
2	PCB-014			ND	A	22.3	2.57	
2	PCB-015			ND		29.4	5.82	
3	PCB-016			ND		22.3	6.34	
3	PCB-017			ND		22.3	7.11	
3	PCB-018/030			ND		44.6	16.0	
3	PCB-019			ND		22.3	2.48	
3	PCB-020/028			ND		115	23.9	
3	PCB-021/033			ND		120	13.1	
3	PCB-022			ND		84.8	11.2	
3	PCB-023			ND		22.3	2.49	
3	PCB-024			ND		22.3	3.51	
3	PCB-025			ND		22.3	3.11	
3	PCB-026/029			ND		44.6	5.69	
3	PCB-027			ND		22.3	4.30	
3	PCB-031			ND		116	20.3	
3	PCB-032			ND		22.3	6.94	
3	PCB-034			ND		22.3	2.73	
3	PCB-035			ND		22.3	3.30	
3	PCB-036			ND		22.3	2.46	
3	PCB-037			ND		47.3	5.29	
3	PCB-038			ND		22.3	2.11	
3	PCB-039			ND		22.3	2.76	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		66.9	12.4	
4	PCB-042			ND		22.3	4.94	
4	PCB-043/073			ND		44.6	10.1	
4	PCB-044/047/065			ND		66.9	18.7	
4	PCB-045/051			ND		44.6	9.28	
4	PCB-046			ND		22.3	3.11	
4	PCB-048			ND		22.3	3.78	
4	PCB-069/049			ND		44.6	9.90	
4	PCB-050/053			ND		44.6	7.49	
4	PCB-052			ND		115	20.6	
4	PCB-054			ND		22.3	2.20	
4	PCB-055			ND		22.3	3.00	
4	PCB-056			ND		22.3	5.05	
4	PCB-057			ND		22.3	2.28	
4	PCB-058			ND		22.3	1.95	
4	PCB-059/062/075			ND		66.9	5.25	
4	PCB-060			ND		22.3	5.14	
4	PCB-061/070/074/076			ND		89.2	15.3	
4	PCB-063			ND		22.3	2.39	
4	PCB-064			ND		22.3	5.32	
4	PCB-066			ND		52.6	13.0	
4	PCB-067			ND		22.3	2.18	
4	PCB-068			ND		22.3	2.44	
4	PCB-072			ND		22.3	2.08	
4	PCB-077			ND		22.3	2.85	
4	PCB-078			ND		22.3	2.61	
4	PCB-079			ND		22.3	2.64	
4	PCB-080			ND		22.3	1.61	
4	PCB-081			ND		22.3	2.11	
5	PCB-082			ND		22.3	6.59	
5	PCB-083			ND		22.3	2.69	
5	PCB-084			ND		22.3	4.02	
5	PCB-085/116/117			ND		66.9	6.63	
5	PCB-086/087/097/108/119/12			ND		134	12.1	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		44.6	5.95	
5	PCB-089			ND		22.3	3.03	
5	PCB-090/101/113			ND		66.9	11.7	
5	PCB-092			ND		22.3	3.36	
5	PCB-093/098/100/102			ND		89.2	8.58	
5	PCB-094			ND		22.3	2.03	
5	PCB-095			ND		62.5	14.3	
5	PCB-096			ND		22.3	3.81	
5	PCB-099			ND		22.3	4.50	
5	PCB-103			ND		22.3	2.91	
5	PCB-104			ND		22.3	2.59	
5	PCB-105			ND		22.3	3.96	
5	PCB-106			ND		22.3	2.34	
5	PCB-107/124			ND		44.6	3.99	
5	PCB-109			ND		22.3	3.09	
5	PCB-110/115			ND		44.6	8.00	
5	PCB-111			ND		22.3	2.38	
5	PCB-112			ND		22.3	2.43	
5	PCB-114			ND		22.3	2.14	
5	PCB-118			ND		34.8	5.72	
5	PCB-120			ND		22.3	2.53	
5	PCB-121			ND		22.3	2.14	
5	PCB-122			ND		22.3	3.51	
5	PCB-123			ND		22.3	2.48	
5	PCB-126			ND		22.3	2.25	
5	PCB-127			ND		22.3	2.51	
6	PCB-128/166			ND		44.6	4.88	
6	PCB-129/138/163			ND		66.9	9.73	
6	PCB-130			ND		22.3	2.68	
6	PCB-131			ND		22.3	2.94	
6	PCB-132			ND		22.3	4.27	
6	PCB-133			ND		22.3	2.82	
6	PCB-134/143			ND		44.6	4.11	
6	PCB-135/151			ND		44.6	8.27	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		22.3	4.27	
6	PCB-137			ND		22.3	3.22	
6	PCB-139/140			ND		44.6	3.94	
6	PCB-141			ND		22.3	3.61	
6	PCB-142			ND		22.3	2.61	
6	PCB-144			ND		22.3	3.61	
6	PCB-145			ND		22.3	2.35	
6	PCB-146			ND		22.3	3.52	
6	PCB-147/149			ND		44.6	10.4	
6	PCB-148			ND		22.3	4.89	
6	PCB-150			ND		22.3	2.64	
6	PCB-152			ND		22.3	2.87	
6	PCB-153/168			ND		44.6	6.82	
6	PCB-154			ND		22.3	2.96	
6	PCB-155			ND		22.3	2.66	
6	PCB-156/157			ND		44.6	3.81	
6	PCB-158			ND		22.3	2.08	
6	PCB-159			ND		22.3	2.49	
6	PCB-160			ND		22.3	2.54	
6	PCB-161			ND		22.3	2.04	
6	PCB-162			ND		22.3	2.28	
6	PCB-164			ND		22.3	2.66	
6	PCB-165			ND		22.3	1.89	
6	PCB-167			ND		22.3	2.62	
6	PCB-169			ND		22.3	2.89	
7	PCB-170			ND		22.3	4.54	
7	PCB-171/173			ND		44.6	4.21	
7	PCB-172			ND		22.3	2.88	
7	PCB-174			ND		22.3	4.75	
7	PCB-175			ND		22.3	2.21	
7	PCB-176			ND		22.3	3.11	
7	PCB-177			ND		22.3	3.85	
7	PCB-178			ND		22.3	3.11	
7	PCB-179			ND		22.3	3.45	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		44.6	8.22	
7	PCB-181			ND		22.3	2.57	
7	PCB-182			ND		22.3	2.86	
7	PCB-183/185			ND		44.6	5.54	
7	PCB-184			ND		22.3	2.45	
7	PCB-186			ND		22.3	2.61	
7	PCB-187			ND		22.3	5.07	
7	PCB-188			ND		22.3	1.95	
7	PCB-189			ND		22.3	2.97	
7	PCB-190			ND		22.3	2.48	
7	PCB-191			ND		22.3	1.99	
7	PCB-192			ND		22.3	2.53	
8	PCB-194			ND		22.3	3.03	
8	PCB-195			ND		22.3	2.68	
8	PCB-196			ND		22.3	2.52	
8	PCB-197/200			ND		44.6	5.40	
8	PCB-198/199			ND		44.6	4.15	
8	PCB-201			ND		22.3	2.20	
8	PCB-202			ND		22.3	1.56	
8	PCB-203			ND		22.3	3.04	
8	PCB-204			ND		22.3	2.04	
8	PCB-205			ND		22.3	2.49	
9	PCB-206			ND		22.3	2.58	
9	PCB-207			ND		22.3	2.03	
9	PCB-208			ND		22.3	2.17	
10	PCB-209			ND		22.3	3.33	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-106**
Lab Sample ID: 10705003002
Lab File ID: Y240901B_12
Matrix: Solid
Percent Solids: 56%
Date Collected: 08/14/2024 14:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 01:30
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 20.0g
Dry Weight Extracted: 11.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901B02
CCal File(s): Y240901B_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	9.48	J
Total DiCB	93.5	BJ
Total TrCB	ND	
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	103	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-02 (0-4.7')**
Lab Sample ID: 10705003003
Lab File ID: Y240902A_07
Matrix: Solid
Percent Solids: 52.87%
Date Collected: 08/15/2024 12:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 09:40
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.24	2.80	2.00	0.752	38	
1	PCB-003L	13.15	3.18	2.00	0.984	49	
2	PCB-004L	13.47	1.59	2.00	1.02	51	
2	PCB-015L	20.67	1.52	2.00	1.49	74	
3	PCB-019L	17.36	1.00	2.00	1.27	63	
3	PCB-037L	28.48	1.07	2.00	1.70	85	
4	PCB-054L	21.02	0.81	2.00	1.13	56	
4	PCB-077L	36.20	0.79	2.00	1.99	100	
4	PCB-081L	35.60	0.78	2.00	1.90	95	
5	PCB-104L	27.17	1.55	2.00	1.33	66	
5	PCB-105L	39.76	1.58	2.00	1.78	89	
5	PCB-114L	39.12	1.49	2.00	1.76	88	
5	PCB-118L	38.57	1.52	2.00	1.74	87	
5	PCB-123L	38.22	1.55	2.00	1.67	84	
5	PCB-126L	42.91	1.55	2.00	1.95	97	
6	PCB-155L	33.23	1.27	2.00	1.34	67	
6	PCB-156/157L	45.97	1.32	4.00	3.33	83	
6	PCB-167L	44.80	1.28	2.00	1.64	82	
6	PCB-169L	49.22	1.23	2.00	1.70	85	
7	PCB-188L	39.11	1.04	2.00	1.53	76	
7	PCB-189L	51.79	1.06	2.00	1.67	84	
8	PCB-202L	44.56	0.92	2.00	1.46	73	
8	PCB-205L	54.38	0.90	2.00	1.48	74	
9	PCB-206L	56.12	0.78	2.00	1.35	68	
9	PCB-208L	51.32	0.77	2.00	1.41	70	
10	PCB-209L	57.76	0.74	2.00	1.39	70	
Recovery Standards							
2	PCB-009L	15.98	1.57	2.00	1.99	N/A	
4	PCB-052L	26.12	0.78	2.00	2.22	N/A	
5	PCB-101L	33.43	1.57	2.00	2.27	N/A	
6	PCB-138L	41.74	1.24	2.00	2.47	N/A	
8	PCB-194L	53.90	0.88	2.00	2.32	N/A	
Cleanup Standards							
3	PCB-028L	24.12	1.08	2.00	1.49	75	
5	PCB-111L	36.23	1.54	2.00	1.55	78	
7	PCB-178L	42.19	1.05	2.00	1.62	81	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (0-4.7')**
Lab Sample ID: 10705003003
Lab File ID: Y240902A_07
Matrix: Solid
Percent Solids: 52.87%
Date Collected: 08/15/2024 12:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 09:40
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		20.1	2.88	
1	PCB-002	12.95	2.87	8.02	J	20.1	3.02	
1	PCB-003			ND		20.1	3.03	
2	PCB-004			ND	A	20.1	3.43	
2	PCB-005			ND	A	20.1	2.11	
2	PCB-006			ND		20.1	3.16	
2	PCB-007			ND		20.1	2.83	
2	PCB-008			ND		20.1	5.51	
2	PCB-009			ND		20.1	2.72	
2	PCB-010			ND	A	20.1	2.98	
2	PCB-011	19.98	1.64	81.0	BJ	197	73.6	
2	PCB-012/013			ND		40.2	5.64	
2	PCB-014			ND	A	20.1	2.32	
2	PCB-015	20.69	1.00 *		JI	26.5	5.24	5.74
3	PCB-016			ND		20.1	5.72	
3	PCB-017			ND		20.1	6.41	
3	PCB-018/030			ND		40.2	14.4	
3	PCB-019			ND		20.1	2.24	
3	PCB-020/028			ND		104	21.6	
3	PCB-021/033			ND		109	11.8	
3	PCB-022			ND		76.4	10.1	
3	PCB-023			ND		20.1	2.24	
3	PCB-024			ND		20.1	3.16	
3	PCB-025			ND		20.1	2.80	
3	PCB-026/029			ND		40.2	5.13	
3	PCB-027			ND		20.1	3.88	
3	PCB-031			ND		105	18.3	
3	PCB-032			ND		20.1	6.26	
3	PCB-034			ND		20.1	2.46	
3	PCB-035			ND		20.1	2.98	
3	PCB-036			ND		20.1	2.22	
3	PCB-037	28.50	1.27 *		JI	42.6	4.77	5.09
3	PCB-038			ND		20.1	1.90	
3	PCB-039			ND		20.1	2.48	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (0-4.7')**
Lab Sample ID: 10705003003
Lab File ID: Y240902A_07
Matrix: Solid
Percent Solids: 52.87%
Date Collected: 08/15/2024 12:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 09:40
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		60.3	11.2	
4	PCB-042			ND		20.1	4.45	
4	PCB-043/073			ND		40.2	9.09	
4	PCB-044/047/065			ND		60.3	16.9	
4	PCB-045/051			ND		40.2	8.36	
4	PCB-046			ND		20.1	2.80	
4	PCB-048			ND		20.1	3.41	
4	PCB-069/049			ND		40.2	8.93	
4	PCB-050/053			ND		40.2	6.75	
4	PCB-052			ND		104	18.6	
4	PCB-054			ND		20.1	1.98	
4	PCB-055			ND		20.1	2.70	
4	PCB-056	32.36	0.67	5.35	J	20.1	4.55	
4	PCB-057			ND		20.1	2.05	
4	PCB-058			ND		20.1	1.75	
4	PCB-059/062/075			ND		60.3	4.73	
4	PCB-060			ND		20.1	4.63	
4	PCB-061/070/074/076	31.30	0.74	15.3	J	80.4	13.8	
4	PCB-063			ND		20.1	2.16	
4	PCB-064	28.57	0.83	4.93	J	20.1	4.79	
4	PCB-066			ND		47.4	11.7	
4	PCB-067			ND		20.1	1.96	
4	PCB-068			ND		20.1	2.20	
4	PCB-072			ND		20.1	1.87	
4	PCB-077			ND		20.1	2.57	
4	PCB-078			ND		20.1	2.36	
4	PCB-079			ND		20.1	2.38	
4	PCB-080			ND		20.1	1.45	
4	PCB-081			ND		20.1	1.91	
5	PCB-082			ND		20.1	5.94	
5	PCB-083			ND		20.1	2.42	
5	PCB-084			ND		20.1	3.63	
5	PCB-085/116/117			ND		60.3	5.97	
5	PCB-086/087/097/108/119/12			ND		121	10.9	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (0-4.7')**
Lab Sample ID: 10705003003
Lab File ID: Y240902A_07
Matrix: Solid
Percent Solids: 52.87%
Date Collected: 08/15/2024 12:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 09:40
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		40.2	5.36	
5	PCB-089			ND		20.1	2.73	
5	PCB-090/101/113			ND		60.3	10.5	
5	PCB-092			ND		20.1	3.02	
5	PCB-093/098/100/102			ND		80.4	7.73	
5	PCB-094			ND		20.1	1.83	
5	PCB-095			ND		56.3	12.9	
5	PCB-096			ND		20.1	3.43	
5	PCB-099	34.07	1.81 *		JI	20.1	4.05	4.84
5	PCB-103			ND		20.1	2.62	
5	PCB-104			ND		20.1	2.33	
5	PCB-105	39.78	1.55	3.85	J	20.1	3.57	
5	PCB-106			ND		20.1	2.11	
5	PCB-107/124			ND		40.2	3.59	
5	PCB-109			ND		20.1	2.78	
5	PCB-110/115	35.50	1.48	11.2	J	40.2	7.20	
5	PCB-111			ND		20.1	2.15	
5	PCB-112			ND		20.1	2.19	
5	PCB-114			ND		20.1	1.93	
5	PCB-118	38.59	1.69	7.85	J	31.4	5.15	
5	PCB-120			ND		20.1	2.28	
5	PCB-121			ND		20.1	1.93	
5	PCB-122			ND		20.1	3.16	
5	PCB-123			ND		20.1	2.24	
5	PCB-126			ND		20.1	2.03	
5	PCB-127			ND		20.1	2.26	
6	PCB-128/166			ND		40.2	4.40	
6	PCB-129/138/163	41.77	1.16	13.3	J	60.3	8.76	
6	PCB-130			ND		20.1	2.41	
6	PCB-131			ND		20.1	2.65	
6	PCB-132			ND		20.1	3.84	
6	PCB-133			ND		20.1	2.54	
6	PCB-134/143			ND		40.2	3.71	
6	PCB-135/151			ND		40.2	7.45	

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Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		20.1	3.84	
6	PCB-137			ND		20.1	2.90	
6	PCB-139/140			ND		40.2	3.55	
6	PCB-141			ND		20.1	3.26	
6	PCB-142			ND		20.1	2.36	
6	PCB-144			ND		20.1	3.25	
6	PCB-145			ND		20.1	2.11	
6	PCB-146			ND		20.1	3.18	
6	PCB-147/149	37.41	1.27	11.4	J	40.2	9.33	
6	PCB-148			ND		20.1	4.41	
6	PCB-150			ND		20.1	2.38	
6	PCB-152			ND		20.1	2.59	
6	PCB-153/168	40.50	1.15	11.6	J	40.2	6.14	
6	PCB-154			ND		20.1	2.67	
6	PCB-155			ND		20.1	2.40	
6	PCB-156/157			ND		40.2	3.43	
6	PCB-158			ND		20.1	1.87	
6	PCB-159			ND		20.1	2.24	
6	PCB-160			ND		20.1	2.29	
6	PCB-161			ND		20.1	1.84	
6	PCB-162			ND		20.1	2.06	
6	PCB-164			ND		20.1	2.40	
6	PCB-165			ND		20.1	1.70	
6	PCB-167			ND		20.1	2.36	
6	PCB-169			ND		20.1	2.61	
7	PCB-170			ND		20.1	4.09	
7	PCB-171/173			ND		40.2	3.80	
7	PCB-172			ND		20.1	2.60	
7	PCB-174	44.02	0.89	4.49	J	20.1	4.28	
7	PCB-175			ND		20.1	1.99	
7	PCB-176			ND		20.1	2.81	
7	PCB-177			ND		20.1	3.47	
7	PCB-178			ND		20.1	2.80	
7	PCB-179			ND		20.1	3.11	

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Method 1668A

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Date Analyzed: 09/02/2024 09:40
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		40.2	7.41	
7	PCB-181			ND		20.1	2.32	
7	PCB-182			ND		20.1	2.58	
7	PCB-183/185			ND		40.2	4.99	
7	PCB-184			ND		20.1	2.20	
7	PCB-186			ND		20.1	2.35	
7	PCB-187	43.15	1.24 *		JI	20.1	4.57	5.01
7	PCB-188			ND		20.1	1.76	
7	PCB-189			ND		20.1	2.68	
7	PCB-190			ND		20.1	2.24	
7	PCB-191			ND		20.1	1.79	
7	PCB-192			ND		20.1	2.28	
8	PCB-194			ND		20.1	2.73	
8	PCB-195			ND		20.1	2.41	
8	PCB-196			ND		20.1	2.27	
8	PCB-197/200			ND		40.2	4.86	
8	PCB-198/199	49.37	1.11 *		JI	40.2	3.74	4.23
8	PCB-201			ND		20.1	1.98	
8	PCB-202	44.59	1.20 *		JI	20.1	1.41	1.58
8	PCB-203			ND		20.1	2.74	
8	PCB-204			ND		20.1	1.84	
8	PCB-205			ND		20.1	2.24	
9	PCB-206	56.17	0.70	11.0	JA	20.1	2.32	
9	PCB-207			ND		20.1	1.83	
9	PCB-208	51.36	0.71	5.25	J	20.1	1.95	
10	PCB-209	57.78	0.67	12.9	J	20.1	3.00	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-02 (0-4.7')**
Lab Sample ID: 10705003003
Lab File ID: Y240902A_07
Matrix: Solid
Percent Solids: 52.87%
Date Collected: 08/15/2024 12:30
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 09:40
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 23.5g
Dry Weight Extracted: 12.4g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	8.02	J
Total DiCB	81.0	BJ
Total TrCB	ND	J
Total TeCB	25.6	J
Total PeCB	22.9	J
Total HxCB	36.4	J
Total HpCB	4.49	J
Total OcCB	ND	J
Total NoCB	16.2	J
DeCB	12.9	J
Total PCBs	207	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-02 (4.7'-17')**
Lab Sample ID: 10705003004
Lab File ID: Y240902A_06
Matrix: Solid
Percent Solids: 83.04%
Date Collected: 08/15/2024 13:50
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 08:38
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 17.3g
Dry Weight Extracted: 14.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.26	2.79	2.00	0.956	48	
1	PCB-003L	13.18	2.91	2.00	1.18	59	
2	PCB-004L	13.49	1.48	2.00	1.11	55	
2	PCB-015L	20.68	1.74	2.00	1.55	78	
3	PCB-019L	17.41	1.06	2.00	1.40	70	
3	PCB-037L	28.48	1.03	2.00	1.81	90	
4	PCB-054L	21.04	0.78	2.00	1.31	65	
4	PCB-077L	36.20	0.81	2.00	2.11	106	
4	PCB-081L	35.59	0.75	2.00	2.08	104	
5	PCB-104L	27.17	1.59	2.00	1.53	76	
5	PCB-105L	39.76	1.61	2.00	2.06	103	
5	PCB-114L	39.12	1.53	2.00	2.01	100	
5	PCB-118L	38.57	1.56	2.00	1.94	97	
5	PCB-123L	38.23	1.62	2.00	1.98	99	
5	PCB-126L	42.91	1.61	2.00	2.24	112	
6	PCB-155L	33.21	1.34	2.00	1.45	72	
6	PCB-156/157L	45.97	1.25	4.00	3.63	91	
6	PCB-167L	44.79	1.28	2.00	1.79	89	
6	PCB-169L	49.24	1.25	2.00	1.86	93	
7	PCB-188L	39.10	1.05	2.00	1.69	84	
7	PCB-189L	51.79	1.05	2.00	1.95	98	
8	PCB-202L	44.56	0.90	2.00	1.63	81	
8	PCB-205L	54.38	0.92	2.00	1.54	77	
9	PCB-206L	56.12	0.83	2.00	1.56	78	
9	PCB-208L	51.32	0.78	2.00	1.60	80	
10	PCB-209L	57.76	0.67	2.00	1.59	79	
Recovery Standards							
2	PCB-009L	16.11	1.57	2.00	2.18	N/A	
4	PCB-052L	26.12	0.80	2.00	2.32	N/A	
5	PCB-101L	33.41	1.65	2.00	2.25	N/A	
6	PCB-138L	41.74	1.27	2.00	2.59	N/A	
8	PCB-194L	53.90	0.88	2.00	2.40	N/A	
Cleanup Standards							
3	PCB-028L	24.12	0.98	2.00	1.46	73	
5	PCB-111L	36.25	1.61	2.00	1.58	79	
7	PCB-178L	42.19	1.09	2.00	1.54	77	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (4.7'-17')**
Lab Sample ID: 10705003004
Lab File ID: Y240902A_06
Matrix: Solid
Percent Solids: 83.04%
Date Collected: 08/15/2024 13:50
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 08:38
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 17.3g
Dry Weight Extracted: 14.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		17.4	2.49	
1	PCB-002			ND		17.4	2.62	
1	PCB-003			ND		17.4	2.63	
2	PCB-004			ND	A	17.4	2.98	
2	PCB-005			ND	A	17.4	1.83	
2	PCB-006			ND		17.4	2.74	
2	PCB-007			ND	A	17.4	2.45	
2	PCB-008			ND		17.4	4.77	
2	PCB-009			ND	A	17.4	2.36	
2	PCB-010			ND	A	17.4	2.58	
2	PCB-011	20.01	1.50	74.3	BJ	171	63.8	
2	PCB-012/013			ND		34.8	4.89	
2	PCB-014			ND	A	17.4	2.01	
2	PCB-015			ND		23.0	4.54	
3	PCB-016			ND		17.4	4.95	
3	PCB-017			ND		17.4	5.55	
3	PCB-018/030			ND		34.8	12.5	
3	PCB-019			ND		17.4	1.94	
3	PCB-020/028			ND		89.9	18.7	
3	PCB-021/033			ND		94.1	10.2	
3	PCB-022			ND		66.2	8.71	
3	PCB-023			ND		17.4	1.94	
3	PCB-024			ND		17.4	2.74	
3	PCB-025			ND		17.4	2.43	
3	PCB-026/029			ND		34.8	4.45	
3	PCB-027			ND		17.4	3.36	
3	PCB-031			ND		90.6	15.8	
3	PCB-032			ND		17.4	5.42	
3	PCB-034			ND		17.4	2.13	
3	PCB-035			ND		17.4	2.58	
3	PCB-036			ND		17.4	1.92	
3	PCB-037			ND		36.9	4.13	
3	PCB-038			ND		17.4	1.64	
3	PCB-039			ND		17.4	2.15	

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Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		52.3	9.69	
4	PCB-042			ND		17.4	3.86	
4	PCB-043/073			ND		34.8	7.87	
4	PCB-044/047/065			ND		52.3	14.6	
4	PCB-045/051			ND		34.8	7.25	
4	PCB-046			ND		17.4	2.43	
4	PCB-048			ND		17.4	2.95	
4	PCB-069/049			ND		34.8	7.74	
4	PCB-050/053			ND		34.8	5.85	
4	PCB-052			ND		89.9	16.1	
4	PCB-054			ND		17.4	1.71	
4	PCB-055			ND		17.4	2.34	
4	PCB-056			ND		17.4	3.94	
4	PCB-057			ND		17.4	1.78	
4	PCB-058			ND		17.4	1.52	
4	PCB-059/062/075			ND		52.3	4.10	
4	PCB-060			ND		17.4	4.01	
4	PCB-061/070/074/076			ND		69.7	12.0	
4	PCB-063			ND		17.4	1.87	
4	PCB-064			ND		17.4	4.15	
4	PCB-066			ND		41.1	10.2	
4	PCB-067			ND		17.4	1.70	
4	PCB-068			ND		17.4	1.90	
4	PCB-072			ND		17.4	1.62	
4	PCB-077			ND		17.4	2.22	
4	PCB-078			ND		17.4	2.04	
4	PCB-079			ND		17.4	2.06	
4	PCB-080			ND		17.4	1.25	
4	PCB-081			ND		17.4	1.65	
5	PCB-082			ND		17.4	5.15	
5	PCB-083			ND		17.4	2.10	
5	PCB-084			ND		17.4	3.14	
5	PCB-085/116/117			ND		52.3	5.18	
5	PCB-086/087/097/108/119/12			ND		105	9.48	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (4.7'-17')**
Lab Sample ID: 10705003004
Lab File ID: Y240902A_06
Matrix: Solid
Percent Solids: 83.04%
Date Collected: 08/15/2024 13:50
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 08:38
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 17.3g
Dry Weight Extracted: 14.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		34.8	4.65	
5	PCB-089			ND		17.4	2.37	
5	PCB-090/101/113			ND		52.3	9.13	
5	PCB-092			ND		17.4	2.62	
5	PCB-093/098/100/102			ND		69.7	6.70	
5	PCB-094			ND		17.4	1.58	
5	PCB-095			ND		48.8	11.2	
5	PCB-096			ND		17.4	2.98	
5	PCB-099			ND		17.4	3.51	
5	PCB-103			ND		17.4	2.27	
5	PCB-104			ND		17.4	2.02	
5	PCB-105			ND		17.4	3.09	
5	PCB-106			ND		17.4	1.83	
5	PCB-107/124			ND		34.8	3.12	
5	PCB-109			ND		17.4	2.41	
5	PCB-110/115			ND		34.8	6.24	
5	PCB-111			ND		17.4	1.86	
5	PCB-112			ND		17.4	1.90	
5	PCB-114			ND		17.4	1.67	
5	PCB-118			ND		27.2	4.47	
5	PCB-120			ND		17.4	1.98	
5	PCB-121			ND		17.4	1.67	
5	PCB-122			ND		17.4	2.74	
5	PCB-123			ND		17.4	1.94	
5	PCB-126			ND		17.4	1.76	
5	PCB-127			ND		17.4	1.96	
6	PCB-128/166			ND		34.8	3.81	
6	PCB-129/138/163			ND		52.3	7.60	
6	PCB-130			ND		17.4	2.09	
6	PCB-131			ND		17.4	2.30	
6	PCB-132			ND		17.4	3.33	
6	PCB-133			ND		17.4	2.20	
6	PCB-134/143			ND		34.8	3.21	
6	PCB-135/151			ND		34.8	6.46	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (4.7'-17')**
Lab Sample ID: 10705003004
Lab File ID: Y240902A_06
Matrix: Solid
Percent Solids: 83.04%
Date Collected: 08/15/2024 13:50
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 08:38
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 17.3g
Dry Weight Extracted: 14.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		17.4	3.33	
6	PCB-137			ND		17.4	2.52	
6	PCB-139/140			ND		34.8	3.08	
6	PCB-141			ND		17.4	2.82	
6	PCB-142			ND		17.4	2.04	
6	PCB-144			ND		17.4	2.82	
6	PCB-145			ND		17.4	1.83	
6	PCB-146			ND		17.4	2.75	
6	PCB-147/149			ND		34.8	8.08	
6	PCB-148			ND		17.4	3.82	
6	PCB-150			ND		17.4	2.06	
6	PCB-152			ND		17.4	2.24	
6	PCB-153/168			ND		34.8	5.32	
6	PCB-154			ND		17.4	2.31	
6	PCB-155			ND		17.4	2.08	
6	PCB-156/157			ND		34.8	2.98	
6	PCB-158			ND		17.4	1.62	
6	PCB-159			ND		17.4	1.94	
6	PCB-160			ND		17.4	1.99	
6	PCB-161			ND		17.4	1.60	
6	PCB-162			ND		17.4	1.78	
6	PCB-164			ND		17.4	2.08	
6	PCB-165			ND		17.4	1.48	
6	PCB-167			ND		17.4	2.05	
6	PCB-169			ND		17.4	2.26	
7	PCB-170			ND		17.4	3.55	
7	PCB-171/173			ND		34.8	3.29	
7	PCB-172			ND		17.4	2.25	
7	PCB-174			ND		17.4	3.71	
7	PCB-175			ND		17.4	1.73	
7	PCB-176			ND		17.4	2.43	
7	PCB-177			ND		17.4	3.01	
7	PCB-178			ND		17.4	2.43	
7	PCB-179			ND		17.4	2.70	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-02 (4.7'-17')**
Lab Sample ID: 10705003004
Lab File ID: Y240902A_06
Matrix: Solid
Percent Solids: 83.04%
Date Collected: 08/15/2024 13:50
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 08:38
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 17.3g
Dry Weight Extracted: 14.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		34.8	6.42	
7	PCB-181			ND		17.4	2.01	
7	PCB-182			ND		17.4	2.24	
7	PCB-183/185			ND		34.8	4.33	
7	PCB-184			ND		17.4	1.91	
7	PCB-186			ND		17.4	2.03	
7	PCB-187			ND		17.4	3.96	
7	PCB-188			ND		17.4	1.53	
7	PCB-189			ND		17.4	2.32	
7	PCB-190			ND		17.4	1.94	
7	PCB-191			ND		17.4	1.55	
7	PCB-192			ND		17.4	1.97	
8	PCB-194			ND		17.4	2.36	
8	PCB-195			ND		17.4	2.09	
8	PCB-196			ND		17.4	1.97	
8	PCB-197/200			ND		34.8	4.22	
8	PCB-198/199			ND		34.8	3.24	
8	PCB-201			ND		17.4	1.71	
8	PCB-202			ND		17.4	1.22	
8	PCB-203			ND		17.4	2.38	
8	PCB-204			ND		17.4	1.60	
8	PCB-205			ND		17.4	1.94	
9	PCB-206			ND		17.4	2.01	
9	PCB-207			ND		17.4	1.59	
9	PCB-208			ND		17.4	1.69	
10	PCB-209			ND		17.4	2.60	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-02 (4.7'-17')**
Lab Sample ID: 10705003004
Lab File ID: Y240902A_06
Matrix: Solid
Percent Solids: 83.04%
Date Collected: 08/15/2024 13:50
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 08:38
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 17.3g
Dry Weight Extracted: 14.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	ND	
Total DiCB	74.3	BJ
Total TrCB	ND	
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	74.3	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-04 (0-17')**
Lab Sample ID: 10705003005
Lab File ID: Y240902A_08
Matrix: Solid
Percent Solids: 49.37%
Date Collected: 08/16/2024 11:10
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 10:41
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 21.9g
Dry Weight Extracted: 10.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.26	3.29	2.00	1.17	59	
1	PCB-003L	13.17	2.76	2.00	1.39	69	
2	PCB-004L	13.48	1.57	2.00	1.26	63	
2	PCB-015L	20.66	1.59	2.00	1.70	85	
3	PCB-019L	17.37	1.12	2.00	1.45	73	
3	PCB-037L	28.48	1.10	2.00	1.82	91	
4	PCB-054L	21.02	0.79	2.00	1.31	65	
4	PCB-077L	36.22	0.79	2.00	2.14	107	
4	PCB-081L	35.59	0.80	2.00	2.09	105	
5	PCB-104L	27.17	1.53	2.00	1.57	78	
5	PCB-105L	39.77	1.67	2.00	1.94	97	
5	PCB-114L	39.12	1.46	2.00	1.95	97	
5	PCB-118L	38.57	1.61	2.00	2.04	102	
5	PCB-123L	38.23	1.59	2.00	1.94	97	
5	PCB-126L	42.91	1.61	2.00	2.19	110	
6	PCB-155L	33.21	1.27	2.00	1.50	75	
6	PCB-156/157L	45.97	1.27	4.00	3.57	89	
6	PCB-167L	44.79	1.23	2.00	1.75	88	
6	PCB-169L	49.24	1.33	2.00	1.90	95	
7	PCB-188L	39.12	1.02	2.00	1.62	81	
7	PCB-189L	51.79	1.13	2.00	1.83	92	
8	PCB-202L	44.56	0.91	2.00	1.61	80	
8	PCB-205L	54.38	0.86	2.00	1.57	79	
9	PCB-206L	56.12	0.78	2.00	1.50	75	
9	PCB-208L	51.32	0.81	2.00	1.51	75	
10	PCB-209L	57.76	0.76	2.00	1.49	74	
Recovery Standards							
2	PCB-009L	16.00	1.60	2.00	1.97	N/A	
4	PCB-052L	26.12	0.76	2.00	2.14	N/A	
5	PCB-101L	33.43	1.58	2.00	2.13	N/A	
6	PCB-138L	41.74	1.29	2.00	2.37	N/A	
8	PCB-194L	53.90	0.92	2.00	2.24	N/A	
Cleanup Standards							
3	PCB-028L	24.12	1.09	2.00	1.67	83	
5	PCB-111L	36.27	1.58	2.00	1.62	81	
7	PCB-178L	42.19	1.08	2.00	1.68	84	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-04 (0-17')**
Lab Sample ID: 10705003005
Lab File ID: Y240902A_08
Matrix: Solid
Percent Solids: 49.37%
Date Collected: 08/16/2024 11:10
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 10:41
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 21.9g
Dry Weight Extracted: 10.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		23.1	3.31	
1	PCB-002	12.95	2.69	6.34	J	23.1	3.48	
1	PCB-003			ND		23.1	3.49	
2	PCB-004			ND	A	23.1	3.95	
2	PCB-005			ND	A	23.1	2.43	
2	PCB-006			ND		23.1	3.64	
2	PCB-007			ND		23.1	3.26	
2	PCB-008			ND		23.1	6.34	
2	PCB-009			ND	A	23.1	3.13	
2	PCB-010			ND	A	23.1	3.42	
2	PCB-011	19.97	1.63	96.8	BJ	227	84.7	
2	PCB-012/013			ND		46.3	6.49	
2	PCB-014			ND	A	23.1	2.67	
2	PCB-015			ND		30.5	6.03	
3	PCB-016			ND		23.1	6.58	
3	PCB-017			ND		23.1	7.38	
3	PCB-018/030			ND		46.3	16.6	
3	PCB-019			ND		23.1	2.57	
3	PCB-020/028			ND		119	24.8	
3	PCB-021/033			ND		125	13.6	
3	PCB-022			ND		87.9	11.6	
3	PCB-023			ND		23.1	2.58	
3	PCB-024			ND		23.1	3.64	
3	PCB-025			ND		23.1	3.22	
3	PCB-026/029			ND		46.3	5.90	
3	PCB-027			ND		23.1	4.46	
3	PCB-031			ND		120	21.0	
3	PCB-032			ND		23.1	7.20	
3	PCB-034			ND		23.1	2.83	
3	PCB-035	28.06	1.05	3.43	J	23.1	3.42	
3	PCB-036			ND		23.1	2.55	
3	PCB-037			ND		49.0	5.49	
3	PCB-038			ND		23.1	2.18	
3	PCB-039			ND		23.1	2.86	

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Sample Analysis Summary

Method 1668A

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Prep. Technique: Soxhlet
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Extract Volume: 200 uL
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Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		69.4	12.9	
4	PCB-042			ND		23.1	5.13	
4	PCB-043/073			ND		46.3	10.5	
4	PCB-044/047/065			ND		69.4	19.4	
4	PCB-045/051			ND		46.3	9.62	
4	PCB-046			ND		23.1	3.22	
4	PCB-048			ND		23.1	3.92	
4	PCB-069/049			ND		46.3	10.3	
4	PCB-050/053			ND		46.3	7.76	
4	PCB-052			ND		119	21.4	
4	PCB-054			ND		23.1	2.28	
4	PCB-055			ND		23.1	3.11	
4	PCB-056			ND		23.1	5.24	
4	PCB-057			ND		23.1	2.36	
4	PCB-058			ND		23.1	2.02	
4	PCB-059/062/075			ND		69.4	5.44	
4	PCB-060			ND		23.1	5.33	
4	PCB-061/070/074/076			ND		92.5	15.9	
4	PCB-063			ND		23.1	2.48	
4	PCB-064			ND		23.1	5.52	
4	PCB-066			ND		54.6	13.5	
4	PCB-067			ND		23.1	2.26	
4	PCB-068			ND		23.1	2.53	
4	PCB-072			ND		23.1	2.16	
4	PCB-077			ND		23.1	2.95	
4	PCB-078			ND		23.1	2.71	
4	PCB-079			ND		23.1	2.74	
4	PCB-080			ND		23.1	1.67	
4	PCB-081			ND		23.1	2.19	
5	PCB-082			ND		23.1	6.84	
5	PCB-083			ND		23.1	2.79	
5	PCB-084			ND		23.1	4.17	
5	PCB-085/116/117			ND		69.4	6.88	
5	PCB-086/087/097/108/119/12			ND		139	12.6	

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Sample Analysis Summary

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Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 21.9g
Dry Weight Extracted: 10.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		46.3	6.17	
5	PCB-089			ND		23.1	3.15	
5	PCB-090/101/113			ND		69.4	12.1	
5	PCB-092			ND		23.1	3.48	
5	PCB-093/098/100/102			ND		92.5	8.89	
5	PCB-094			ND		23.1	2.10	
5	PCB-095			ND		64.8	14.8	
5	PCB-096			ND		23.1	3.95	
5	PCB-099			ND		23.1	4.66	
5	PCB-103			ND		23.1	3.02	
5	PCB-104			ND		23.1	2.68	
5	PCB-105			ND		23.1	4.11	
5	PCB-106			ND		23.1	2.42	
5	PCB-107/124			ND		46.3	4.14	
5	PCB-109			ND		23.1	3.20	
5	PCB-110/115			ND		46.3	8.29	
5	PCB-111			ND		23.1	2.47	
5	PCB-112			ND		23.1	2.52	
5	PCB-114			ND		23.1	2.22	
5	PCB-118			ND		36.1	5.93	
5	PCB-120			ND		23.1	2.63	
5	PCB-121			ND		23.1	2.22	
5	PCB-122			ND		23.1	3.64	
5	PCB-123			ND		23.1	2.57	
5	PCB-126			ND		23.1	2.33	
5	PCB-127			ND		23.1	2.60	
6	PCB-128/166			ND		46.3	5.06	
6	PCB-129/138/163			ND		69.4	10.1	
6	PCB-130			ND		23.1	2.78	
6	PCB-131			ND		23.1	3.05	
6	PCB-132			ND		23.1	4.42	
6	PCB-133			ND		23.1	2.92	
6	PCB-134/143			ND		46.3	4.27	
6	PCB-135/151			ND		46.3	8.58	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-04 (0-17')**
Lab Sample ID: 10705003005
Lab File ID: Y240902A_08
Matrix: Solid
Percent Solids: 49.37%
Date Collected: 08/16/2024 11:10
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 10:41
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 21.9g
Dry Weight Extracted: 10.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		23.1	4.42	
6	PCB-137			ND		23.1	3.34	
6	PCB-139/140			ND		46.3	4.09	
6	PCB-141			ND		23.1	3.75	
6	PCB-142			ND		23.1	2.71	
6	PCB-144			ND		23.1	3.74	
6	PCB-145			ND		23.1	2.43	
6	PCB-146			ND		23.1	3.66	
6	PCB-147/149			ND		46.3	10.7	
6	PCB-148			ND		23.1	5.07	
6	PCB-150			ND		23.1	2.74	
6	PCB-152			ND		23.1	2.98	
6	PCB-153/168			ND		46.3	7.07	
6	PCB-154			ND		23.1	3.07	
6	PCB-155			ND		23.1	2.76	
6	PCB-156/157			ND		46.3	3.95	
6	PCB-158			ND		23.1	2.16	
6	PCB-159			ND		23.1	2.58	
6	PCB-160			ND		23.1	2.64	
6	PCB-161			ND		23.1	2.12	
6	PCB-162			ND		23.1	2.37	
6	PCB-164			ND		23.1	2.76	
6	PCB-165			ND		23.1	1.96	
6	PCB-167			ND		23.1	2.72	
6	PCB-169			ND		23.1	3.00	
7	PCB-170			ND		23.1	4.71	
7	PCB-171/173			ND		46.3	4.37	
7	PCB-172			ND		23.1	2.99	
7	PCB-174			ND		23.1	4.92	
7	PCB-175			ND		23.1	2.29	
7	PCB-176			ND		23.1	3.23	
7	PCB-177			ND		23.1	4.00	
7	PCB-178			ND		23.1	3.22	
7	PCB-179			ND		23.1	3.58	

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Sample Analysis Summary

Method 1668A

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Lab Sample ID: 10705003005
Lab File ID: Y240902A_08
Matrix: Solid
Percent Solids: 49.37%
Date Collected: 08/16/2024 11:10
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 10:41
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 21.9g
Dry Weight Extracted: 10.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		46.3	8.52	
7	PCB-181			ND		23.1	2.67	
7	PCB-182			ND		23.1	2.97	
7	PCB-183/185			ND		46.3	5.75	
7	PCB-184			ND		23.1	2.54	
7	PCB-186			ND		23.1	2.70	
7	PCB-187			ND		23.1	5.26	
7	PCB-188			ND		23.1	2.03	
7	PCB-189			ND		23.1	3.08	
7	PCB-190			ND		23.1	2.57	
7	PCB-191			ND		23.1	2.06	
7	PCB-192			ND		23.1	2.62	
8	PCB-194			ND		23.1	3.14	
8	PCB-195			ND		23.1	2.78	
8	PCB-196			ND		23.1	2.61	
8	PCB-197/200			ND		46.3	5.60	
8	PCB-198/199			ND		46.3	4.30	
8	PCB-201			ND		23.1	2.28	
8	PCB-202			ND		23.1	1.62	
8	PCB-203			ND		23.1	3.16	
8	PCB-204			ND		23.1	2.12	
8	PCB-205			ND		23.1	2.58	
9	PCB-206			ND		23.1	2.67	
9	PCB-207			ND		23.1	2.11	
9	PCB-208			ND		23.1	2.25	
10	PCB-209			ND		23.1	3.45	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-04 (0-17')**
Lab Sample ID: 10705003005
Lab File ID: Y240902A_08
Matrix: Solid
Percent Solids: 49.37%
Date Collected: 08/16/2024 11:10
Date Received: 08/20/2024 09:40
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/02/2024 10:41
Method Blank ID: BLANK-114398
Lab Spike ID(s): LCS-114399

Prep. Technique: Soxhlet
Total Amount Extracted: 21.9g
Dry Weight Extracted: 10.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	6.34	J
Total DiCB	96.8	BJ
Total TrCB	3.43	J
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	107	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-01 (0-4.3')**
Lab Sample ID: 10705003006
Lab File ID: Y240902A_11
Matrix: Solid
Percent Solids: 33.85%
Date Collected: 08/17/2024 08:20
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 13:45
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114433

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.26	2.98	2.00	1.07	53	
1	PCB-003L	13.17	2.90	2.00	1.22	61	
2	PCB-004L	13.48	1.64	2.00	1.16	58	
2	PCB-015L	20.66	1.62	2.00	1.61	80	
3	PCB-019L	17.37	1.07	2.00	1.32	66	
3	PCB-037L	28.48	1.02	2.00	1.70	85	
4	PCB-054L	21.02	0.81	2.00	1.21	60	
4	PCB-077L	36.18	0.76	2.00	2.09	105	
4	PCB-081L	35.60	0.81	2.00	2.03	102	
5	PCB-104L	27.17	1.55	2.00	1.42	71	
5	PCB-105L	39.76	1.63	2.00	1.81	90	
5	PCB-114L	39.12	1.58	2.00	1.83	92	
5	PCB-118L	38.57	1.50	2.00	1.89	94	
5	PCB-123L	38.22	1.54	2.00	1.85	93	
5	PCB-126L	42.91	1.58	2.00	2.09	104	
6	PCB-155L	33.26	1.21	2.00	1.43	71	
6	PCB-156/157L	45.97	1.27	4.00	3.36	84	
6	PCB-167L	44.79	1.25	2.00	1.67	84	
6	PCB-169L	49.24	1.25	2.00	1.81	90	
7	PCB-188L	39.10	1.08	2.00	1.55	78	
7	PCB-189L	51.79	1.10	2.00	1.76	88	
8	PCB-202L	44.56	0.86	2.00	1.47	74	
8	PCB-205L	54.38	0.86	2.00	1.58	79	
9	PCB-206L	56.14	0.79	2.00	1.42	71	
9	PCB-208L	51.32	0.82	2.00	1.51	76	
10	PCB-209L	57.76	0.71	2.00	1.46	73	
Recovery Standards							
2	PCB-009L	15.99	1.50	2.00	1.88	N/A	
4	PCB-052L	26.12	0.81	2.00	2.06	N/A	
5	PCB-101L	33.47	1.55	2.00	2.13	N/A	
6	PCB-138L	41.74	1.20	2.00	2.39	N/A	
8	PCB-194L	53.90	0.91	2.00	2.23	N/A	
Cleanup Standards							
3	PCB-028L	24.12	1.05	2.00	1.68	84	
5	PCB-111L	36.23	1.55	2.00	1.71	85	
7	PCB-178L	42.19	1.05	2.00	1.67	84	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-01 (0-4.3')**
Lab Sample ID: 10705003006
Lab File ID: Y240902A_11
Matrix: Solid
Percent Solids: 33.85%
Date Collected: 08/17/2024 08:20
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 13:45
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		38.2	5.47	
1	PCB-002	12.95	2.70	6.77	J	38.2	5.75	
1	PCB-003	13.19	2.49 *		JI	38.2	5.76	6.47
2	PCB-004			ND	A	38.2	6.53	
2	PCB-005			ND	A	38.2	4.02	
2	PCB-006			ND		38.2	6.01	
2	PCB-007			ND		38.2	5.38	
2	PCB-008	17.03	2.63 *		JI	38.2	10.5	11.5
2	PCB-009			ND		38.2	5.17	
2	PCB-010			ND	A	38.2	5.66	
2	PCB-011	19.97	1.53	172	BJ	374	140	
2	PCB-012/013			ND		76.4	10.7	
2	PCB-014			ND	A	38.2	4.40	
2	PCB-015			ND		50.4	9.97	
3	PCB-016			ND		38.2	10.9	
3	PCB-017			ND		38.2	12.2	
3	PCB-018/030			ND		76.4	27.4	
3	PCB-019			ND		38.2	4.25	
3	PCB-020/028			ND		197	41.0	
3	PCB-021/033			ND		206	22.5	
3	PCB-022			ND		145	19.1	
3	PCB-023			ND		38.2	4.26	
3	PCB-024			ND		38.2	6.01	
3	PCB-025			ND		38.2	5.32	
3	PCB-026/029			ND		76.4	9.75	
3	PCB-027			ND		38.2	7.37	
3	PCB-031			ND		199	34.7	
3	PCB-032			ND		38.2	11.9	
3	PCB-034			ND		38.2	4.68	
3	PCB-035	28.06	1.30 *		JI	38.2	5.66	5.70
3	PCB-036			ND		38.2	4.22	
3	PCB-037			ND		81.0	9.06	
3	PCB-038			ND		38.2	3.61	
3	PCB-039			ND		38.2	4.72	

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Date Analyzed: 09/02/2024 13:45
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Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		115	21.2	
4	PCB-042			ND		38.2	8.47	
4	PCB-043/073			ND		76.4	17.3	
4	PCB-044/047/065			ND		115	32.1	
4	PCB-045/051			ND		76.4	15.9	
4	PCB-046			ND		38.2	5.32	
4	PCB-048			ND		38.2	6.48	
4	PCB-069/049			ND		76.4	17.0	
4	PCB-050/053			ND		76.4	12.8	
4	PCB-052			ND		197	35.3	
4	PCB-054			ND		38.2	3.76	
4	PCB-055			ND		38.2	5.14	
4	PCB-056			ND		38.2	8.65	
4	PCB-057			ND		38.2	3.90	
4	PCB-058			ND		38.2	3.33	
4	PCB-059/062/075			ND		115	8.99	
4	PCB-060			ND		38.2	8.80	
4	PCB-061/070/074/076			ND		153	26.3	
4	PCB-063			ND		38.2	4.10	
4	PCB-064			ND		38.2	9.11	
4	PCB-066			ND		90.2	22.3	
4	PCB-067			ND		38.2	3.73	
4	PCB-068			ND		38.2	4.17	
4	PCB-072			ND		38.2	3.56	
4	PCB-077			ND		38.2	4.88	
4	PCB-078			ND		38.2	4.48	
4	PCB-079			ND		38.2	4.52	
4	PCB-080			ND		38.2	2.75	
4	PCB-081			ND		38.2	3.62	
5	PCB-082			ND		38.2	11.3	
5	PCB-083			ND		38.2	4.60	
5	PCB-084			ND		38.2	6.89	
5	PCB-085/116/117			ND		115	11.4	
5	PCB-086/087/097/108/119/12			ND		229	20.8	

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Sample Analysis Summary

Method 1668A

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Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		76.4	10.2	
5	PCB-089			ND		38.2	5.20	
5	PCB-090/101/113			ND		115	20.0	
5	PCB-092			ND		38.2	5.75	
5	PCB-093/098/100/102			ND		153	14.7	
5	PCB-094			ND		38.2	3.47	
5	PCB-095			ND		107	24.5	
5	PCB-096			ND		38.2	6.53	
5	PCB-099			ND		38.2	7.70	
5	PCB-103			ND		38.2	4.98	
5	PCB-104			ND		38.2	4.43	
5	PCB-105			ND		38.2	6.79	
5	PCB-106			ND		38.2	4.00	
5	PCB-107/124			ND		76.4	6.83	
5	PCB-109			ND		38.2	5.29	
5	PCB-110/115			ND		76.4	13.7	
5	PCB-111			ND		38.2	4.08	
5	PCB-112			ND		38.2	4.16	
5	PCB-114			ND		38.2	3.67	
5	PCB-118			ND		59.6	9.80	
5	PCB-120			ND		38.2	4.34	
5	PCB-121			ND		38.2	3.67	
5	PCB-122			ND		38.2	6.01	
5	PCB-123			ND		38.2	4.25	
5	PCB-126			ND		38.2	3.85	
5	PCB-127			ND		38.2	4.29	
6	PCB-128/166			ND		76.4	8.36	
6	PCB-129/138/163			ND		115	16.7	
6	PCB-130			ND		38.2	4.59	
6	PCB-131			ND		38.2	5.04	
6	PCB-132			ND		38.2	7.31	
6	PCB-133			ND		38.2	4.83	
6	PCB-134/143			ND		76.4	7.05	
6	PCB-135/151			ND		76.4	14.2	

REPORT OF LABORATORY ANALYSIS

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-01 (0-4.3')**
Lab Sample ID: 10705003006
Lab File ID: Y240902A_11
Matrix: Solid
Percent Solids: 33.85%
Date Collected: 08/17/2024 08:20
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 13:45
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		38.2	7.31	
6	PCB-137			ND		38.2	5.52	
6	PCB-139/140			ND		76.4	6.76	
6	PCB-141			ND		38.2	6.19	
6	PCB-142			ND		38.2	4.48	
6	PCB-144			ND		38.2	6.17	
6	PCB-145			ND		38.2	4.02	
6	PCB-146			ND		38.2	6.04	
6	PCB-147/149			ND		76.4	17.7	
6	PCB-148			ND		38.2	8.38	
6	PCB-150			ND		38.2	4.52	
6	PCB-152			ND		38.2	4.92	
6	PCB-153/168			ND		76.4	11.7	
6	PCB-154			ND		38.2	5.07	
6	PCB-155			ND		38.2	4.55	
6	PCB-156/157			ND		76.4	6.53	
6	PCB-158			ND		38.2	3.56	
6	PCB-159			ND		38.2	4.26	
6	PCB-160			ND		38.2	4.36	
6	PCB-161			ND		38.2	3.50	
6	PCB-162			ND		38.2	3.91	
6	PCB-164			ND		38.2	4.55	
6	PCB-165			ND		38.2	3.24	
6	PCB-167			ND		38.2	4.49	
6	PCB-169			ND		38.2	4.95	
7	PCB-170			ND		38.2	7.78	
7	PCB-171/173			ND		76.4	7.21	
7	PCB-172			ND		38.2	4.94	
7	PCB-174			ND		38.2	8.13	
7	PCB-175			ND		38.2	3.79	
7	PCB-176			ND		38.2	5.33	
7	PCB-177			ND		38.2	6.60	
7	PCB-178			ND		38.2	5.32	
7	PCB-179			ND		38.2	5.92	

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Sample Analysis Summary

Method 1668A

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Lab Sample ID: 10705003006
Lab File ID: Y240902A_11
Matrix: Solid
Percent Solids: 33.85%
Date Collected: 08/17/2024 08:20
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 13:45
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		76.4	14.1	
7	PCB-181			ND		38.2	4.40	
7	PCB-182			ND		38.2	4.91	
7	PCB-183/185			ND		76.4	9.49	
7	PCB-184			ND		38.2	4.19	
7	PCB-186			ND		38.2	4.46	
7	PCB-187			ND		38.2	8.68	
7	PCB-188			ND		38.2	3.35	
7	PCB-189			ND		38.2	5.09	
7	PCB-190			ND		38.2	4.25	
7	PCB-191			ND		38.2	3.41	
7	PCB-192			ND		38.2	4.33	
8	PCB-194			ND		38.2	5.18	
8	PCB-195			ND		38.2	4.59	
8	PCB-196			ND		38.2	4.31	
8	PCB-197/200			ND		76.4	9.25	
8	PCB-198/199			ND		76.4	7.11	
8	PCB-201			ND		38.2	3.76	
8	PCB-202			ND		38.2	2.67	
8	PCB-203			ND		38.2	5.21	
8	PCB-204			ND		38.2	3.50	
8	PCB-205			ND		38.2	4.26	
9	PCB-206			ND		38.2	4.42	
9	PCB-207			ND		38.2	3.48	
9	PCB-208			ND		38.2	3.71	
10	PCB-209			ND		38.2	5.70	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-01 (0-4.3')**
Lab Sample ID: 10705003006
Lab File ID: Y240902A_11
Matrix: Solid
Percent Solids: 33.85%
Date Collected: 08/17/2024 08:20
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 13:45
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 6.54g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	6.77	J
Total DiCB	172	JB
Total TrCB	ND	J
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	179	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-01 (4.3-17')**
Lab Sample ID: 10705003007
Lab File ID: Y240902A_12
Matrix: Solid
Percent Solids: 76.36%
Date Collected: 08/17/2024 10:00
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 14:46
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114433

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 14.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.26	2.98	2.00	1.12	56	
1	PCB-003L	13.17	2.67	2.00	1.33	66	
2	PCB-004L	13.48	1.61	2.00	1.22	61	
2	PCB-015L	20.67	1.58	2.00	1.77	89	
3	PCB-019L	17.37	1.01	2.00	1.41	71	
3	PCB-037L	28.48	1.08	2.00	1.89	94	
4	PCB-054L	21.02	0.83	2.00	1.37	68	
4	PCB-077L	36.23	0.82	2.00	2.13	106	
4	PCB-081L	35.61	0.82	2.00	2.10	105	
5	PCB-104L	27.17	1.62	2.00	1.46	73	
5	PCB-105L	39.76	1.63	2.00	1.82	91	
5	PCB-114L	39.12	1.53	2.00	1.81	90	
5	PCB-118L	38.57	1.63	2.00	1.84	92	
5	PCB-123L	38.23	1.58	2.00	1.84	92	
5	PCB-126L	42.91	1.56	2.00	2.01	101	
6	PCB-155L	33.35	1.31	2.00	1.54	77	
6	PCB-156/157L	45.97	1.30	4.00	3.43	86	
6	PCB-167L	44.79	1.27	2.00	1.74	87	
6	PCB-169L	49.24	1.28	2.00	1.80	90	
7	PCB-188L	39.10	1.08	2.00	1.72	86	
7	PCB-189L	51.79	1.03	2.00	1.92	96	
8	PCB-202L	44.56	0.90	2.00	1.62	81	
8	PCB-205L	54.38	0.91	2.00	1.59	79	
9	PCB-206L	56.12	0.78	2.00	1.44	72	
9	PCB-208L	51.32	0.76	2.00	1.59	79	
10	PCB-209L	57.76	0.69	2.00	1.44	72	
Recovery Standards							
2	PCB-009L	16.02	1.55	2.00	1.92	N/A	
4	PCB-052L	26.12	0.79	2.00	2.16	N/A	
5	PCB-101L	33.53	1.58	2.00	2.28	N/A	
6	PCB-138L	41.74	1.25	2.00	2.38	N/A	
8	PCB-194L	53.90	0.88	2.00	2.12	N/A	
Cleanup Standards							
3	PCB-028L	24.12	1.04	2.00	1.72	86	
5	PCB-111L	36.28	1.63	2.00	1.54	77	
7	PCB-178L	42.19	1.09	2.00	1.68	84	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-01 (4.3-17')**
Lab Sample ID: 10705003007
Lab File ID: Y240902A_12
Matrix: Solid
Percent Solids: 76.36%
Date Collected: 08/17/2024 10:00
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 14:46
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 14.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		16.9	2.43	
1	PCB-002			ND		16.9	2.55	
1	PCB-003			ND		16.9	2.55	
2	PCB-004			ND	A	16.9	2.89	
2	PCB-005			ND	A	16.9	1.78	
2	PCB-006			ND		16.9	2.66	
2	PCB-007			ND		16.9	2.38	
2	PCB-008			ND		16.9	4.64	
2	PCB-009			ND		16.9	2.29	
2	PCB-010			ND	A	16.9	2.51	
2	PCB-011	19.97	1.58	71.1	BJ	166	62.0	
2	PCB-012/013			ND		33.9	4.75	
2	PCB-014			ND		16.9	1.95	
2	PCB-015			ND		22.4	4.42	
3	PCB-016			ND		16.9	4.82	
3	PCB-017			ND		16.9	5.40	
3	PCB-018/030			ND		33.9	12.1	
3	PCB-019			ND		16.9	1.88	
3	PCB-020/028			ND		87.4	18.2	
3	PCB-021/033			ND		91.5	9.96	
3	PCB-022			ND		64.4	8.47	
3	PCB-023			ND		16.9	1.89	
3	PCB-024			ND		16.9	2.66	
3	PCB-025			ND		16.9	2.36	
3	PCB-026/029			ND		33.9	4.32	
3	PCB-027			ND		16.9	3.27	
3	PCB-031			ND		88.1	15.4	
3	PCB-032			ND		16.9	5.27	
3	PCB-034			ND		16.9	2.07	
3	PCB-035			ND		16.9	2.51	
3	PCB-036			ND		16.9	1.87	
3	PCB-037	28.50	1.05	4.30	J	35.9	4.02	
3	PCB-038			ND		16.9	1.60	
3	PCB-039			ND		16.9	2.09	

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Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		50.8	9.42	
4	PCB-042			ND		16.9	3.75	
4	PCB-043/073			ND		33.9	7.66	
4	PCB-044/047/065			ND		50.8	14.2	
4	PCB-045/051			ND		33.9	7.05	
4	PCB-046			ND		16.9	2.36	
4	PCB-048			ND		16.9	2.87	
4	PCB-069/049			ND		33.9	7.52	
4	PCB-050/053			ND		33.9	5.68	
4	PCB-052			ND		87.4	15.6	
4	PCB-054			ND		16.9	1.67	
4	PCB-055			ND		16.9	2.28	
4	PCB-056			ND		16.9	3.83	
4	PCB-057			ND		16.9	1.73	
4	PCB-058			ND		16.9	1.48	
4	PCB-059/062/075			ND		50.8	3.98	
4	PCB-060			ND		16.9	3.90	
4	PCB-061/070/074/076			ND		67.7	11.7	
4	PCB-063			ND		16.9	1.82	
4	PCB-064			ND		16.9	4.04	
4	PCB-066			ND		40.0	9.89	
4	PCB-067			ND		16.9	1.65	
4	PCB-068			ND		16.9	1.85	
4	PCB-072			ND		16.9	1.58	
4	PCB-077			ND		16.9	2.16	
4	PCB-078			ND		16.9	1.98	
4	PCB-079			ND		16.9	2.01	
4	PCB-080			ND		16.9	1.22	
4	PCB-081			ND		16.9	1.61	
5	PCB-082			ND		16.9	5.01	
5	PCB-083			ND		16.9	2.04	
5	PCB-084			ND		16.9	3.06	
5	PCB-085/116/117			ND		50.8	5.03	
5	PCB-086/087/097/108/119/12			ND		102	9.21	

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GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		33.9	4.52	
5	PCB-089			ND		16.9	2.30	
5	PCB-090/101/113			ND		50.8	8.87	
5	PCB-092			ND		16.9	2.55	
5	PCB-093/098/100/102			ND		67.7	6.51	
5	PCB-094			ND		16.9	1.54	
5	PCB-095			ND		47.4	10.8	
5	PCB-096			ND		16.9	2.89	
5	PCB-099			ND		16.9	3.41	
5	PCB-103			ND		16.9	2.21	
5	PCB-104			ND		16.9	1.96	
5	PCB-105			ND		16.9	3.01	
5	PCB-106			ND		16.9	1.77	
5	PCB-107/124			ND		33.9	3.03	
5	PCB-109			ND		16.9	2.34	
5	PCB-110/115	35.51	1.50	6.22	J	33.9	6.07	
5	PCB-111			ND		16.9	1.81	
5	PCB-112			ND		16.9	1.84	
5	PCB-114			ND		16.9	1.63	
5	PCB-118	38.58	1.49	4.39	J	26.4	4.34	
5	PCB-120			ND		16.9	1.92	
5	PCB-121			ND		16.9	1.63	
5	PCB-122			ND		16.9	2.66	
5	PCB-123			ND		16.9	1.88	
5	PCB-126			ND		16.9	1.71	
5	PCB-127			ND		16.9	1.90	
6	PCB-128/166			ND		33.9	3.71	
6	PCB-129/138/163			ND		50.8	7.38	
6	PCB-130			ND		16.9	2.03	
6	PCB-131			ND		16.9	2.24	
6	PCB-132			ND		16.9	3.24	
6	PCB-133			ND		16.9	2.14	
6	PCB-134/143			ND		33.9	3.12	
6	PCB-135/151			ND		33.9	6.28	

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Extract Volume: 200 uL
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GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		16.9	3.24	
6	PCB-137			ND		16.9	2.45	
6	PCB-139/140			ND		33.9	2.99	
6	PCB-141			ND		16.9	2.74	
6	PCB-142			ND		16.9	1.98	
6	PCB-144			ND		16.9	2.74	
6	PCB-145			ND		16.9	1.78	
6	PCB-146			ND		16.9	2.68	
6	PCB-147/149			ND		33.9	7.86	
6	PCB-148			ND		16.9	3.71	
6	PCB-150			ND		16.9	2.01	
6	PCB-152			ND		16.9	2.18	
6	PCB-153/168			ND		33.9	5.18	
6	PCB-154			ND		16.9	2.25	
6	PCB-155			ND		16.9	2.02	
6	PCB-156/157			ND		33.9	2.89	
6	PCB-158			ND		16.9	1.58	
6	PCB-159			ND		16.9	1.89	
6	PCB-160			ND		16.9	1.93	
6	PCB-161			ND		16.9	1.55	
6	PCB-162			ND		16.9	1.73	
6	PCB-164			ND		16.9	2.02	
6	PCB-165			ND		16.9	1.44	
6	PCB-167			ND		16.9	1.99	
6	PCB-169			ND		16.9	2.19	
7	PCB-170			ND		16.9	3.45	
7	PCB-171/173			ND		33.9	3.20	
7	PCB-172			ND		16.9	2.19	
7	PCB-174			ND		16.9	3.60	
7	PCB-175			ND		16.9	1.68	
7	PCB-176			ND		16.9	2.36	
7	PCB-177			ND		16.9	2.93	
7	PCB-178			ND		16.9	2.36	
7	PCB-179			ND		16.9	2.62	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-01 (4.3-17')**
Lab Sample ID: 10705003007
Lab File ID: Y240902A_12
Matrix: Solid
Percent Solids: 76.36%
Date Collected: 08/17/2024 10:00
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 14:46
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 14.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		33.9	6.24	
7	PCB-181			ND		16.9	1.95	
7	PCB-182			ND		16.9	2.17	
7	PCB-183/185			ND		33.9	4.21	
7	PCB-184			ND		16.9	1.86	
7	PCB-186			ND		16.9	1.98	
7	PCB-187			ND		16.9	3.85	
7	PCB-188			ND		16.9	1.48	
7	PCB-189			ND		16.9	2.26	
7	PCB-190			ND		16.9	1.88	
7	PCB-191			ND		16.9	1.51	
7	PCB-192			ND		16.9	1.92	
8	PCB-194			ND		16.9	2.30	
8	PCB-195			ND		16.9	2.03	
8	PCB-196			ND		16.9	1.91	
8	PCB-197/200			ND		33.9	4.10	
8	PCB-198/199			ND		33.9	3.15	
8	PCB-201			ND		16.9	1.67	
8	PCB-202			ND		16.9	1.19	
8	PCB-203			ND		16.9	2.31	
8	PCB-204			ND		16.9	1.55	
8	PCB-205			ND		16.9	1.89	
9	PCB-206			ND		16.9	1.96	
9	PCB-207			ND		16.9	1.54	
9	PCB-208			ND		16.9	1.65	
10	PCB-209			ND		16.9	2.53	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-01 (4.3-17')**
Lab Sample ID: 10705003007
Lab File ID: Y240902A_12
Matrix: Solid
Percent Solids: 76.36%
Date Collected: 08/17/2024 10:00
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 14:46
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 19.3g
Dry Weight Extracted: 14.8g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	ND	
Total DiCB	71.1	BJ
Total TrCB	4.30	J
Total TeCB	ND	
Total PeCB	10.6	J
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	86.0	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-05 (0-17')**
Lab Sample ID: 10705003008
Lab File ID: Y240902A_09
Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 11:42
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114433

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.24	2.93	2.00	1.17	59	
1	PCB-003L	13.15	2.75	2.00	1.34	67	
2	PCB-004L	13.47	1.62	2.00	1.24	62	
2	PCB-015L	20.65	1.58	2.00	1.61	80	
3	PCB-019L	17.36	1.07	2.00	1.40	70	
3	PCB-037L	28.46	0.98	2.00	1.83	91	
4	PCB-054L	21.00	0.80	2.00	1.27	63	
4	PCB-077L	36.18	0.79	2.00	2.05	103	
4	PCB-081L	35.58	0.81	2.00	2.05	103	
5	PCB-104L	27.16	1.58	2.00	1.54	77	
5	PCB-105L	39.76	1.54	2.00	1.92	96	
5	PCB-114L	39.10	1.58	2.00	1.88	94	
5	PCB-118L	38.55	1.58	2.00	1.94	97	
5	PCB-123L	38.22	1.63	2.00	1.95	98	
5	PCB-126L	42.89	1.54	2.00	2.15	108	
6	PCB-155L	33.21	1.24	2.00	1.49	75	
6	PCB-156/157L	45.95	1.26	4.00	3.58	90	
6	PCB-167L	44.78	1.30	2.00	1.77	89	
6	PCB-169L	49.22	1.30	2.00	1.95	98	
7	PCB-188L	39.10	1.01	2.00	1.63	82	
7	PCB-189L	51.77	1.04	2.00	1.81	90	
8	PCB-202L	44.54	0.89	2.00	1.57	79	
8	PCB-205L	54.38	0.88	2.00	1.59	79	
9	PCB-206L	56.12	0.73	2.00	1.57	79	
9	PCB-208L	51.32	0.81	2.00	1.59	79	
10	PCB-209L	57.76	0.75	2.00	1.55	77	
Recovery Standards							
2	PCB-009L	15.98	1.61	2.00	2.08	N/A	
4	PCB-052L	26.10	0.77	2.00	2.37	N/A	
5	PCB-101L	33.41	1.59	2.00	2.31	N/A	
6	PCB-138L	41.74	1.30	2.00	2.48	N/A	
8	PCB-194L	53.90	0.90	2.00	2.41	N/A	
Cleanup Standards							
3	PCB-028L	24.10	1.12	2.00	1.50	75	
5	PCB-111L	36.23	1.50	2.00	1.57	79	
7	PCB-178L	42.19	1.08	2.00	1.61	81	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-05 (0-17')**
Lab Sample ID: 10705003008
Lab File ID: Y240902A_09
Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 11:42
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		20.5	2.93	
1	PCB-002	12.94	2.33 *		JI	20.5	3.08	5.76
1	PCB-003			ND		20.5	3.09	
2	PCB-004			ND	A	20.5	3.50	
2	PCB-005			ND	A	20.5	2.16	
2	PCB-006			ND		20.5	3.22	
2	PCB-007			ND		20.5	2.88	
2	PCB-008			ND		20.5	5.61	
2	PCB-009			ND		20.5	2.77	
2	PCB-010			ND	A	20.5	3.03	
2	PCB-011			ND		201	75.0	
2	PCB-012/013			ND		41.0	5.74	
2	PCB-014			ND		20.5	2.36	
2	PCB-015			ND		27.0	5.34	
3	PCB-016			ND		20.5	5.83	
3	PCB-017			ND		20.5	6.53	
3	PCB-018/030			ND		41.0	14.7	
3	PCB-019			ND		20.5	2.28	
3	PCB-020/028			ND		106	22.0	
3	PCB-021/033			ND		111	12.0	
3	PCB-022			ND		77.9	10.2	
3	PCB-023			ND		20.5	2.29	
3	PCB-024			ND		20.5	3.22	
3	PCB-025			ND		20.5	2.85	
3	PCB-026/029			ND		41.0	5.23	
3	PCB-027			ND		20.5	3.95	
3	PCB-031			ND		107	18.6	
3	PCB-032			ND		20.5	6.38	
3	PCB-034			ND		20.5	2.51	
3	PCB-035			ND		20.5	3.03	
3	PCB-036			ND		20.5	2.26	
3	PCB-037	28.50	1.19	6.03	J	43.4	4.86	
3	PCB-038			ND		20.5	1.93	
3	PCB-039			ND		20.5	2.53	

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Sample Analysis Summary

Method 1668A

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Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
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Date Analyzed: 09/02/2024 11:42
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		61.5	11.4	
4	PCB-042			ND		20.5	4.54	
4	PCB-043/073			ND		41.0	9.26	
4	PCB-044/047/065			ND		61.5	17.2	
4	PCB-045/051			ND		41.0	8.52	
4	PCB-046			ND		20.5	2.85	
4	PCB-048			ND		20.5	3.47	
4	PCB-069/049			ND		41.0	9.10	
4	PCB-050/053			ND		41.0	6.88	
4	PCB-052			ND		106	18.9	
4	PCB-054			ND		20.5	2.02	
4	PCB-055			ND		20.5	2.75	
4	PCB-056			ND		20.5	4.64	
4	PCB-057			ND		20.5	2.09	
4	PCB-058			ND		20.5	1.79	
4	PCB-059/062/075			ND		61.5	4.82	
4	PCB-060			ND		20.5	4.72	
4	PCB-061/070/074/076	31.29	0.75	14.6	J	82.0	14.1	
4	PCB-063			ND		20.5	2.20	
4	PCB-064			ND		20.5	4.88	
4	PCB-066			ND		48.4	12.0	
4	PCB-067			ND		20.5	2.00	
4	PCB-068			ND		20.5	2.24	
4	PCB-072			ND		20.5	1.91	
4	PCB-077			ND		20.5	2.61	
4	PCB-078			ND		20.5	2.40	
4	PCB-079			ND		20.5	2.43	
4	PCB-080			ND		20.5	1.48	
4	PCB-081			ND		20.5	1.94	
5	PCB-082			ND		20.5	6.06	
5	PCB-083			ND		20.5	2.47	
5	PCB-084			ND		20.5	3.70	
5	PCB-085/116/117			ND		61.5	6.09	
5	PCB-086/087/097/108/119/12			ND		123	11.1	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-05 (0-17')**
Lab Sample ID: 10705003008
Lab File ID: Y240902A_09
Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
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Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		41.0	5.47	
5	PCB-089			ND		20.5	2.79	
5	PCB-090/101/113			ND		61.5	10.7	
5	PCB-092			ND		20.5	3.08	
5	PCB-093/098/100/102			ND		82.0	7.88	
5	PCB-094			ND		20.5	1.86	
5	PCB-095			ND		57.4	13.1	
5	PCB-096			ND		20.5	3.50	
5	PCB-099			ND		20.5	4.13	
5	PCB-103			ND		20.5	2.67	
5	PCB-104			ND		20.5	2.38	
5	PCB-105			ND		20.5	3.64	
5	PCB-106			ND		20.5	2.15	
5	PCB-107/124			ND		41.0	3.66	
5	PCB-109			ND		20.5	2.84	
5	PCB-110/115	35.48	1.82 *		JI	41.0	7.34	7.63
5	PCB-111			ND		20.5	2.19	
5	PCB-112			ND		20.5	2.23	
5	PCB-114			ND		20.5	1.97	
5	PCB-118	38.58	1.60	6.18	J	32.0	5.25	
5	PCB-120			ND		20.5	2.33	
5	PCB-121			ND		20.5	1.97	
5	PCB-122			ND		20.5	3.22	
5	PCB-123			ND		20.5	2.28	
5	PCB-126			ND		20.5	2.07	
5	PCB-127			ND		20.5	2.30	
6	PCB-128/166			ND		41.0	4.48	
6	PCB-129/138/163			ND		61.5	8.93	
6	PCB-130			ND		20.5	2.46	
6	PCB-131			ND		20.5	2.70	
6	PCB-132			ND		20.5	3.92	
6	PCB-133			ND		20.5	2.59	
6	PCB-134/143			ND		41.0	3.78	
6	PCB-135/151			ND		41.0	7.60	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-05 (0-17')**
Lab Sample ID: 10705003008
Lab File ID: Y240902A_09
Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
Date Received: 08/22/2024 08:50
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Date Analyzed: 09/02/2024 11:42
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		20.5	3.92	
6	PCB-137			ND		20.5	2.96	
6	PCB-139/140			ND		41.0	3.62	
6	PCB-141			ND		20.5	3.32	
6	PCB-142			ND		20.5	2.40	
6	PCB-144			ND		20.5	3.31	
6	PCB-145			ND		20.5	2.16	
6	PCB-146			ND		20.5	3.24	
6	PCB-147/149			ND		41.0	9.51	
6	PCB-148			ND		20.5	4.49	
6	PCB-150			ND		20.5	2.43	
6	PCB-152			ND		20.5	2.64	
6	PCB-153/168			ND		41.0	6.26	
6	PCB-154			ND		20.5	2.72	
6	PCB-155			ND		20.5	2.44	
6	PCB-156/157			ND		41.0	3.50	
6	PCB-158			ND		20.5	1.91	
6	PCB-159			ND		20.5	2.29	
6	PCB-160			ND		20.5	2.34	
6	PCB-161			ND		20.5	1.88	
6	PCB-162			ND		20.5	2.10	
6	PCB-164			ND		20.5	2.44	
6	PCB-165			ND		20.5	1.74	
6	PCB-167			ND		20.5	2.41	
6	PCB-169			ND		20.5	2.66	
7	PCB-170			ND		20.5	4.17	
7	PCB-171/173			ND		41.0	3.87	
7	PCB-172			ND		20.5	2.65	
7	PCB-174			ND		20.5	4.36	
7	PCB-175			ND		20.5	2.03	
7	PCB-176			ND		20.5	2.86	
7	PCB-177			ND		20.5	3.54	
7	PCB-178			ND		20.5	2.85	
7	PCB-179			ND		20.5	3.17	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-05 (0-17')**
Lab Sample ID: 10705003008
Lab File ID: Y240902A_09
Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 11:42
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		41.0	7.55	
7	PCB-181			ND		20.5	2.36	
7	PCB-182			ND		20.5	2.63	
7	PCB-183/185			ND		41.0	5.09	
7	PCB-184			ND		20.5	2.25	
7	PCB-186			ND		20.5	2.39	
7	PCB-187			ND		20.5	4.65	
7	PCB-188			ND		20.5	1.79	
7	PCB-189			ND		20.5	2.73	
7	PCB-190			ND		20.5	2.28	
7	PCB-191			ND		20.5	1.83	
7	PCB-192			ND		20.5	2.32	
8	PCB-194			ND		20.5	2.78	
8	PCB-195			ND		20.5	2.46	
8	PCB-196			ND		20.5	2.31	
8	PCB-197/200			ND		41.0	4.96	
8	PCB-198/199			ND		41.0	3.81	
8	PCB-201			ND		20.5	2.02	
8	PCB-202			ND		20.5	1.43	
8	PCB-203			ND		20.5	2.79	
8	PCB-204			ND		20.5	1.88	
8	PCB-205			ND		20.5	2.29	
9	PCB-206			ND		20.5	2.37	
9	PCB-207			ND		20.5	1.87	
9	PCB-208			ND		20.5	1.99	
10	PCB-209			ND		20.5	3.06	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-05 (0-17')**
Lab Sample ID: 10705003008
Lab File ID: Y240902A_09
Matrix: Solid
Percent Solids: 52.57%
Date Collected: 08/17/2024 11:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 11:42
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 23.2g
Dry Weight Extracted: 12.2g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	ND	J
Total DiCB	ND	
Total TrCB	6.03	J
Total TeCB	14.6	J
Total PeCB	6.18	J
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	26.8	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114433

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.26	3.22	2.00	1.17	58	
1	PCB-003L	13.17	2.68	2.00	1.33	67	
2	PCB-004L	13.48	1.55	2.00	1.22	61	
2	PCB-015L	20.66	1.67	2.00	1.74	87	
3	PCB-019L	17.37	0.99	2.00	1.44	72	
3	PCB-037L	28.48	1.05	2.00	1.91	96	
4	PCB-054L	21.02	0.80	2.00	1.28	64	
4	PCB-077L	36.18	0.79	2.00	2.18	109	
4	PCB-081L	35.60	0.74	2.00	2.19	110	
5	PCB-104L	27.17	1.60	2.00	1.57	79	
5	PCB-105L	39.76	1.56	2.00	1.95	98	
5	PCB-114L	39.12	1.57	2.00	1.99	99	
5	PCB-118L	38.57	1.54	2.00	2.05	102	
5	PCB-123L	38.23	1.56	2.00	1.94	97	
5	PCB-126L	42.91	1.62	2.00	2.25	113	
6	PCB-155L	33.21	1.27	2.00	1.51	76	
6	PCB-156/157L	45.97	1.29	4.00	3.73	93	
6	PCB-167L	44.79	1.24	2.00	1.80	90	
6	PCB-169L	49.24	1.25	2.00	1.95	98	
7	PCB-188L	39.11	1.02	2.00	1.72	86	
7	PCB-189L	51.79	1.08	2.00	1.80	90	
8	PCB-202L	44.56	0.91	2.00	1.58	79	
8	PCB-205L	54.38	0.91	2.00	1.58	79	
9	PCB-206L	56.12	0.83	2.00	1.53	77	
9	PCB-208L	51.32	0.82	2.00	1.65	82	
10	PCB-209L	57.76	0.74	2.00	1.48	74	
Recovery Standards							
2	PCB-009L	15.99	1.55	2.00	1.85	N/A	
4	PCB-052L	26.12	0.81	2.00	2.13	N/A	
5	PCB-101L	33.42	1.62	2.00	2.13	N/A	
6	PCB-138L	41.74	1.24	2.00	2.28	N/A	
8	PCB-194L	53.90	0.90	2.00	2.22	N/A	
Cleanup Standards							
3	PCB-028L	24.12	1.11	2.00	1.76	88	
5	PCB-111L	36.23	1.54	2.00	1.71	85	
7	PCB-178L	42.19	1.06	2.00	1.76	88	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		20.9	2.99	
1	PCB-002	12.95	3.02	5.16	J	20.9	3.14	
1	PCB-003			ND		20.9	3.15	
2	PCB-004			ND	A	20.9	3.57	
2	PCB-005			ND	A	20.9	2.20	
2	PCB-006			ND		20.9	3.28	
2	PCB-007			ND		20.9	2.94	
2	PCB-008			ND		20.9	5.72	
2	PCB-009			ND		20.9	2.82	
2	PCB-010			ND	A	20.9	3.09	
2	PCB-011			ND		205	76.4	
2	PCB-012/013			ND		41.7	5.85	
2	PCB-014			ND		20.9	2.40	
2	PCB-015			ND		27.6	5.44	
3	PCB-016			ND		20.9	5.94	
3	PCB-017			ND		20.9	6.65	
3	PCB-018/030			ND		41.7	14.9	
3	PCB-019			ND		20.9	2.32	
3	PCB-020/028			ND		108	22.4	
3	PCB-021/033			ND		113	12.3	
3	PCB-022			ND		79.3	10.4	
3	PCB-023			ND		20.9	2.33	
3	PCB-024			ND		20.9	3.28	
3	PCB-025			ND		20.9	2.91	
3	PCB-026/029			ND		41.7	5.33	
3	PCB-027			ND		20.9	4.02	
3	PCB-031			ND		109	19.0	
3	PCB-032			ND		20.9	6.50	
3	PCB-034			ND		20.9	2.55	
3	PCB-035			ND		20.9	3.09	
3	PCB-036			ND		20.9	2.30	
3	PCB-037	28.50	1.16	6.02	J	44.3	4.95	
3	PCB-038			ND		20.9	1.97	
3	PCB-039			ND		20.9	2.58	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		62.6	11.6	
4	PCB-042			ND		20.9	4.63	
4	PCB-043/073			ND		41.7	9.43	
4	PCB-044/047/065			ND		62.6	17.5	
4	PCB-045/051			ND		41.7	8.68	
4	PCB-046			ND		20.9	2.91	
4	PCB-048			ND		20.9	3.54	
4	PCB-069/049			ND		41.7	9.27	
4	PCB-050/053			ND		41.7	7.01	
4	PCB-052			ND		108	19.3	
4	PCB-054			ND		20.9	2.05	
4	PCB-055			ND		20.9	2.81	
4	PCB-056	32.34	0.79	5.59	J	20.9	4.73	
4	PCB-057			ND		20.9	2.13	
4	PCB-058			ND		20.9	1.82	
4	PCB-059/062/075			ND		62.6	4.91	
4	PCB-060			ND		20.9	4.81	
4	PCB-061/070/074/076	31.30	0.69	15.1	J	83.5	14.4	
4	PCB-063			ND		20.9	2.24	
4	PCB-064			ND		20.9	4.98	
4	PCB-066			ND		49.3	12.2	
4	PCB-067			ND		20.9	2.04	
4	PCB-068			ND		20.9	2.28	
4	PCB-072			ND		20.9	1.95	
4	PCB-077			ND		20.9	2.66	
4	PCB-078			ND		20.9	2.45	
4	PCB-079			ND		20.9	2.47	
4	PCB-080			ND		20.9	1.50	
4	PCB-081			ND		20.9	1.98	
5	PCB-082			ND		20.9	6.17	
5	PCB-083			ND		20.9	2.51	
5	PCB-084			ND		20.9	3.77	
5	PCB-085/116/117			ND		62.6	6.20	
5	PCB-086/087/097/108/119/12			ND		125	11.4	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		41.7	5.57	
5	PCB-089			ND		20.9	2.84	
5	PCB-090/101/113			ND		62.6	10.9	
5	PCB-092			ND		20.9	3.14	
5	PCB-093/098/100/102			ND		83.5	8.02	
5	PCB-094			ND		20.9	1.90	
5	PCB-095			ND		58.4	13.4	
5	PCB-096			ND		20.9	3.57	
5	PCB-099			ND		20.9	4.21	
5	PCB-103			ND		20.9	2.72	
5	PCB-104			ND		20.9	2.42	
5	PCB-105	39.79	1.89 *		JI	20.9	3.71	4.09
5	PCB-106			ND		20.9	2.19	
5	PCB-107/124			ND		41.7	3.73	
5	PCB-109			ND		20.9	2.89	
5	PCB-110/115	35.50	1.59	10.0	J	41.7	7.48	
5	PCB-111			ND		20.9	2.23	
5	PCB-112			ND		20.9	2.27	
5	PCB-114			ND		20.9	2.00	
5	PCB-118	38.59	1.56	7.55	J	32.6	5.35	
5	PCB-120			ND		20.9	2.37	
5	PCB-121			ND		20.9	2.00	
5	PCB-122			ND		20.9	3.28	
5	PCB-123			ND		20.9	2.32	
5	PCB-126			ND		20.9	2.10	
5	PCB-127			ND		20.9	2.35	
6	PCB-128/166			ND		41.7	4.57	
6	PCB-129/138/163	41.77	1.36	10.5	J	62.6	9.10	
6	PCB-130			ND		20.9	2.50	
6	PCB-131			ND		20.9	2.76	
6	PCB-132			ND		20.9	3.99	
6	PCB-133			ND		20.9	2.64	
6	PCB-134/143			ND		41.7	3.85	
6	PCB-135/151			ND		41.7	7.74	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		20.9	3.99	
6	PCB-137			ND		20.9	3.01	
6	PCB-139/140			ND		41.7	3.69	
6	PCB-141			ND		20.9	3.38	
6	PCB-142			ND		20.9	2.45	
6	PCB-144			ND		20.9	3.37	
6	PCB-145			ND		20.9	2.20	
6	PCB-146			ND		20.9	3.30	
6	PCB-147/149			ND		41.7	9.69	
6	PCB-148			ND		20.9	4.58	
6	PCB-150			ND		20.9	2.47	
6	PCB-152			ND		20.9	2.69	
6	PCB-153/168	40.51	1.34	6.55	J	41.7	6.38	
6	PCB-154			ND		20.9	2.77	
6	PCB-155			ND		20.9	2.49	
6	PCB-156/157			ND		41.7	3.57	
6	PCB-158			ND		20.9	1.95	
6	PCB-159			ND		20.9	2.33	
6	PCB-160			ND		20.9	2.38	
6	PCB-161			ND		20.9	1.91	
6	PCB-162			ND		20.9	2.14	
6	PCB-164			ND		20.9	2.49	
6	PCB-165			ND		20.9	1.77	
6	PCB-167			ND		20.9	2.45	
6	PCB-169			ND		20.9	2.71	
7	PCB-170			ND		20.9	4.25	
7	PCB-171/173			ND		41.7	3.94	
7	PCB-172			ND		20.9	2.70	
7	PCB-174			ND		20.9	4.44	
7	PCB-175			ND		20.9	2.07	
7	PCB-176			ND		20.9	2.91	
7	PCB-177			ND		20.9	3.61	
7	PCB-178			ND		20.9	2.91	
7	PCB-179			ND		20.9	3.23	

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Sample Analysis Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		41.7	7.69	
7	PCB-181			ND		20.9	2.40	
7	PCB-182			ND		20.9	2.68	
7	PCB-183/185			ND		41.7	5.18	
7	PCB-184			ND		20.9	2.29	
7	PCB-186			ND		20.9	2.44	
7	PCB-187			ND		20.9	4.74	
7	PCB-188			ND		20.9	1.83	
7	PCB-189			ND		20.9	2.78	
7	PCB-190			ND		20.9	2.32	
7	PCB-191			ND		20.9	1.86	
7	PCB-192			ND		20.9	2.36	
8	PCB-194			ND		20.9	2.83	
8	PCB-195			ND		20.9	2.50	
8	PCB-196			ND		20.9	2.35	
8	PCB-197/200			ND		41.7	5.05	
8	PCB-198/199			ND		41.7	3.88	
8	PCB-201			ND		20.9	2.05	
8	PCB-202			ND		20.9	1.46	
8	PCB-203			ND		20.9	2.85	
8	PCB-204			ND		20.9	1.91	
8	PCB-205			ND		20.9	2.33	
9	PCB-206			ND		20.9	2.41	
9	PCB-207			ND		20.9	1.90	
9	PCB-208			ND		20.9	2.03	
10	PCB-209			ND		20.9	3.11	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **VC-03 (0-17')**
Lab Sample ID: 10705003009
Lab File ID: Y240902A_10
Matrix: Solid
Percent Solids: 53.61%
Date Collected: 08/17/2024 13:15
Date Received: 08/22/2024 08:50
Date Extracted: 08/27/2024 14:00
Date Analyzed: 09/02/2024 12:43
Method Blank ID: BLANK-114431
Lab Spike ID(s): LCS-114432/LCSD-114

Prep. Technique: Soxhlet
Total Amount Extracted: 22.3g
Dry Weight Extracted: 12.0g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240902A02
CCal File(s): Y240902A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	5.16	J
Total DiCB	ND	
Total TrCB	6.02	J
Total TeCB	20.6	J
Total PeCB	17.6	J
Total HxCB	17.1	J
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	66.5	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.05	3.28	2.00	0.943	47	
1	PCB-003L	12.97	3.17	2.00	1.17	59	
2	PCB-004L	13.28	1.49	2.00	1.14	57	
2	PCB-015L	20.49	1.61	2.00	1.44	72	
3	PCB-019L	17.18	1.08	2.00	1.21	60	
3	PCB-037L	28.35	1.07	2.00	1.45	72	
4	PCB-054L	20.83	0.78	2.00	1.27	64	
4	PCB-077L	36.11	0.81	2.00	1.46	73	
4	PCB-081L	35.51	0.80	2.00	1.43	72	
5	PCB-104L	27.01	1.57	2.00	1.44	72	
5	PCB-105L	39.72	1.53	2.00	1.41	70	
5	PCB-114L	39.06	1.59	2.00	1.46	73	
5	PCB-118L	38.49	1.58	2.00	1.48	74	
5	PCB-123L	38.16	1.54	2.00	1.46	73	
5	PCB-126L	42.88	1.56	2.00	1.40	70	
6	PCB-155L	33.09	1.27	2.00	1.57	78	
6	PCB-156/157L	45.96	1.30	4.00	2.77	69	
6	PCB-167L	44.77	1.27	2.00	1.44	72	
6	PCB-169L	49.25	1.30	2.00	1.35	67	
7	PCB-188L	39.03	1.04	2.00	1.81	90	
7	PCB-189L	51.82	1.09	2.00	1.44	72	
8	PCB-202L	44.52	0.92	2.00	1.67	84	
8	PCB-205L	54.40	0.87	2.00	1.36	68	
9	PCB-206L	56.15	0.75	2.00	1.29	65	
9	PCB-208L	51.32	0.80	2.00	1.56	78	
10	PCB-209L	57.79	0.66	2.00	1.31	65	
Recovery Standards							
2	PCB-009L	15.85	1.59	2.00	2.33	N/A	
4	PCB-052L	25.95	0.80	2.00	2.51	N/A	
5	PCB-101L	33.31	1.61	2.00	2.48	N/A	
6	PCB-138L	41.69	1.29	2.00	2.45	N/A	
8	PCB-194L	53.93	0.90	2.00	2.12	N/A	
Cleanup Standards							
3	PCB-028L	23.96	1.05	2.00	1.46	73	
5	PCB-111L	36.14	1.51	2.00	1.46	73	
7	PCB-178L	42.15	1.03	2.00	1.63	81	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		24.3	3.49	
1	PCB-002			ND		24.3	3.66	
1	PCB-003			ND		24.3	3.67	
2	PCB-004			ND	A	24.3	4.16	
2	PCB-005			ND	A	24.3	2.56	
2	PCB-006			ND		24.3	3.83	
2	PCB-007			ND		24.3	3.43	
2	PCB-008			ND		24.3	6.67	
2	PCB-009			ND	A	24.3	3.29	
2	PCB-010			ND	A	24.3	3.60	
2	PCB-011	19.79	1.63	110	J	239	89.1	
2	PCB-012/013			ND		48.7	6.83	
2	PCB-014			ND	A	24.3	2.80	
2	PCB-015			ND		32.1	6.35	
3	PCB-016			ND		24.3	6.92	
3	PCB-017			ND		24.3	7.76	
3	PCB-018/030			ND		48.7	17.4	
3	PCB-019			ND		24.3	2.71	
3	PCB-020/028			ND		126	26.1	
3	PCB-021/033			ND		131	14.3	
3	PCB-022			ND		92.5	12.2	
3	PCB-023			ND		24.3	2.72	
3	PCB-024			ND		24.3	3.83	
3	PCB-025			ND		24.3	3.39	
3	PCB-026/029			ND		48.7	6.21	
3	PCB-027			ND		24.3	4.69	
3	PCB-031			ND		127	22.1	
3	PCB-032			ND		24.3	7.58	
3	PCB-034			ND		24.3	2.98	
3	PCB-035			ND		24.3	3.60	
3	PCB-036			ND		24.3	2.69	
3	PCB-037			ND		51.6	5.77	
3	PCB-038			ND		24.3	2.30	
3	PCB-039			ND		24.3	3.01	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		73.0	13.5	
4	PCB-042			ND		24.3	5.39	
4	PCB-043/073			ND		48.7	11.0	
4	PCB-044/047/065			ND		73.0	20.4	
4	PCB-045/051			ND		48.7	10.1	
4	PCB-046			ND		24.3	3.39	
4	PCB-048			ND		24.3	4.13	
4	PCB-069/049			ND		48.7	10.8	
4	PCB-050/053			ND		48.7	8.17	
4	PCB-052			ND		126	22.5	
4	PCB-054			ND		24.3	2.40	
4	PCB-055			ND		24.3	3.27	
4	PCB-056			ND		24.3	5.51	
4	PCB-057			ND		24.3	2.48	
4	PCB-058			ND		24.3	2.12	
4	PCB-059/062/075			ND		73.0	5.73	
4	PCB-060			ND		24.3	5.61	
4	PCB-061/070/074/076			ND		97.4	16.7	
4	PCB-063			ND		24.3	2.61	
4	PCB-064			ND		24.3	5.80	
4	PCB-066			ND		57.4	14.2	
4	PCB-067			ND		24.3	2.38	
4	PCB-068			ND		24.3	2.66	
4	PCB-072			ND		24.3	2.27	
4	PCB-077			ND		24.3	3.11	
4	PCB-078			ND		24.3	2.85	
4	PCB-079			ND		24.3	2.88	
4	PCB-080			ND		24.3	1.75	
4	PCB-081			ND		24.3	2.31	
5	PCB-082			ND		24.3	7.20	
5	PCB-083			ND		24.3	2.93	
5	PCB-084			ND		24.3	4.39	
5	PCB-085/116/117			ND		73.0	7.23	
5	PCB-086/087/097/108/119/12			ND		146	13.2	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		48.7	6.49	
5	PCB-089			ND		24.3	3.31	
5	PCB-090/101/113			ND		73.0	12.8	
5	PCB-092			ND		24.3	3.66	
5	PCB-093/098/100/102			ND		97.4	9.36	
5	PCB-094			ND		24.3	2.21	
5	PCB-095			ND		68.2	15.6	
5	PCB-096			ND		24.3	4.16	
5	PCB-099			ND		24.3	4.91	
5	PCB-103			ND		24.3	3.17	
5	PCB-104			ND		24.3	2.82	
5	PCB-105			ND		24.3	4.32	
5	PCB-106			ND		24.3	2.55	
5	PCB-107/124			ND		48.7	4.35	
5	PCB-109			ND		24.3	3.37	
5	PCB-110/115			ND		48.7	8.72	
5	PCB-111			ND		24.3	2.60	
5	PCB-112			ND		24.3	2.65	
5	PCB-114			ND		24.3	2.34	
5	PCB-118			ND		38.0	6.24	
5	PCB-120			ND		24.3	2.77	
5	PCB-121			ND		24.3	2.34	
5	PCB-122			ND		24.3	3.83	
5	PCB-123			ND		24.3	2.71	
5	PCB-126			ND		24.3	2.45	
5	PCB-127			ND		24.3	2.74	
6	PCB-128/166			ND		48.7	5.33	
6	PCB-129/138/163			ND		73.0	10.6	
6	PCB-130			ND		24.3	2.92	
6	PCB-131			ND		24.3	3.21	
6	PCB-132			ND		24.3	4.65	
6	PCB-133			ND		24.3	3.08	
6	PCB-134/143			ND		48.7	4.49	
6	PCB-135/151			ND		48.7	9.03	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		24.3	4.65	
6	PCB-137			ND		24.3	3.52	
6	PCB-139/140			ND		48.7	4.30	
6	PCB-141			ND		24.3	3.94	
6	PCB-142			ND		24.3	2.85	
6	PCB-144			ND		24.3	3.93	
6	PCB-145			ND		24.3	2.56	
6	PCB-146			ND		24.3	3.85	
6	PCB-147/149			ND		48.7	11.3	
6	PCB-148			ND		24.3	5.34	
6	PCB-150			ND		24.3	2.88	
6	PCB-152			ND		24.3	3.14	
6	PCB-153/168			ND		48.7	7.44	
6	PCB-154			ND		24.3	3.23	
6	PCB-155			ND		24.3	2.90	
6	PCB-156/157			ND		48.7	4.16	
6	PCB-158			ND		24.3	2.27	
6	PCB-159			ND		24.3	2.72	
6	PCB-160			ND		24.3	2.78	
6	PCB-161			ND		24.3	2.23	
6	PCB-162			ND		24.3	2.49	
6	PCB-164			ND		24.3	2.90	
6	PCB-165			ND		24.3	2.06	
6	PCB-167			ND		24.3	2.86	
6	PCB-169			ND		24.3	3.15	
7	PCB-170			ND		24.3	4.96	
7	PCB-171/173			ND		48.7	4.60	
7	PCB-172			ND		24.3	3.15	
7	PCB-174			ND		24.3	5.18	
7	PCB-175			ND		24.3	2.41	
7	PCB-176			ND		24.3	3.40	
7	PCB-177			ND		24.3	4.21	
7	PCB-178			ND		24.3	3.39	
7	PCB-179			ND		24.3	3.77	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		48.7	8.97	
7	PCB-181			ND		24.3	2.80	
7	PCB-182			ND		24.3	3.13	
7	PCB-183/185			ND		48.7	6.05	
7	PCB-184			ND		24.3	2.67	
7	PCB-186			ND		24.3	2.84	
7	PCB-187			ND		24.3	5.53	
7	PCB-188			ND		24.3	2.13	
7	PCB-189			ND		24.3	3.24	
7	PCB-190			ND		24.3	2.71	
7	PCB-191			ND		24.3	2.17	
7	PCB-192			ND		24.3	2.76	
8	PCB-194			ND		24.3	3.30	
8	PCB-195			ND		24.3	2.92	
8	PCB-196			ND		24.3	2.75	
8	PCB-197/200			ND		48.7	5.89	
8	PCB-198/199			ND		48.7	4.53	
8	PCB-201			ND		24.3	2.40	
8	PCB-202			ND		24.3	1.70	
8	PCB-203			ND		24.3	3.32	
8	PCB-204			ND		24.3	2.23	
8	PCB-205			ND		24.3	2.72	
9	PCB-206			ND	A	24.3	2.81	
9	PCB-207			ND		24.3	2.22	
9	PCB-208			ND		24.3	2.37	
10	PCB-209			ND		24.3	3.63	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **CBLKDA**
Lab Sample ID: BLANK-114431
Lab File ID: P240831B_10
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/27/2024 09:12
Date Received: 08/27/2024 09:12
Date Extracted: 08/27/2024 14:00
Date Analyzed: 08/31/2024 23:51

Prep. Technique: Soxhlet
Total Amount Extracted: 10.3g
Dry Weight Extracted: 10.3g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: CVS
Instrument ID: 10MSHR09 (P)
GC Column ID: 285759-02
Ical ID: P240831B03
CCal File(s): P240831B_02

Homologue	Concentration (ng/Kg)	Q
Total MoCB	ND	
Total DiCB	110	J
Total TrCB	ND	
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	
DeCB	ND	
Total PCBs	110	

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CB Congener Labeled Analyte Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

CL No.	Labeled Congener	RT	IAR #	Spiked (ng)	Found (ng)	%Rec. #	Q
Internal Standards							
1	PCB-001L	10.28	2.79	2.00	1.29	65	
1	PCB-003L	13.19	2.87	2.00	1.50	75	
2	PCB-004L	13.51	1.63	2.00	1.42	71	
2	PCB-015L	20.70	1.60	2.00	1.87	93	
3	PCB-019L	17.45	1.09	2.00	1.59	79	
3	PCB-037L	28.50	1.06	2.00	1.98	99	
4	PCB-054L	21.05	0.82	2.00	1.49	74	
4	PCB-077L	36.22	0.76	2.00	2.25	112	
4	PCB-081L	35.61	0.79	2.00	2.23	111	
5	PCB-104L	27.19	1.68	2.00	1.75	88	
5	PCB-105L	39.78	1.61	2.00	2.12	106	
5	PCB-114L	39.14	1.61	2.00	2.11	105	
5	PCB-118L	38.58	1.56	2.00	2.14	107	
5	PCB-123L	38.25	1.56	2.00	2.03	101	
5	PCB-126L	42.93	1.65	2.00	2.39	120	
6	PCB-155L	33.23	1.23	2.00	1.62	81	
6	PCB-156/157L	45.98	1.29	4.00	3.88	97	
6	PCB-167L	44.81	1.24	2.00	1.93	96	
6	PCB-169L	49.25	1.29	2.00	2.11	106	
7	PCB-188L	39.12	1.06	2.00	1.79	89	
7	PCB-189L	51.81	1.05	2.00	1.98	99	
8	PCB-202L	44.58	0.93	2.00	1.59	80	
8	PCB-205L	54.40	0.90	2.00	1.64	82	
9	PCB-206L	56.14	0.83	2.00	1.59	80	
9	PCB-208L	51.34	0.80	2.00	1.58	79	
10	PCB-209L	57.78	0.72	2.00	1.64	82	
Recovery Standards							
2	PCB-009L	16.20	1.59	2.00	2.15	N/A	
4	PCB-052L	26.13	0.78	2.00	2.27	N/A	
5	PCB-101L	33.43	1.59	2.00	2.21	N/A	
6	PCB-138L	41.75	1.29	2.00	2.41	N/A	
8	PCB-194L	53.92	0.90	2.00	2.38	N/A	
Cleanup Standards							
3	PCB-028L	24.14	1.12	2.00	1.68	84	
5	PCB-111L	36.27	1.60	2.00	1.73	86	
7	PCB-178L	42.21	1.11	2.00	1.66	83	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
1	PCB-001			ND		24.8	3.55	
1	PCB-002			ND		24.8	3.73	
1	PCB-003			ND		24.8	3.74	
2	PCB-004			ND	A	24.8	4.24	
2	PCB-005			ND		24.8	2.61	
2	PCB-006			ND		24.8	3.90	
2	PCB-007			ND		24.8	3.49	
2	PCB-008			ND		24.8	6.80	
2	PCB-009			ND		24.8	3.35	
2	PCB-010			ND		24.8	3.67	
2	PCB-011	20.01	1.59	97.3	J	243	90.8	
2	PCB-012/013			ND		49.6	6.95	
2	PCB-014			ND		24.8	2.86	
2	PCB-015			ND		32.7	6.47	
3	PCB-016			ND		24.8	7.05	
3	PCB-017			ND		24.8	7.91	
3	PCB-018/030			ND		49.6	17.8	
3	PCB-019			ND		24.8	2.76	
3	PCB-020/028			ND		128	26.6	
3	PCB-021/033			ND		134	14.6	
3	PCB-022			ND		94.2	12.4	
3	PCB-023			ND		24.8	2.77	
3	PCB-024			ND		24.8	3.90	
3	PCB-025			ND		24.8	3.45	
3	PCB-026/029			ND		49.6	6.33	
3	PCB-027			ND		24.8	4.78	
3	PCB-031			ND		129	22.5	
3	PCB-032			ND		24.8	7.72	
3	PCB-034			ND		24.8	3.04	
3	PCB-035			ND		24.8	3.67	
3	PCB-036			ND		24.8	2.74	
3	PCB-037			ND		52.6	5.88	
3	PCB-038			ND		24.8	2.34	
3	PCB-039			ND		24.8	3.07	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
4	PCB-040/041/071			ND		74.4	13.8	
4	PCB-042			ND		24.8	5.50	
4	PCB-043/073			ND		49.6	11.2	
4	PCB-044/047/065			ND		74.4	20.8	
4	PCB-045/051			ND		49.6	10.3	
4	PCB-046			ND		24.8	3.45	
4	PCB-048			ND		24.8	4.21	
4	PCB-069/049			ND		49.6	11.0	
4	PCB-050/053			ND		49.6	8.32	
4	PCB-052			ND		128	22.9	
4	PCB-054			ND		24.8	2.44	
4	PCB-055			ND		24.8	3.33	
4	PCB-056			ND		24.8	5.62	
4	PCB-057			ND		24.8	2.53	
4	PCB-058			ND		24.8	2.16	
4	PCB-059/062/075			ND		74.4	5.83	
4	PCB-060			ND		24.8	5.71	
4	PCB-061/070/074/076			ND		99.2	17.1	
4	PCB-063			ND		24.8	2.66	
4	PCB-064			ND		24.8	5.91	
4	PCB-066			ND		58.5	14.5	
4	PCB-067			ND		24.8	2.42	
4	PCB-068			ND		24.8	2.71	
4	PCB-072			ND		24.8	2.31	
4	PCB-077			ND		24.8	3.16	
4	PCB-078			ND		24.8	2.91	
4	PCB-079			ND		24.8	2.94	
4	PCB-080			ND		24.8	1.79	
4	PCB-081			ND		24.8	2.35	
5	PCB-082			ND		24.8	7.33	
5	PCB-083			ND		24.8	2.99	
5	PCB-084			ND		24.8	4.47	
5	PCB-085/116/117			ND		74.4	7.37	
5	PCB-086/087/097/108/119/12			ND		149	13.5	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
5	PCB-088/091			ND		49.6	6.62	
5	PCB-089			ND		24.8	3.37	
5	PCB-090/101/113			ND		74.4	13.0	
5	PCB-092			ND		24.8	3.73	
5	PCB-093/098/100/102			ND		99.2	9.53	
5	PCB-094			ND		24.8	2.25	
5	PCB-095			ND		69.4	15.9	
5	PCB-096			ND		24.8	4.24	
5	PCB-099			ND		24.8	5.00	
5	PCB-103			ND		24.8	3.23	
5	PCB-104			ND		24.8	2.88	
5	PCB-105			ND		24.8	4.40	
5	PCB-106			ND		24.8	2.60	
5	PCB-107/124			ND		49.6	4.43	
5	PCB-109			ND		24.8	3.43	
5	PCB-110/115			ND		49.6	8.89	
5	PCB-111			ND		24.8	2.65	
5	PCB-112			ND		24.8	2.70	
5	PCB-114			ND		24.8	2.38	
5	PCB-118			ND		38.7	6.36	
5	PCB-120			ND		24.8	2.82	
5	PCB-121			ND		24.8	2.38	
5	PCB-122			ND		24.8	3.90	
5	PCB-123			ND		24.8	2.76	
5	PCB-126			ND		24.8	2.50	
5	PCB-127			ND		24.8	2.79	
6	PCB-128/166			ND		49.6	5.43	
6	PCB-129/138/163			ND		74.4	10.8	
6	PCB-130			ND		24.8	2.98	
6	PCB-131			ND		24.8	3.27	
6	PCB-132			ND		24.8	4.74	
6	PCB-133			ND		24.8	3.13	
6	PCB-134/143			ND		49.6	4.57	
6	PCB-135/151			ND		49.6	9.20	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
6	PCB-136			ND		24.8	4.74	
6	PCB-137			ND		24.8	3.58	
6	PCB-139/140			ND		49.6	4.38	
6	PCB-141			ND		24.8	4.02	
6	PCB-142			ND		24.8	2.91	
6	PCB-144			ND		24.8	4.01	
6	PCB-145			ND		24.8	2.61	
6	PCB-146			ND		24.8	3.92	
6	PCB-147/149			ND		49.6	11.5	
6	PCB-148			ND		24.8	5.44	
6	PCB-150			ND		24.8	2.94	
6	PCB-152			ND		24.8	3.19	
6	PCB-153/168			ND		49.6	7.58	
6	PCB-154			ND		24.8	3.29	
6	PCB-155			ND		24.8	2.96	
6	PCB-156/157			ND		49.6	4.24	
6	PCB-158			ND		24.8	2.31	
6	PCB-159			ND		24.8	2.77	
6	PCB-160			ND		24.8	2.83	
6	PCB-161			ND		24.8	2.27	
6	PCB-162			ND		24.8	2.54	
6	PCB-164			ND		24.8	2.96	
6	PCB-165			ND		24.8	2.10	
6	PCB-167			ND		24.8	2.92	
6	PCB-169			ND		24.8	3.21	
7	PCB-170			ND		24.8	5.05	
7	PCB-171/173			ND		49.6	4.68	
7	PCB-172			ND		24.8	3.20	
7	PCB-174			ND		24.8	5.28	
7	PCB-175			ND		24.8	2.46	
7	PCB-176			ND		24.8	3.46	
7	PCB-177			ND		24.8	4.29	
7	PCB-178			ND		24.8	3.45	
7	PCB-179			ND		24.8	3.84	

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Method Blank Analysis Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

CL No.	Target Analyte	RT	IAR #	Concentration (ng/Kg)	Q	CRQL (ng/Kg)	MDL (ng/Kg)	EMPC (ng/Kg)
7	PCB-180/193			ND		49.6	9.14	
7	PCB-181			ND		24.8	2.86	
7	PCB-182			ND		24.8	3.18	
7	PCB-183/185			ND		49.6	6.16	
7	PCB-184			ND		24.8	2.72	
7	PCB-186			ND		24.8	2.90	
7	PCB-187			ND		24.8	5.63	
7	PCB-188			ND		24.8	2.17	
7	PCB-189			ND		24.8	3.30	
7	PCB-190			ND		24.8	2.76	
7	PCB-191			ND		24.8	2.21	
7	PCB-192			ND		24.8	2.81	
8	PCB-194			ND		24.8	3.36	
8	PCB-195			ND		24.8	2.98	
8	PCB-196			ND		24.8	2.80	
8	PCB-197/200			ND		49.6	6.00	
8	PCB-198/199			ND		49.6	4.61	
8	PCB-201			ND		24.8	2.44	
8	PCB-202			ND		24.8	1.74	
8	PCB-203			ND		24.8	3.38	
8	PCB-204			ND		24.8	2.27	
8	PCB-205			ND		24.8	2.77	
9	PCB-206	56.19	0.64 *		JI	24.8	2.87	4.05
9	PCB-207			ND		24.8	2.26	
9	PCB-208			ND		24.8	2.41	
10	PCB-209			ND		24.8	3.70	

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CB Congener Totals Summary

Method 1668A

Client Sample ID: **CBLKCP**
Lab Sample ID: BLANK-114398
Lab File ID: Y240901A_08
Matrix: Soil
Percent Solids: 100%
Date Collected: 08/22/2024 08:35
Date Received: 08/22/2024 08:35
Date Extracted: 08/22/2024 14:00
Date Analyzed: 09/01/2024 07:45

Prep. Technique: Soxhlet
Total Amount Extracted: 10.1g
Dry Weight Extracted: 10.1g
Extract Volume: 200 uL
Dilution Factor: 1.0
Injection Volume: 1 uL
Injected By: JRH
Instrument ID: 10MSHR12 (Y)
GC Column ID: 286731-02
Ical ID: Y240901A02
CCal File(s): Y240901A_01

Homologue	Concentration (ng/Kg)	Q
Total MoCB	ND	
Total DiCB	97.3	J
Total TrCB	ND	
Total TeCB	ND	
Total PeCB	ND	
Total HxCB	ND	
Total HpCB	ND	
Total OcCB	ND	
Total NoCB	ND	J
DeCB	ND	
Total PCBs	97.3	

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LCS Analysis Summary

Method 1668A

Lab Sample ID	LCS-114432	Injected By	CVS
Matrix	Soil	Instrument ID	10MSHR09 (P)
Run File Name	P240831A_03	Column ID	285759-02
Amount Extracted	10.0g	Ical ID	P240831A02
Date Extracted	08/27/2024 14:00	CCal ID	P240831A_01
Date Analyzed	08/31/2024 07:34	Method Blank ID	BLANK-114431

Cl No	Analyte	Native Analytes				Labeled Analytes			
		Spiked (ng)	Found (ng)	% Recovery	Q	Spiked (ng)	Found (ng)	% Recovery	Q
1	PCB-001	1.00	1.13	113		2.00	1.17	59	
1	PCB-003	1.00	1.06	106		2.00	1.40	70	
2	PCB-004	1.00	1.10	110		2.00	1.01	51	
2	PCB-015	1.00	1.11	111		2.00	1.61	81	
3	PCB-019	1.00	1.05	105		2.00	1.17	59	
3	PCB-037	1.00	1.10	110		2.00	1.97	98	
4	PCB-054	1.00	1.11	111		2.00	1.37	69	
4	PCB-077	1.00	1.04	104		2.00	1.98	99	
4	PCB-081	1.00	1.05	105		2.00	1.91	96	
5	PCB-104	1.00	0.989	99		2.00	1.45	72	
5	PCB-105	1.00	1.13	113		2.00	2.11	106	
5	PCB-114	1.00	1.03	103		2.00	2.09	105	
5	PCB-118	1.00	1.08	108		2.00	2.08	104	
5	PCB-123	1.00	1.07	107		2.00	2.06	103	
5	PCB-126	1.00	1.05	105		2.00	2.27	113	
6	PCB-155	1.00	1.01	101		2.00	1.30	65	
6	PCB-156/157	2.00	2.13	106		4.00	4.03	101	
6	PCB-167	1.00	1.05	105		2.00	2.05	102	
6	PCB-169	1.00	1.05	105		2.00	2.15	108	
7	PCB-188	1.00	1.00	100		2.00	1.33	67	
7	PCB-189	1.00	1.05	105		2.00	1.98	99	
8	PCB-202	1.00	1.12	112		2.00	1.40	70	
8	PCB-205	1.00	1.01	101		2.00	1.66	83	
9	PCB-206	1.00	1.03	103		2.00	1.36	68	
9	PCB-208	1.00	1.08	108		2.00	1.56	78	
10	PCB-209	1.00	1.02	102		2.00	1.21	60	

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LCS Analysis Summary

Method 1668A

Lab Sample ID	LCS-114399	Injected By	JRH
Matrix	Soil	Instrument ID	10MSHR12 (Y)
Run File Name	Y240901A_05	Column ID	286731-02
Amount Extracted	10.3g	Ical ID	Y240901A02
Date Extracted	08/22/2024 14:00	CCal ID	Y240901A_01
Date Analyzed	09/01/2024 04:41	Method Blank ID	BLANK-114398

Cl No	Analyte	Native Analytes				Labeled Analytes			
		Spiked (ng)	Found (ng)	% Recovery	Q	Spiked (ng)	Found (ng)	% Recovery	Q
1	PCB-001	1.00	1.00	100		2.00	0.994	50	
1	PCB-003	1.00	0.947	95		2.00	1.22	61	
2	PCB-004	1.00	0.981	98		2.00	1.17	59	
2	PCB-015	1.00	1.09	109		2.00	1.63	81	
3	PCB-019	1.00	0.944	94		2.00	1.40	70	
3	PCB-037	1.00	1.08	108		2.00	1.84	92	
4	PCB-054	1.00	0.968	97		2.00	1.30	65	
4	PCB-077	1.00	0.978	98		2.00	2.14	107	
4	PCB-081	1.00	0.997	100		2.00	2.14	107	
5	PCB-104	1.00	0.917	92		2.00	1.61	80	
5	PCB-105	1.00	1.02	102		2.00	2.11	106	
5	PCB-114	1.00	0.967	97		2.00	2.01	100	
5	PCB-118	1.00	1.05	105		2.00	2.00	100	
5	PCB-123	1.00	0.992	99		2.00	2.05	103	
5	PCB-126	1.00	1.04	104		2.00	2.25	112	
6	PCB-155	1.00	1.01	101		2.00	1.57	78	
6	PCB-156/157	2.00	2.05	102		4.00	3.79	95	
6	PCB-167	1.00	1.04	104		2.00	1.87	94	
6	PCB-169	1.00	1.04	104		2.00	1.99	100	
7	PCB-188	1.00	0.923	92		2.00	1.82	91	
7	PCB-189	1.00	1.02	102		2.00	2.00	100	
8	PCB-202	1.00	0.952	95		2.00	1.70	85	
8	PCB-205	1.00	0.964	96		2.00	1.74	87	
9	PCB-206	1.00	1.03	103		2.00	1.63	82	
9	PCB-208	1.00	0.966	97		2.00	1.66	83	
10	PCB-209	1.00	0.943	94		2.00	1.62	81	

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LCS Analysis Summary

Method 1668A

Lab Sample ID	LCSD-114433	Injected By	CVS
Matrix	Soil	Instrument ID	10MSHR09 (P)
Run File Name	P240831A_04	Column ID	285759-02
Amount Extracted	10.1g	Ical ID	P240831A02
Date Extracted	08/27/2024 14:00	CCal ID	P240831A_01
Date Analyzed	08/31/2024 08:35	Method Blank ID	BLANK-114431

Cl No	Analyte	Native Analytes				Labeled Analytes			
		Spiked (ng)	Found (ng)	% Recovery	Q	Spiked (ng)	Found (ng)	% Recovery	Q
1	PCB-001	1.00	1.10	110		2.00	1.19	60	
1	PCB-003	1.00	1.04	104		2.00	1.43	72	
2	PCB-004	1.00	1.04	104		2.00	1.11	55	
2	PCB-015	1.00	1.10	110		2.00	1.61	80	
3	PCB-019	1.00	1.03	103		2.00	1.17	58	
3	PCB-037	1.00	1.06	106		2.00	2.01	100	
4	PCB-054	1.00	1.04	104		2.00	1.41	70	
4	PCB-077	1.00	1.01	101		2.00	2.05	102	
4	PCB-081	1.00	1.04	104		2.00	1.95	97	
5	PCB-104	1.00	1.01	101		2.00	1.39	69	
5	PCB-105	1.00	1.09	109		2.00	2.14	107	
5	PCB-114	1.00	1.01	101		2.00	2.15	108	
5	PCB-118	1.00	1.10	110		2.00	2.11	106	
5	PCB-123	1.00	1.03	103		2.00	2.12	106	
5	PCB-126	1.00	1.05	105		2.00	2.25	113	
6	PCB-155	1.00	1.00	100		2.00	1.31	65	
6	PCB-156/157	2.00	2.09	105		4.00	3.99	100	
6	PCB-167	1.00	1.07	107		2.00	1.99	100	
6	PCB-169	1.00	1.04	104		2.00	2.09	105	
7	PCB-188	1.00	1.02	102		2.00	1.39	70	
7	PCB-189	1.00	1.02	102		2.00	2.00	100	
8	PCB-202	1.00	1.08	108		2.00	1.41	70	
8	PCB-205	1.00	1.01	101		2.00	1.67	84	
9	PCB-206	1.00	0.985	98		2.00	1.43	71	
9	PCB-208	1.00	1.04	104		2.00	1.55	77	
10	PCB-209	1.00	0.949	95		2.00	1.25	63	

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Method 1668A

Spike Recovery Relative Percent Difference (RPD) Results

Client	Alpha Analytical		
Spike 1 ID	LCS-114432	Spike 2 ID	LCSD-114433
Spike 1 Filename	P240831A_03	Spike 2 Filename	P240831A_04

Compound	IUPAC	Spike 1 %REC	Spike 2 %REC	%RPD
2-MoCB	1	113	110	2.7
4-MoCB	3	106	104	1.9
2,2'-DiCB	4	110	104	5.6
4,4'-DiCB	15	111	110	0.9
2,2',6-TrCB	19	105	103	1.9
3,4,4'-TrCB	37	110	106	3.7
2,2',6,6'-TeCB	54	111	104	6.5
3,3',4,4'-TeCB	77	104	101	2.9
3,4,4',5-TeCB	81	105	104	1.0
2,2',4,6,6'-PeCB	104	99	101	2.0
2,3,3',4,4'-PeCB	105	113	109	3.6
2,3,4,4',5-PeCB	114	103	101	2.0
2,3',4,4',5-PeCB	118	108	110	1.8
2,3',4,4',5'-PeCB	123	107	103	3.8
3,3',4,4',5-PeCB	126	105	105	0.0
2,2',4,4',6,6'-HxCB	155	101	100	1.0
(156/157)	156/157	106	105	0.9
2,3',4,4',5,5'-HxCB	167	105	107	1.9
3,3',4,4',5,5'-HxCB	169	105	104	1.0
2,2',3,4',5,6,6'-HpCB	188	100	102	2.0
2,3,3',4,4',5,5'-HpCB	189	105	102	2.9
2,2',3,3',5,5',6,6'-OcCB	202	112	108	3.6
2,3,3',4,4',5,5',6-OcCB	205	101	101	0.0
2,2',3,3',4,4',5,5',6-NoCB	206	103	98	5.0
2,2',3,3',4,5,5',6,6'-NoCB	208	108	104	3.8
Decachlorobiphenyl	209	102	95	7.1

%REC = Percent Recovered
RPD = The difference between the two values divided by the mean value

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Matrix Spike (MS) Analysis Summary

Method 1668A

Lab Sample ID	10705003004-MS	Injected By	JRH
Matrix	Solid	Instrument ID	10MSHR12 (Y)
Run File Name	Y240902A_03	Column ID	286731-02
Amount Extracted	17.4g	Ical ID	Y240902A02
Date Extracted	08/22/2024 14:00	CCal ID	Y240902A_01
Date Analyzed	09/02/2024 05:35	Method Blank ID	BLANK-114398

Cl No	Analyte	Native Analytes				Labeled Analytes			
		Spiked (ng)	Found (ng)	% Recovery	Q	Spiked (ng)	Found (ng)	% Recovery	Q
1	PCB-001	1.00	0.978	98		2.00	1.24	62	
1	PCB-003	1.00	0.955	95		2.00	1.48	74	
2	PCB-004	1.00	0.990	99		2.00	1.38	69	
2	PCB-015	1.00	1.09	109		2.00	1.82	91	
3	PCB-019	1.00	0.946	95		2.00	1.66	83	
3	PCB-037	1.00	1.02	102		2.00	2.03	102	
4	PCB-054	1.00	0.948	95		2.00	1.59	79	
4	PCB-077	1.00	0.947	95		2.00	2.29	114	
4	PCB-081	1.00	0.966	97		2.00	2.23	111	
5	PCB-104	1.00	0.947	95		2.00	1.72	86	
5	PCB-105	1.00	1.01	101		2.00	2.09	105	
5	PCB-114	1.00	0.974	97		2.00	2.12	106	
5	PCB-118	1.00	1.07	107		2.00	2.10	105	
5	PCB-123	1.00	1.05	105		2.00	2.04	102	
5	PCB-126	1.00	1.05	105		2.00	2.31	116	
6	PCB-155	1.00	1.00	100		2.00	1.63	81	
6	PCB-156/157	2.00	2.06	103		4.00	3.97	99	
6	PCB-167	1.00	0.994	99		2.00	1.97	98	
6	PCB-169	1.00	1.03	103		2.00	2.08	104	
7	PCB-188	1.00	0.984	98		2.00	1.74	87	
7	PCB-189	1.00	1.05	105		2.00	1.92	96	
8	PCB-202	1.00	0.949	95		2.00	1.65	82	
8	PCB-205	1.00	0.973	97		2.00	1.76	88	
9	PCB-206	1.00	1.01	101		2.00	1.61	80	
9	PCB-208	1.00	0.967	97		2.00	1.61	81	
10	PCB-209	1.00	0.905	90		2.00	1.65	82	

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Matrix Spike (MS) Analysis Summary

Method 1668A

Lab Sample ID	10705003004-MSD	Injected By	JRH
Matrix	Solid	Instrument ID	10MSHR12 (Y)
Run File Name	Y240902A_04	Column ID	286731-02
Amount Extracted	17.2g	Ical ID	Y240902A02
Date Extracted	08/22/2024 14:00	CCal ID	Y240902A_01
Date Analyzed	09/02/2024 06:36	Method Blank ID	BLANK-114398

Cl No	Analyte	Native Analytes				Labeled Analytes			
		Spiked (ng)	Found (ng)	% Recovery	Q	Spiked (ng)	Found (ng)	% Recovery	Q
1	PCB-001	1.00	0.985	98		2.00	0.959	48	
1	PCB-003	1.00	0.947	95		2.00	1.15	57	
2	PCB-004	1.00	1.04	104		2.00	1.09	55	
2	PCB-015	1.00	1.05	105		2.00	1.50	75	
3	PCB-019	1.00	0.925	92		2.00	1.33	66	
3	PCB-037	1.00	1.05	105		2.00	1.74	87	
4	PCB-054	1.00	0.983	98		2.00	1.25	62	
4	PCB-077	1.00	0.942	94		2.00	2.05	102	
4	PCB-081	1.00	0.994	99		2.00	1.98	99	
5	PCB-104	1.00	0.941	94		2.00	1.55	78	
5	PCB-105	1.00	1.05	105		2.00	1.98	99	
5	PCB-114	1.00	0.987	99		2.00	1.91	96	
5	PCB-118	1.00	1.05	105		2.00	1.97	98	
5	PCB-123	1.00	0.999	100		2.00	1.94	97	
5	PCB-126	1.00	1.06	106		2.00	2.10	105	
6	PCB-155	1.00	0.982	98		2.00	1.48	74	
6	PCB-156/157	2.00	2.12	106		4.00	3.57	89	
6	PCB-167	1.00	1.03	103		2.00	1.80	90	
6	PCB-169	1.00	1.03	103		2.00	1.93	97	
7	PCB-188	1.00	0.993	99		2.00	1.62	81	
7	PCB-189	1.00	1.07	107		2.00	1.84	92	
8	PCB-202	1.00	1.00	100		2.00	1.55	77	
8	PCB-205	1.00	1.01	101		2.00	1.59	79	
9	PCB-206	1.00	0.950	95		2.00	1.54	77	
9	PCB-208	1.00	1.01	101		2.00	1.54	77	
10	PCB-209	1.00	0.909	91		2.00	1.61	81	

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Method PCB1668A-209 Spike Sample Results

Client - Alpha Analytical

Client Sample ID	VC-02 (4.7'-17')		
Lab Sample ID	10705003004	Sample Filename	Y240902A_06
MS ID	10705003004-MS	MS Filename	Y240902A_03
MSD ID	10705003004-MSD	MSD Filename	Y240902A_04

	Quantity	Unspiked Sample Contribution		Quantity Measured			Subtracted Recovery	
	Spiked	to MS	to MSD	MS	MSD		MS	MSD
Analyte	(ng)	(ng)	(ng)	(ng)	(ng)	RPD	(%)	(%)
2-MoCB	1.00	ND	ND	0.98	0.98	0.7	98	98
4-MoCB	1.00	ND	ND	0.95	0.95	0.9	95	95
2,2'-DiCB	1.00	ND	ND	0.99	1.04	4.7	99	104
4,4'-DiCB	1.00	ND	ND	1.09	1.05	3.4	109	105
2,2',6-TrCB	1.00	ND	ND	0.95	0.92	2.2	95	92
3,4,4'-TrCB	1.00	ND	ND	1.02	1.05	2.7	102	105
2,2',6,6'-TeCB	1.00	ND	ND	0.95	0.98	3.6	95	98
3,3',4,4'-TeCB	1.00	ND	ND	0.95	0.94	0.5	95	94
3,4,4',5-TeCB	1.00	ND	ND	0.97	0.99	2.8	97	99
2,2',4,6,6'-PeCB	1.00	ND	ND	0.95	0.94	0.7	95	94
2,3,3',4,4'-PeCB	1.00	ND	ND	1.01	1.05	3.4	101	105
2,3,4,4',5-PeCB	1.00	ND	ND	0.97	0.99	1.3	97	99
2,3',4,4',5-PeCB	1.00	ND	ND	1.07	1.05	1.9	107	105
2,3',4,4',5'-PeCB	1.00	ND	ND	1.05	1.00	4.9	105	100
3,3',4,4',5-PeCB	1.00	ND	ND	1.05	1.06	0.9	105	106
2,2',4,4',6,6'-HxCB	1.00	ND	ND	1.00	0.98	2.2	100	98
(156/157)	2.00	ND	ND	2.06	2.12	2.9	103	106
2,3',4,4',5,5'-HxCB	1.00	ND	ND	0.99	1.03	3.2	99	103
3,3',4,4',5,5'-HxCB	1.00	ND	ND	1.03	1.03	0.5	103	103
2,2',3,4',5,6,6'-HpCB	1.00	ND	ND	0.98	0.99	0.9	98	99
2,3,3',4,4',5,5'-HpCB	1.00	ND	ND	1.05	1.07	2.0	105	107
2,2',3,3',5,5',6,6'-OcCB	1.00	ND	ND	0.95	1.00	5.6	95	100
2,3,3',4,4',5,5',6-OcCB	1.00	ND	ND	0.97	1.01	3.8	97	101
2,2',3,3',4,4',5,5',6-NoCB	1.00	ND	ND	1.01	0.95	5.6	101	95
2,2',3,3',4,5,5',6,6'-NoCB	1.00	ND	ND	0.97	1.01	3.9	97	101
Decachlorobiphenyl	1.00	ND	ND	0.90	0.91	0.4	90	91

Quantity Spiked - the amount of analyte spiked into the spiked samples
Unspiked Sample Contribution - calculated based on the amount found in the sample and the extracted amounts of the spiked and unspiked samples
Quantity Measured - the total amount of analyte measured in the spiked samples
RPD - the Relative Percent Difference of the spiked sample Quantity Measured values
Subtracted Recovery - calculated after subtracting the unspiked sample contribution

Appendix E1: New Jersey Bulk Physical Analysis Results

	SAMPLE ID:	VC-07 (0-10')	VC-07 (10-17')	VC-08 (0-11.8')	VC-08 (11.9-13.9')	VC-08 (13.9-17')	VC-09 (0-15.2')	VC-09 (15.2-17')	VC-10 (0-14.5')	VC-10 (14.5-17')
	COLLECTION DATE:	8/16/2024	8/16/2024	8/16/2024	8/16/2024	8/16/2024	8/15/2024	8/15/2024	8/14/2024	8/14/2024
	LOCATION	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ	NJ
	SAMPLE MATRIX:	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
	ASTM Class	SM	CH	SM	SP	CH	SP-SM	CH	SC	CH
ANALYTE	Units									
ATTERBERG LIMITS										
Liquid Limit	--	NP	83	49	NP	108	NP	156	38	78
Plastic Limit	--		26	33		32		49	20	28
Plasticity Index	--		57	16		76		107	18	50
Liquidity Index	--		0.9	1.4		0.6		0.7	1.1	0.8
GENERAL PHYSICAL DATA										
Moisture Content	%	38	80	56	14	77	23	122	40	67
Ash Content	%	98.3	96.6	97.9	99.7	95.2	99.4	86	98.4	96
Organic Matter	%	1.7	3.4	2.1	0.3	4.8	0.6	14	1.6	4
Specific Gravity	--	2.66	2.69	2.64	2.7	2.6	2.71	2.56	2.71	2.7
GRAIN SIZE ANALYSIS										
% Gravel	%	0	0	0	0.2	0	0.6	0	0	0
% Sand	%	86	10.5	51.4	96.2	11.4	90.3	4.7	69.7	17.5
% Total Fines	%	14	89.5	48.6	3.6	88.6	9.1	95.3	30.3	82.5

NA = Not Applicable
"--" = No Data
NP - sample determined to be non-plastic

Appendix E2: Delaware Bulk Physical Analysis Results

	SAMPLE ID:	VC-01 (0-4.3')	VC-01 (4.3-17')	VC-02 (0-4.7')	VC-02 (4.7-17')	VC-03	VC-04	VC-05	VC-06
	COLLECTION DATE:	8/17/2024	8/17/2024	8/15/2024	8/15/2024	8/17/2024	8/16/2024	8/17/2024	8/14/2024
	LOCATION	DE	DE	DE	DE	DE	DE	DE	DE
	SAMPLE MATRIX:	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment
	ASTM Class	MH	SM	CH	SM	MH	MH	MH	CH
ANALYTE	Units								
ATTERBERG LIMITS									
Liquid Limit	--	172	NP	105	NP	87	105	91	85
Plastic Limit	--	122		29		54	68	62	33
Plasticity Index	--	50		76		33	37	29	52
Liquidity Index	--	1.1		0.8		1	0.9	1	0.9
GENERAL PHYSICAL DATA									
Moisture Content	%	177	28	91.0	18.0	86	103	90	82.0
Ash Content	%	81.5	99	97.6	99.6	96.7	95.4	96.3	95.9
Organic Matter	%	18.5	1	2.4	0.4	3.3	4.6	3.7	4.1
Specific Gravity	--	2.28	2.7	2.64	2.68	2.67	2.67	2.68	2.68
GRAIN SIZE ANALYSIS									
% Gravel	%	0	0	0	18	0	0	0	0
% Sand	%	23.6	71.9	2.9	68.9	1.9	3.3	2	4.2
% Total Fines	%	76.4	28.1	97.1	13.1	98.1	96.7	98	95.8

NA = Not Applicable
"--" = No Data
NP - sample determined to be non-plastic

Appendix F1: New Jersey Bulk Chemical Analysis Results

				SAMPLE ID:	VC-10 (0-14.5)				VC-10 (14.5'-17')				VC-09 (0-15.2')				VC-09 (15.2'-17')				VC-08 (0-11.8')			
				LAB ID:	L2446115-01				L2446115-02				L2446115-03				L2446115-04				L2446115-06			
				COLLECTION DATE:	8/14/2024				8/14/2024				8/15/2024				8/15/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																				
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
VOLATILE ORGANICS BY EPA 5035																								
1,1,1-Trichloroethane	71-55-6			mg/kg	#VALUE!		0.00098	0.00032	ND		0.00083	0.00028	ND		0.00049	0.00016	ND		0.001	0.00033	ND		0.00064	0.00021
1,1,2,2-Tetrachloroethane	79-34-5			mg/kg	ND		0.00098	0.00032	ND		0.00083	0.00028	ND		0.00049	0.00016	ND		0.001	0.00033	ND		0.00064	0.00021
1,1,2-Trichloroethane	79-00-5			mg/kg	ND		0.002	0.00052	ND		0.0017	0.00044	ND		0.00098	0.00026	ND		0.002	0.00054	ND		0.0013	0.00034
1,1-Dichloroethane	75-34-3			mg/kg	ND		0.002	0.00028	ND		0.0017	0.00024	ND		0.00098	0.00014	ND		0.002	0.00029	ND		0.0013	0.00018
1,1-Dichloroethene	75-35-4			mg/kg	ND		0.002	0.00046	ND		0.0017	0.0004	ND		0.00098	0.00023	ND		0.002	0.00048	ND		0.0013	0.0003
1,2,3-Trichlorobenzene	87-61-6			mg/kg	ND		0.0039	0.00063	ND		0.0033	0.00054	ND		0.002	0.00032	ND		0.004	0.00064	ND		0.0025	0.00041
	120-82-1		0.0048	mg/kg	ND		0.0039	0.00053	ND		0.0033	0.00045	ND		0.002	0.00027	ND		0.004	0.00054	ND		0.0025	0.00035
1,2-Dibromo-3-chloropropane	96-12-8			mg/kg	ND		0.0058	0.0019	ND		0.005	0.0017	ND		0.003	0.00098	ND		0.006	0.002	ND		0.0038	0.0013
1,2-Dibromoethane	106-93-4			mg/kg	ND		0.002	0.00054	ND		0.0017	0.00046	ND		0.00098	0.00027	ND		0.002	0.00056	ND		0.0013	0.00036
1,2-Dichlorobenzene	95-50-1		0.013	mg/kg	ND		0.0039	0.00028	ND		0.0033	0.00024	ND		0.002	0.00014	ND		0.004	0.00029	ND		0.0025	0.00018
1,2-Dichloroethane	107-06-2			mg/kg	ND		0.002	0.0005	ND		0.0017	0.00043	ND		0.00098	0.00025	ND		0.002	0.00052	ND		0.0013	0.00033
1,2-Dichloroethene, Total	540-59-0			mg/kg	ND		0.002	0.00027	ND		0.0017	0.00023	ND		0.00098	0.00013	ND		0.002	0.00027	ND		0.0013	0.00017
1,2-Dichloropropane	78-87-5			mg/kg	ND		0.002	0.00024	ND		0.0017	0.00021	ND		0.00098	0.00012	ND		0.002	0.00025	ND		0.0013	0.00016
1,3-Dichlorobenzene	541-73-1			mg/kg	ND		0.0039	0.00029	ND		0.0033	0.00025	ND		0.002	0.00014	ND		0.004	0.0003	ND		0.0025	0.00019
1,3-Dichloropropene, Total	542-75-6			mg/kg	ND		0.00098	0.00031	ND		0.00083	0.00026	ND		0.00049	0.00016	ND		0.001	0.00032	ND		0.00064	0.0002
1,4-Dichlorobenzene	106-46-7		0.11	mg/kg	ND		0.0039	0.00033	ND		0.0033	0.00028	ND		0.002	0.00017	ND		0.004	0.00034	ND		0.0025	0.00022
1,4-Dioxane	123-91-1			mg/kg	ND		0.16	0.068	ND		0.13	0.058	ND		0.079	0.034	ND		0.16	0.07	ND		0.1	0.045
2-Butanone	78-93-3			mg/kg	**0.0094**	**J**	0.02	0.0043	**0.015**	**J**	0.017	0.0037	**0.0035**	**J**	0.0098	0.0022	**0.0075**	**J**	0.02	0.0044	**0.016**		0.013	0.0028
2-Hexanone	591-78-6			mg/kg	ND		0.02	0.0023	ND		0.017	0.002	ND		0.0098	0.0012	ND		0.02	0.0024	ND		0.013	0.0015
4-Methyl-2-pentanone	108-10-1			mg/kg	ND		0.02	0.0025	ND		0.017	0.0021	ND		0.0098	0.0013	ND		0.02	0.0026	ND		0.013	0.0016
Acetone	67-64-1			mg/kg	**0.039**	**J**	0.049	0.02	**0.067**		0.042	0.017	**0.016**	**J**	0.025	0.0098	**0.037**	**J**	0.05	0.02	**0.078**		0.032	0.013
Benzene	71-43-2	0.34		mg/kg	ND		0.00098	0.00032	ND		0.00083	0.00028	ND		0.00049	0.00016	ND		0.001	0.00033	ND		0.00064	0.00021
Bromochloromethane	74-97-5			mg/kg	ND		0.0039	0.0004	ND		0.0033	0.00034	ND		0.002	0.0002	ND		0.004	0.00041	ND		0.0025	0.00026
Bromodichloromethane	75-27-4			mg/kg	ND		0.00098	0.00021	ND		0.00083	0.00018	ND		0.00049	0.00011	ND		0.001	0.00022	ND		0.00064	0.00014
Bromoform	75-25-2			mg/kg	ND		0.0078	0.00048	ND		0.0067	0.00041	ND		0.0039	0.00024	ND		0.008	0.00049	ND		0.0051	0.00031
Bromomethane	74-83-9			mg/kg	ND		0.0039	0.0011	ND		0.0033	0.00097	ND		0.002	0.00057	ND		0.004	0.0012	ND		0.0025	0.00074
Carbon disulfide	75-15-0			mg/kg	ND		0.02	0.0089	ND		0.017	0.0076	ND		0.0098	0.0045	**0.017**	**J**	0.02	0.0091	ND		0.013	0.0058
Carbon tetrachloride	56-23-5			mg/kg	ND		0.002	0.00045	ND		0.0017	0.00038	ND		0.00098	0.00023	ND		0.002	0.00046	ND		0.0013	0.00029
Chlorobenzene	108-90-7			mg/kg	ND		0.00098	0.00025	ND		0.00083	0.00021	ND		0.00049	0.00012	ND		0.001	0.00025	ND		0.00064	0.00016
Chloroethane	75-00-3			mg/kg	ND		0.0039	0.00088	ND		0.0033	0.00075	ND		0.002	0.00044	ND		0.004	0.00091	ND		0.0025	0.00058
Chloroform	67-66-3			mg/kg	ND		0.0029	0.00027	ND		0.0025	0.00023	ND		0.0015	0.00014	ND		0.003	0.00028	ND		0.0019	0.00018
Chloromethane	74-87-3			mg/kg	ND		0.0078	0.0018	ND		0.0067	0.0016	ND		0.0039	0.00092	ND		0.008	0.0019	ND		0.0051	0.0012
cis-1,2-Dichloroethene	156-59-2			mg/kg	ND		0.002	0.00034	ND		0.0017	0.00029	ND		0.00098	0.00017	ND		0.002	0.00035	ND		0.0013	0.00022
cis-1,3-Dichloropropene	10061-01-5			mg/kg	ND		0.00098	0.00031	ND		0.00083	0.00026	ND		0.00049	0.00016	ND		0.001	0.00032	ND		0.00064	0.0002
Cyclohexane	110-82-7			mg/kg	ND		0.02	0.0011	ND		0.017	0.00091	ND		0.0098	0.00054	ND		0.02	0.0011	ND		0.013	0.00069
Dibromochloromethane	124-48-1			mg/kg	ND		0.002	0.00027	ND		0.0017	0.00023	ND		0.00098	0.00014	ND		0.002	0.00028	ND		0.0013	0.00018
Dichlorodifluoromethane	75-71-8			mg/kg	ND		0.02	0.0018	ND		0.017	0.0015	ND		0.0098	0.0009	ND		0.02	0.0018	ND		0.013	0.0012
Ethylbenzene	100-41-4	1.4		mg/kg	ND		0.002	0.00028	ND		0.0017	0.00024	ND		0.00098	0.00014	ND		0.002	0.00028	ND		0.0013	0.00018
Freon-113	76-13-1			mg/kg	ND		0.0078	0.0014	ND		0.0067	0.0012	ND		0.0039	0.00068	ND		0.008	0.0014	ND		0.0051	0.00088
Isopropylbenzene	98-82-8			mg/kg	ND		0.002	0.00021	ND		0.0017	0.00018	ND		0.00098	0.00011	ND		0.002	0.00022	ND		0.0013	0.00014
Methyl Acetate	79-20-9			mg/kg	ND		0.0078	0.0018	ND		0.0067	0.0016	ND		0.0039	0.00094	ND		0.008	0.0019	ND		0.0051	0.0012
Methyl cyclohexane	108-87-2			mg/kg	ND		0.0078	0.0012	ND		0.0067	0.001	ND		0.0039	0.00059	ND		0.008	0.0012	ND		0.0051	0.00077
Methyl tert butyl ether	1634-04-4			mg/kg	ND		0.0039	0.00039	ND		0.0033	0.00034	ND		0.002	0.0002	ND		0.004	0.0004	ND		0.0025	0.00026
Methylene chloride	75-09-2			mg/kg	ND		0.0098	0.0045	ND		0.0083	0.0038	ND		0.0049	0.0022	ND		0.01	0.0046	ND		0.0064	0.0029
o-Xylene	95-47-6			mg/kg	ND		0.002	0.00057	ND		0.0017	0.00048	ND		0.00098	0.00029	ND		0.002	0.00058	ND		0.0013	0.00037
p/m-Xylene	179601-23-1			mg/kg	ND		0.0039	0.0011	ND		0.0033	0.00093	ND		0.002	0.00055	ND		0.004	0.0011	ND		0.0025	0.00071
Styrene	100-42-5			mg/kg	ND		0.002	0.00038	ND		0.0017	0.00033	ND		0.00098	0.00019	ND		0.002	0.00039	ND		0.0013	0.00025
Tetrachloroethene	127-18-4	0.45		mg/kg	ND		0.00098	0.00038	ND		0.00083	0.00033	ND		0.00049	0.00019	ND		0.001	0.00039	ND		0.00064	0.00025
Toluene	108-88-3	2.5		mg/kg	ND		0.002	0.001	ND		0.0017	0.00091	ND		0.00098	0.00053	ND		0.002	0.0011	ND		0.0013	0.00069
trans-1,2-Dichloroethene	156-60-5			mg/kg	ND		0.0029	0.00027	ND		0.0025	0.00023	ND		0.0015	0.00013	ND		0.003	0.00027	ND		0.0019	0.00017
trans-1,3-Dichloropropene	10061-02-6			mg/kg	ND		0.002	0.00053	ND		0.0017	0.00046	ND		0.00098	0.00027	ND		0.002	0.00055	ND		0.0013	0.00035
Trichloroethene	79-01-6	1.6		mg/kg	ND		0.00098	0.00027	ND		0.00083	0.00023	ND		0.00049	0.00013	ND		0.001	0.00027	ND		0.00064	0.00017
Trichlorofluoromethane	75-69-4			mg/kg	ND		0.0078	0.0014	ND		0.0067	0.0012	ND		0.0039	0.00068	ND		0.008	0.0014	ND		0.0051	0.00088
Vinyl chloride	75-01-4			mg/kg	ND		0.002	0.00065	ND		0.0017	0.00056	ND		0.00098	0.00033	ND		0.002	0.00067	ND		0.0013	0.00043
Xylenes, Total	1330-20-7	0.12		mg/kg	ND		0.002	0.00057	ND		0.0017	0.00048	ND		0.00098	0.00029	ND		0.002	0.00058	ND		0.0013	0.00037
Total VOCs				mg/kg	**0.0484**	-	-	-	**0.082**	-	-	-	**0.0195**	-	-	-	**0.0615**	-	-	-	**0.094**	-	-	-
VOLATILE ORGANICS BY EPA 5035-TIC																							0	0
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
No Tentatively Identified Compounds					ND		0	0	ND		0	0	ND		0	0	ND		0	0	ND		0	0
Total TIC Compounds				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-

				SAMPLE ID:	VC-10 (0-14.5)				VC-10 (14.5'-17')				VC-09 (0-15.2')				VC-09 (15.2'-17')				VC-08 (0-11.8')			
				LAB ID:	L2446115-01				L2446115-02				L2446115-03				L2446115-04				L2446115-06			
				COLLECTION DATE:	8/14/2024				8/14/2024				8/15/2024				8/15/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																				
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
PAHS BY GC/MS-SIM																							0	0
2-Chloronaphthalene	91-58-7			mg/kg	ND		0.00559	0.00043	ND		0.00675	0.00052	ND		0.00474	0.00037	ND		0.00824	0.00064	ND		0.00596	0.00046
2-Methylnaphthalene	91-57-6	0.07	0.67	mg/kg	ND		0.00559	0.00069	ND		0.00675	0.00083	**0.00061**	J	0.00474	0.00058	**0.00129**	**J**	0.00824	0.00102	ND		0.00596	0.00074
Acenaphthene	83-32-9	0.016	0.5	mg/kg	ND		0.00559	0.00062	**0.00167**	**J**	0.00675	0.00075	**0.00062**	**J**	0.00474	0.00053	**0.00242**	**J**	0.00824	0.00092	**0.00166**	**J**	0.00596	0.00066
Acenaphthylene	208-96-8	0.044	0.64	mg/kg	ND		0.00559	0.00037	ND		0.00675	0.00045	ND		0.00474	0.00031	**0.00104**	**J**	0.00824	0.00055	ND		0.00596	0.0004
Anthracene	120-12-7	0.085	1.1	mg/kg	ND		0.00559	0.00069	ND		0.00675	0.00083	ND		0.00474	0.00058	ND		0.00824	0.00102	ND		0.00596	0.00074
Benz(a)anthracene	56-55-3	0.261	1.6	mg/kg	ND		0.00559	0.00149	ND		0.00675	0.0018	ND		0.00474	0.00126	ND		0.00824	0.0022	ND		0.00596	0.00159
Benzo(a)pyrene	50-32-8	0.43	1.6	mg/kg	ND		0.00559	0.00065	ND		0.00675	0.00079	ND		0.00474	0.00055	ND		0.00824	0.00096	ND		0.00596	0.00069
Benzo(b)fluoranthene	205-99-2		1.8	mg/kg	ND		0.00559	0.00058	**0.00114**	**J**	0.00675	0.0007	ND		0.00474	0.00049	ND		0.00824	0.00085	ND		0.00596	0.00062
Benzo(ghi)perylene	191-24-2	0.17		mg/kg	**0.00046**	**J**	0.00559	0.00046	**0.00085**	**J**	0.00675	0.00055	ND		0.00474	0.00039	ND		0.00824	0.00067	ND		0.00596	0.00049
Benzo(k)fluoranthene	207-08-9	0.24		mg/kg	ND		0.00559	0.00057	ND		0.00675	0.00069	ND		0.00474	0.00048	ND		0.00824	0.00084	ND		0.00596	0.00061
Chrysene	218-01-9	0.384	2.8	mg/kg	**0.00049**	**J**	0.00559	0.00049	**0.00088**	**J**	0.00675	0.00059	ND		0.00474	0.00041	**0.00112**	**J**	0.00824	0.00072	ND		0.00596	0.00052
Dibenz(a,h)anthracene	53-70-3	0.063	0.26	mg/kg	ND		0.00559	0.00057	ND		0.00675	0.00069	ND		0.00474	0.00048	ND		0.00824	0.00084	ND		0.00596	0.00061
Fluoranthene	206-44-0	0.6	5.1	mg/kg	**0.0011**	**J**	0.00559	0.00102	**0.00207**	**J**	0.00675	0.00124	ND		0.00474	0.00086	**0.00259**	**J**	0.00824	0.00151	**0.0012**	**J**	0.00596	0.00109
Fluorene	86-73-7	0.019	0.54	mg/kg	**0.00062**	**J**	0.00559	0.00037	**0.0015**	**J**	0.00675	0.00045	ND		0.00474	0.00031	**0.00151**	**J**	0.00824	0.00055	**0.00097**	**J**	0.00596	0.00039
Indeno(1,2,3-cd)pyrene	193-39-5	0.2		mg/kg	ND		0.00559	0.00159	ND		0.00675	0.00192	ND		0.00474	0.00135	ND		0.00824	0.00235	ND		0.00596	0.0017
Naphthalene	91-20-3	0.16	2.1	mg/kg	**0.00078**	**J**	0.00559	0.0005	**0.00124**	**J**	0.00675	0.0006	**0.00092**	**J**	0.00474	0.00042	**0.0055**	**J**	0.00824	0.00073	**0.00079**	**J**	0.00596	0.00053
Phenanthrene	85-01-8	0.24	1.5	mg/kg	**0.00172**	**J**	0.00559	0.00065	**0.00288**	**J**	0.00675	0.00079	**0.00096**	**J**	0.00474	0.00055	**0.00604**	**J**	0.00824	0.00097	**0.00189**	**J**	0.00596	0.0007
Pyrene	129-00-0	0.665	2.6	mg/kg	**0.00063**	**J**	0.00559	0.00057	**0.00125**	**J**	0.00675	0.00068	ND		0.00474	0.00048	**0.00242**	**J**	0.00824	0.00084	**0.00077**	**J**	0.00596	0.0006
SEMIVOLATILE ORGANICS BY GC/MS																								
1,2,4,5-Tetrachlorobenzene	95-94-3			mg/kg	ND		0.0457	0.00435	ND		0.0562	0.00536	ND		0.041	0.0039	ND		0.0726	0.00691	ND		0.0493	0.00469
2,3,4,6-Tetrachlorophenol	58-90-2			mg/kg	ND		0.0457	0.00791	ND		0.0562	0.00973	ND		0.041	0.00709	ND		0.0726	0.0126	ND		0.0493	0.00853
2,4,5-Trichlorophenol	95-95-4		0.003	mg/kg	ND		0.0457	0.00545	ND		0.0562	0.0067	ND		0.041	0.00488	ND		0.0726	0.00865	ND		0.0493	0.00588
2,4,6-Trichlorophenol	88-06-2		0.006	mg/kg	ND		0.0457	0.00409	ND		0.0562	0.00503	ND		0.041	0.00366	ND		0.0726	0.00649	ND		0.0493	0.00441
2,4-Dichlorophenol	120-83-2		0.005	mg/kg	ND		0.0457	0.00491	ND		0.0562	0.00604	ND		0.041	0.0044	ND		0.0726	0.0078	ND		0.0493	0.00529
2,4-Dimethylphenol	105-67-9			mg/kg	ND		0.0457	0.00753	ND		0.0562	0.00927	ND		0.041	0.00675	ND		0.0726	0.012	ND		0.0493	0.00812
2,4-Dinitrophenol	51-28-5			mg/kg	ND		0.274	0.0779	ND		0.338	0.0958	ND		0.246	0.0698	ND		0.436	0.124	ND		0.296	0.084
2,4-Dinitrotoluene	121-14-2			mg/kg	ND		0.0457	0.0032	ND		0.0562	0.00394	ND		0.041	0.00287	ND		0.0726	0.00508	ND		0.0493	0.00345
2,6-Dinitrotoluene	606-20-2			mg/kg	ND		0.0457	0.0118	ND		0.0562	0.0145	ND		0.041	0.0106	ND		0.0726	0.0187	ND		0.0493	0.0127
2-Chlorophenol	95-57-8		0.008	mg/kg	ND		0.0457	0.00302	ND		0.0562	0.00371	ND		0.041	0.0027	ND		0.0726	0.00479	ND		0.0493	0.00325
2-Methylphenol	95-48-7			mg/kg	ND		0.0457	0.00393	ND		0.0562	0.00484	ND		0.041	0.00352	ND		0.0726	0.00624	ND		0.0493	0.00424
2-Nitroaniline	88-74-4			mg/kg	ND		0.0457	0.00739	ND		0.0562	0.00909	ND		0.041	0.00662	ND		0.0726	0.0117	ND		0.0493	0.00797
2-Nitrophenol	88-75-5			mg/kg	ND		0.0457	0.00493	ND		0.0562	0.00606	ND		0.041	0.00442	ND		0.0726	0.00783	ND		0.0493	0.00531
3,3'-Dichlorobenzidine	91-94-1			mg/kg	ND		0.0914	0.0078	ND		0.112	0.0096	ND		0.0819	0.00699	ND		0.145	0.0124	ND		0.0986	0.00841
3-Nitroaniline	99-09-2			mg/kg	ND		0.0914	0.0048	ND		0.112	0.00591	ND		0.0819	0.0043	ND		0.145	0.00762	ND		0.0986	0.00518
4,6-Dinitro-2-methylphenol	534-52-1			mg/kg	ND		0.274	0.0878	ND		0.338	0.108	ND		0.246	0.0787	ND		0.436	0.139	ND		0.296	0.0946
4-Bromophenyl-phenylether	101-55-3			mg/kg	ND		0.0457	0.0043	ND		0.0562	0.00529	ND		0.041	0.00385	ND		0.0726	0.00682	ND		0.0493	0.00463
4-Chloro-3-methylphenol	59-50-7			mg/kg	ND		0.0457	0.0066	ND		0.0562	0.00812	ND		0.041	0.00592	ND		0.0726	0.0105	ND		0.0493	0.00712
4-Chloroaniline	106-47-8			mg/kg	ND		0.0457	0.00418	ND		0.0562	0.00514	ND		0.041	0.00374	ND		0.0726	0.00664	ND		0.0493	0.0045
4-Chlorophenyl-phenylether	7005-72-3			mg/kg	ND		0.0457	0.00441	ND		0.0562	0.00542	ND		0.041	0.00395	ND		0.0726	0.007	ND		0.0493	0.00475
4-Methylphenol	106-44-5			mg/kg	ND		0.0457	0.00598	ND		0.0562	0.00736	ND		0.041	0.00536	ND		0.0726	0.0095	ND		0.0493	0.00645
4-Nitroaniline	100-01-6			mg/kg	ND		0.274	0.00617	ND		0.338	0.00759	ND		0.246	0.00553	ND		0.436	0.0098	ND		0.296	0.00666
4-Nitrophenol	100-02-7			mg/kg	ND		0.759	0.251	ND		0.934	0.309	ND		0.68	0.225	ND		1.2	0.399	ND		0.818	0.271
Acetophenone	98-86-2			mg/kg	ND		0.0457	0.00576	ND		0.0562	0.00709	ND		0.041	0.00516	**0.00958**	**J**	0.0726	0.00915	ND		0.0493	0.00621
Atrazine	1912-24-9			mg/kg	ND		0.0457	0.00397	ND		0.0562	0.00488	ND		0.041	0.00356	ND		0.0726	0.0063	ND		0.0493	0.00428
Benzaldehyde	100-52-7			mg/kg	**0.019**	**J**	0.0457	0.0115	**0.0557**	**J**	0.0562	0.0142	ND		0.041	0.0103	**0.029**	**J**	0.0726	0.0183	**0.037**	**J**	0.0493	0.0124
Biphenyl	92-52-4			mg/kg	ND		0.0457	0.0048	ND		0.0562	0.00591	ND		0.041	0.0043	ND		0.0726	0.00762	ND		0.0493	0.00518
Bis(2-chloroethoxy)methane	111-91-1			mg/kg	ND		0.0457	0.0046	ND		0.0562	0.00566	ND		0.041	0.00412	ND		0.0726	0.0073	ND		0.0493	0.00496
Bis(2-chloroethyl)ether	111-44-4			mg/kg	ND		0.0457	0.00839	ND		0.0562	0.0103	ND		0.041	0.00752	ND		0.0726	0.0133	ND		0.0493	0.00905
Bis(2-chloroisopropyl)ether	108-60-1			mg/kg	ND		0.0457	0.00762	ND		0.0562	0.00938	ND		0.041	0.00683	ND		0.0726	0.0121	ND		0.0493	0.00822
Bis(2-ethylhexyl)phthalate	117-81-7	0.18216	2.64651	mg/kg	ND		0.0457	0.012	ND		0.0562	0.0147	ND		0.041	0.0107	ND		0.0726	0.019	**0.0291**	**J**	0.0493	0.0129
Butylbenzylphthalate	85-68-7			mg/kg	ND		0.0457	0.00923	**0.0168**	**J**	0.0562	0.0114	ND		0.041	0.00828	**0.0182**	**J**	0.0726	0.0147	**0.01**	**J**	0.0493	0.00996
Caprolactam	105-60-2			mg/kg	**0.00768**	**J**	0.0914	0.00671	**0.0125**	**J**	0.112	0.00826	**0.00885**	**J**	0.0819	0.00601	**0.0229**	**J**	0.145	0.0106	**0.0128**	**J**	0.0986	0.00724
Carbazole	86-74-8			mg/kg	ND		0.0457	0.00292	ND		0.0562	0.00359	ND		0.041	0.00261	**0.00682**	**J**	0.0726	0.00463	ND		0.0493	0.00314
Dibenzofuran	132-64-9			mg/kg	ND		0.0457	0.00342	ND		0.0562	0.00421	ND		0.041	0.00306	ND		0.0726	0.00543	ND		0.0493	0.00369
Diethylphthalate	84-66-2			mg/kg	ND		0.0457	0.00467	ND		0.0562	0.00575	ND		0.041	0.00419	ND		0.0726	0.00742	ND		0.0493	0.00504
Dimethylphthalate	131-11-3			mg/kg	ND		0.0457	0.00356	ND		0.0562	0.00439	ND		0.041	0.0032	ND		0.0726	0.00566	ND		0.0493	0.00384
Di-n-butylphthalate	84-74-2			mg/kg	ND		0.0457	0.00435	ND		0.0562	0.00536	ND		0.041	0.0039	ND		0.0726	0.00691	ND		0.0493	0.00469
Di-n-octylphthalate	117-84-0			mg/kg	ND		0.0914	0.0189	ND		0.112	0.0233	ND		0.0819	0.017	ND		0.145	0.03	ND		0.0986	0.0204
Hexachlorobenzene	118-74-1	0.02		mg/kg	ND		0.0457	0.00445	ND		0.0562	0.00548	ND		0.041	0.00399	ND		0.0726	0.00707	ND		0.0493	0.0048
Hexachlorobutadiene	87-68-3		0.0013	mg/kg	ND		0.0457	0.00887	ND		0.0562	0.0109	ND		0.041	0.00795	ND		0.0726	0.0141	ND		0.0493	0.00956
Hexachlorocyclopentadiene	77-47-4			mg/kg	ND		0.274	0.0501	ND		0.338	0.0616	ND		0.246	0.0449	ND		0.436	0.0796	ND		0.296	0.054
Hexachloroethane	67-72-1		0.073	mg/kg	ND		0.0457	0.00764	ND		0.0562	0.0094	ND		0.041	0.00685	ND		0.0726	0.0121	ND		0.0493	0.00824
Isophorone	78-59-1			mg/kg	ND		0.0457	0.00501	ND		0.0562	0.00616	ND		0.041	0.00449	ND		0.0726	0.00796	ND		0.0493	0.0054
Nitrobenzene	98-95-3			mg/kg	ND		0.0457	0.00476	ND		0.0562	0.00586	ND		0.041	0.00427	ND		0.0726	0.00756	ND		0.0493	0.00514
n-Nitroso-di-n-propylamine	621-64-7			mg/kg	ND		0.0457	0.00778	ND		0.0562	0.00957	ND		0.041	0.00697	ND		0.0726	0.0124	ND		0.0493	0.00839
n-Nitrosodiphenylamine	86-30-6			mg/kg	ND		0.0457	0.00321	ND		0.0562	0.00395	ND		0.041	0.00288	ND		0.0726	0.0051	ND		0.0493	0.00346
Pentachlorophenol	87-86-5		0.017	mg/kg	ND		0.274	0.0822	ND		0.338	0.101	ND		0.246	0.0737	ND		0.436	0.13	ND		0.296	0.0886
Phenol	108-95-2		0.13	mg/kg	ND		0.0457	0.00434	ND		0.0562	0.00534	ND		0.041	0.00389	ND		0.0726	0.0069	ND		0.0493	0.00468
Total SVOCs				mg/kg	**0.02668**	-	-	-	**0.085**	-	-	-	**0.00885**	-	-	-	**0.0865**	-	-	-	**0.0889**	-	-	-

				SAMPLE ID:	VC-10 (0-14.5)				VC-10 (14.5'-17')				VC-09 (0-15.2')				VC-09 (15.2'-17')				VC-08 (0-11.8')			
				LAB ID:	L2446115-01				L2446115-02				L2446115-03				L2446115-04				L2446115-06			
				COLLECTION DATE:	8/14/2024				8/14/2024				8/15/2024				8/15/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																				
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
SEMIVOLATILE ORGANICS BY GC/MS-TIC																								
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	0.81	J	0	0	-	-	-	-
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	2.56	J	0	0	-	-	-	-
Unknown				mg/kg	0.0795	J	0	0	0.181	J	0	0	0.128	J	0	0	0.726	J	0	0	0.29	J	0	0
Unknown				mg/kg	0.0567	J	0	0	0.137	J	0	0	0.086	J	0	0	0.424	J	0	0	0.0966	J	0	0
Unknown				mg/kg	0.0548	J	0	0	0.0844	J	0	0	0.116	J	0	0	0.896	J	0	0	0.0946	J	0	0
Unknown				mg/kg	0.0795	J	0	0	0.111	J	0	0	0.0819	J	0	0	0.666	J	0	0	0.217	J	0	0
Unknown				mg/kg	0.141	J	0	0	0.0922	J	0	0	-		-	-	0.536	J	0	0	0.128	J	0	0
Unknown				mg/kg	0.0676	J	0	0	0.1	J	0	0	-		-	-	1.71	J	0	0	0.129	J	0	0
Unknown				mg/kg	-		-	-	0.163	J	0	0	-		-	-	0.576	J	0	0	0.0858	J	0	0
Unknown				mg/kg	-		-	-	0.081	J	0	0	-		-	-	2.6	J	0	0	0.151	J	0	0
Friedelan-3-one	000559-74-0			mg/kg	0.156	NJ	0	0	0.255	NJ	0	0	-		-	-	-		-	-	0.162	NJ	0	0
No Tentatively Identified Compounds				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	0.462	J	0	0	-	-	-	-
Unknown				mg/kg	-		-	-	-		-	-	-		-	-	0.77	J	0	0	-		-	-
Unknown				mg/kg	-		-	-	0.109	J	0	0	-		-	-	0.438	J	0	0	0.109	J	0	0
Unknown				mg/kg	0.113	J	0	0	0.451	J	0	0	0.0828	J	0	0	0.669	J	0	0	0.73	J	0	0
Unknown Organic Acid				mg/kg	-		-	-	0.546	J	0	0	-		-	-	-		-	-	-		-	-
Unknown Alkene				mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
Unknown Alkane				mg/kg	0.14	J	0	0	0.186	J	0	0	-		-	-	-		-	-	0.153	J	0	0
Unknown Alkane				mg/kg	0.246	J	0	0	0.0866	J	0	0	-		-	-	-		-	-	0.0996	J	0	0
Unknown Alkane				mg/kg	0.193	J	0	0	0.498	J	0	0	-		-	-	-		-	-	0.43	J	0	0
Lupan-3-one	003186-72-9			mg/kg	-		-	-	-		-	-	-		-	-	0.729	NJ	0	0	-	-	-	-
Stigmastanol	019466-47-8			mg/kg	0.0832	NJ	0	0	-		-	-	-		-	-	-		-	-	0.0818	NJ	0	0
Toluene	000108-88-3			mg/kg	-		-	-	-		-	-	-		-	-	-		-	-	-		-	-
Total TIC Compounds				mg/kg	1.41	J	0	0	3.08	J	0	0	0.495	J	0	0	14.6	J	0	0	2.96	J	0	0
ORGANOCHLORINE PESTICIDES BY GC																								
4,4'-DDD	72-54-8	0.002	0.020	mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
4,4'-DDE	72-55-9	0.002	0.027	mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
4,4'-DDT	50-29-3	0.001	0.007	mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Aldrin	309-00-2	0.002		mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
alpha-BHC	319-84-6			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
alpha-Chlordane	5103-71-9			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
beta-BHC	319-85-7			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Chlordane	57-74-9	0.007		mg/kg	ND		0.00698	0.00698	ND		0.00833	0.00833	ND		0.00623	0.00623	ND		0.0109	0.0109	ND		0.0076	0.0076
delta-BHC	319-86-8			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Dieldrin	60-57-1	0.002		mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Endosulfan I	959-98-8			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Endosulfan II	33213-65-9			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Endosulfan sulfate	1031-07-8			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Endrin	72-20-8	0.003		mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Endrin aldehyde	7421-93-4			mg/kg	ND		0.00041	0.00041	ND		0.00049	0.00049	ND		0.00037	0.00037	ND		0.00065	0.00065	ND		0.00045	0.00045
Endrin ketone	53494-70-5			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
gamma-BHC	58-89-9			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
gamma-Chlordane	5103-74-2			mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Heptachlor	76-44-8		0.000	mg/kg	ND		0.00013	0.00013	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00021	0.00021	ND		0.00015	0.00015
Heptachlor epoxide (B)	1024-57-3	0.005		mg/kg	ND		0.00027	0.00027	ND		0.00033	0.00033	ND		0.00024	0.00024	ND		0.00043	0.00043	ND		0.0003	0.0003
Methoxychlor	72-43-5			mg/kg	ND		0.00139	0.00139	ND		0.00166	0.00166	ND		0.00124	0.00124	ND		0.00216	0.00216	ND		0.00151	0.00151
Toxaphene	8001-35-2			mg/kg	ND		0.00698	0.00698	ND		0.00833	0.00833	ND		0.00623	0.00623	ND		0.0109	0.0109	ND		0.0076	0.0076
POLYCHLORINATED BIPHENYLS BY GC																								
Aroclor 1016	12674-11-2	0.007		mg/kg	ND		0.0104	0.00384	ND		0.0124	0.00458	ND		0.00931	0.00342	ND		0.0162	0.00598	ND		0.0114	0.00418
Aroclor 1221	11104-28-2			mg/kg	ND		0.0104	0.00514	ND		0.0124	0.00614	ND		0.00931	0.00459	ND		0.0162	0.00801	ND		0.0114	0.0056
Aroclor 1232	11141-16-5			mg/kg	ND		0.0104	0.00492	ND		0.0124	0.00587	ND		0.00931	0.00439	ND		0.0162	0.00766	ND		0.0114	0.00536
Aroclor 1242	53469-21-9			mg/kg	ND		0.0104	0.00353	ND		0.0124	0.00421	ND		0.00931	0.00315	ND		0.0162	0.0055	ND		0.0114	0.00385
Aroclor 1248	12672-29-6	0.030		mg/kg	ND		0.0104	0.00442	ND		0.0124	0.00528	ND		0.00931	0.00395	ND		0.0162	0.00688	ND		0.0114	0.00482
Aroclor 1254	11097-69-1	0.060		mg/kg	ND		0.0104	0.00439	ND		0.0124	0.00524	ND		0.00931	0.00392	ND		0.0162	0.00684	ND		0.0114	0.00479
Aroclor 1260	11096-82-5	0.005		mg/kg	ND		0.0104	0.00442	ND		0.0124	0.00528	ND		0.00931	0.00395	ND		0.0162	0.00688	ND		0.0114	0.00482
Aroclor 1262	37324-23-5			mg/kg	ND		0.0104	0.00403	ND		0.0124	0.00481	ND		0.00931	0.0036	ND		0.0162	0.00628	ND		0.0114	0.00439
Aroclor 1268	11100-14-4			mg/kg	ND		0.0104	0.00348	ND		0.0124	0.00415	ND		0.00931	0.0031	ND		0.0162	0.00541	ND		0.0114	0.00379
PCBs, Total	1336-36-3	0.023	0.180	mg/kg	ND		0.0104	0.00348	ND		0.0124	0.00415	ND		0.00931	0.0031	ND		0.0162	0.00541	ND		0.0114	0.00379

				SAMPLE ID:	VC-10 (0-14.5)				VC-10 (14.5'-17')				VC-09 (0-15.2')				VC-09 (15.2'-17')				VC-08 (0-11.8')			
				LAB ID:	L2446115-01				L2446115-02				L2446115-03				L2446115-04				L2446115-06			
				COLLECTION DATE:	8/14/2024				8/14/2024				8/15/2024				8/15/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																				
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
TOTAL METALS																								
Aluminum, Total	7429-90-5		18000.000	mg/kg	**4,610**		137	20.3	**11,000**		164	24.2	**2,410**		120	17.7	**16,500**		214	31.7	**7,190**		147	21.7
Antimony, Total	7440-36-0		9.300	mg/kg	ND		2.19	0.185	ND		2.62	0.221	ND		1.92	0.162	ND		3.43	0.29	ND		2.35	0.199
Arsenic, Total	7440-38-2	8.200	70.000	mg/kg	**3.14**		0.685	0.09	**7.34**		0.818	0.108	**3.46**		0.599	0.079	**8.34**		1.07	0.141	**6.58**		0.734	0.097
Barium, Total	7440-39-3		48.000	mg/kg	**14.6**		4.11	0.289	**38.2**		4.91	0.346	**7.94**		3.59	0.253	**48.9**		6.43	0.453	**27.6**		4.41	0.31
Beryllium, Total	7440-41-7			mg/kg	**0.258**	J	0.411	0.119	**0.624**		0.491	0.143	**0.159**	J	0.359	0.104	**0.864**		0.643	0.187	**0.389**	J	0.441	0.128
Cadmium, Total	7440-43-9	1.200	9.600	mg/kg	ND		0.274	0.036	**0.079**	J	0.327	0.043	ND		0.24	0.032	**0.074**	J	0.429	0.057	**0.055**	J	0.294	0.039
Calcium, Total	7440-70-2			mg/kg	**788**		685	83.3	**2080**		818	99.5	**366**	J	599	72.8	**1850**		1070	130	**1170**		734	89.3
Chromium, Total	7440-47-3	81.000	370.000	mg/kg	**13**		2.74	0.641	**30.9**		3.27	0.766	**6.85**		2.4	0.56	**40.4**		4.29	1	**19.7**		2.94	0.688
Cobalt, Total	7440-48-4		10.000	mg/kg	**3.4**		0.685	0.073	**8.18**		0.818	0.087	**2.29**		0.599	0.064	**11.7**		1.07	0.114	**5.45**		0.734	0.078
Copper, Total	7440-50-8	34.000	270.000	mg/kg	**3.42**		2.74	0.266	**7.73**		3.27	0.318	**1.64**	J	2.4	0.232	**11**		4.29	0.416	**4.9**		2.94	0.285
Iron, Total	7439-89-6			mg/kg	**10000**		274	28.2	**23500**		327	33.7	**7080**		240	24.7	**36200**		429	44.2	**16600**		294	30.3
Lead, Total	7439-92-1	47.000	218.000	mg/kg	**4.23**		0.822	0.2	**8.62**		0.982	0.239	**2.52**		0.719	0.175	**12.1**		1.29	0.313	**5.55**		0.881	0.214
Magnesium, Total	7439-95-4			mg/kg	**2130**		137	16.9	**5360**		164	20.2	**1230**		120	14.8	**5710**		214	26.4	**3510**		147	18.1
Manganese, Total	7439-96-5		260.000	mg/kg	**206**		2.74	0.608	**505**		3.27	0.727	**174**		2.4	0.532	**342**		4.29	0.952	**516**		2.94	0.652
Mercury, Total	7439-97-6	0.150	0.710	mg/kg	**0.009**	J	0.015	0.002	**0.022**	J	0.025	0.003	**0.007**	J	0.018	0.002	**0.018**	J	0.027	0.003	**0.014**	J	0.019	0.002
Nickel, Total	7440-02-0	21.000	52.000	mg/kg	**8.42**		1.37	0.366	**18.6**		1.64	0.437	**4.55**		1.2	0.32	**27.6**		2.14	0.573	**12**		1.47	0.392
Potassium, Total	7440-09-7			mg/kg	**775**		137	21.8	**1890**		164	26	**417**		120	19	**2800**		214	34	**1190**		147	23.3
Selenium, Total	7782-49-2		1.000	mg/kg	**1.36**	J	2.74	1.04	**3.53**		3.27	1.24	**0.932**	J	2.4	0.906	**4.76**		4.29	1.62	**2.92**	J	2.94	1.11
Silver, Total	7440-22-4	1.000	3.700	mg/kg	ND		0.685	0.067	ND		0.818	0.08	ND		0.599	0.058	ND		1.07	0.105	ND		0.734	0.072
Sodium, Total	7440-23-5			mg/kg	**1260**		205	16	**2420**		246	19.2	**872**		180	14	**4690**		322	25.1	**1340**		220	17.2
Thallium, Total	7440-28-0			mg/kg	ND	ER-L	0.548	0.071	**0.138**	J	0.655	0.085	**0.123**	J	0.479	0.062	**0.26**	J	0.857	0.111	**0.107**	J	0.588	0.076
Vanadium, Total	7440-62-2		57.000	mg/kg	**12.2**		1.37	0.519	**29.2**		1.64	0.621	**6.93**		1.2	0.454	**40.8**		2.14	0.813	**18.5**		1.47	0.557
Zinc, Total	7440-66-6	150.000	410.000	mg/kg	**21.1**		13.7	3.56	**48.3**		16.4	4.26	**15.1**		12	3.11	**77.5**		21.4	5.57	**32.1**		14.7	3.82
GENERAL CHEMISTRY																								
Solids, Total	NONE			%	**0.0708**		0.0001	0.0001	**0.0591**		0.0001	0.0001	**0.0793**		0.0001	0.0001	**0.0451**		0.0001	0.0001	**0.0655**		0.0001	0.0001
Cyanide, Total	57-12-5			mg/kg	ND		1.3	0.28	ND		1.6	0.35	ND		1.2	0.24	ND		2.1	0.45	ND		1.4	0.3
TOTAL ORGANIC CARBON																								
Total Organic Carbon (Rep1)	7440-44-0			mg/kg	**7720**		500	500	15900	0	500	500	**3790**		500	500	**70500**		500	500	**9660**		500	500
Total Organic Carbon (Rep2)	7440-44-0			mg/kg	**8870**		500	500	14600	0	500	500	**3530**		500	500	**76700**		500	500	**12700**		500	500
Total Organic Carbon (Average)	7440-44-0			mg/kg	**8290**		500	500	15200	0	500	500	**3660**		500	500	**73600**		500	500	**11200**		500	500

NOTES:
mg/kg - milligrams per kilogram
J - estimated concentration
P - interval laboratory QC issue; refer to laboratory report
Detections are **BOLDED**
Exceedances of Standards or Thresholds are HIGHLIGHTED
NJDEP Ecological Screening Criteria
NJ-SE-ERL - Saline Water Criteria for Sediment - Effects Range Low (ER-L)
NJ-SE-ERM - Saline Water Criteria for Sediment - Effects Range Medium (ER-M)
Conc - Concentration
Q - Laboratory Qualifier
RL - Reporting Limit
MDL - Method Detection Limit

				SAMPLE ID:	VC-08 (11.8'-13.9')				VC-08 (13.9'-17')				VC-07 (0-10')				VC-07 (10'-17')			
				LAB ID:	L2446115-07				L2446115-08				L2446115-09				L2446115-10			
				COLLECTION DATE:	8/16/2024				8/16/2024				8/16/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
VOLATILE ORGANICS BY EPA 5035																				
1,1,1-Trichloroethane	71-55-6			mg/kg	ND		0.00054	0.00018	ND		0.00095	0.00032	ND		0.00063	0.00021	ND		0.00099	0.00033
1,1,2,2-Tetrachloroethane	79-34-5			mg/kg	ND		0.00054	0.00018	ND		0.00095	0.00031	ND		0.00063	0.00021	ND		0.00099	0.00033
1,1,2-Trichloroethane	79-00-5			mg/kg	ND		0.0011	0.00029	ND		0.0019	0.0005	ND		0.0012	0.00034	ND		0.002	0.00053
1,1-Dichloroethane	75-34-3			mg/kg	ND		0.0011	0.00016	ND		0.0019	0.00027	ND		0.0012	0.00018	ND		0.002	0.00029
1,1-Dichloroethene	75-35-4			mg/kg	ND		0.0011	0.00026	ND		0.0019	0.00045	ND		0.0012	0.0003	ND		0.002	0.00047
1,2,3-Trichlorobenzene	87-61-6			mg/kg	ND		0.0022	0.00035	ND		0.0038	0.00061	ND		0.0025	0.0004	ND		0.004	0.00064
	120-82-1		0.0048	mg/kg	ND		0.0022	0.00029	ND		0.0038	0.00052	ND		0.0025	0.00034	ND		0.004	0.00054
1,2-Dibromo-3-chloropropane	96-12-8			mg/kg	ND		0.0032	0.0011	ND		0.0057	0.0019	ND		0.0038	0.0012	ND		0.006	0.002
1,2-Dibromoethane	106-93-4			mg/kg	ND		0.0011	0.0003	ND		0.0019	0.00053	ND		0.0012	0.00035	ND		0.002	0.00055
1,2-Dichlorobenzene	95-50-1		0.013	mg/kg	ND		0.0022	0.00016	ND		0.0038	0.00027	ND		0.0025	0.00018	ND		0.004	0.00029
1,2-Dichloroethane	107-06-2			mg/kg	ND		0.0011	0.00028	ND		0.0019	0.00049	ND		0.0012	0.00032	ND		0.002	0.00051
1,2-Dichloroethene, Total	540-59-0			mg/kg	ND		0.0011	0.00015	ND		0.0019	0.00026	ND		0.0012	0.00017	ND		0.002	0.00027
1,2-Dichloropropane	78-87-5			mg/kg	ND		0.0011	0.00013	ND		0.0019	0.00024	ND		0.0012	0.00016	ND		0.002	0.00025
1,3-Dichlorobenzene	541-73-1			mg/kg	ND		0.0022	0.00016	ND		0.0038	0.00028	ND		0.0025	0.00019	ND		0.004	0.00029
1,3-Dichloropropene, Total	542-75-6			mg/kg	ND		0.00054	0.00017	ND		0.00095	0.0003	ND		0.00063	0.0002	ND		0.00099	0.00031
1,4-Dichlorobenzene	106-46-7		0.11	mg/kg	ND		0.0022	0.00018	ND		0.0038	0.00032	ND		0.0025	0.00022	ND		0.004	0.00034
1,4-Dioxane	123-91-1			mg/kg	ND		0.086	0.038	ND		0.15	0.066	ND		0.1	0.044	ND		0.16	0.07
2-Butanone	78-93-3			mg/kg	ND		0.011	0.0024	**0.022**		0.019	0.0042	**0.012**		0.012	0.0028	**0.015**	**J**	0.02	0.0044
2-Hexanone	591-78-6			mg/kg	ND		0.011	0.0013	ND		0.019	0.0022	ND		0.012	0.0015	ND		0.02	0.0023
4-Methyl-2-pentanone	108-10-1			mg/kg	ND		0.011	0.0014	ND		0.019	0.0024	ND		0.012	0.0016	ND		0.02	0.0025
Acetone	67-64-1			mg/kg	**0.012**	**J**	0.027	0.011	**0.092**		0.047	0.019	**0.052**		0.031	0.012	**0.065**		0.05	0.02
Benzene	71-43-2	0.34		mg/kg	ND		0.00054	0.00018	ND		0.00095	0.00031	ND		0.00063	0.00021	ND		0.00099	0.00033
Bromochloromethane	74-97-5			mg/kg	ND		0.0022	0.00022	ND		0.0038	0.00039	ND		0.0025	0.00026	ND		0.004	0.00041
Bromodichloromethane	75-27-4			mg/kg	ND		0.00054	0.00012	ND		0.00095	0.00021	ND		0.00063	0.00014	ND		0.00099	0.00022
Bromoform	75-25-2			mg/kg	ND		0.0043	0.00026	ND		0.0076	0.00047	ND		0.005	0.00031	ND		0.0079	0.00049
Bromomethane	74-83-9			mg/kg	ND		0.0022	0.00063	ND		0.0038	0.0011	ND		0.0025	0.00073	ND		0.004	0.0012
Carbon disulfide	75-15-0			mg/kg	ND		0.011	0.0049	ND		0.019	0.0086	ND		0.012	0.0057	ND		0.02	0.009
Carbon tetrachloride	56-23-5			mg/kg	ND		0.0011	0.00025	ND		0.0019	0.00044	ND		0.0012	0.00029	ND		0.002	0.00046
Chlorobenzene	108-90-7			mg/kg	ND		0.00054	0.00014	ND		0.00095	0.00024	ND		0.00063	0.00016	ND		0.00099	0.00025
Chloroethane	75-00-3			mg/kg	ND		0.0022	0.00049	ND		0.0038	0.00086	ND		0.0025	0.00057	ND		0.004	0.0009
Chloroform	67-66-3			mg/kg	ND		0.0016	0.00015	ND		0.0028	0.00026	ND		0.0019	0.00018	ND		0.003	0.00028
Chloromethane	74-87-3			mg/kg	ND		0.0043	0.001	ND		0.0076	0.0018	ND		0.005	0.0012	ND		0.0079	0.0018
cis-1,2-Dichloroethene	156-59-2			mg/kg	ND		0.0011	0.00019	ND		0.0019	0.00033	ND		0.0012	0.00022	ND		0.002	0.00035
cis-1,3-Dichloropropene	10061-01-5			mg/kg	ND		0.00054	0.00017	ND		0.00095	0.0003	ND		0.00063	0.0002	ND		0.00099	0.00031
Cyclohexane	110-82-7			mg/kg	ND		0.011	0.00059	ND		0.019	0.001	ND		0.012	0.00068	ND		0.02	0.0011
Dibromochloromethane	124-48-1			mg/kg	ND		0.0011	0.00015	ND		0.0019	0.00026	ND		0.0012	0.00018	ND		0.002	0.00028
Dichlorodifluoromethane	75-71-8			mg/kg	ND		0.011	0.00099	ND		0.019	0.0017	ND		0.012	0.0012	ND		0.02	0.0018
Ethylbenzene	100-41-4	1.4		mg/kg	ND		0.0011	0.00015	ND		0.0019	0.00027	ND		0.0012	0.00018	ND		0.002	0.00028
Freon-113	76-13-1			mg/kg	ND		0.0043	0.00075	ND		0.0076	0.0013	ND		0.005	0.00087	ND		0.0079	0.0014
Isopropylbenzene	98-82-8			mg/kg	ND		0.0011	0.00012	ND		0.0019	0.00021	ND		0.0012	0.00014	ND		0.002	0.00022
Methyl Acetate	79-20-9			mg/kg	ND		0.0043	0.001	ND		0.0076	0.0018	ND		0.005	0.0012	ND		0.0079	0.0019
Methyl cyclohexane	108-87-2			mg/kg	ND		0.0043	0.00065	ND		0.0076	0.0011	ND		0.005	0.00076	ND		0.0079	0.0012
Methyl tert butyl ether	1634-04-4			mg/kg	ND		0.0022	0.00022	ND		0.0038	0.00038	ND		0.0025	0.00025	ND		0.004	0.0004
Methylene chloride	75-09-2			mg/kg	ND		0.0054	0.0025	ND		0.0095	0.0043	ND		0.0063	0.0029	ND		0.0099	0.0046
o-Xylene	95-47-6			mg/kg	ND		0.0011	0.00031	ND		0.0019	0.00055	ND		0.0012	0.00037	ND		0.002	0.00058
p/m-Xylene	179601-23-1			mg/kg	ND		0.0022	0.0006	ND		0.0038	0.0011	ND		0.0025	0.0007	ND		0.004	0.0011
Styrene	100-42-5			mg/kg	ND		0.0011	0.00021	ND		0.0019	0.00037	ND		0.0012	0.00025	ND		0.002	0.00039
Tetrachloroethene	127-18-4	0.45		mg/kg	ND		0.00054	0.00021	ND		0.00095	0.00037	ND		0.00063	0.00025	ND		0.00099	0.00039
Toluene	108-88-3	2.5		mg/kg	**0.0016**		0.0011	0.00058	**0.0013**	**J**	0.0019	0.001	ND		0.0012	0.00068	ND		0.002	0.0011
trans-1,2-Dichloroethene	156-60-5			mg/kg	ND		0.0016	0.00015	ND		0.0028	0.00026	ND		0.0019	0.00017	ND		0.003	0.00027
trans-1,3-Dichloropropene	10061-02-6			mg/kg	ND		0.0011	0.00029	ND		0.0019	0.00052	ND		0.0012	0.00034	ND		0.002	0.00054
Trichloroethene	79-01-6	1.6		mg/kg	ND		0.00054	0.00015	ND		0.00095	0.00026	ND		0.00063	0.00017	ND		0.00099	0.00027
Trichlorofluoromethane	75-69-4			mg/kg	ND		0.0043	0.00075	ND		0.0076	0.0013	ND		0.005	0.00087	ND		0.0079	0.0014
Vinyl chloride	75-01-4			mg/kg	ND		0.0011	0.00036	ND		0.0019	0.00063	ND		0.0012	0.00042	ND		0.002	0.00066
Xylenes, Total	1330-20-7	0.12		mg/kg	ND		0.0011	0.00031	ND		0.0019	0.00055	ND		0.0012	0.00037	ND		0.002	0.00058
Total VOCs				mg/kg	**0.0136**	-	-	-	**0.1153**	-	-	-	**0.064**	-	-	-	**0.08**	-	-	-
VOLATILE ORGANICS BY EPA 5035-TIC																				
Unknown				mg/kg	-		-	-	0.017	J	0	0	-		-	-	0.018	J	0	0
Unknown				mg/kg	-		-	-	-		-	-	0.012	J	0	0	-	-	-	-
Unknown				mg/kg	-		-	-	-		-	-	0.002	J	0	0	-	-	-	-
Unknown				mg/kg	-		-	-	-		-	-	0.003	J	0	0	-	-	-	-
No Tentatively Identified Compounds					ND		0	0	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC Compounds				mg/kg	-		-	-	0.017	J	0	0	0.018	J	0	0	0.018	J	0	0

				SAMPLE ID:	VC-08 (11.8'-13.9')				VC-08 (13.9'-17')				VC-07 (0-10')				VC-07 (10'-17')			
				LAB ID:	L2446115-07				L2446115-08				L2446115-09				L2446115-10			
				COLLECTION DATE:	8/16/2024				8/16/2024				8/16/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
PAHS BY GC/MS-SIM																				
2-Chloronaphthalene	91-58-7			mg/kg	ND		0.00428	0.00033	ND		0.00666	0.00052	ND		0.00526	0.00041	ND		0.00723	0.00056
2-Methylnaphthalene	91-57-6	0.07	0.67	mg/kg	ND		0.00428	0.00053	ND		0.00666	0.00082	**0.038**		0.00526	0.00065	**0.0022**	J	0.00723	0.00089
Acenaphthene	83-32-9	0.016	0.5	mg/kg	**0.00156**	J	0.00428	0.00047	**0.0015**	J	0.00666	0.00074	**0.00725**		0.00526	0.00058	**0.00368**	J	0.00723	0.00081
Acenaphthylene	208-96-8	0.044	0.64	mg/kg	**0.00053**	J	0.00428	0.00028	ND		0.00666	0.00044	**0.00788**		0.00526	0.00035	**0.00074**	J	0.00723	0.00048
Anthracene	120-12-7	0.085	1.1	mg/kg	**0.00161**	J	0.00428	0.00053	ND		0.00666	0.00082	**0.0191**		0.00526	0.00065	**0.00161**	J	0.00723	0.00089
Benz(a)anthracene	56-55-3	0.261	1.6	mg/kg	ND		0.00428	0.00114	ND		0.00666	0.00178	**0.0238**		0.00526	0.0014	ND		0.00723	0.00193
Benzo(a)pyrene	50-32-8	0.43	1.6	mg/kg	ND		0.00428	0.0005	ND		0.00666	0.00077	**0.0334**		0.00526	0.00061	ND		0.00723	0.00084
Benzo(b)fluoranthene	205-99-2		1.8	mg/kg	ND		0.00428	0.00044	**0.00187**	J	0.00666	0.00069	**0.0272**		0.00526	0.00054	**0.00221**	J	0.00723	0.00075
Benzo(ghi)perylene	191-24-2	0.17		mg/kg	ND		0.00428	0.00035	ND		0.00666	0.00054	**0.0329**		0.00526	0.00043	**0.0023**	J	0.00723	0.00059
Benzo(k)fluoranthene	207-08-9	0.24		mg/kg	ND		0.00428	0.00044	ND		0.00666	0.00068	**0.0224**		0.00526	0.00054	**0.00135**	J	0.00723	0.00074
Chrysene	218-01-9	0.384	2.8	mg/kg	**0.00041**	J	0.00428	0.00037	**0.00078**	J	0.00666	0.00058	**0.0294**		0.00526	0.00046	**0.00258**	J	0.00723	0.00063
Dibenz(a,h)anthracene	53-70-3	0.063	0.26	mg/kg	ND		0.00428	0.00044	ND		0.00666	0.00068	**0.00524**	J	0.00526	0.00054	ND		0.00723	0.00074
Fluoranthene	206-44-0	0.6	5.1	mg/kg	**0.00182**	J	0.00428	0.00078	**0.0017**	J	0.00666	0.00122	**0.0392**		0.00526	0.00096	**0.00368**	J	0.00723	0.00132
Fluorene	86-73-7	0.019	0.54	mg/kg	**0.00098**	J	0.00428	0.00028	**0.00102**	J	0.00666	0.00044	**0.0125**		0.00526	0.00035	**0.00183**	J	0.00723	0.00048
Indeno(1,2,3-cd)pyrene	193-39-5	0.2		mg/kg	ND		0.00428	0.00122	ND		0.00666	0.0019	**0.0235**		0.00526	0.0015	ND		0.00723	0.00206
Naphthalene	91-20-3	0.16	2.1	mg/kg	**0.00052**	J	0.00428	0.00038	**0.00122**	J	0.00666	0.00059	**0.0638**		0.00526	0.00047	**0.00372**	J	0.00723	0.00064
Phenanthrene	85-01-8	0.24	1.5	mg/kg	**0.00238**	J	0.00428	0.0005	**0.0017**	J	0.00666	0.00078	**0.0433**		0.00526	0.00062	**0.00458**	J	0.00723	0.00085
Pyrene	129-00-0	0.665	2.6	mg/kg	**0.00238**	J	0.00428	0.00043	**0.00119**	J	0.00666	0.00067	**0.0538**		0.00526	0.00053	**0.00496**	J	0.00723	0.00073
SEMIVOLATILE ORGANICS BY GC/MS																				
1,2,4,5-Tetrachlorobenzene	95-94-3			mg/kg	ND		0.0368	0.00351	ND		0.058	0.00553	ND		0.0446	0.00424	ND		0.0599	0.0057
2,3,4,6-Tetrachlorophenol	58-90-2			mg/kg	ND		0.0368	0.00637	ND		0.058	0.01	ND		0.0446	0.00772	ND		0.0599	0.0104
2,4,5-Trichlorophenol	95-95-4		0.003	mg/kg	ND		0.0368	0.00439	ND		0.058	0.00692	ND		0.0446	0.00532	ND		0.0599	0.00714
2,4,6-Trichlorophenol	88-06-2		0.006	mg/kg	ND		0.0368	0.00329	ND		0.058	0.00519	ND		0.0446	0.00399	ND		0.0599	0.00536
2,4-Dichlorophenol	120-83-2		0.005	mg/kg	ND		0.0368	0.00396	ND		0.058	0.00623	ND		0.0446	0.00479	ND		0.0599	0.00644
2,4-Dimethylphenol	105-67-9			mg/kg	ND		0.0368	0.00607	ND		0.058	0.00957	ND		0.0446	0.00735	ND		0.0599	0.00987
2,4-Dinitrophenol	51-28-5			mg/kg	ND		0.221	0.0628	ND		0.348	0.0989	ND		0.268	0.076	ND		0.36	0.102
2,4-Dinitrotoluene	121-14-2			mg/kg	ND		0.0368	0.00258	ND		0.058	0.00406	ND		0.0446	0.00312	ND		0.0599	0.00419
2,6-Dinitrotoluene	606-20-2			mg/kg	ND		0.0368	0.0095	ND		0.058	0.015	ND		0.0446	0.0115	ND		0.0599	0.0154
2-Chlorophenol	95-57-8		0.008	mg/kg	ND		0.0368	0.00243	ND		0.058	0.00383	ND		0.0446	0.00294	ND		0.0599	0.00395
2-Methylphenol	95-48-7			mg/kg	ND		0.0368	0.00317	ND		0.058	0.00499	ND		0.0446	0.00384	ND		0.0599	0.00515
2-Nitroaniline	88-74-4			mg/kg	ND		0.0368	0.00595	ND		0.058	0.00938	ND		0.0446	0.00721	ND		0.0599	0.00968
2-Nitrophenol	88-75-5			mg/kg	ND		0.0368	0.00397	ND		0.058	0.00626	ND		0.0446	0.00481	ND		0.0599	0.00646
3,3'-Dichlorobenzidine	91-94-1			mg/kg	ND		0.0736	0.00628	ND		0.116	0.0099	ND		0.0892	0.00761	ND		0.12	0.0102
3-Nitroaniline	99-09-2			mg/kg	ND		0.0736	0.00387	ND		0.116	0.0061	ND		0.0892	0.00468	ND		0.12	0.00629
4,6-Dinitro-2-methylphenol	534-52-1			mg/kg	ND		0.221	0.0707	ND		0.348	0.111	ND		0.268	0.0856	ND		0.36	0.115
4-Bromophenyl-phenylether	101-55-3			mg/kg	ND		0.0368	0.00346	ND		0.058	0.00546	ND		0.0446	0.00419	ND		0.0599	0.00563
4-Chloro-3-methylphenol	59-50-7			mg/kg	ND		0.0368	0.00532	ND		0.058	0.00838	ND		0.0446	0.00644	ND		0.0599	0.00865
4-Chloroaniline	106-47-8			mg/kg	**0.00383**	J	0.0368	0.00337	ND		0.058	0.00531	ND		0.0446	0.00408	ND		0.0599	0.00548
4-Chlorophenyl-phenylether	7005-72-3			mg/kg	ND		0.0368	0.00355	ND		0.058	0.0056	ND		0.0446	0.0043	ND		0.0599	0.00578
4-Methylphenol	106-44-5			mg/kg	ND		0.0368	0.00482	ND		0.058	0.00759	**0.00999**	J	0.0446	0.00583	ND		0.0599	0.00784
4-Nitroaniline	100-01-6			mg/kg	ND		0.221	0.00497	ND		0.348	0.00784	ND		0.268	0.00602	ND		0.36	0.00809
4-Nitrophenol	100-02-7			mg/kg	ND		0.611	0.202	ND		0.964	0.319	ND		0.74	0.245	ND		0.995	0.33
Acetophenone	98-86-2			mg/kg	ND		0.0368	0.00464	ND		0.058	0.00731	**0.00642**	J	0.0446	0.00562	ND		0.0599	0.00755
Atrazine	1912-24-9			mg/kg	ND		0.0368	0.0032	ND		0.058	0.00504	ND		0.0446	0.00387	ND		0.0599	0.0052
Benzaldehyde	100-52-7			mg/kg	ND		0.0368	0.00928	**0.0432**	J	0.058	0.0146	**0.0159**	J	0.0446	0.0112	**0.0669**		0.0599	0.0151
Biphenyl	92-52-4			mg/kg	ND		0.0368	0.00387	ND		0.058	0.0061	**0.00767**	J	0.0446	0.00468	ND		0.0599	0.00629
Bis(2-chloroethoxy)methane	111-91-1			mg/kg	ND		0.0368	0.0037	ND		0.058	0.00584	ND		0.0446	0.00449	ND		0.0599	0.00603
Bis(2-chloroethyl)ether	111-44-4			mg/kg	ND		0.0368	0.00676	ND		0.058	0.0106	ND		0.0446	0.00819	ND		0.0599	0.011
Bis(2-chloroisopropyl)ether	108-60-1			mg/kg	ND		0.0368	0.00614	ND		0.058	0.00968	ND		0.0446	0.00744	ND		0.0599	0.00999
Bis(2-ethylhexyl)phthalate	117-81-7	0.18216	2.64651	mg/kg	**0.0213**	J	0.0368	0.00965	**0.0344**	J	0.058	0.0152	ND		0.0446	0.0117	**0.0394**	J	0.0599	0.0157
Butylbenzylphthalate	85-68-7			mg/kg	ND		0.0368	0.00744	**0.0181**	J	0.058	0.0117	**0.0105**	J	0.0446	0.00901	**0.0129**	J	0.0599	0.0121
Caprolactam	105-60-2			mg/kg	**0.0067**	J	0.0736	0.00541	**0.0146**	J	0.116	0.00852	ND		0.0892	0.00655	**0.0145**	J	0.12	0.0088
Carbazole	86-74-8			mg/kg	ND		0.0368	0.00235	ND		0.058	0.0037	**0.00366**	J	0.0446	0.00284	ND		0.0599	0.00382
Dibenzofuran	132-64-9			mg/kg	ND		0.0368	0.00275	ND		0.058	0.00434	**0.0102**	J	0.0446	0.00334	ND		0.0599	0.00448
Diethylphthalate	84-66-2			mg/kg	ND		0.0368	0.00376	ND		0.058	0.00593	ND		0.0446	0.00456	ND		0.0599	0.00612
Dimethylphthalate	131-11-3			mg/kg	ND		0.0368	0.00287	ND		0.058	0.00453	ND		0.0446	0.00348	ND		0.0599	0.00467
Di-n-butylphthalate	84-74-2			mg/kg	ND		0.0368	0.00351	ND		0.058	0.00553	**0.00437**	J	0.0446	0.00424	ND		0.0599	0.0057
Di-n-octylphthalate	117-84-0			mg/kg	ND		0.0736	0.0152	ND		0.116	0.024	ND		0.0892	0.0185	ND		0.12	0.0248
Hexachlorobenzene	118-74-1	0.02		mg/kg	ND		0.0368	0.00359	ND		0.058	0.00565	ND		0.0446	0.00434	ND		0.0599	0.00584
Hexachlorobutadiene	87-68-3		0.0013	mg/kg	ND		0.0368	0.00714	ND		0.058	0.0113	ND		0.0446	0.00865	ND		0.0599	0.0116
Hexachlorocyclopentadiene	77-47-4			mg/kg	ND		0.221	0.0404	ND		0.348	0.0636	ND		0.268	0.0489	ND		0.36	0.0657
Hexachloroethane	67-72-1		0.073	mg/kg	ND		0.0368	0.00616	ND		0.058	0.00971	ND		0.0446	0.00746	ND		0.0599	0.01
Isophorone	78-59-1			mg/kg	ND		0.0368	0.00404	ND		0.058	0.00636	ND		0.0446	0.00489	ND		0.0599	0.00657
Nitrobenzene	98-95-3			mg/kg	ND		0.0368	0.00384	ND		0.058	0.00605	ND		0.0446	0.00465	ND		0.0599	0.00624
n-Nitroso-di-n-propylamine	621-64-7			mg/kg	ND		0.0368	0.00627	ND		0.058	0.00988	ND		0.0446	0.00759	ND		0.0599	0.0102
n-Nitrosodiphenylamine	86-30-6			mg/kg	ND		0.0368	0.00258	ND		0.058	0.00408	ND		0.0446	0.00313	ND		0.0599	0.00421
Pentachlorophenol	87-86-5		0.017	mg/kg	ND		0.221	0.0662	ND		0.348	0.104	ND		0.268	0.0802	ND		0.36	0.108
Phenol	108-95-2		0.13	mg/kg	ND		0.0368	0.0035	ND		0.058	0.00552	ND		0.0446	0.00424	ND		0.0599	0.00569
Total SVOCs				mg/kg	**0.03183**	-	-	-	**0.1103**	-	-	-	**0.06871**	-	-	-	**0.1337**	-	-	-

				SAMPLE ID:	VC-08 (11.8'-13.9')				VC-08 (13.9'-17')				VC-07 (0-10')				VC-07 (10'-17')			
				LAB ID:	L2446115-07				L2446115-08				L2446115-09				L2446115-10			
				COLLECTION DATE:	8/16/2024				8/16/2024				8/16/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
SEMIVOLATILE ORGANICS BY GC/MS-TIC																				
Unknown				mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				mg/kg	-		-	-	0.328	J	0	0	0.107	J	0	0	0.104	J	0	0
Unknown				mg/kg	-		-	-	0.203	J	0	0	0.34	J	0	0	0.249	J	0	0
Unknown				mg/kg	-		-	-	0.15	J	0	0	0.0794	J	0	0	0.15	J	0	0
Unknown				mg/kg	-		-	-	0.128	J	0	0	0.101	J	0	0	0.127	J	0	0
Unknown				mg/kg	-		-	-	0.123	J	0	0	0.232	J	0	0	0.0959	J	0	0
Unknown				mg/kg	-		-	-	0.153	J	0	0	0.205	J	0	0	0.211	J	0	0
Unknown				mg/kg	-		-	-	0.116	J	0	0	0.183	J	0	0	0.115	J	0	0
Unknown				mg/kg	-		-	-	0.31	J	0	0	0.138	J	0	0	0.0959	J	0	0
Friedelan-3-one	000559-74-0			mg/kg	-		-	-	0.332	NJ	0	0	-		-	-	0.229	NJ	0	0
No Tentatively Identified Compounds				mg/kg	ND		0	0	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unknown				mg/kg	-		-	-	-		-	-	0.118	J	0	0	-	-	-	-
Unknown				mg/kg	-		-	-	0.164	J	0	0	0.0722	J	0	0	0.107	J	0	0
Unknown				mg/kg	-		-	-	0.571	J	0	0	0.168	J	0	0	0.355	J	0	0
Unknown Organic Acid				mg/kg	-		-	-	-		-	-	-		-	-	0.157	J	0	0
Unknown Alkene				mg/kg	-		-	-	0.121	J	0	0	-	-	-	-	-	-	-	-
Unknown Alkane				mg/kg	-		-	-	0.178	J	0	0	0.083	J	0	0	0.2	J	0	0
Unknown Alkane				mg/kg	-		-	-	0.125	J	0	0	0.133	J	0	0	0.123	J	0	0
Unknown Alkane				mg/kg	-		-	-	0.43	J	0	0	0.144	J	0	0	0.55	J	0	0
Lupan-3-one	003186-72-9			mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stigmastanol	019466-47-8			mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	000108-88-3			mg/kg	-		-	-	-		-	-	0.228	NJ	0	0	-	-	-	-
Total TIC Compounds				mg/kg	-		-	-	3.43	J	0	0	2.33	J	0	0	2.87	J	0	0
ORGANOCHLORINE PESTICIDES BY GC																				
4,4'-DDD	72-54-8	0.002	0.020	mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
4,4'-DDE	72-55-9	0.002	0.027	mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
4,4'-DDT	50-29-3	0.001	0.007	mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Aldrin	309-00-2	0.002		mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
alpha-BHC	319-84-6			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
alpha-Chlordane	5103-71-9			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
beta-BHC	319-85-7			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Chlordane	57-74-9	0.007		mg/kg	ND		0.00534	0.00534	ND		0.00844	0.00844	ND		0.00635	0.00635	ND		0.00902	0.00902
delta-BHC	319-86-8			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Dieldrin	60-57-1	0.002		mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Endosulfan I	959-98-8			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Endosulfan II	33213-65-9			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Endosulfan sulfate	1031-07-8			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Endrin	72-20-8	0.003		mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Endrin aldehyde	7421-93-4			mg/kg	ND		0.00031	0.00031	ND		0.0005	0.0005	ND		0.00038	0.00038	ND		0.00053	0.00053
Endrin ketone	53494-70-5			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
gamma-BHC	58-89-9			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
gamma-Chlordane	5103-74-2			mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Heptachlor	76-44-8		0.000	mg/kg	ND		0.0001	0.0001	ND		0.00016	0.00016	ND		0.00012	0.00012	ND		0.00018	0.00018
Heptachlor epoxide (B)	1024-57-3	0.005		mg/kg	ND		0.00021	0.00021	ND		0.00033	0.00033	ND		0.00025	0.00025	ND		0.00036	0.00036
Methoxychlor	72-43-5			mg/kg	ND		0.00106	0.00106	ND		0.00168	0.00168	ND		0.00126	0.00126	ND		0.0018	0.0018
Toxaphene	8001-35-2			mg/kg	ND		0.00534	0.00534	ND		0.00844	0.00844	ND		0.00635	0.00635	ND		0.00902	0.00902
POLYCHLORINATED BIPHENYLS BY GC																				
Aroclor 1016	12674-11-2	0.007		mg/kg	ND		0.00798	0.00294	ND		0.0126	0.00464	ND		0.00949	0.00349	ND		0.0135	0.00496
Aroclor 1221	11104-28-2			mg/kg	ND		0.00798	0.00394	ND		0.0126	0.00622	ND		0.00949	0.00468	ND		0.0135	0.00665
Aroclor 1232	11141-16-5			mg/kg	ND		0.00798	0.00376	ND		0.0126	0.00595	ND		0.00949	0.00448	ND		0.0135	0.00636
Aroclor 1242	53469-21-9			mg/kg	ND		0.00798	0.0027	ND		0.0126	0.00427	ND		0.00949	0.00321	ND		0.0135	0.00456
Aroclor 1248	12672-29-6	0.030		mg/kg	ND		0.00798	0.00338	ND		0.0126	0.00534	ND		0.00949	0.00402	ND		0.0135	0.00572
Aroclor 1254	11097-69-1	0.060		mg/kg	ND		0.00798	0.00336	ND		0.0126	0.00531	ND		0.00949	0.004	ND		0.0135	0.00568
Aroclor 1260	11096-82-5	0.005		mg/kg	ND		0.00798	0.00338	ND		0.0126	0.00534	ND		0.00949	0.00402	ND		0.0135	0.00572
Aroclor 1262	37324-23-5			mg/kg	ND		0.00798	0.00308	ND		0.0126	0.00487	ND		0.00949	0.00367	ND		0.0135	0.00521
Aroclor 1268	11100-14-4			mg/kg	ND		0.00798	0.00266	ND		0.0126	0.0042	**0.0288**	**P**	0.00949	0.00316	ND		0.0135	0.00449
PCBs, Total	1336-36-3	0.023	0.180	mg/kg	ND		0.00798	0.00266	ND		0.0126	0.0042	**0.0288**		0.00949	0.00316	ND		0.0135	0.00449

				SAMPLE ID:	VC-08 (11.8'-13.9')				VC-08 (13.9'-17')				VC-07 (0-10')				VC-07 (10'-17')			
				LAB ID:	L2446115-07				L2446115-08				L2446115-09				L2446115-10			
				COLLECTION DATE:	8/16/2024				8/16/2024				8/16/2024				8/16/2024			
				SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment			
		NJ-SE-ERL	NJ-SE-ERM	Lab																
ANALYTE	CAS	(mg/kg)	(mg/kg)	Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
TOTAL METALS																				
Aluminum, Total	7429-90-5		18000.000	mg/kg	**976**		108	16	**12,400**		172	25.4	**3,420**		129	19.1	**12,400**		172	25.5
Antimony, Total	7440-36-0		9.300	mg/kg	ND		1.73	0.146	ND		2.75	0.232	**2.22**		2.06	0.174	ND		2.76	0.233
Arsenic, Total	7440-38-2	8.200	70.000	mg/kg	**1.76**		0.54	0.071	**11.5**		0.859	0.113	**19.2**		0.644	0.085	**10.4**		0.863	0.114
Barium, Total	7440-39-3		48.000	mg/kg	**5.57**		3.24	0.228	**45.2**		5.15	0.363	**91.4**		3.86	0.272	**50.1**		5.18	0.364
Beryllium, Total	7440-41-7			mg/kg	**0.104**	J	0.324	0.094	**0.709**		0.515	0.15	**0.284**	J	0.386	0.112	**0.725**		0.518	0.15
Cadmium, Total	7440-43-9	1.200	9.600	mg/kg	ND		0.216	0.029	**0.102**	J	0.343	0.045	**0.526**		0.258	0.034	**0.103**	J	0.345	0.046
Calcium, Total	7440-70-2			mg/kg	**426**	J	540	65.7	**2460**		859	104	**614**	J	644	78.3	**2130**		863	105
Chromium, Total	7440-47-3	81.000	370.000	mg/kg	**3.21**		2.16	0.506	**34.1**		3.43	0.804	**16.3**		2.58	0.603	**34.6**		3.45	0.808
Cobalt, Total	7440-48-4		10.000	mg/kg	**1.23**		0.54	0.058	**9.9**		0.859	0.091	**23.6**		0.644	0.069	**10.2**		0.863	0.092
Copper, Total	7440-50-8	34.000	270.000	mg/kg	**0.658**	J	2.16	0.21	**9.85**		3.43	0.333	**14.6**		2.58	0.25	**10.4**		3.45	0.335
Iron, Total	7439-89-6			mg/kg	**5770**		216	22.2	**27100**		343	35.4	**9780**		258	26.5	**27600**		345	35.6
Lead, Total	7439-92-1	47.000	218.000	mg/kg	**1.23**		0.648	0.158	**10.3**		1.03	0.251	**32**		0.773	0.188	**11.8**		1.04	0.252
Magnesium, Total	7439-95-4			mg/kg	**502**		108	13.3	**6170**		172	21.2	**1630**		129	15.9	**6100**		172	21.3
Manganese, Total	7439-96-5		260.000	mg/kg	**249**		2.16	0.48	**912**		3.43	0.762	**2760**		2.58	0.572	**930**		3.45	0.766
Mercury, Total	7439-97-6	0.150	0.710	mg/kg	**0.004**	J	0.014	0.002	**0.024**		0.018	0.002	**0.043**		0.017	0.002	**0.024**		0.023	0.003
Nickel, Total	7440-02-0	21.000	52.000	mg/kg	**1.91**		1.08	0.289	**21.8**		1.72	0.459	**17**		1.29	0.344	**22.1**		1.72	0.461
Potassium, Total	7440-09-7			mg/kg	**181**		108	17.2	**2080**		172	27.3	**531**		129	20.5	**2120**		172	27.4
Selenium, Total	7782-49-2		1.000	mg/kg	ND		2.16	0.817	**4.78**		3.43	1.3	**1.65**	J	2.58	0.974	**4.73**		3.45	1.3
Silver, Total	7440-22-4	1.000	3.700	mg/kg	ND		0.54	0.053	ND		0.859	0.084	**0.064**	J	0.644	0.063	ND		0.863	0.084
Sodium, Total	7440-23-5			mg/kg	**272**		162	12.7	**2020**		258	20.1	**780**		193	15.1	**1840**		259	20.2
Thallium, Total	7440-28-0			mg/kg	ND		0.432	0.056	**0.175**	J	0.687	0.089	**0.187**	J	0.515	0.067	**0.149**	J	0.69	0.089
Vanadium, Total	7440-62-2		57.000	mg/kg	**5.34**		1.08	0.41	**32.1**		1.72	0.651	**12.9**		1.29	0.488	**32.5**		1.72	0.654
Zinc, Total	7440-66-6	150.000	410.000	mg/kg	**5.91**	J	10.8	2.81	**57.7**		17.2	4.46	**330**		12.9	3.35	**64.6**		17.2	4.49
GENERAL CHEMISTRY																				
Solids, Total	NONE			%	**0.0897**		0.0001	0.0001	**57**		0.0001	0.0001	**0.074**		0.0001	0.0001	**0.0547**		0.0001	0.0001
Cyanide, Total	57-12-5			mg/kg	ND		1	0.22	ND		1.6	0.34	ND		1.3	0.27	ND		1.7	0.37
TOTAL ORGANIC CARBON																				
Total Organic Carbon (Rep1)	7440-44-0			mg/kg	**1940**		500	500	**22500**		500	500	**6660**		500	500	**17700**		500	500
Total Organic Carbon (Rep2)	7440-44-0			mg/kg	**2140**		500	500	**20700**		500	500	**7320**		500	500	**16900**		500	500
Total Organic Carbon (Average)	7440-44-0			mg/kg	**2040**		500	500	**21600**		500	500	**6980**		500	500	**17300**		500	500

NOTES:
mg/kg - milligrams per kilogram
J - estimated concentration
P - interval laboratory QC issue; refer to laboratory report
Detections are **BOLDED**
Exceedances of Standards or Thresholds are HIGHLIGHTED
NJDEP Ecological Screening Criteria
NJ-SE-ERL - Saline Water Criteria for Sediment - Effects Range Low (ER-L)
NJ-SE-ERM - Saline Water Criteria for Sediment - Effects Range Medium (ER-M)
Conc - Concentration
Q - Laboratory Qualifier
RL - Reporting Limit
MDL - Method Detection Limit

Appendix F2: Delaware Bulk Chemical Analysis Results

			SAMPLE ID:	VC-06 (0-26.6')				VC-106				VC-02 (0-4.7')				VC-02 (4.7'-17')				VC-04 (0-17')			
			LAB ID:	L2446143-01				L2446143-02				L2446143-03				L2446143-04				L2446143-05			
			COLLECTION DATE:	8/14/2024				8/14/2024				8/15/2024				8/15/2024				8/16/2024			
			SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment				Sediment			
ANALYTE	CAS	DNREC HSCA (mg/kg)	Lab Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
PAHS																							
Acenaphthene	83-32-9	0.00671	(mg/kg)	ND		0.00174	0.000307	ND		0.0017	0.0003	**0.000317**	J	0.0017	0.0003	ND		0.00113	0.000199	ND		0.00197	0.000348
Acenaphthylene	208-96-8		(mg/kg)	ND		0.00174	0.000332	ND		0.0017	0.000325	ND		0.0017	0.000325	ND		0.00113	0.000215	ND		0.00197	0.000377
Anthracene	120-12-7	0.0469	(mg/kg)	ND		0.00174	0.000359	**0.000462**	J	0.0017	0.000351	**0.00103**	J	0.0017	0.000351	ND		0.00113	0.000232	**0.000643**	J	0.00197	0.000407
Benz(a)anthracene	56-55-3	0.0748	(mg/kg)	ND		0.00174	0.000355	ND		0.0017	0.000347	**0.000964**	J	0.0017	0.000347	ND		0.00113	0.00023	ND		0.00197	0.000402
Benzo(a)pyrene	50-32-8	0.0888	(mg/kg)	ND		0.00174	0.000497	ND		0.0017	0.000486	**0.00123**	J	0.0017	0.000486	ND		0.00113	0.000322	ND		0.00197	0.000564
Benzo(b)fluoranthene	205-99-2		(mg/kg)	ND		0.00174	0.000452	**0.00083**	J	0.0017	0.000443	**0.00179**		0.0017	0.000443	ND		0.00113	0.000293	**0.000766**	J	0.00197	0.000513
Benzo(e)pyrene	192-97-2		(mg/kg)	ND		0.00174	0.000359	**0.000637**	J	0.0017	0.000352	**0.00136**	J	0.0017	0.000352	ND		0.00113	0.000233	**0.000559**	J	0.00197	0.000407
Benzo(g,h,i)perylene	191-24-2		(mg/kg)	ND		0.00174	0.000462	**0.000596**	J	0.0017	0.000453	**0.00172**		0.0017	0.000453	ND		0.00113	0.0003	**0.000615**	J	0.00197	0.000524
Benzo(j)+(k)fluoranthene	205-82-3/207-08-9		(mg/kg)	ND		0.00174	0.000345	**0.000432**	J	0.0017	0.000338	**0.00124**	J	0.0017	0.000338	ND		0.00113	0.000224	**0.000437**	J	0.00197	0.000392
C1-Chrysenes	218-01-9C1		(mg/kg)	**0.00067**	J	0.00174	0.000352	**0.00141**	J	0.0017	0.000344	**0.00193**		0.0017	0.000344	ND		0.00113	0.000228	**0.000915**	J	0.00197	0.000399
C1-Fluoranthenes/Pyrenes	FLUORPYRC1		(mg/kg)	**0.00156**	J	0.00174	0.000458	**0.0027**		0.0017	0.000448	**0.00256**		0.0017	0.000448	ND		0.00113	0.000296	**0.00268**		0.00197	0.000519
C1-Fluorenes	86-73-7C1		(mg/kg)	**0.000649**	J	0.00174	0.000464	**0.001**	J	0.0017	0.000455	**0.00104**	J	0.0017	0.000454	ND		0.00113	0.000301	**0.00125**	J	0.00197	0.000527
C1-Naphthalenes	91-20-3C1		(mg/kg)	ND		0.00174	0.0005	ND		0.0017	0.00049	**0.000696**	J	0.0017	0.00049	ND		0.00113	0.000324	ND		0.00197	0.000567
C1-Phenanthrenes/Anthracenes	PHENANTHC1		(mg/kg)	**0.00137**	J	0.00174	0.000576	**0.003**		0.0017	0.000565	**0.00223**		0.0017	0.000564	ND		0.00113	0.000374	**0.00448**		0.00197	0.000654
C2-Chrysenes BS	218-01-9C2		(mg/kg)	ND		0.00174	0.000352	**0.00258**		0.0017	0.000344	**0.00275**		0.0017	0.000344	ND		0.00113	0.000228	ND		0.00197	0.000399
C2-Fluorenes	86-73-7C2		(mg/kg)	**0.00141**	J	0.00174	0.000464	ND		0.0017	0.000455	**0.00169**	J	0.0017	0.000454	ND		0.00113	0.000301	ND		0.00197	0.000527
C2-Naphthalenes	91-20-3C2		(mg/kg)	**0.000845**	J	0.00174	0.0005	**0.00141**	J	0.0017	0.00049	**0.00161**	J	0.0017	0.00049	ND		0.00113	0.000324	**0.00176**	J	0.00197	0.000567
C2-Phenanthrenes/Anthr BS	PHENANTHC2		(mg/kg)	**0.0015**	J	0.00174	0.000576	**0.00226**		0.0017	0.000565	**0.00216**		0.0017	0.000564	**0.000482**	J	0.00113	0.000374	**0.00325**		0.00197	0.000654
C3-Chrysenes	218-01-9C3		(mg/kg)	ND		0.00174	0.000352	ND		0.0017	0.000344	**0.00682**		0.0017	0.000344	ND		0.00113	0.000228	ND		0.00197	0.000399
C3-Fluorenes	86-73-7C3		(mg/kg)	ND		0.00174	0.000464	ND		0.0017	0.000455	**0.00251**		0.0017	0.000454	ND		0.00113	0.000301	ND		0.00197	0.000527
C3-Naphthalenes	91-20-3C3		(mg/kg)	**0.000894**	J	0.00174	0.0005	**0.000929**	J	0.0017	0.00049	**0.00133**	J	0.0017	0.00049	ND		0.00113	0.000324	**0.00113**	J	0.00197	0.000567
C3-Phenanthrenes/Anthracenes	PHENANTHC3		(mg/kg)	**0.00133**	J	0.00174	0.000576	**0.00217**		0.0017	0.000565	**0.00191**		0.0017	0.000564	ND		0.00113	0.000374	**0.00227**		0.00197	0.000654
C4-Chrysenes	218-01-9C4		(mg/kg)	ND		0.00174	0.000352	ND		0.0017	0.000344	ND		0.0017	0.000344	ND		0.00113	0.000228	ND		0.00197	0.000399
C4-Naphthalenes	91-20-3C4		(mg/kg)	ND		0.00174	0.0005	ND		0.0017	0.00049	**0.00106**	J	0.0017	0.00049	ND		0.00113	0.000324	ND		0.00197	0.000567
C4-Phenanthrenes/Anthracenes	PHENANTHC4		(mg/kg)	ND		0.00174	0.000576	**0.00208**		0.0017	0.000565	**0.00174**		0.0017	0.000564	ND		0.00113	0.000374	**0.00193**	J	0.00197	0.000654
Chrysene	218-01-9	0.108	(mg/kg)	**0.000547**	J	0.00174	0.000352	**0.00119**	J	0.0017	0.000344	**0.00166**	J	0.0017	0.000344	ND		0.00113	0.000228	**0.00116**	J	0.00197	0.000399
Dibenz(a,h)+(a,c)anthracene	215-58-7/53-70-3	0.00622	(mg/kg)	ND		0.00174	0.00047	ND		0.0017	0.00046	ND		0.0017	0.00046	ND		0.00113	0.000304	ND		0.00197	0.000533
Fluoranthene	206-44-0	0.113	(mg/kg)	**0.00116**	J	0.00174	0.000553	**0.00204**		0.0017	0.000542	**0.00329**		0.0017	0.000541	ND		0.00113	0.000358	**0.00279**		0.00197	0.000627
Fluorene	86-73-7	0.0212	(mg/kg)	**0.000714**	J	0.00174	0.000464	**0.00124**	J	0.0017	0.000455	**0.0018**		0.0017	0.000454	ND		0.00113	0.000301	**0.0022**		0.00197	0.000527
Indeno(1,2,3-cd)pyrene	193-39-5	0	(mg/kg)	ND		0.00174	0.000472	ND		0.0017	0.000463	**0.00146**	J	0.0017	0.000462	ND		0.00113	0.000306	ND		0.00197	0.000536
Naphthalene	91-20-3	0.0346	(mg/kg)	ND		0.00174	0.0005	ND		0.0017	0.00049	**0.00162**	J	0.0017	0.00049	ND		0.00113	0.000324	**0.000895**	J	0.00197	0.000567
Perylene	198-55-0	0	(mg/kg)	**0.18**		0.00174	0.000336	**0.428**		0.0017	0.000329	**0.134**		0.0017	0.000329	**0.00512**		0.00113	0.000218	0.363		0.00197	0.000381
Phenanthrene	85-01-8	0.0867	(mg/kg)	**0.000835**	J	0.00174	0.000576	**0.00128**	J	0.0017	0.000565	**0.00281**		0.0017	0.000564	ND		0.00113	0.000374	**0.00288**		0.00197	0.000654
Pyrene	129-00-0	0.153	(mg/kg)	**0.00101**	J	0.00174	0.000458	**0.00167**	J	0.0017	0.000448	**0.00255**		0.0017	0.000448	ND		0.00113	0.000296	**0.00182**	J	0.00197	0.000519
ORGANOCHLORINE PESTICIDES BY GC																							
2,4'-DDD	53-19-0	0.00122	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
2,4'-DDE	3424-82-6	0.00207	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
2,4'-DDT	789-02-6	0.00119	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
4,4'-DDD	72-54-8	0.00122	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
4,4'-DDE	72-55-9	0.00207	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
4,4'-DDT	50-29-3	0.00119	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Aldrin	309-00-2		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
alpha-BHC	319-84-6		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
alpha-Chlordane	5103-71-9		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
beta-BHC	319-85-7		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Chlordane	57-74-9		(mg/kg)	ND		0.00849	0.00849	ND		0.00818	0.00818	ND		0.00864	0.00864	ND		0.00566	0.00566	ND		0.00951	0.00951
cis-Nonachlor	5103-73-1		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
delta-BHC	319-86-8		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Dieldrin	60-57-1	0.00072	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Endosulfan I	959-98-8	0.000107	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Endosulfan II	33213-65-9	0.000107	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Endosulfan sulfate	1031-07-8		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Endrin	72-20-8	0.00267	(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Endrin aldehyde	7421-93-4		(mg/kg)	ND		0.000507	0.000507	ND		0.000489	0.000489	ND		0.000516	0.000516	ND		0.000338	0.000338	ND		0.000568	0.000568
Endrin ketone	53494-70-5		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
gamma-BHC	58-89-9		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
gamma-Chlordane	5103-74-2		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Heptachlor	76-44-8		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Heptachlor epoxide (B)	1024-57-3	0.0006	(mg/kg)	ND		0.000338	0.000338	ND		0.000326	0.000326	ND		0.000344	0.000344	ND		0.000225	0.000225	ND		0.000379	0.000379
Hexachlorobenzene	118-74-1		(mg/kg)	ND		0.000338	0.000338	ND		0.000326	0.000326	ND		0.000344	0.000344	ND		0.000225	0.000225	ND		0.000379	0.000379
Methoxychlor	72-43-5	0.0296	(mg/kg)	ND		0.00169	0.00169	ND		0.00163	0.00163	ND		0.00172	0.00172	ND		0.00113	0.00113	ND		0.00189	0.00189
Mirex	2385-85-5		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189
Oxychlordane	27304-13-8		(mg/kg)	ND		0.000338	0.000338	ND		0.000326	0.000326	ND		0.000344	0.000344	ND		0.000225	0.000225	ND		0.000379	0.000379
Toxaphene	8001-35-2	0.536	(mg/kg)	ND		0.00849	0.00849	ND		0.00818	0.00818	ND		0.00864	0.00864	ND		0.00566	0.00566	ND		0.00951	0.00951
trans-Nonachlor	39765-80-5		(mg/kg)	ND		0.000169	0.000169	ND		0.000163	0.000163	ND		0.000172	0.000172	ND		0.000113	0.000113	ND		0.000189	0.000189

			SAMPLE ID:	VC-06 (0-26.6')				VC-106				VC-02 (0-4.7')				VC-02 (4.7'-17')				VC-04 (0-17')			
			LAB ID:	L2446143-01				L2446143-02				L2446143-03				L2446143-04				L2446143-05			
			COLLECTION DATE:	8/14/2024				8/14/2024				8/15/2024				8/15/2024				8/16/2024			
			SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment				Sediment			
ANALYTE	CAS	DNREC HSCA (mg/kg)	Lab Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
TOTAL METALS																							
Aluminum, Total	7429-90-5		(mg/kg)	**13,900**		168	24.9	**14,200**		164	24.3	**11,100**		164	24.3	**3,670**		113	16.7	**11,800**		194	28.8
Antimony, Total	7440-36-0		(mg/kg)	ND		2.7	0.228	ND		2.63	0.222	ND		2.63	0.222	**0.378**	J	1.8	0.152	ND		3.11	0.263
Arsenic, Total	7440-38-2	7.24	(mg/kg)	**9.2**		0.842	0.111	**8.79**		0.821	0.108	**7.84**		0.822	0.108	**3.33**		0.564	0.074	**8.08**		0.973	0.128
Barium, Total	7440-39-3		(mg/kg)	**54.1**		5.05	0.356	**54.3**		4.93	0.347	**47.1**		4.93	0.347	**10.4**		3.38	0.238	**39.4**		5.84	0.411
Beryllium, Total	7440-41-7		(mg/kg)	**0.777**		0.505	0.147	**0.799**		0.493	0.143	**0.613**		0.493	0.143	**0.36**		0.338	0.098	**0.689**		0.584	0.17
Cadmium, Total	7440-43-9	0.68	(mg/kg)	**0.093**	J	0.337	0.045	**0.091**	J	0.328	0.043	**0.071**	J	0.329	0.043	**0.058**	J	0.226	0.03	**0.088**	J	0.389	0.051
Calcium, Total	7440-70-2		(mg/kg)	**2400**		842	102	**2430**		821	99.8	**2190**		822	99.9	**366**	J	564	68.6	**1950**		973	118
Chromium, Total	7440-47-3	52.3	(mg/kg)	**36.8**		3.37	0.788	**37.2**		3.28	0.768	**30.9**		3.29	0.769	**49.4**		2.26	0.528	**34.3**		3.89	0.91
Cobalt, Total	7440-48-4		(mg/kg)	**11.2**		0.842	0.09	**11.3**		0.821	0.087	**8.66**		0.822	0.087	**3.04**		0.564	0.06	**9.32**		0.973	0.104
Copper, Total	7440-50-8	18.7	(mg/kg)	**10.9**		3.37	0.327	**11.3**		3.28	0.318	**8.41**		3.29	0.319	**3.19**		2.26	0.219	**8.77**		3.89	0.377
Iron, Total	7439-89-6		(mg/kg)	**28200**		337	34.7	**28000**		328	33.8	**24100**		329	33.8	**15000**		226	23.2	**27200**		389	40.1
Lead, Total	7439-92-1	30.2	(mg/kg)	**12.1**		1.01	0.246	**12**		0.985	0.24	**8.88**		0.986	0.24	**3.57**		0.677	0.165	**9.83**		1.17	0.284
Magnesium, Total	7439-95-4		(mg/kg)	**6910**		168	20.8	**7020**		164	20.2	**5360**		164	20.2	**1010**		113	13.9	**6080**		194	24
Manganese, Total	7439-96-5		(mg/kg)	**834**		3.37	0.748	**806**		3.28	0.729	**257**		3.29	0.73	**125**		2.26	0.501	**641**		3.89	0.864
Mercury, Total	7439-97-6	0.13	(mg/kg)	**0.017**	J	0.026	0.003	**0.018**	J	0.023	0.003	**0.015**	J	0.024	0.003	ND		0.015	0.002	**0.016**	J	0.027	0.003
Nickel, Total	7440-02-0	15.9	(mg/kg)	**24.8**		1.68	0.45	**25**		1.64	0.439	**19.7**		1.64	0.439	**6.09**		1.13	0.301	**21.4**		1.94	0.52
Potassium, Total	7440-09-7		(mg/kg)	**2290**		168	26.8	**2370**		164	26.1	**1890**		164	26.1	**1110**		113	17.9	**2190**		194	30.9
Selenium, Total	7782-49-2		(mg/kg)	**5.21**		3.37	1.27	**5.48**		3.28	1.24	**3.96**		3.29	1.24	**1.16**	J	2.26	0.853	**4.18**		3.89	1.47
Silver, Total	7440-22-4	0.73	(mg/kg)	ND		0.842	0.082	ND		0.821	0.08	ND		0.822	0.08	ND		0.564	0.055	ND		0.973	0.095
Sodium, Total	7440-23-5		(mg/kg)	**1460**		253	19.7	**1490**		246	19.2	**1900**		246	19.2	**479**		169	13.2	**2170**		292	22.8
Thallium, Total	7440-28-0		(mg/kg)	**0.153**	J	0.674	0.087	**0.149**	J	0.657	0.085	**0.127**	J	0.657	0.085	ND		0.451	0.058	**0.121**	J	0.778	0.1
Vanadium, Total	7440-62-2		(mg/kg)	**33.8**		1.68	0.639	**34.1**		1.64	0.623	**27.2**		1.64	0.623	**32.1**		1.13	0.428	**30.2**		1.94	0.738
Zinc, Total	7440-66-6	124	(mg/kg)	**64.7**		16.8	4.38	**66.6**		16.4	4.27	**54.9**		16.4	4.27	**24.7**		11.3	2.93	**59.2**		19.4	5.06
GENERAL CHEMISTRY																							
Solids, Total	NONE		%	**0.0573**		0.0001	0.0001	**0.0578**		0.0001	0.0001	**0.0572**		0.0001	0.0001	**0.0865**		0.0001	0.0001	**0.05**		0.0001	0.0001
Nitrogen, Ammonia	7664-41-7		(mg/kg)	**370**		13	4.7	**370**		13	4.8	**31**		12	4.6	**11**		8.4	3.1	**350**		15	5.5
Phosphorus, Total	7723-14-0		(mg/kg)	**880**		39	13	**920**		46	15	**620**		40	13	**220**		25	8.5	**700**		46	15
% Soot (Rep 1)	NONE		%	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA
% Soot (Rep 2)	NONE		%	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA
% Soot (Average)	NONE		%	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA
TOTAL ORGANIC CARBON																							
Total Organic Carbon (Rep1)	7440-44-0		%	**1.7**		0.05	0.05	**1.7**		0.05	0.05	**1.44**		0.05	0.05	**0.094**		0.05	0.05	**1.89**		0.05	0.05
Total Organic Carbon (Rep2)	7440-44-0		%	**1.61**		0.05	0.05	**1.64**		0.05	0.05	**1.4**		0.05	0.05	**0.115**		0.05	0.05	**1.92**		0.05	0.05
Total Organic Carbon (Average)	7440-44-0		%	**1.65**		0.05	0.05	**1.67**		0.05	0.05	**1.42**		0.05	0.05	**0.105**		0.05	0.05	**1.9**		0.05	0.05

NOTES:
mg/kg - milligrams per kilogram
J - estimated concentration
Detections are **BOLDED**
Exceedances of Standards or Thresholds are HIGHLIGHTED
DNREC HSCA - Delaware Department of Natural Resources and Environmental Control
Hazardous Substance Cleanup Act Screening Level Table Guidance
HSCA Ecological Screening Level Table - October 2024
Ecological Sediment - Marine
Conc - Concentration
Q - Laboratory Qualifier
RL - Reporting Limit
MDL - Method Detection Limit

			SAMPLE ID:	VC-01 (0-4.3')				VC-01 (4.3'-17)				VC-05 (0-17')				VC-03 (0-17')			
			LAB ID:	L2446143-06				L2446143-07				L2446143-08				L2446143-09			
			COLLECTION DATE:	8/17/2024				8/17/2024				8/17/2024				8/17/2024			
			SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment			
ANALYTE	CAS	DNREC HSCA (mg/kg)	Lab Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
PAHS																			
Acenaphthene	83-32-9	0.00671	(mg/kg)	ND		0.00286	0.000504	ND		0.00124	0.000218	ND		0.00189	0.000334	ND		0.00192	0.000339
Acenaphthylene	208-96-8		(mg/kg)	ND		0.00286	0.000545	ND		0.00124	0.000236	ND		0.00189	0.000361	ND		0.00192	0.000367
Anthracene	120-12-7	0.0469	(mg/kg)	ND		0.00286	0.000589	ND		0.00124	0.000255	**0.000572**	**J**	0.00189	0.00039	**0.00064**	**J**	0.00192	0.000397
Benz(a)anthracene	56-55-3	0.0748	(mg/kg)	ND		0.00286	0.000583	ND		0.00124	0.000252	ND		0.00189	0.000386	ND		0.00192	0.000392
Benzo(a)pyrene	50-32-8	0.0888	(mg/kg)	ND		0.00286	0.000816	ND		0.00124	0.000353	ND		0.00189	0.00054	ND		0.00192	0.000549
Benzo(b)fluoranthene	205-99-2		(mg/kg)	ND		0.00286	0.000743	ND		0.00124	0.000322	**0.00128**	**J**	0.00189	0.000492	**0.0008**	**J**	0.00192	0.000501
Benzo(e)pyrene	192-97-2		(mg/kg)	ND		0.00286	0.00059	ND		0.00124	0.000255	**0.000813**	**J**	0.00189	0.000391	**0.000626**	**J**	0.00192	0.000397
Benzo(g,h,i)perylene	191-24-2		(mg/kg)	ND		0.00286	0.000759	ND		0.00124	0.000328	**0.00112**	**J**	0.00189	0.000503	**0.000815**	**J**	0.00192	0.000511
Benzo(j)+(k)fluoranthene	205-82-3/207-08-9		(mg/kg)	ND		0.00286	0.000567	ND		0.00124	0.000245	**0.000602**	**J**	0.00189	0.000376	**0.000468**	**J**	0.00192	0.000382
C1-Chrysenes	218-01-9C1		(mg/kg)	**0.00352**		0.00286	0.000578	ND		0.00124	0.00025	**0.00176**	**J**	0.00189	0.000383	**0.00124**	**J**	0.00192	0.000389
C1-Fluoranthenes/Pyrenes	FLUORPYRC1		(mg/kg)	**0.00136**	**J**	0.00286	0.000752	**0.000806**	**J**	0.00124	0.000325	**0.00282**		0.00189	0.000498	**0.00197**		0.00192	0.000506
C1-Fluorenes	86-73-7C1		(mg/kg)	ND		0.00286	0.000762	ND		0.00124	0.00033	**0.00111**	**J**	0.00189	0.000505	**0.00108**	**J**	0.00192	0.000513
C1-Naphthalenes	91-20-3C1		(mg/kg)	ND		0.00286	0.000822	ND		0.00124	0.000355	ND		0.00189	0.000544	ND		0.00192	0.000553
C1-Phenanthrenes/Anthracenes	PHENANTHC1		(mg/kg)	**0.00179**	**J**	0.00286	0.000947	**0.000478**	**J**	0.00124	0.00041	**0.00271**		0.00189	0.000627	**0.00192**		0.00192	0.000638
C2-Chrysenes BS	218-01-9C2		(mg/kg)	ND		0.00286	0.000578	ND		0.00124	0.00025	**0.0027**		0.00189	0.000383	**0.00334**		0.00192	0.000389
C2-Fluorenes	86-73-7C2		(mg/kg)	ND		0.00286	0.000762	ND		0.00124	0.00033	**0.00241**		0.00189	0.000505	**0.00168**	**J**	0.00192	0.000513
C2-Naphthalenes	91-20-3C2		(mg/kg)	**0.0017**	**J**	0.00286	0.000822	ND		0.00124	0.000355	**0.00152**	**J**	0.00189	0.000544	**0.00123**	**J**	0.00192	0.000553
C2-Phenanthrenes/Anthr BS	PHENANTHC2		(mg/kg)	ND		0.00286	0.000947	ND		0.00124	0.00041	**0.00236**		0.00189	0.000627	**0.00242**		0.00192	0.000638
C3-Chrysenes	218-01-9C3		(mg/kg)	ND		0.00286	0.000578	ND		0.00124	0.00025	ND		0.00189	0.000383	ND		0.00192	0.000389
C3-Fluorenes	86-73-7C3		(mg/kg)	ND		0.00286	0.000762	ND		0.00124	0.00033	**0.00341**		0.00189	0.000505	ND		0.00192	0.000513
C3-Naphthalenes	91-20-3C3		(mg/kg)	ND		0.00286	0.000822	ND		0.00124	0.000355	**0.00126**	**J**	0.00189	0.000544	**0.000949**	**J**	0.00192	0.000553
C3-Phenanthrenes/Anthracenes	PHENANTHC3		(mg/kg)	ND		0.00286	0.000947	ND		0.00124	0.00041	**0.00232**		0.00189	0.000627	**0.0015**	**J**	0.00192	0.000638
C4-Chrysenes	218-01-9C4		(mg/kg)	ND		0.00286	0.000578	ND		0.00124	0.00025	ND		0.00189	0.000383	ND		0.00192	0.000389
C4-Naphthalenes	91-20-3C4		(mg/kg)	ND		0.00286	0.000822	ND		0.00124	0.000355	**0.00132**	**J**	0.00189	0.000544	ND		0.00192	0.000553
C4-Phenanthrenes/Anthracenes	PHENANTHC4		(mg/kg)	ND		0.00286	0.000947	ND		0.00124	0.00041	**0.00188**	**J**	0.00189	0.000627	**0.00156**	**J**	0.00192	0.000638
Chrysene	218-01-9	0.108	(mg/kg)	ND		0.00286	0.000578	ND		0.00124	0.00025	**0.00139**	**J**	0.00189	0.000383	**0.000975**	**J**	0.00192	0.000389
Dibenz(a,h)+(a,c)anthracene	215-58-7/53-70-3	0.00622	(mg/kg)	ND		0.00286	0.000772	ND		0.00124	0.000334	ND		0.00189	0.000511	ND		0.00192	0.00052
Fluoranthene	206-44-0	0.113	(mg/kg)	**0.00262**	**J**	0.00286	0.000908	ND		0.00124	0.000393	**0.00238**		0.00189	0.000602	**0.00227**		0.00192	0.000612
Fluorene	86-73-7	0.0212	(mg/kg)	**0.00162**	**J**	0.00286	0.000762	ND		0.00124	0.00033	**0.00172**	**J**	0.00189	0.000505	**0.00177**	**J**	0.00192	0.000513
Indeno(1,2,3-cd)pyrene	193-39-5	0	(mg/kg)	ND		0.00286	0.000776	ND		0.00124	0.000336	**0.0008**	**J**	0.00189	0.000514	**0.000598**	**J**	0.00192	0.000522
Naphthalene	91-20-3	0.0346	(mg/kg)	**0.00231**	**J**	0.00286	0.000822	ND		0.00124	0.000355	**0.00065**	**J**	0.00189	0.000544	**0.00078**	**J**	0.00192	0.000553
Perylene	198-55-0	0	(mg/kg)	**0.0647**		0.00286	0.000552	**0.0623**		0.00124	0.000239	**0.583**		0.00189	0.000365	**0.371**		0.00192	0.000372
Phenanthrene	85-01-8	0.0867	(mg/kg)	**0.00421**		0.00286	0.000947	ND		0.00124	0.00041	**0.00232**		0.00189	0.000627	**0.00244**		0.00192	0.000638
Pyrene	129-00-0	0.153	(mg/kg)	**0.0015**	**J**	0.00286	0.000752	**0.000458**	**J**	0.00124	0.000325	**0.00179**	**J**	0.00189	0.000498	**0.00138**	**J**	0.00192	0.000506
ORGANOCHLORINE PESTICIDES BY GC																			
2,4'-DDD	53-19-0	0.00122	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
2,4'-DDE	3424-82-6	0.00207	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
2,4'-DDT	789-02-6	0.00119	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
4,4'-DDD	72-54-8	0.00122	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
4,4'-DDE	72-55-9	0.00207	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
4,4'-DDT	50-29-3	0.00119	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Aldrin	309-00-2		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
alpha-BHC	319-84-6		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
alpha-Chlordane	5103-71-9		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
beta-BHC	319-85-7		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Chlordane	57-74-9		(mg/kg)	ND		0.0138	0.0138	ND		0.00624	0.00624	ND		0.00933	0.00933	ND		0.00963	0.00963
cis-Nonachlor	5103-73-1		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
delta-BHC	319-86-8		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Dieldrin	60-57-1	0.00072	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Endosulfan I	959-98-8	0.000107	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Endosulfan II	33213-65-9	0.000107	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Endosulfan sulfate	1031-07-8		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Endrin	72-20-8	0.00267	(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Endrin aldehyde	7421-93-4		(mg/kg)	ND		0.000822	0.000822	ND		0.000373	0.000373	ND		0.000557	0.000557	ND		0.000576	0.000576
Endrin ketone	53494-70-5		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
gamma-BHC	58-89-9		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
gamma-Chlordane	5103-74-2		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Heptachlor	76-44-8		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Heptachlor epoxide (B)	1024-57-3	0.0006	(mg/kg)	ND		0.000548	0.000548	ND		0.000248	0.000248	ND		0.000372	0.000372	ND		0.000384	0.000384
Hexachlorobenzene	118-74-1		(mg/kg)	ND		0.000548	0.000548	ND		0.000248	0.000248	ND		0.000372	0.000372	ND		0.000384	0.000384
Methoxychlor	72-43-5	0.0296	(mg/kg)	ND		0.00274	0.00274	ND		0.00124	0.00124	ND		0.00186	0.00186	ND		0.00192	0.00192
Mirex	2385-85-5		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192
Oxychlordane	27304-13-8		(mg/kg)	ND		0.000548	0.000548	ND		0.000248	0.000248	ND		0.000372	0.000372	ND		0.000384	0.000384
Toxaphene	8001-35-2	0.536	(mg/kg)	ND		0.0138	0.0138	ND		0.00624	0.00624	ND		0.00933	0.00933	ND		0.00963	0.00963
trans-Nonachlor	39765-80-5		(mg/kg)	ND		0.000274	0.000274	ND		0.000124	0.000124	ND		0.000186	0.000186	ND		0.000192	0.000192

			SAMPLE ID:	VC-01 (0-4.3')				VC-01 (4.3'-17)				VC-05 (0-17')				VC-03 (0-17')			
			LAB ID:	L2446143-06				L2446143-07				L2446143-08				L2446143-09			
			COLLECTION DATE:	8/17/2024				8/17/2024				8/17/2024				8/17/2024			
			SAMPLE MATRIX:	Sediment				Sediment				Sediment				Sediment			
ANALYTE	CAS	DNREC HSCA (mg/kg)	Lab Units	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL	Conc	Q	RL	MDL
TOTAL METALS																			
Aluminum, Total	7429-90-5		(mg/kg)	**10,200**		273	40.5	**4,340**		120	17.8	**14,600**		191	28.2	**12,300**		188	27.8
Antimony, Total	7440-36-0		(mg/kg)	ND		4.38	0.37	**0.626**	J	1.93	0.163	ND		3.05	0.258	ND		3.01	0.254
Arsenic, Total	7440-38-2	7.24	(mg/kg)	**5.34**		1.37	0.18	**6.8**		0.602	0.08	**8.72**		0.955	0.126	**7.36**		0.941	0.124
Barium, Total	7440-39-3		(mg/kg)	**30.2**		8.2	0.578	**5.46**		3.62	0.254	**50.6**		5.73	0.403	**37.6**		5.65	0.398
Beryllium, Total	7440-41-7		(mg/kg)	**0.786**	J	0.82	0.238	**0.597**		0.362	0.105	**0.765**		0.573	0.166	**0.642**		0.565	0.164
Cadmium, Total	7440-43-9	0.68	(mg/kg)	ND		0.547	0.072	**0.04**	J	0.241	0.032	**0.078**	J	0.382	0.05	**0.072**	J	0.376	0.05
Calcium, Total	7440-70-2		(mg/kg)	**1900**		1370	166	**160**	J	602	73.3	**2300**		955	116	**2170**		941	114
Chromium, Total	7440-47-3	52.3	(mg/kg)	**38.9**		5.47	1.28	**107**		24.1	5.64	**37.7**		3.82	0.894	**33.1**		3.76	0.881
Cobalt, Total	7440-48-4		(mg/kg)	**5.79**		1.37	0.145	**5.16**		0.602	0.064	**10.3**		0.955	0.102	**8.7**		0.941	0.1
Copper, Total	7440-50-8	18.7	(mg/kg)	**5.67**		5.47	0.53	**2.29**	J	2.41	0.234	**9.92**		3.82	0.37	**7.89**		3.76	0.365
Iron, Total	7439-89-6		(mg/kg)	**23500**		547	56.3	**26200**		241	24.8	**28000**		382	39.3	**24900**		376	38.8
Lead, Total	7439-92-1	30.2	(mg/kg)	**6.67**		1.64	0.399	**5.51**		0.723	0.176	**10.9**		1.14	0.279	**8.55**		1.13	0.275
Magnesium, Total	7439-95-4		(mg/kg)	**4670**		273	33.7	**842**		120	14.8	**7000**		191	23.5	**6260**		188	23.2
Manganese, Total	7439-96-5		(mg/kg)	**148**		5.47	1.21	**176**		2.41	0.535	**780**		3.82	0.848	**545**		3.76	0.836
Mercury, Total	7439-97-6	0.13	(mg/kg)	**0.013**	J	0.037	0.005	**0.006**	J	0.018	0.002	**0.017**	J	0.027	0.003	**0.015**	J	0.028	0.004
Nickel, Total	7440-02-0	15.9	(mg/kg)	**15.1**		2.73	0.731	**18.3**		1.2	0.322	**23.5**		1.91	0.51	**20.2**		1.88	0.503
Potassium, Total	7440-09-7		(mg/kg)	**1760**		273	43.4	**1260**		120	19.1	**2450**		191	30.3	**2260**		188	29.9
Selenium, Total	7782-49-2		(mg/kg)	**4.05**	J	5.47	2.07	**1.83**	J	2.41	0.911	**4.87**		3.82	1.44	**4.04**		3.76	1.42
Silver, Total	7440-22-4	0.73	(mg/kg)	ND		1.37	0.133	ND		0.602	0.059	ND		0.955	0.093	ND		0.941	0.092
Sodium, Total	7440-23-5		(mg/kg)	**3470**		410	32	**358**		181	14.1	**1890**		286	22.4	**2220**		282	22.1
Thallium, Total	7440-28-0		(mg/kg)	ND		1.09	0.141	ND		0.482	0.062	**0.158**	J	0.764	0.099	**0.13**	J	0.753	0.097
Vanadium, Total	7440-62-2		(mg/kg)	**32**		2.73	1.04	**67.3**		12	4.57	**34.8**		1.91	0.724	**30.3**		1.88	0.714
Zinc, Total	7440-66-6	124	(mg/kg)	**35.4**		27.3	7.11	**87.5**		12	3.13	**63.5**		19.1	4.96	**53.6**		18.8	4.89
GENERAL CHEMISTRY																			
Solids, Total	NONE		%	**0.0346**		0.0001	0.0001	**0.0793**		0.0001	0.0001	**0.052**		0.0001	0.0001	**0.0512**		0.0001	0.0001
Nitrogen, Ammonia	7664-41-7		(mg/kg)	**86**		21	7.9	**11**		8.7	3.2	**400**		14	5.2	**350**		14	5.2
Phosphorus, Total	7723-14-0		(mg/kg)	**440**		76	26	**420**		28	9.3	**800**		44	15	**840**		49	16
% Soot (Rep 1)	NONE		%	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA
% Soot (Rep 2)	NONE		%	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA
% Soot (Average)	NONE		%	ND		NA	NA	ND		NA	NA	ND		NA	NA	ND		NA	NA
TOTAL ORGANIC CARBON																			
Total Organic Carbon (Rep1)	7440-44-0		%	**8.65**		0.05	0.05	**0.518**		0.05	0.05	**1.74**		0.05	0.05	**1.49**		0.05	0.05
Total Organic Carbon (Rep2)	7440-44-0		%	**10.3**		0.05	0.05	**0.437**		0.05	0.05	**1.71**		0.05	0.05	**1.46**		0.05	0.05
Total Organic Carbon (Average)	7440-44-0		%	**9.49**		0.05	0.05	**0.478**		0.05	0.05	**1.72**		0.05	0.05	**1.48**		0.05	0.05

NOTES:
mg/kg - milligrams per kilogram
J - estimated concentration
Detections are **BOLDED**
Exceedances of Standards or Thresholds are HIGHLIGHTED
DNREC HSCA - Delaware Department of Natural Resources and Environmental Control
Hazardous Substance Cleanup Act Screening Level Table Guidance
HSCA Ecological Screening Level Table - October 2024
Ecological Sediment - Marine
Conc - Concentration
Q - Laboratory Qualifier
RL - Reporting Limit
MDL - Method Detection Limit

Appendix G: GeoTesting Express Report (Thermal Conductivity Testing)

Client:	TRC Companies, Inc.
Project Name:	Silver Run Expansion
Project Location:	---
GTX #:	319651
Start Date:	08/26/24
End Date:	08/27/24
Tested By:	ges
Checked By:	jsc
Preparation:	Specimen tested intact, at the as-received density and moisture content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
VC-02	VC-02-GT	13.5-15'	Moist, yellowish brown sandy clay	21.25	129.3	106.6	1.81	55

Notes: $^{W}/_{m°K}$ = Watts per Meter °Kelvin
$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt

Client:	TRC Companies, Inc.
Project Name:	Silver Run Expansion
Project Location:	---
GTX #:	319651
Start Date:	08/26/24
End Date:	08/27/24
Tested By:	ges
Checked By:	jsc
Preparation:	Specimen tested intact, at the as-received density and moisture content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
VC-02	VC-02-GT	15-16'	Moist, yellowish brown sand with silt	16.87	134.6	115.2	2.54	39

Notes: $^{W}/_{m°K}$ = Watts per Meter °Kelvin
$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt

Client:	TRC Companies, Inc.
Project Name:	Silver Run Expansion
Project Location:	---
GTX #:	319651
Start Date:	08/26/24
End Date:	08/27/24
Tested By:	ges
Checked By:	jsc
Preparation:	Specimen tested intact, at the as-received density and moisture content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
VC-02	VC-02-GT	19-20'	Moist, yellowish red sand with silt	21.85	125.8	103.3	2.48	40

Notes:

$^{W}/_{m°K}$ = Watts per Meter °Kelvin

$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt

Client:	TRC Companies, Inc.
Project Name:	Silver Run Expansion
Project Location:	---
GTX #:	319651
Start Date:	08/22/24
End Date:	08/26/24
Tested By:	jl
Checked By:	jsc
Preparation:	Specimen tested intact, at the as-received density and moisture content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
VC-06	VC-06-GT	23.3-25'	Moist, very dark gray clay	62.24	92.7	57.1	0.81	124

Notes:

$^{W}/_{m°K}$ = Watts per Meter °Kelvin

$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt

Client:	TRC Companies, Inc.
Project Name:	Silver Run Expansion
Project Location:	---
GTX #:	319651
Start Date:	08/26/24
End Date:	08/27/24
Tested By:	ges
Checked By:	jsc
Preparation:	Specimen tested intact, at the as-received density and moisture content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
VC-08	VC-08-GT	13.5-15'	Moist, very dark gray clay with sand and organics	79.12	93.3	52.1	0.89	112

Notes: $^{W}/_{m°K}$ = Watts per Meter °Kelvin
$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt

Client:	TRC Companies, Inc.
Project Name:	Silver Run Expansion
Project Location:	---
GTX #:	319651
Start Date:	08/26/24
End Date:	08/27/24
Tested By:	ges
Checked By:	jsc
Preparation:	Specimen tested intact, at the as-received density and moisture content. Needle was pushed into specimen.

Thermal Conductivity of Soil by ASTM D5334

Boring	Sample	Depth	Sample Description	Moisture Content, %	Wet Density, pcf	Dry Density, pcf	Thermal Conductivity, $^{W}/_{m°K}$	Thermal Resistivity, $^{°K\ cm}/_{W}$
VC-08	VC-08-GT	19-20'	Moist, very dark gray clay	80.73	89.8	49.7	0.91	109

Notes: $^{W}/_{m°K}$ = Watts per Meter °Kelvin
$^{°K\ cm}/_{W}$ = °Kelvin Centimeter per Watt

ATTACHMENT G

Modeling of Sediment Dispersion during Submarine Cable Installation

Silver Run Project

Delaware River

PREPARED FOR:
Silver Run Electric, LLC
400 Chesterfield Center, Suite 110
Saint Louis, Missouri 63017

PREPARED BY:
ESS Group, Inc. in association with Hodge.WaterResources, LLC
100 Fifth Avenue, 5th Floor
Waltham, Massachusetts 02451

ESS Project No. S466-002

May 22, 2017

www.essgroup.com

MODELING OF SEDIMENT DISPERSION DURING SUBMARINE CABLE INSTALLATION
Silver Run Project

Delaware River

Prepared for:

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400 Chesterfield Center, Suite 110
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May 22, 2017

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APPENDICES

Appendix A Memorandum: In-Situ Sediment Moisture Content Sampling

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EXECUTIVE SUMMARY

Silver Run Electric, LLC ("SRE") proposes to construct, operate, maintain. own the Silver Run Project, which includes a new 230 kilovolt (kV) alternating current (AC) transmission link between SRE's new 230-kV substation east of Odessa, Delaware that will interconnect two existing Delmarva Power & Light Company ("DP&L") 230-kV transmission lines and Public Service Electric & Gas Company ("PSE&G") Hope Creek Substation expansion in Lower Alloways Creek Township, New Jersey. The Silver Run Project will include a submarine cable crossing of the Delaware River approximately three miles in length, an overland transmission line in Delaware approximately two miles in length, and an overhead transmission line in New Jersey approximately 3,000 feet in length. The Silver Run Project includes a transition structure outside the Federal navigation channel extents in the Delaware River near the Delaware shore and a trenched cable landing on the New Jersey shore.

The Silver Run Project ("the Project") will use seven submarine cables for the crossing beneath the Delaware River. Each cable will be approximately six inches in diameter and will consist of a copper core, surrounded by layers of insulation and armoring. The seven cables will cross the Delaware River in a generally east-west direction and will be separated from each other by approximately 30 feet. The submarine cables will cross the Baker Reach of the Delaware River's Federal navigation channel at approximately river mile 51.5. The submarine cable will be buried to specific target depths, crossing from the Delaware side of the river into New Jersey using vertical injector embedment and, where inaccessible to the vertical injector, jetting sled embedment (Delaware side) and nearshore excavation (New Jersey shore landing).

ESS Group, Inc. ("ESS") conducted an analysis to predict how sediment suspended during jetting sled embedment and vertical injector embedment of the cable may be transported within the Project area (i.e., the area within the Delaware River where the submarine cables will be embedded beneath the riverbed via water jetting technology) due to river currents. The analysis includes a prediction of suspended sediment concentrations in the water column and eventual deposition thickness on the riverbed. To complete this analysis, ESS developed a hydrodynamic model of the Project area using the Advanced Circulation Model (ADCIRC) version 50. ESS used the results from the hydrodynamic model as a current field for execution of a sediment dispersion model using the Particle Tracking Model (PTM) version 2.1.

The hydrodynamic model was nested within the National Oceanic and Atmospheric Administration (NOAA) Delaware Bay Operational Forecast System (DBOFS) model. Model results from the DBOFS model were used as boundary conditions for the hydrodynamic model. The hydrodynamic model was then run for the period from July 25, 2015 through the end of August 13, 2015, and results from the hydrodynamic model were compared to results from the DBOFS model to ensure that the hydrodynamic model appropriately simulated currents and tides in Delaware Bay. The model was run with a time period in 2015 to allow comparisons with the DBOFS model to be made; this timeframe ensures seasonal representation of anticipated conditions during the planned 2019 submarine cable installation. Tidal ranges and current speeds in the model are comparable to the DBOFS model in the vicinity of the planned cable route. ESS concluded that the hydrodynamic model was appropriate for use as a part of the analysis of sediment dispersion.

The PTM sediment dispersion model used the currents from the hydrodynamic model to predict sediment transport, taking into account the variable embedment depth, the jetting sled and vertical injector embedment speeds anticipated by the installer, and the distribution of sediment grain sizes present along the planned cable route. ESS selected the dates for sediment modeling to coincide with the expected

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allowable summer construction window for cable installation in this area. Specifically, a start date of July 29, 2015 was selected to represent anticipated conditions during the construction window in 2019 and to align the model with the hydrodynamic model. Because the time required for embedment of the submarine cables will span multiple tidal cycles, suspended sediments both in the model and in actual construction are influenced by a range of possible currents from slack water to peak flood and ebb.

Reported concentrations are those that are predicted above ambient background concentrations in the Delaware River. For example, a concentration of 0 milligrams per liter (mg/L) listed in this report would represent the ambient background suspended sediment concentration in the Delaware River at the time of the installation. The results are presented as figures and maps showing the predictions of suspended sediment concentration and cumulative sediment deposition expected to occur as a result of jetting operations.

Suspended Sediment Concentration from Jetting

The sediment dispersion modeling evaluated cable installation over the entire length of vertical injector and jetting sled installation, totaling 13,630 feet (4,150 m). The results from the sediment dispersion model predict that the suspension of sediments will result in elevated suspended sediment concentrations (greater than 50 mg/L) that typically occur within distances of approximately 1,310 ft (399 m) upstream and downstream of the jetting operation with a predicted maximum displacement of up to 4,830 ft (1,472 m) from the installed cable. Increases in suspended sediment concentrations greater than 200 mg/L are predicted to be limited to distances less than 2,280 ft (695 m) from the installed cable for short periods of time (less than 2 hours after each pass with the jetting sled or vertical injector). Increases in suspended sediment in the water column are predicted to have a short duration, with concentrations predicted to return to pre-installation conditions within 24 hours after the completion of jetting operations.

Sediment Deposition from Jetting

Maximum sediment deposition thickness is predicted to occur in the Delaware River Federal navigation channel, where increased cable embedment depth results in increased rates of sediment suspension. The maximum predicted sediment deposition thickness for the laying of a single cable is approximately 18 millimeters (mm), or 0.71 inches, while average predicted deposition thickness within 100 ft of the jetting operation is approximately 2 mm (0.08 inches). Deposition thickness in excess of 1 mm (0.04 inches) is typically limited to areas within 1,140 ft (347 m) of the jetting operation.

ESS conducted modeling of a single cable installation cycle, which includes a vertical injector proving run and cable embedment by both vertical injector and jetting sled. There will be a total of seven cables sequentially installed as a part of the Project, which means there will be seven cable installation cycles. Based on installation schedule information provided by SRE's cable installer, the modeling assumes that each cable installation cycle will be adequately separated in time so that the sediment plume from one cable installation cycle will not overlap with the sediment plume from another cable installation cycle. This assumption is not applied to predicted sediment deposition thicknesses because the sediment deposited from one cable installation cycle will still be present on the riverbed when sediment from another cable installation cycle is deposited. To make a quantitative estimate of cumulative deposition thickness, ESS determined an average deposition cross-section. The average cross-section was offset to each of the cables and added to generate a cumulative deposition cross-section prediction for the entire Project (i.e., all seven submarine cables). The maximum predicted deposition thickness for the entire Project is approximately 44 mm (1.7 inches). For the entire Project, total deposition thickness in excess of 1 mm (0.04

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inches) is predicted to be limited to areas within 1,260 ft (384 m) of the center cable. To put these deposition values in broader context, however, it should be noted that through both natural processes and human influence unrelated to the Project, the riverbed is constantly changing. As such, it would be expected that even a few tidal cycles after the end of installation, the riverbed would already be in the process of returning to pre-construction conditions due to routine factors such as riverine and tidal flow, salinity, temperature, storms, winds, etc.

Conclusions

These analyses predict that the majority of sediments suspended by the jetting sled and the vertical injector will remain in the portion of the water column near the riverbed and be suspended for only a short period of time. Additionally, the majority of fluidized sediments are predicted to quickly settle back into place above the installed cable system within 24 hours after completion of jetting operations. Suspended sediment concentrations are predicted to be less than 200 mg/L within a distance of 2,280 ft (695 m) from the operating jetting sled or vertical injector. The model also predicts the cumulative sediment deposition from jetting will generally occur along and adjacent to the cable route.

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1.0 INTRODUCTION

Silver Run Electric, LLC ("SRE") proposes to construct, operate, maintain, and own the Silver Run Project, which includes a new 230 kilovolt (kV) alternating current (AC) transmission link between SRE's new 230-kV substation east of Odessa, Delaware that will interconnect two existing Delmarva Power & Light Company ("DP&L") 230-kV transmission lines and Public Service Electric & Gas Company ("PSE&G") Hope Creek Substation expansion in Lower Alloways Creek Township, New Jersey. The Silver Run Project will include a submarine cable crossing of the Delaware River approximately three miles in length, an overland transmission line in Delaware approximately two miles in length, and an overhead transmission line in New Jersey approximately 3,000 feet in length. The Silver Run Project includes a transition structure outside the Federal navigation channel extents in the Delaware River near the Delaware shore and a trenched cable landing on the New Jersey shore.

The Silver Run Project ("the Project") will use seven submarine cables for the crossing beneath the Delaware River. Each cable will be approximately six inches in diameter and will consist of a copper core, surrounded by layers of insulation and armoring. The seven cables will cross the Delaware River in a generally east-west direction and will be separated from each other by approximately 30 feet. The submarine cables will cross the Baker Reach of the Delaware River's Federal navigation channel at approximately river mile 51.5. The submarine cable will be buried to specific target depths, crossing from the New Jersey side of the river into Delaware using vertical injector embedment and, where inaccessible to the vertical injector, jetting sled embedment (Delaware side) and nearshore excavation (New Jersey shore landing). Figure 1 shows the site location and the cable route.

While water jetting technology is the most environmentally protective available method of cable installation, the localized fluidization of the riverbed will suspend limited amounts of sediment into the water column temporarily. ESS Group, Inc. ("ESS") conducted an analysis to predict how sediment suspended during jetting sled embedment and vertical injector embedment of the cable may be transported within the Project area (i.e., the area within the Delaware River where the submarine cables will be embedded beneath the riverbed via water jetting technology) due to river currents. To complete this analysis, ESS developed a hydrodynamic model extending approximately 70 mi (112 km) from the mouth of Delaware Bay upstream to the Interstate 295 ("I-295") bridges over the Delaware River. ESS also developed a sediment dispersion model that builds on results from the hydrodynamic model to simulate predicted transport and deposition of sediment disturbed during jetting sled embedment and vertical injector embedment. This report describes the development and application of both models and provides predictions of suspended sediment concentrations in the water column and sediment deposition thicknesses on the riverbed of the Delaware River.

According to the *2014 Delaware River and Bay Water Quality Assessment Report*, the Delaware River Watershed includes approximately 13,500 square miles of land in Pennsylvania, New Jersey, New York, and Delaware (DRBC, 2014). Prior to emptying into the Atlantic Ocean, flow from the Delaware River enters Delaware Bay, an estuary system covering approximately 700 square miles.

The Delaware River has typical water depths outside of the Federal navigation channel between 5 ft (1.5 m) and 25 ft (7.6 m) within the area covered by the model domain. Within the portion of the Federal navigation channel covered by the model domain, the authorized depth is -45 ft (13.7 m) Mean Lower Low Water, although there are locations where the riverbed exists at greater depths. The tidal range varies along the length of the Delaware River. At the National Oceanic and Atmospheric Administration (NOAA) station at Brandywine Shoal Light (ID: 8555889) near the mouth of Delaware Bay, the tidal range is 4.90 ft (1.49 m).

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At Reedy Point (ID: 8551910), the nearest station to the planned cable route, the tidal range is 5.34 ft (1.40 m). The substantial tidal range near the planned cable route is an indication that full tidal reversal occurs at that point in the Delaware River, and that the direction of flow reverses with each tidal cycle.

The primary drivers of hydrodynamic behavior in the Delaware River are freshwater flow from the river's watershed and the tidal influence of the Atlantic Ocean. Approximately 7 mi (11 km) north of the planned cable route, the Chesapeake and Delaware Canal connects the Delaware River to the Chesapeake Bay. The Canal can influence localized currents around its mouth, but it does not impact the behavior of the Delaware River overall. Wind and salinity gradients both play secondary and intermittent roles in influencing tidal behavior and current velocities.

Sediments in the tidal portion of the Delaware River are predominantly mud and sand. Sands make up the largest fraction of sediments in the lower portion the river, and mud becomes more prevalent upstream of the mouth of the Cohansey River (Sharp, 1983). Site-specific surveys were conducted for the Project in September 2015 (Kearney, 2015), in March 2016, and in June 2016 (ESS, 2017). The sediment sampling results demonstrate that sediments in the vicinity of the planned cable route are sandy silts and are generally consistent with the above description of regional sediments.

2.0 MODEL DESCRIPTION

Installation of the submarine cables will involve vertical injector embedment along approximately 89% of the cable route. Jetting sled embedment will be used in the shallower area leading up to the Delaware transition structure, where the vertical injector is unable to reach. Landward of the Delaware transition structure, the transmission line will be aerial. In the shallower area leading up to the New Jersey shore landing, a ground or river-based excavator will be used to excavate a trench approximately 50 ft (15 m) long in which to lay the cable. A silt curtain or other protective means will be used in the trench area during active excavation activities to prevent sediments suspended by excavation from influencing suspended sediment levels in the river.

When sediment is suspended by the jetting sled or vertical injector, it may undergo advective transport and be carried away from the installation area by currents. Understanding current patterns in the Project area (i.e., the area within the Delaware River where the submarine cables will be embedded beneath the riverbed via water jetting technology) is a necessary first step to understanding and predicting sediment transport. To predict current speeds and directions, ESS developed a hydrodynamic model of the Project area using the Advanced Circulation Model (ADCIRC).

2.1 ADCIRC

ADCIRC is a hydrodynamic circulation model that simulates water levels and currents over a finite element grid. The model can be used as either a two-dimensional depth-averaged model or as a three-dimensional model. ADCIRC was developed by Rick Luettich and Joannes Westerink (2004) in conjunction with the United States Army Corps of Engineers (USACE) Engineer Research and Development Center (ERDC) and has been certified by the Federal Emergency Management Agency (FEMA) for evaluating storm surge (USACE, 2013a). ADCIRC has also been historically used for modeling tides and wind-driven circulation, conducting dredging feasibility and material disposal studies, and evaluating nearshore marine operations (USACE, 2013b). ESS selected version 50 of ADCIRC for use in this analysis because it is able to incorporate a tidally reversing flow boundary condition and an open-water boundary condition specified in the form of a time series. Given that the Project modeling includes both types of boundary conditions, ADCIRC is appropriate for use in developing a representative hydrodynamic model of the Project area.

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2.2 Particle Tracking Model (PTM)

In addition to being appropriate for use in evaluating the hydrodynamics, ADCIRC version 50 is readily linked to the Particle Tracking Model (PTM) version 2.1. PTM is a Lagrangian particle tracker developed to simulate particle (i.e., sediment) transport processes. The model was developed by ERDC as part of the Coastal Inlets Research Program and the Dredging Operations and Environmental Research Program (MacDonald et al., 2006). Suspended sediment in PTM is modeled as a discretized finite number of particles that are transported by flow. These particles are representative of all particles coming from a source. Each particle is assigned a mass of sediment to represent, and each particle has individual characteristics that include grain size and density. The transport and eventual deposition of these representative particles can then be used to determine suspended sediment concentrations and deposition thicknesses.

3.0 HYDRODYNAMIC MODEL APPLICATION

3.1 Model Setup

Figure 2 shows the limits of the model domain and indicates each boundary condition applied to the hydrodynamic model. The model domain includes all of Delaware Bay and a portion of the Delaware River to the I-295 bridges. The total length of the model domain is approximately 70 mi (112 km). The width of the model domain varies to accurately represent the width of Delaware Bay. At its upstream boundary, the model domain is approximately 1.2 mi (1.9 km) wide, but within Delaware Bay, the model domain widens to approximately 26 mi (41.8 km). The model domain has one tidal boundary and two flow boundaries. The tidal boundary is at the mouth of Delaware Bay. The primary flow boundary is at the I-295 bridges and represents the influence of the rest of the Delaware River on the model domain. The secondary flow boundary is in the Chesapeake and Delaware Canal approximately 3.8 mi (6.1 km) west of where the Canal joins the Delaware River.

All three boundary conditions were specified based on information from NOAA's Delaware Bay Operational Forecast System (DBOFS) model. The DBOFS model was developed jointly by the NOAA National Ocean Service (NOS), NOAA NOS Office of Coast Survey, NOAA NOS Center for Operational Oceanographic Projects and Services, and the NOAA National Weather Service National Centers for Environmental Prediction Central Operations (NOAA, 2016a). DBOFS is a Regional Ocean Modeling System model and it generates predictions of water levels and currents as well as water quality characteristics. ESS accessed DBOFS model results for the period between June 15, 2015 and August 15, 2015 to represent and bracket the planned 2019 installation period.[1] ESS used these historical model predictions to inform each of the three boundary conditions for the model. Thus, the hydrodynamic model for the Project is effectively nested within the larger DBOFS model.

Figure 2 also shows the hydrodynamic model grid. The grid is an unstructured grid. Near the downstream tidal boundary, the grid triangles are approximately 3,150 ft (960 m) on each side, whereas near the planned cable route they are approximately 310 ft (95 m) on each side. The hydrodynamic model is appropriately scaled to simulate current patterns in the model domain and provide the necessary current velocity and water level information for the sediment dispersion model.

[1] The conditions that will be present during the 2019 installation period are unknown (i.e., tidal range, freshwater flow, wind speed and direction). To account for seasonal variability in boundary conditions, ESS ran the hydrodynamic model for the same period in 2015.

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ESS assigned the hydrodynamic model bathymetry based on the digital elevation model for Delaware Bay that has been developed by NOAA's National Centers for Environmental Information (NOAA, 2016b). ESS also incorporated historic 2015 wind data recorded at the NOAA meteorological buoy near Lewes, Delaware (ID: LWSD1/8557380) into the model and applied time varying wind uniformly across the entire model domain. ESS excluded both salinity and temperature from the hydrodynamic model because these water quality characteristics are unlikely to have a substantial influence on current velocities at the scale of the hydrodynamic model and will not likely influence the advection or settling of suspended sediment.

3.2 Model Results/Comparison

To ensure that the hydrodynamic model appropriately recreates the behavior of the DBOFS model, in which it is effectively nested, ESS ran the model simulating a 20-day period between July 25, 2015 and the end of August 13, 2015 to represent the planned 2019 installation period. The two initial days, July 25 through July 27, were used to ramp up the model and did not output any water level or current predictions. ESS looked at how predicted currents and water levels from the hydrodynamic model compare to predicted currents and water levels from the DBOFS model at the same location. In general, the hydrodynamic model shows water levels that are responsive to the tide and regular flow reversals throughout the model domain. Figure 3 shows a time series of typical predicted water levels and current speeds from a location near the planned cable route. The time series demonstrates the pattern of peak current velocities during flood and ebb tides when the water levels in the model domain are changing most rapidly. Current velocities are lowest during slack tides when the hydraulic gradient along the river is small. Maximum flood currents and maximum ebb currents have roughly equal magnitudes.

To evaluate how the hydrodynamic model compares to the DBOFS model, ESS extracted model results from both models at a model calibration point, which is shown in Figure 2. ESS chose this location because of its proximity to the planned cable route. Figure 4 shows a comparison of predicted water levels from the hydrodynamic model and the DBOFS model. The hydrodynamic model shows an equivalent tidal range to the DBOFS model, but also shows a consistent offset. The mean residual (difference between the hydrodynamic model and the DBOFS model) is 0.62 ft (0.19 m). The root mean square error (RMSE) is 0.19 ft (0.06 m). The mean tidal range for the hydrodynamic model is within 0.25 ft (0.08 m) of the DBOFS model tidal range.

Figure 5 shows a time series graph of the current speeds (where positive is flowing upstream towards the I-295 bridges, and negative is flowing downstream towards the mouth of Delaware Bay) from both the hydrodynamic model and the DBOFS model. The two models are perfectly in phase and the agreement between the models is very strong. The mean residual current velocity between the models is -0.03 ft/s (-0.01 m/s) and the RMSE is 0.06 ft/s (0.02 m/s).

Figure 6 shows a graph of hydrodynamic model results for water level versus DBOFS model results for water level. The Square of the Pearson Correlation Coefficient (R^2) is 0.8644, which indicates strong correlation between the two models. ESS investigated the offset in water surface elevation between the two models and concluded that the likely source of the discrepancy was the difference in cross-sectional area in this reach of the Delaware River for the two models. The difference in cross-sectional area is attributable to lower resolution of the DBOFS model. Figure 7 shows a graph of the hydrodynamic model predicted current velocities versus the DBOFS predicted current velocities. The R^2 is 0.9285, which indicates strong correlation.

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The model results shown in Figure 4 through Figure 7 show the closest correlation that ESS was able to achieve between the hydrodynamic model and the DBOFS model. The hydrodynamic model appropriately simulates tidal range, with an offset, and appropriately simulates current velocities.

3.3 Model Acceptance

The preceding discussion and Figure 4 through Figure 7 demonstrate that the hydrodynamic model appropriately simulates tides and currents in the model domain. The planned submarine cable installation window is July 2019 through August 2019. The conditions that will be present at that time are unknown (i.e., tidal range, freshwater flow, wind speed and direction). To account for the expected seasonal variability in boundary conditions, ESS ran the hydrodynamic model for the same period in 2015.

4.0 SEDIMENT DISPERSION MODEL APPLICATION

The Project will include the installation of a total of seven submarine cables. Each cable installation cycle will include a vertical injector proving run and installation of the cable by both vertical injector and jetting sled. Installation cycles will be the same with respect to the potential for generating suspended sediment in the water column and sediment deposition. The overall construction schedule anticipates 24 hours between the end of jetting of one cable and the start of proving run jetting on the next cable (i.e., the end of one cable installation cycle and the beginning of the next cycle). The model results predict that the total time needed for the suspended sediment plume to dissipate is shorter than the 24 hours of downtime between the cable installation cycles. This means that the suspended sediment plumes will not interact. Therefore, ESS modeled a single cable installation cycle based on the assumption that each cable cycle will have a similar impact on suspended sediments.

While modeling only one cable installation cycle is appropriate for suspended sediment because the plumes are not concurrent, the same assumption does not hold true for deposition. The total sediment deposition will be cumulative for all seven cable installation cycles. ESS developed a representative estimation of the total deposition from the Project by analyzing and post-processing the model results for a single cable installation cycle (discussed in more detail in Section 4.2.2 Suspended Sediment Deposition from Jetting).

4.1 Model Setup

The sediment dispersion model used the same model boundaries and bathymetry as the hydrodynamic model. Setting up the PTM model required defining how the operation of the jetting sled and the vertical injector would be simulated and characterizing the sediment that would be suspended. Anticipated jetting sled and vertical injector embedment speeds were provided by the installer.

The simulation of sediment suspension in the model begins with a proving run of the vertical injector, which moves from the east to the west along the majority of the planned cable route. Once the vertical injector finishes the proving run, it will move back to the original starting point and begin the cable embedment, again moving from east to west. After cable laying with the vertical injector is complete, the jetting sled will pick up where the vertical injector left off, continuing to move west toward the Delaware transition structure.

The rate of progress for the jetting sled and the vertical injector are different. The depth of cable embedment will also vary along the planned cable route based on the target burial depths. Table A summarizes the anticipated embedment depths and embedment speeds along the planned cable route.

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Table A. Cable Route Segment Characterization

Suspension ID	Tool Used	Seg. ID	Segment Length		Embedment Depth		Embedment Speed	
			cable ft	cable m	ft	m	ft/hr	m/hr
Suspensions 1 & 2*	Vertical Injector	A	5,210	1,588	16.5	5.0	750	229
		B	1,240	378	26.5	8.1		
		C	5,780	1,760	16.5	5.0		
Suspension 3	Jetting Sled	D	1,400	430	11.5	3.5	400	122

* Sub-segments for Suspensions 1 & 2 are listed from east to west (start to finish).

As the jetting sled and vertical injector advance, they will fluidize the sediment along the planned cable route to the depth shown in Table A and with a width of 2 ft (0.6 m). The majority of the sediment that is fluidized will not leave the cable furrow, but some of the sediment may be suspended in the water column. ESS conservatively assumed a constant sediment suspension rate of 25% of the cable furrow volume, which is consistent with other studies of jetting sled operation (ESS, 2013; HDR, 2014). Based on discussions with the vertical injector operator and the similar operating principle as the jetting sled, ESS concluded that the suspension rate of 25% was also conservatively appropriate for simulating suspended sediment originating from the use of the vertical injector.

The rate of suspended sediment generation (on a volume basis) is the product of furrow width, embedment depth, advancement rate, and sediment suspension rate. To calculate the rate of suspended sediment production on a mass basis, it is necessary to have an understanding of the physical properties of the sediments that will be fluidized.

ESS collected sediment samples from vibracore locations along the planned cable route. Figure 8 shows the locations of each vibracore sample location. ESS completed a comprehensive sediment characterization for each sample. Table B provides a summary of the characterization including the specific gravity, sediment type (sand, silt, clay), and results from a sieve analysis including the grain size where 90% of the sample was finer (D90), where 50% of the sample was finer (D50), and where 30% of the sample was finer (D30).

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Table B. Vibracore Sample Sediment Characterization for Modeling

Location	Sample	Specific Gravity**	Gravel %	Sand %	Fines %	D30 mm	D50 mm	D90 mm
VC-03	composite*	2.61	0.0	48.1	51.9	0.049	0.072	0.473
VC-10	composite*	--	0.1	36.7	63.2	0.094	0.136	0.363
VC-11	S1	--	0.0	2.3	97.7	0.030	0.045	0.067
VCN-01	S1	2.96	0.2	3.7	96.3	0.014	0.040	0.067
VCN-02	S2	2.44	0.2	7.5	92.6	0.037	0.047	0.072
VCN-03	S1	2.85	0.2	3.1	96.9	0.030	0.046	0.066
VCN-04 (DE)	S1	3.14	0.2	3.2	96.8	0.012	0.033	0.064
VCN-04 (NJ)	S1	3.04	0.2	3.4	96.6	0.017	0.038	0.065
VCN-5	composite*	2.70	0.2	21.6	78.4	0.034	0.057	0.120
VCN-6	S1	2.39	0.2	28.9	71.1	0.046	0.058	0.287
VCN-8	composite*	2.25	0.3	80.6	19.3	0.178	0.301	0.727
VCN-9	S1	2.42	0.2	27.8	72.3	0.042	0.055	0.221

* Indicates that sediment characterization at that location is a depth-averaged composite of multiple sample results.
** VC-10 and VC-11 were not included in March 2016 chemical sampling and did not have specific gravity reported.

The average specific gravity for the vibracore samples shown in Table B is 2.68, with individual cores ranging from 2.25 to 3.14. The mean of the median grain size (D50) is 0.0773 mm, with individual cores ranging from 0.0333 mm to 0.3005 mm. Table B also indicates that the sediments are well sorted, in that the difference between the D30 and D50 for each sample location is relatively small. Figure 9 arranges the composition of the vibracore samples by location from west to east, demonstrating that while there is variability in the composition of the sediments that were sampled, there is no clear trend or pattern along the planned cable route. Figure 9 further indicates that along the planned cable route, the amount of silt versus sand in the sediment is variable, but sediments can be characterized as sandy silts.

In addition to the vibracore sample results, ESS also collected information about the water content of a subset of the vibracore sediment samples to understand the approximate bulk dry density of the in-situ sediments. The average water content of the samples was 33.5%. An explanation of the testing methodology is included with this report as Appendix A.

Based on the information presented in Table B and in Figure 9, ESS concluded that suspended sediment from the jetting operations can be appropriately represented in the sediment dispersion model based on the mean characteristics of the samples. The combination of sediment characterization, advancement rate, and embedment depth results in a total of three distinct sediment suspension conditions for input to the model. Figure 10 shows the details of these conditions and where they are applicable along the planned cable route.

4.2 Model Results

The sediment dispersion model simulates jetting-induced suspended sediment concentrations and the total deposition thickness (based on initial deposition and assuming no re-suspension) for the entire model domain shown in Figure 2. The modeling was performed for a single cable installation cycle that includes a

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vertical injector proving run and cable embedment by both vertical injector and jetting sled. There will be a total of seven cables installed as part of the Project, which means there will be seven cable installation cycles. Consistent with plans from SRE's cable installer, the modeling assumes that each cable installation cycle will be adequately separated in time so that the suspended sediment plume from one cable installation cycle will not interact with the suspended sediment plume from another cable installation cycle.

The total time for a single cable installation cycle from the beginning of the vertical injector proving run to the completion of jetting sled embedment near the western shore is approximately 3 days and 2 hours. ESS ran the sediment dispersion model for a total of ten days (July 29, 2015 through the end of August 7, 2015) with sediment suspension (use of the vertical injector) beginning on July 29, 2015 approximately 45 ft (14 m) west of the shoreline riprap along the New Jersey shore. Sediment suspension (via jetting sled) ended on August 1, 2015 at the Delaware transition structure, although the model continued for an additional six days (to the end of August 7) to ensure that all suspended sediments settle prior to the end of the model run.

Sediments along the planned cable route are sandy silts. The median grain size (D50) used in the model is 0.0773 mm. This grain size is representative of coarse silt, but the model simulates a normal distribution of sediment around the median grain size, so the modeled grain size sediments actually range from clay-sized particles to coarse sands. ESS calibrated the spread of the normal distribution so that the modeled grain sizes were consistent with the well sorted sediments as reported in the vibracore samples. The Delaware River is a relatively high-energy environment where there is the potential for suspended sediment to be transported significant distances. The majority of the sands (from coarse to fine) are predicted to settle near the cable furrow, but it is also predicted that a small fraction of the silts and other fine sediments could be transported well away from the cable furrow.

4.2.1 Suspended Sediment Concentration from Jetting

The sediment dispersion modeling evaluated cable installation over the entire length of vertical injector and jetting sled installation, totaling 13,630 feet (4,150 m). Results from the sediment dispersion model predict that suspended sediment concentrations of 50 milligrams per liter (mg/L) above ambient will typically occur within distances of approximately 1,310 ft (399 m) upstream and downstream of the jetting operation. As expected, the model predicts that suspended sediments reach their maximum displacement upstream during flood tides, while they reach the maximum displacement downstream during ebb tides. The maximum displacement of 50 mg/L suspended sediment concentrations is predicted to be approximately 4,830 ft (1,472 m) down current of the cable furrow.

Suspended sediment concentrations of 200 mg/L above ambient are predicted to be limited to the portion of the embedment operation west of the Federal navigation channel. Suspended sediment concentrations are lower in the Federal navigation channel because there is a deeper water column for the suspended sediment to spread into before being transported by ambient currents. Suspended sediment concentrations are predicted to return to ambient conditions within 24 hours after the completion of jetting operations.

Suspended sediment concentrations of 200 mg/L above ambient are predicted to typically occur within distances of approximately 670 ft (204 m) upstream and downstream of the cable furrow. The maximum displacement of 200 mg/L suspended sediment concentrations is predicted to be approximately 2,280 ft (695 m) from the cable furrow. Table C provides mean and maximum distances for a given maximum concentration contour.

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Table C. Mean and Maximum Suspended Sediment Displacement from Cable Route

Suspended Sediment Concentration (mg/L)	Mean Distance		Maximum Distance	
	ft	m	ft	m
200	670	204	2,280	695
100	880	268	3,380	1,030
50	1,310	399	4,830	1,472
25	2,030	619	6,870	2,094

Figure 11 shows predicted maximum suspended sediment concentrations. The maximum predicted suspended sediment concentration occurs at different depths within the water column at different locations in the model and at any point in time between the start of the proving run and the return to ambient conditions following the end of the single cable installation cycle. This means that the extent shown in Figure 11 is much larger than what would occur at any one time during cable installation. To understand the duration of the elevated suspended sediment concentrations in the water column, ESS selected 12 locations (shown in Figure 12) to evaluate the vertical profile of the suspended sediment concentrations after the completion of jetting operations. Six of the locations are upstream of the planned cable route, two of which are in the Federal navigation channel and four in shallower water to the east and west of the Federal navigation channel. There are also six locations downstream of the planned cable route, two of which are in the Federal navigation channel and four in the shallower water to the east and west of the Federal navigation channel. Locations are offset either 100 ft or 400 ft from the planned cable route. Figure 13, Figure 14, and Figure 15 show time series plots of the suspended sediment concentrations after the completion of jetting operations at multiple depths throughout the water column for each location.

Figure 13, Figure 14, and Figure 15 demonstrate the duration of the suspended sediment plume as well as the vertical profile. It is also possible to see from Figure 13, Figure 14, and Figure 15 that while there are multiple sediment suspensions for a single cable embedment cycle, the individual suspended sediment plumes do not overlap in time.

Figure 16 provides a graph comparing displacement from the jetting operation and maximum predicted suspended sediment concentration. Figure 16 supports the finding that the extent of predicted increase in suspended sediment concentrations above ambient will be limited. At a distance of 1,500 ft (457 m) from the jetting operation, the maximum predicted suspended sediment concentration is less than 150 mg/L above ambient. The average predicted concentration at that distance is approximately 20 mg/L above ambient.

The sediment transport model does not take into account near-field effects, which occur within a range of approximately 82 ft (25 m) of the jetting tool operation. Common professional practice excludes near-field behavior from sediment dispersion models, as the scale of the near-field is insignificant relative to the scale of the model. The model assumes uniform distribution within the near-field region in both the horizontal and vertical directions. Consequently, the highest concentrations at a given location may not necessarily occur at the height above the riverbed where sediment is disturbed by the jetting sled or the vertical injector. In addition, in cases where there is not adequate water depth above the riverbed to generate uniform sediment distribution, the maximum suspended sediment concentrations are

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assumed to occur near the water surface. This is a conservative assumption because suspended sediment that is higher in the water column will take longer to settle and has the potential to be advected further from the jetting operation by currents.

As was previously mentioned, within 24 hours after the completion of jetting operations for each cycle, suspended sediment concentrations are predicted return to ambient conditions, and sediment that was introduced into the water column will have settled onto the bed of the river.

4.2.2 Suspended Sediment Deposition from Jetting

Figure 17 shows the total predicted deposition of sediment on the bed from a single cable installation cycle. The deposition pattern is consistent with the suspended sediment pattern. Maximum deposition is predicted to occur in the Federal navigation channel where the total volume of disturbed sediment is greatest as a result of the increased cable burial depth. The maximum predicted deposition thickness along the planned cable route is approximately 18 mm (0.71 inches), which occurs at the cable furrow as expected. Deposition thickness in excess of 1 mm (0.04 inches) is typically limited to areas within 1,140 ft (347 m) of the jetting operation. The maximum distance from the jetting operation where 1 mm (0.04 inches) of deposition is predicted to occur is at a distance of 7,360 ft (2,243 m) from the jetting operation.

Figure 18 provides two histograms of the area covered by different deposition thicknesses for a single cable installation cycle. Figure 18 demonstrates that, at distances beyond 400 ft (122 m) from the jetting operations, depositions greater than 3 mm (0.12 inches) in thickness are predicted to cover a minimal area.

The results shown in Figure 17 are for a single cable installation cycle. There will be a total of seven cable installation cycles, and each cycle will have an additive, but spatially offset, effect on deposition thicknesses. Each cycle will have similar initial suspended sediment concentrations, but variability in ambient conditions will serve to spread deposited sediment more evenly across the riverbed than what is shown in Figure 17.

To make a quantitative estimate of cumulative deposition thickness, ESS determined an average deposition cross-section for the single cable installation cycle assuming uniform lateral spreading from all seven cycles. The estimate uses the cross-sectional deposition for the modeled cycle and progressively offsets the cross-section by 30 feet for each of the other cables. ESS then superimposed the offset cross-sections to generate a cumulative cross-section prediction for the seven submarine cables. Figure 19 shows the individual cross-sections and the resulting cumulative cross-section prediction.

The maximum estimated deposition resulting from jetting operations for all seven cable installation cycles is approximately 44 mm (1.7 inches), centered on the furrow of the middle cable. For all seven cables, cumulative deposition thicknesses in excess of 1 mm (0.04 inches) are predicted to be typically within 1,260 ft (384 m) of the jetting operations as shown in the upstream direction on Figure 19. The approach that ESS used to estimate cumulative effects of the seven cable installation cycles does not provide an assessment of maximum displacement for 1 mm (0.04 inches) of deposition.

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Sediments will be deposited on the riverbed as the suspended sediment settles out of the water column. Table D shows the predicted mean and maximum displacement from the jetting operation for different deposition thickness contours for a single cable installation and for all seven cables.

Table D. Mean and Maximum Deposition Displacement from Cable Route

Scenario	Deposition		Mean Distance		Maximum Distance	
	mm	inches	ft	m	ft	m
One Cable (Proving & Laying)	0.5	0.02	1,660	506	7,410	2,259
	1	0.04	1,140	347	7,360	2,243
Seven Cables* (Proving & Laying)	0.5	0.02	2,158	658	--	--
	1	0.04	1,040	317	--	--

* Mean distances for seven cables are calculated by averaging the upstream and downstream displacement distances shown in Figure 19.

To put these deposition values in broader context, it should be noted that the riverbed is constantly changing through both natural processes and human influence unrelated to the Project. As such, it would be expected that even a few tidal cycles after the end of installation, the riverbed would already be in the process of returning to pre-construction conditions due to routine factors such as riverine and tidal flow, salinity, temperature, storms, winds, etc.

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REFERENCES

[DRBC] Delaware River Basin Commission, 2014. 2014 Delaware River and Bay Water Quality Assessment. West Trenton, NJ, August 2014. Available from: http://www.nj.gov/drbc/library/documents/WQAssessmentReport2014.pdf.

[ESS] ESS Group Inc., 2013. Modeling of Sediment Dispersion during Installation of the Submarine Cable for the Poseidon Project. Project No. P298-001. ESS Group, Inc. in Association with Hodge.WaterResources, LLC. East Providence, RI. ESS Group Inc.

ESS, 2017. Submarine Cable Route Field Evaluations Report: Silver Run Project – Hope Creek Alternative Salem County, New Jersey to New Castle County, Delaware. Project No. S466-002.03. May 11, 2017. East Providence, RI. ESS Group Inc.

[HDR] HDR Inc., 2014. Lake Champlain Water Quality Modeling Report. New England Clean Power Link. Omaha, NE. HDR Inc.

Kearney, Peter G., 2015. Vibrational Coring in the Delaware River Between New Castel County, Delaware and Salem County New Jersey. Duffield Associates Inc.

Luettich, R. and Westerink, J., 2004. Formulation and Numerical Implementation of the 2D/3D ADCIRC Finite Element Model Version 44.XX. University of North Carolina at Chapel Hill, December 8, 2004. Available from: http://www.unc.edu/ims/adcirc/adcirc_theory_2004_12_08.pdf.

MacDonald, N.J., Davies, M.H., Zundel, A.K, Howlett, J.D., Demirbilek, Z., Gailani, J.Z., Lackey, T.C., and Smith J., 2006. PTM: Particle Tracking Model, Report 1: Model Theory, Implementation, and Example Applications. U.S. Army Corps of Engineers, Engineer Research and Development Center. September 2006.

[NOAA] National Oceanic and Atmospheric Administration, 2014. Chart 12304, Delaware Bay. Edition: 47. National Oceanic and Atmospheric Agency, October, 2014.

NOAA, 2016a. Delaware Bay Operational Forecast System (DBOFS). Data Accessed on June 23, 2016. Data Available from: https://tidesandcurrents.noaa.gov/ofs/dbofs/dbofs.html.

NOAA, 2016b. National Centers for Environmental Information (NCEI) Hurricane Sandy Digital Elevation Models. Data Accessed on March 1, 2016. Data Available from: http://www.ngdc.noaa.gov/mgg/inundation/sandy/sandy_geoc.html.

Sharp, Jonathan H, 1983. The Delaware Estuary: Research as Background for Estuarine Management and Development, a Report to the Delaware River and Bay Authority (p. 96). University of Delaware College of Marine Studies and New Jersey Marine Sciences Consortium. Accessed June 24, 2016. Available from: https://rucore.libraries.rutgers.edu/rutgers-lib/29007/.

[USACE] United States Army Corps of Engineers, 2013a. ADCIRC – The Advanced CIRCulation Model. U.S. Army Corps of Engineers, Coastal Hydraulics Laboratory – Engineer Research and Development Center. Accessed August 27, 2013. Available from: http://chl.erdc.usace.army.mil/adcirc.

USACE, 2013b. System-Wide Water Resources Program, Advanced Circulation Model (ADCIRC). U.S. Army Corps of Engineers, Engineer Research and Development Center. Accessed August 27, 2013. Available from: http://chl.erdc.usace.army.mil/dirs/events/199/System%20Wide%20Water%20Resources%20Program%20(SWWRP)+/Advanced%20Circulation%20Model%20(ADCIRC).pdf.

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Figures



Figure 1. Locus Map

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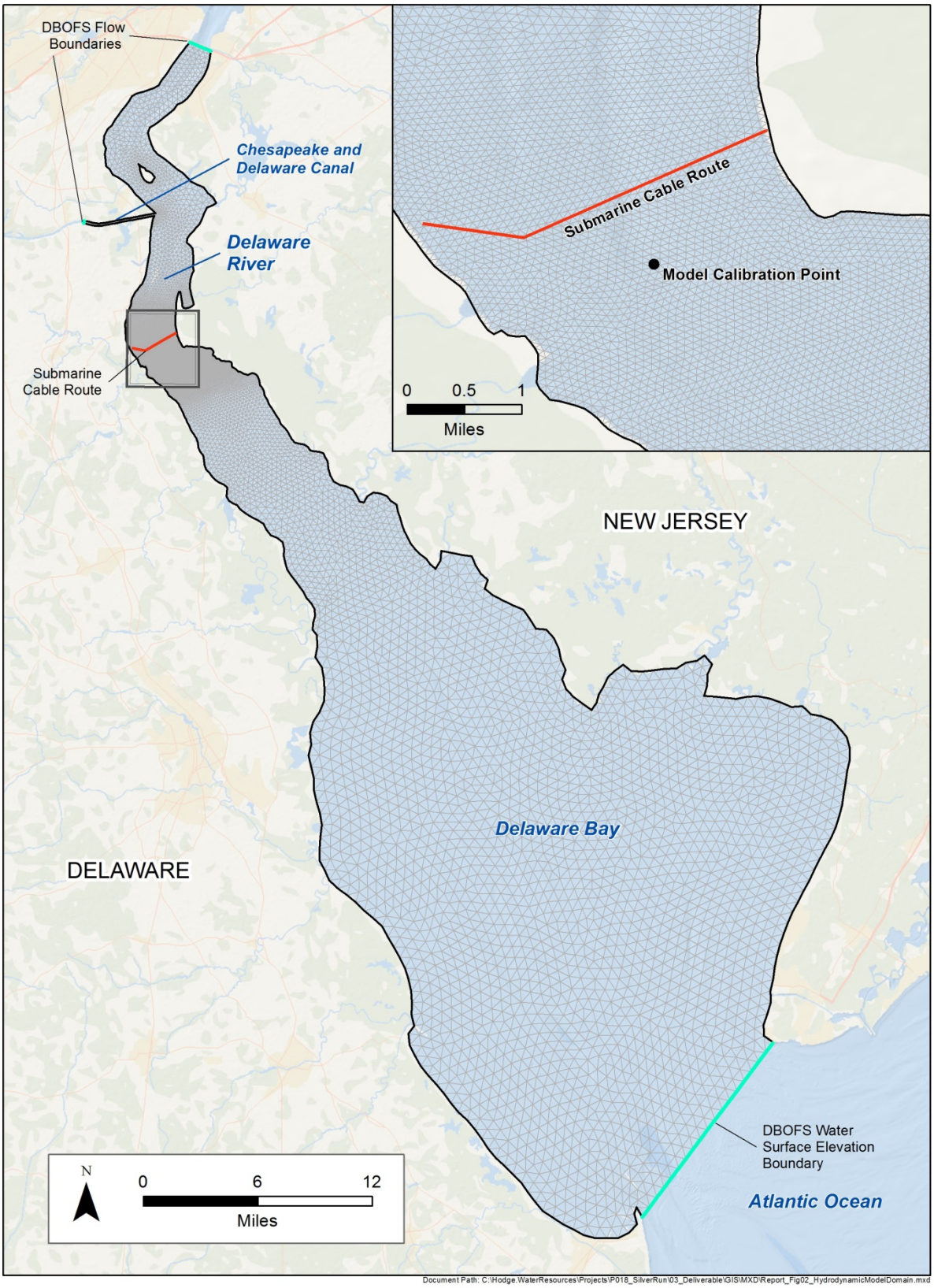


Figure 2. Hydrodynamic Model Domain

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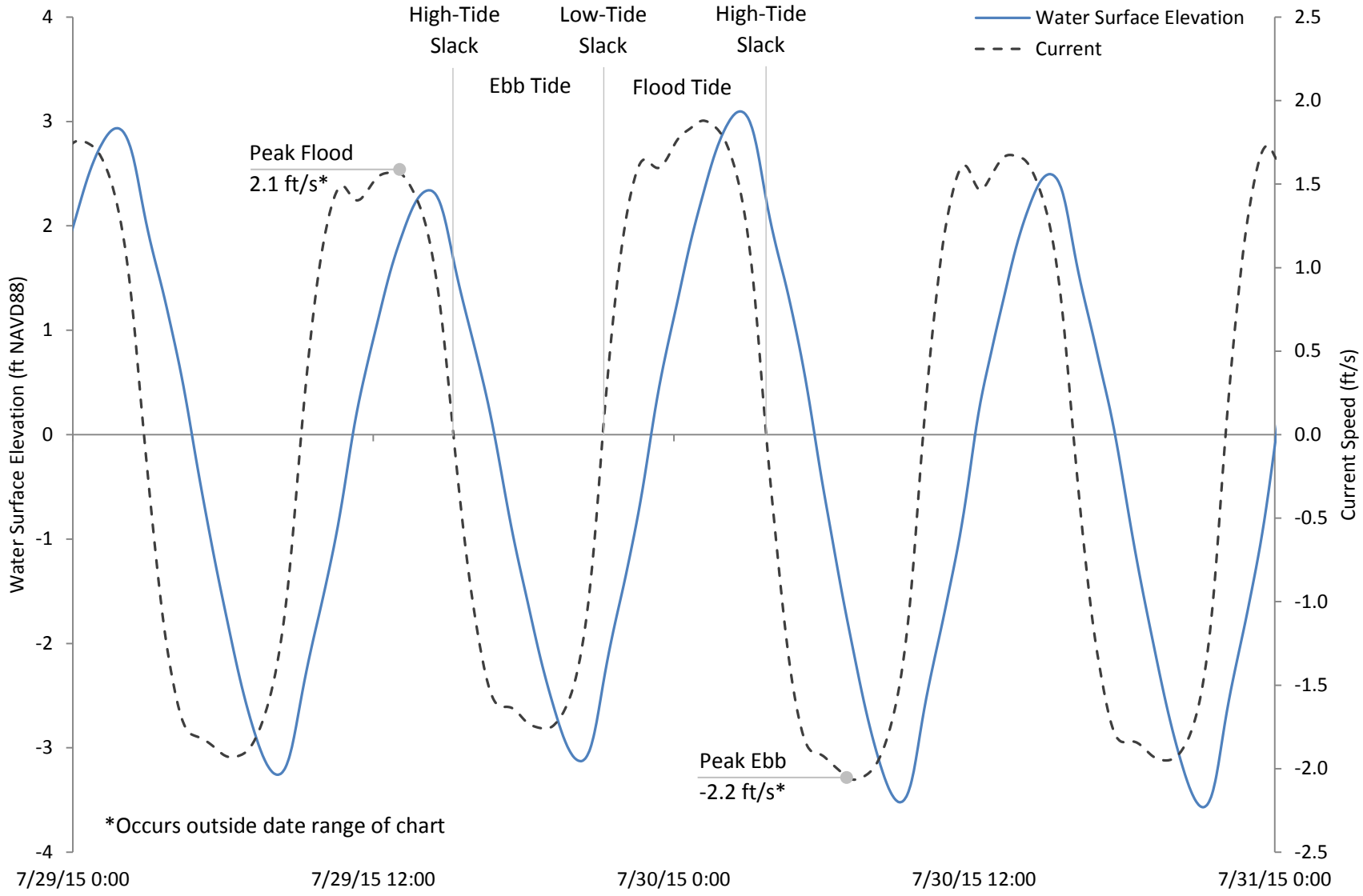


Figure 3. Typical Hydrodynamic Model Tide and Current Cycles

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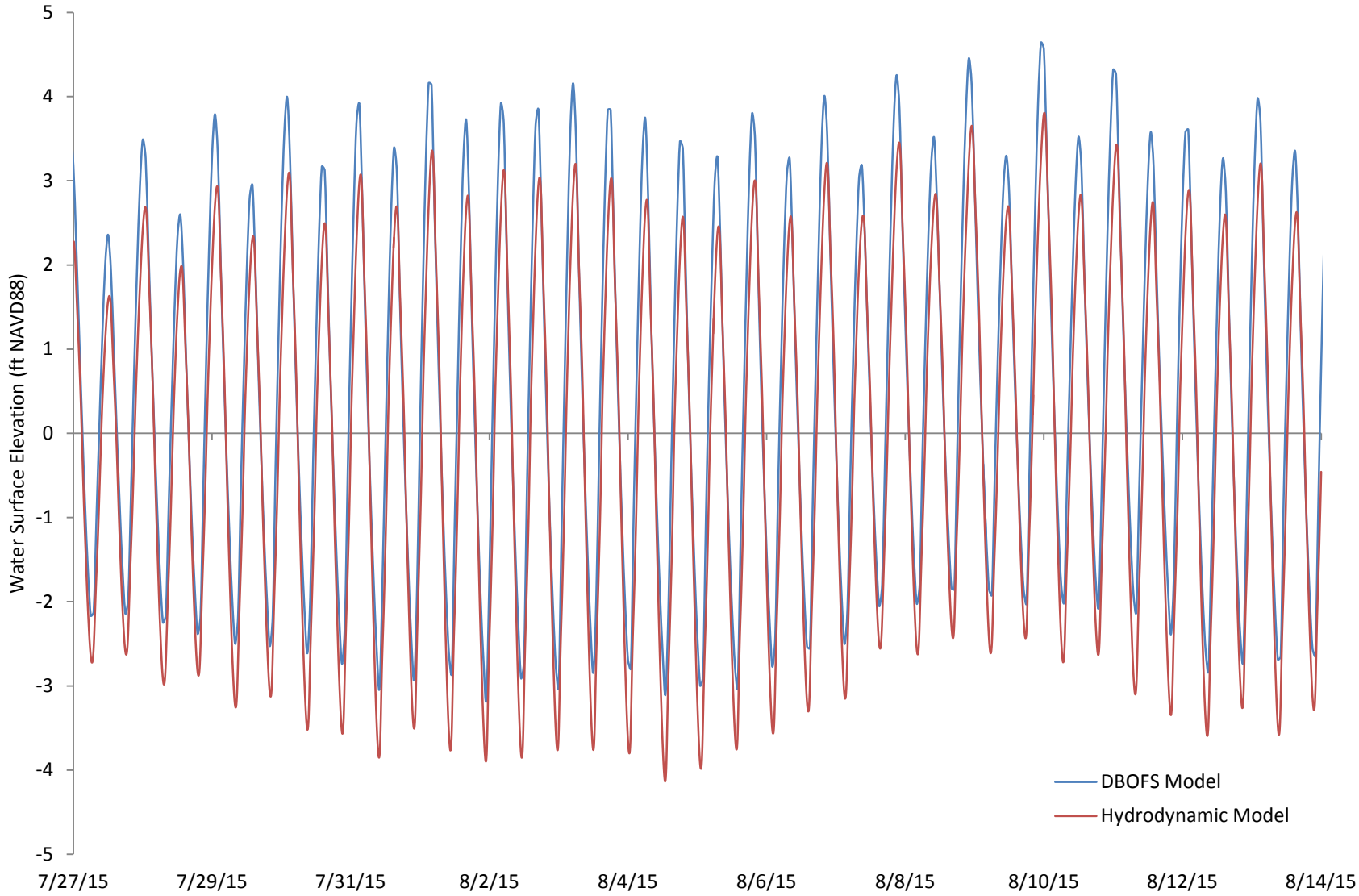


Figure 4. DBOFS Model and Hydrodynamic Model Water Level Time Series

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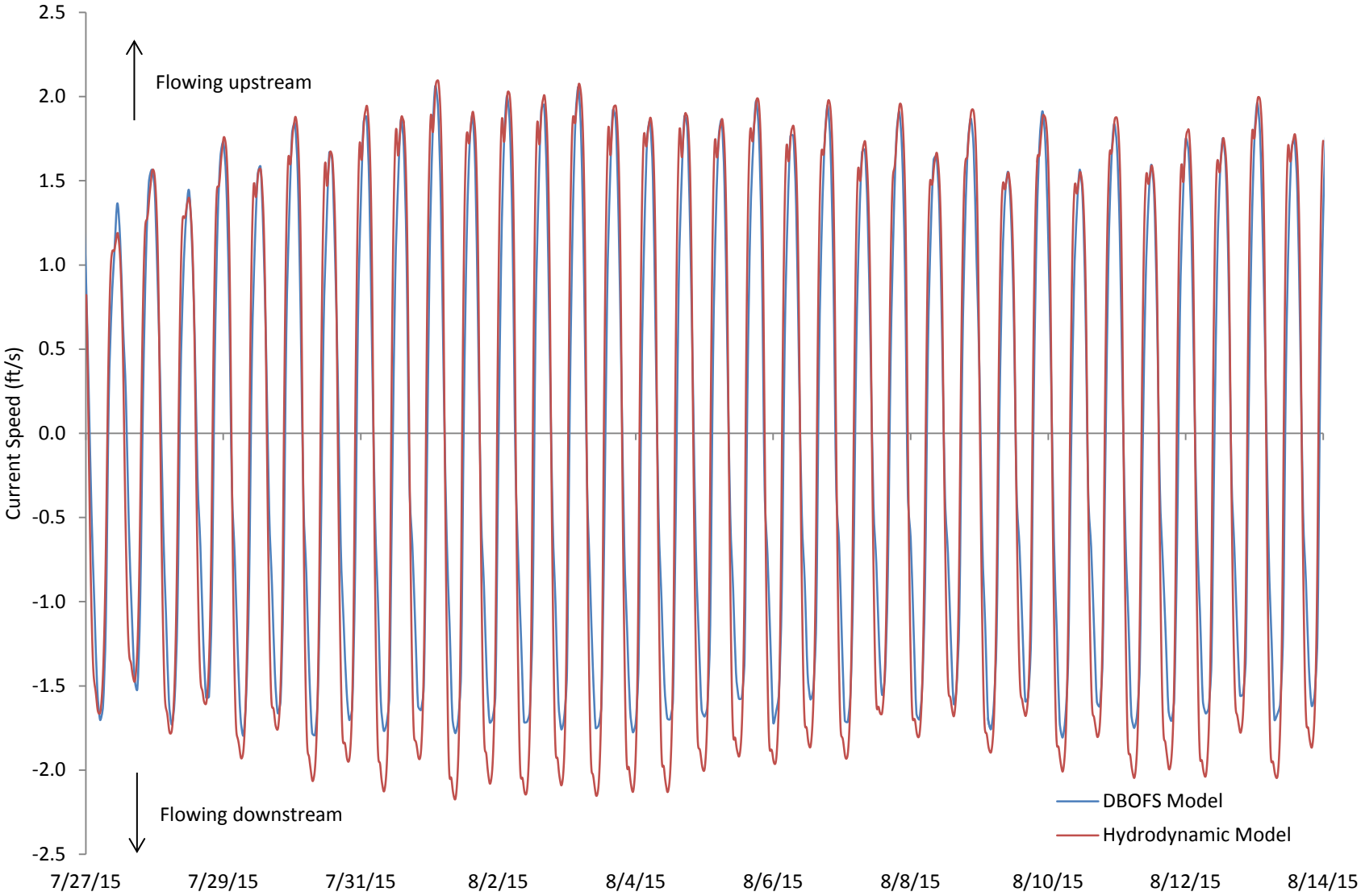


Figure 5. Hydrodynamic Model and DBOFS Model Current Speeds

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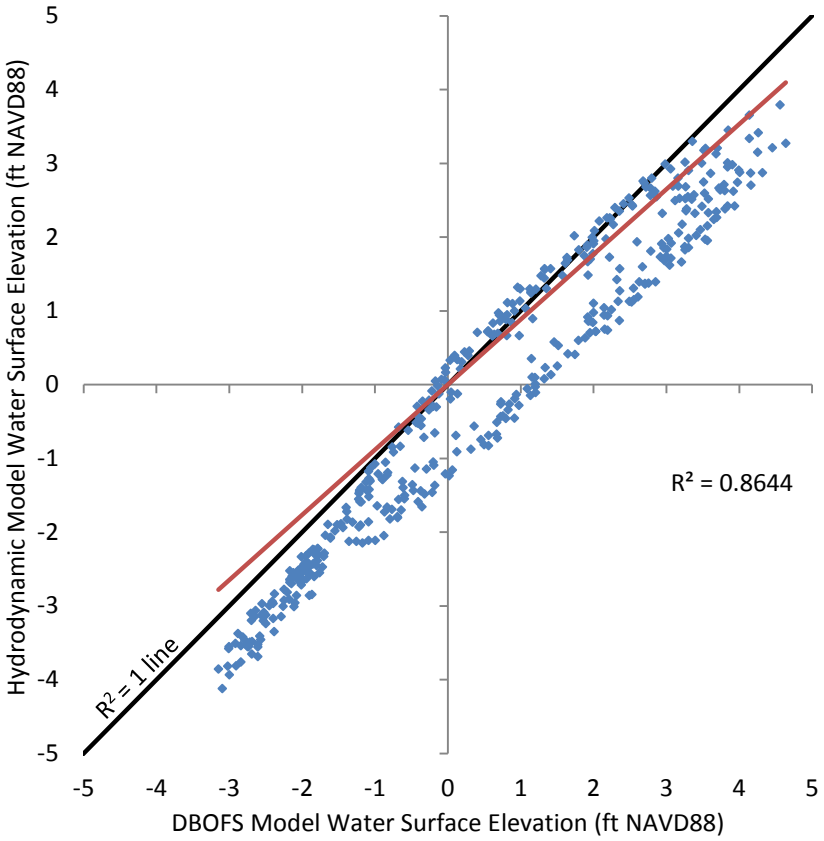


Figure 6. Direct Comparison Hydrodynamic Model and DBOFS Model Water Levels

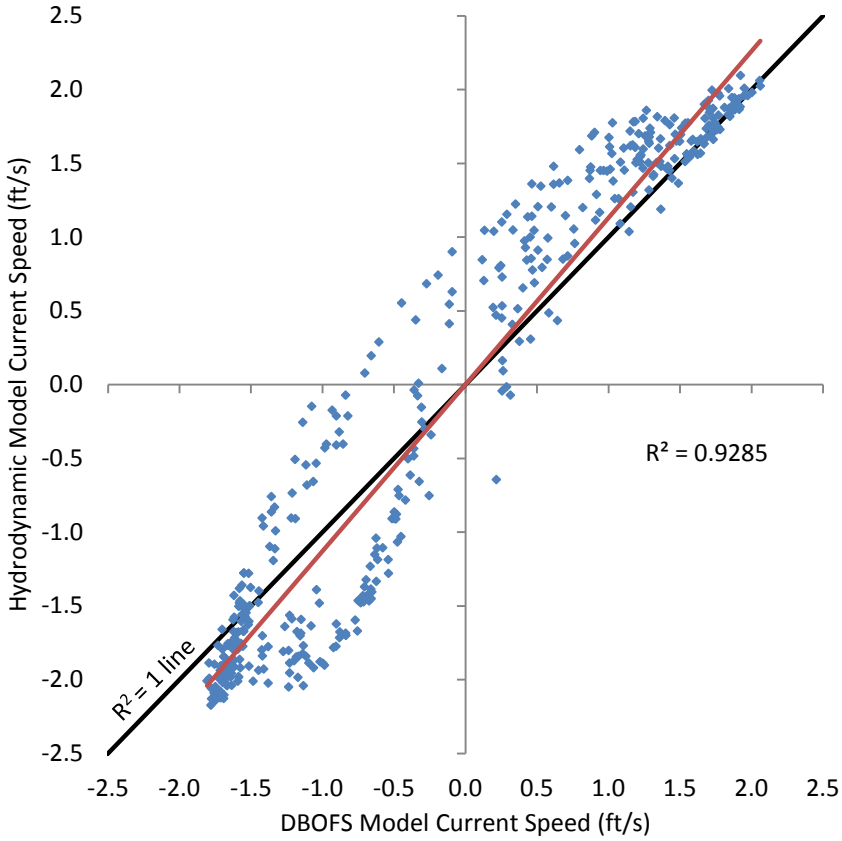


Figure 7. Direct Comparison Hydrodynamic Model and DBOFS Model Current Speeds

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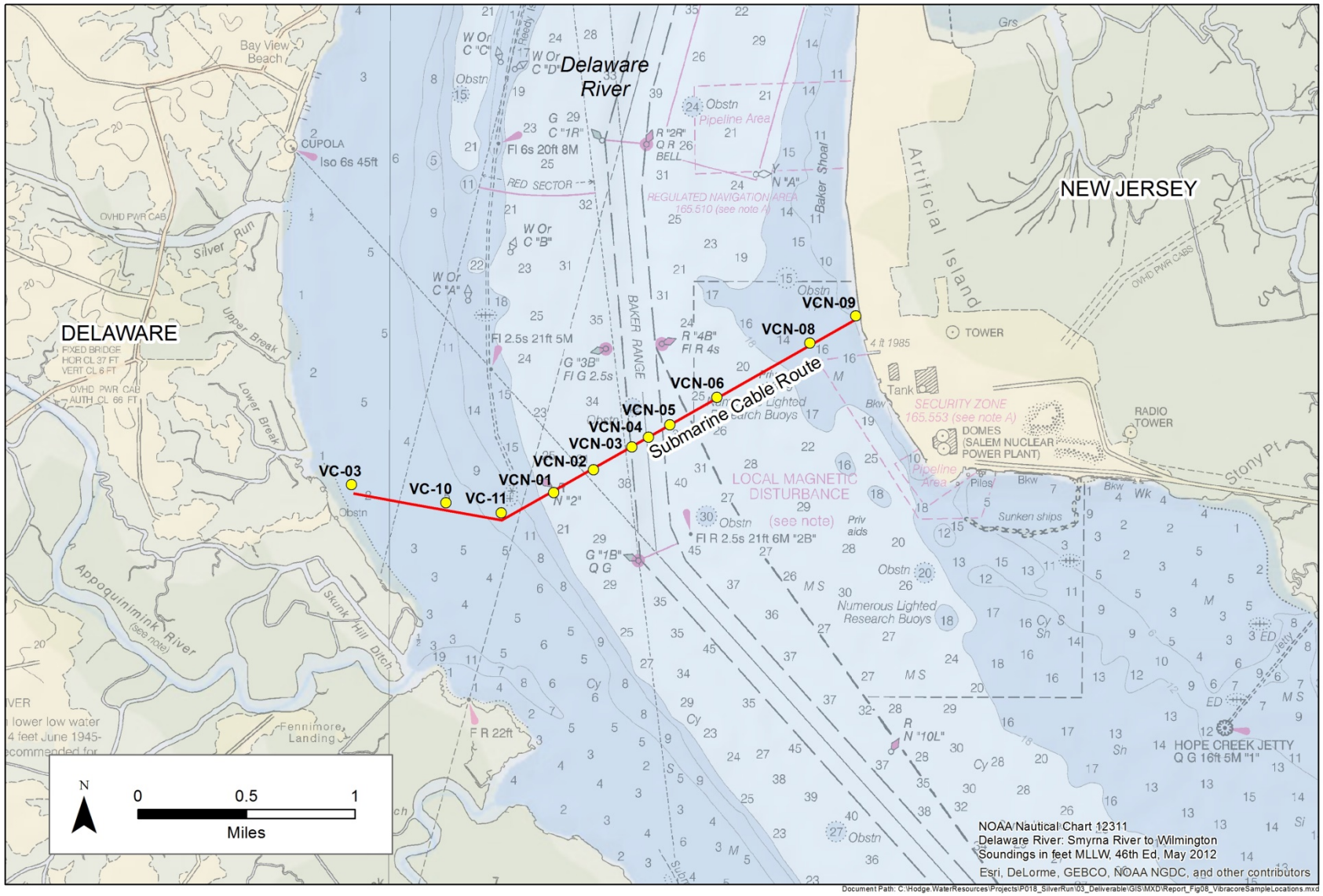


Figure 8. Vibracore Sample Locations

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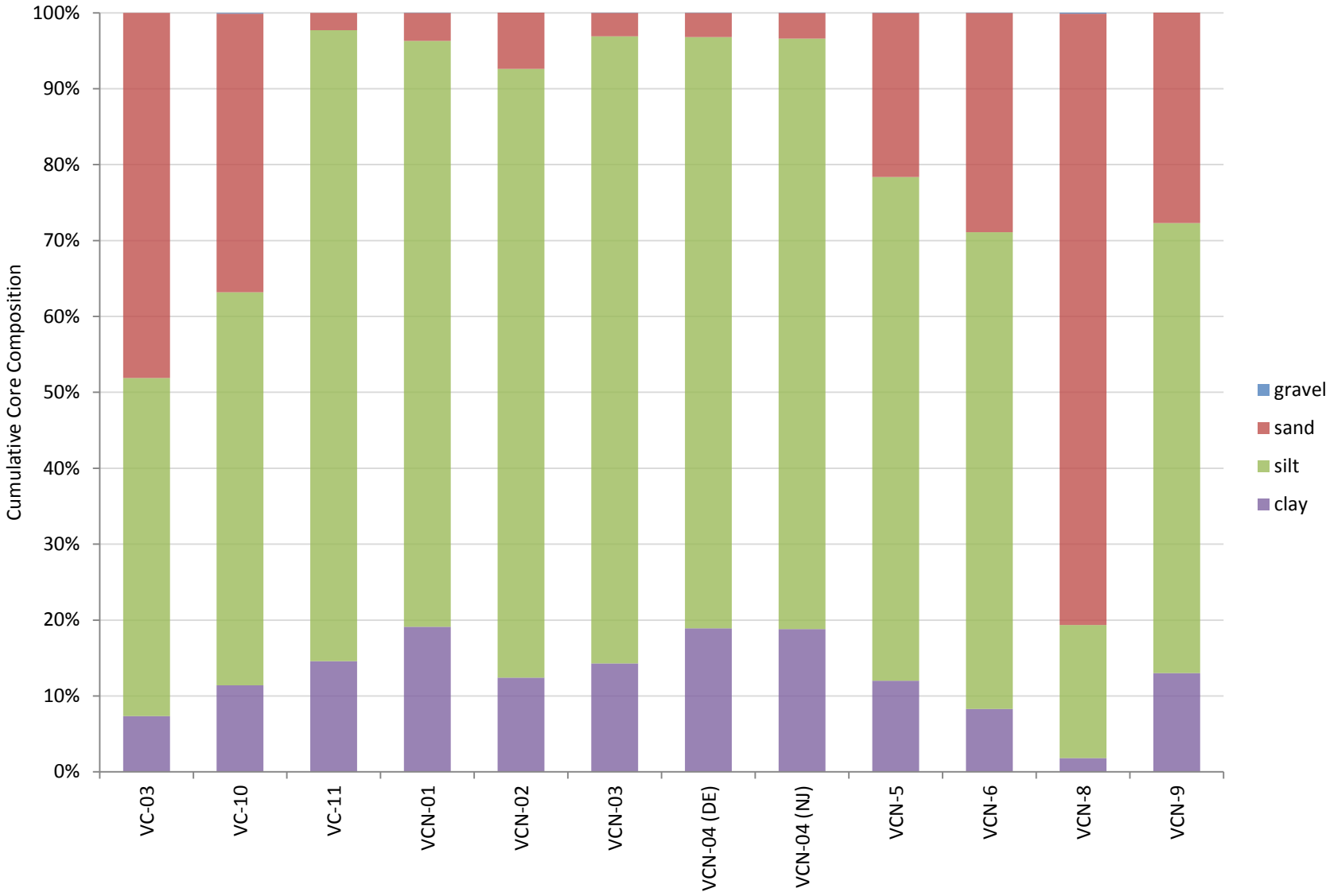


Figure 9. Vibracore Sample Sediment Type Characterization

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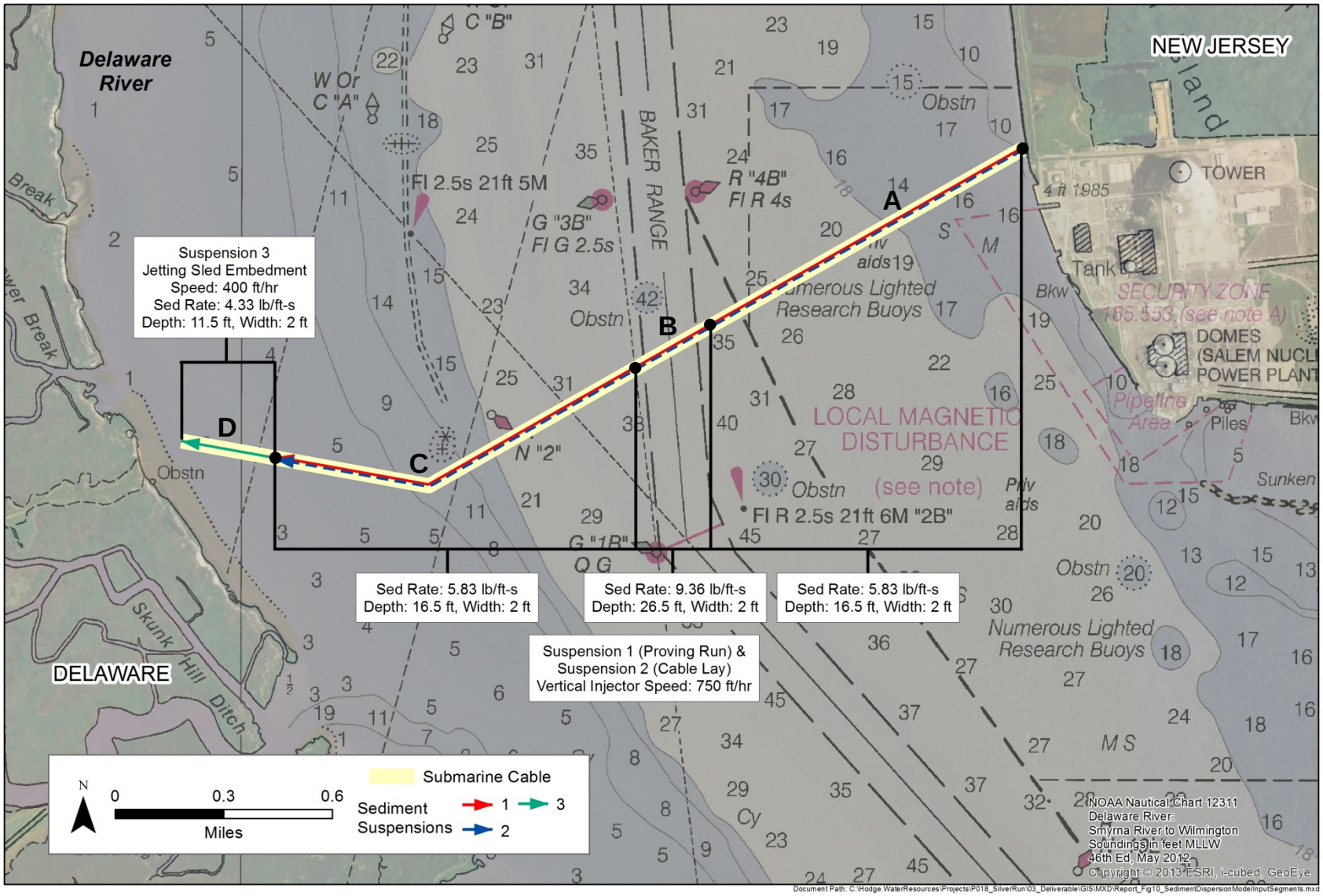


Figure 10. Sediment Dispersion Model Input Segments

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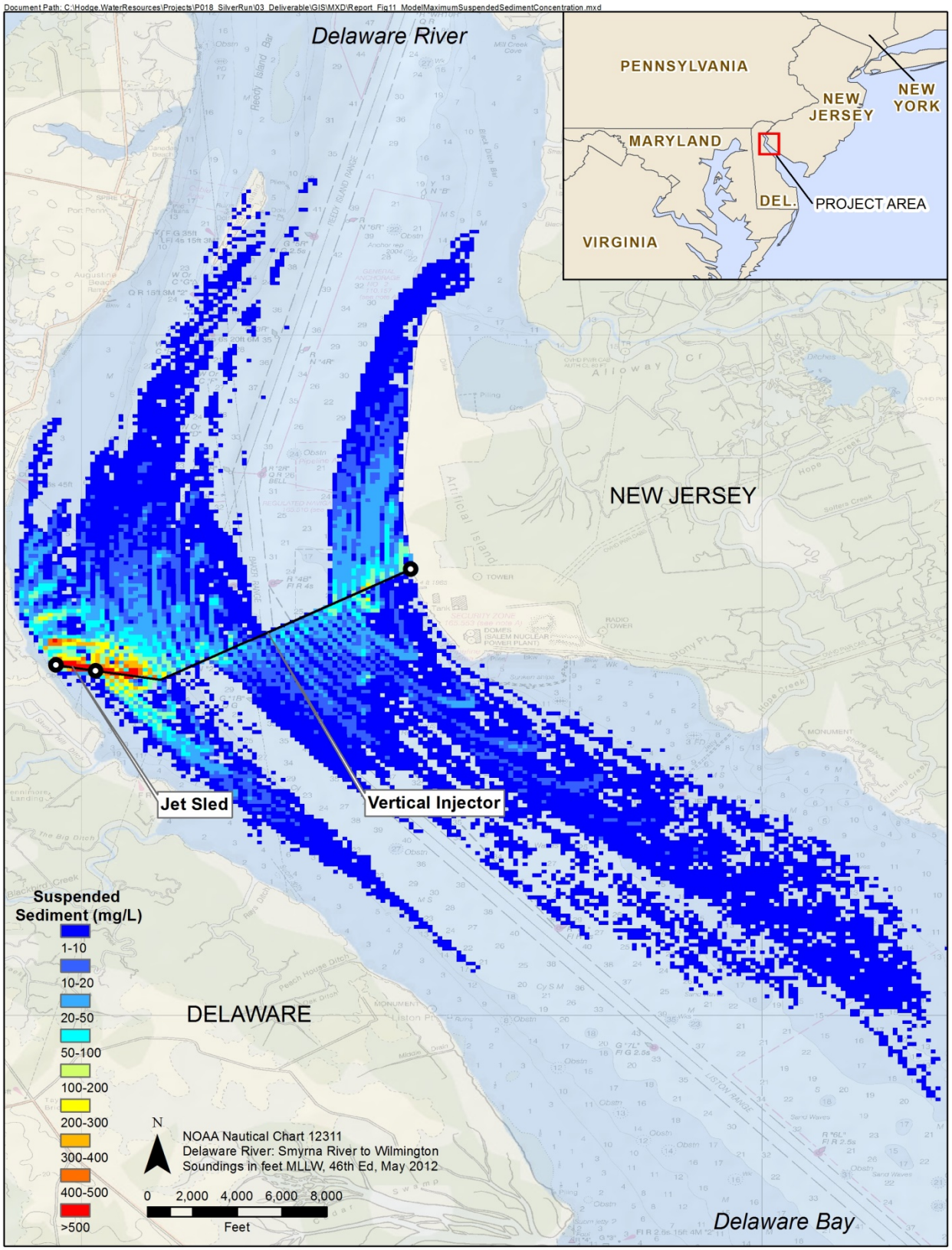


Figure 11. Model Maximum Suspended Sediment Concentrations

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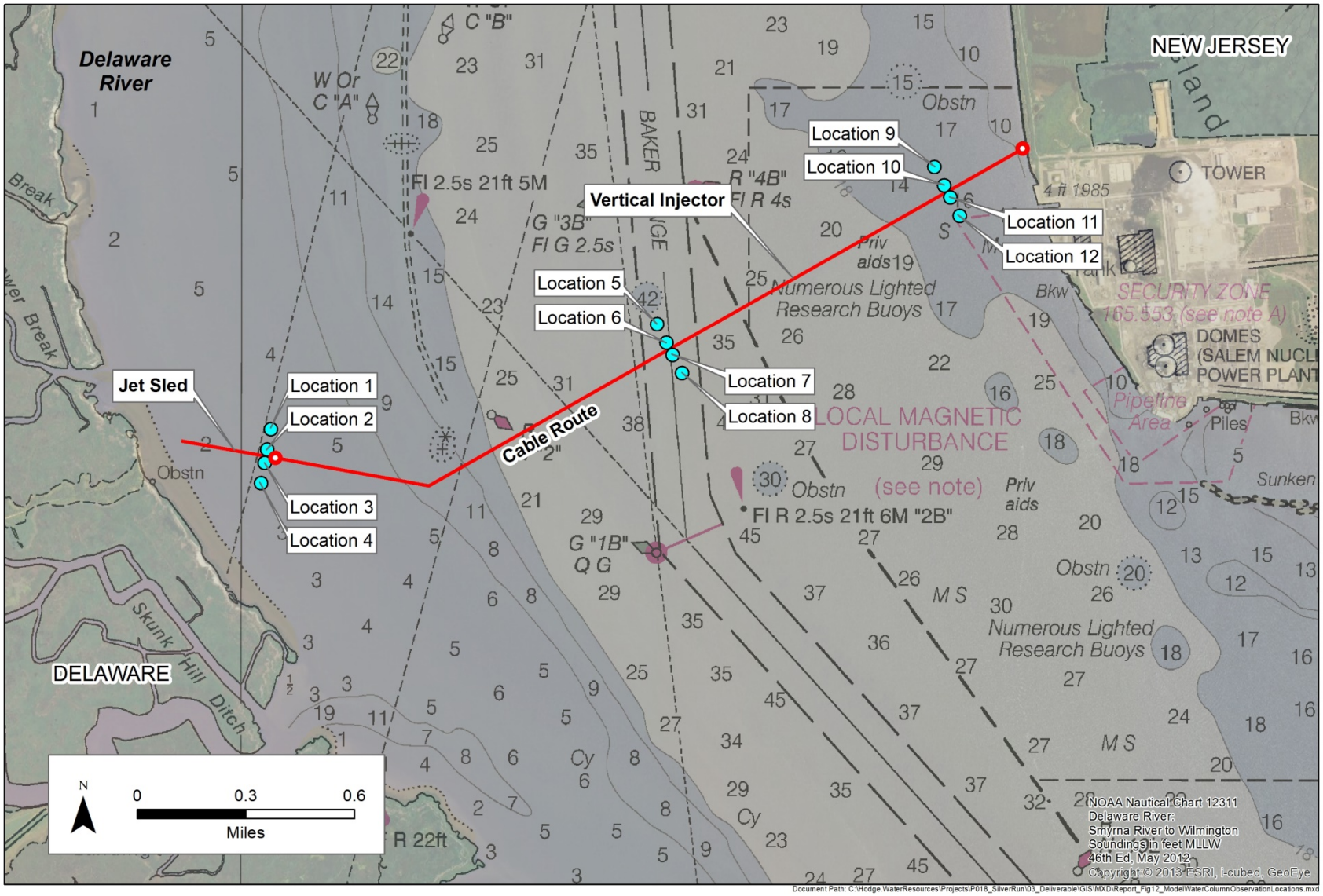
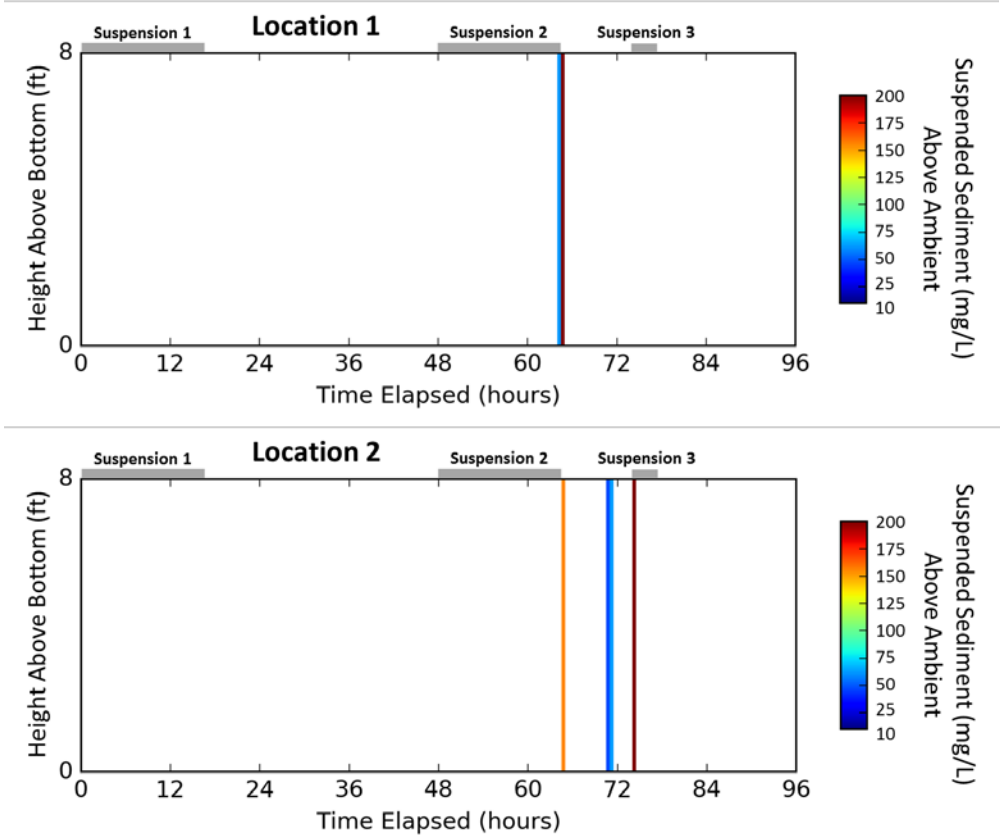


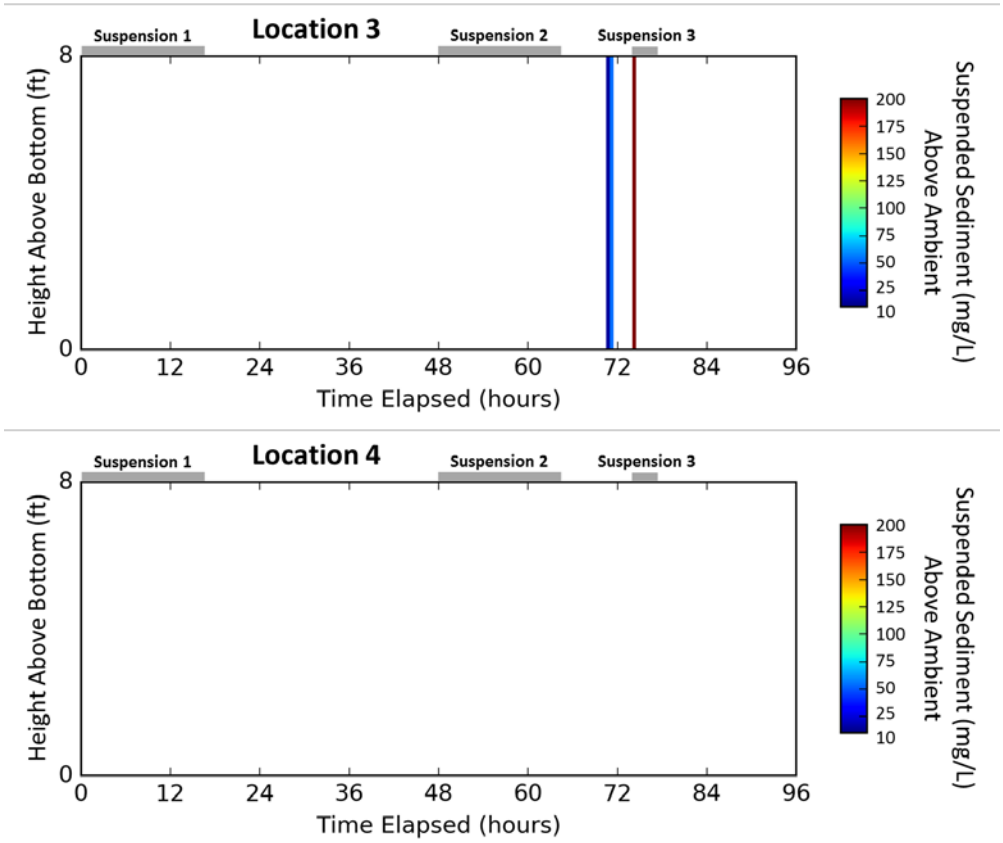
Figure 12. Model Water Column Observation Locations

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Figure 13. Water Column Observation Locations 1–4 (Western)

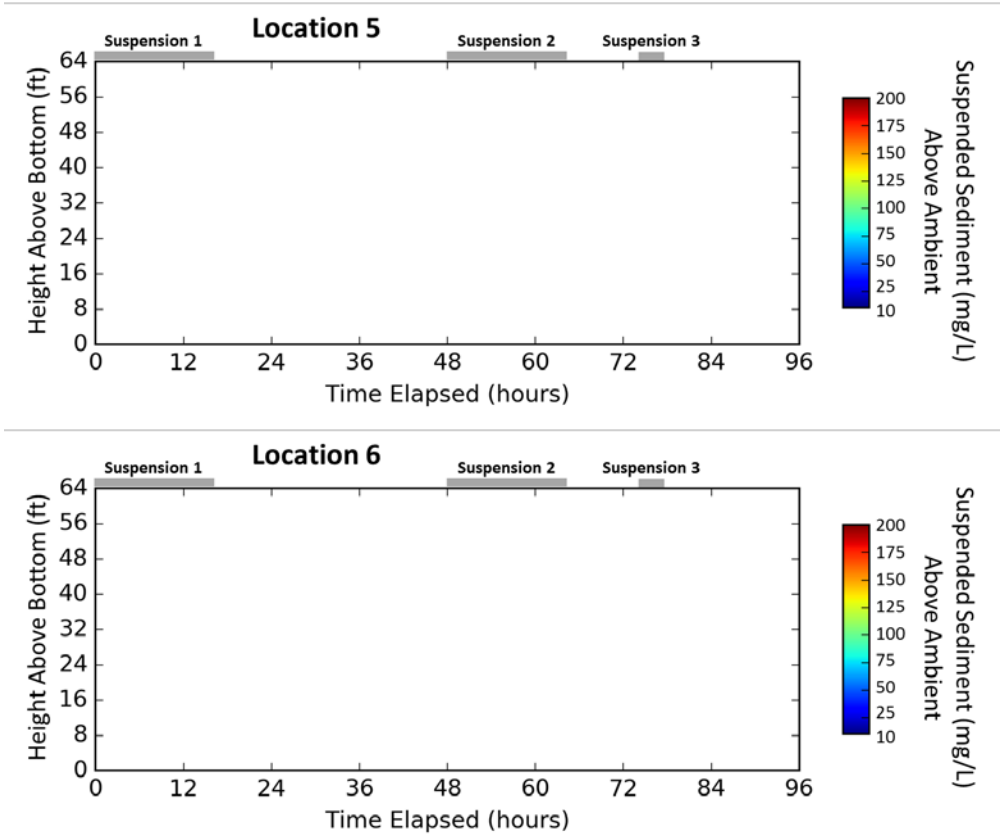


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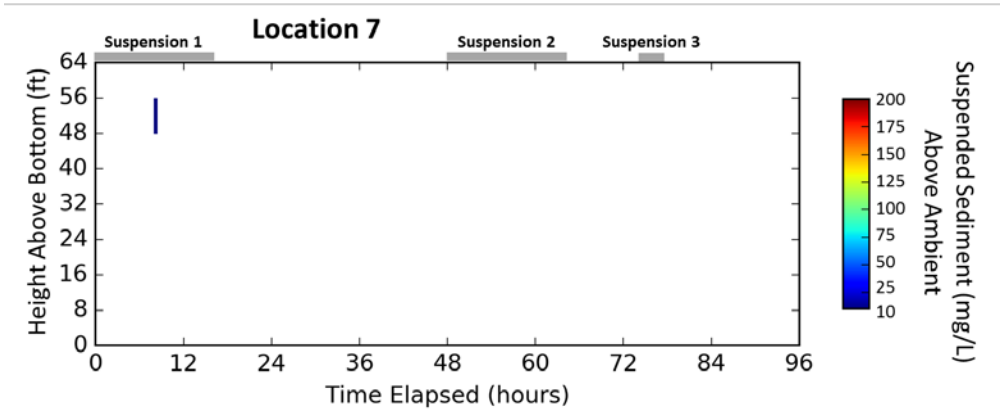


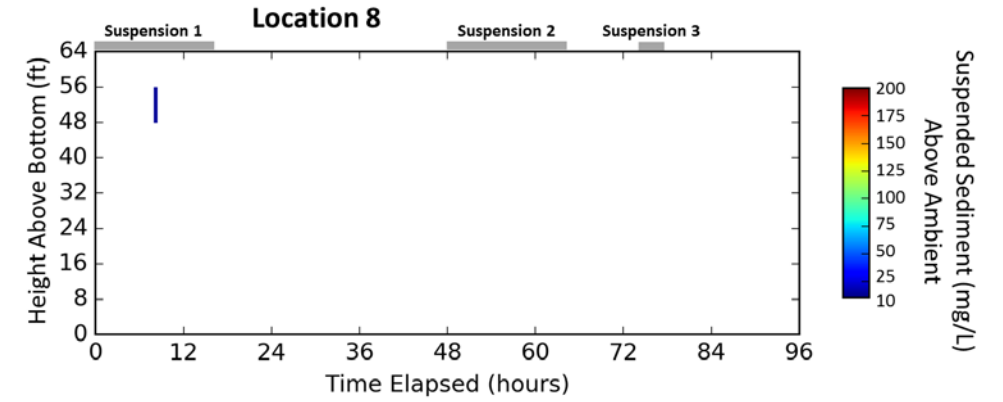
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Figure 14. Water Column Observation Locations 5–8 (Central)



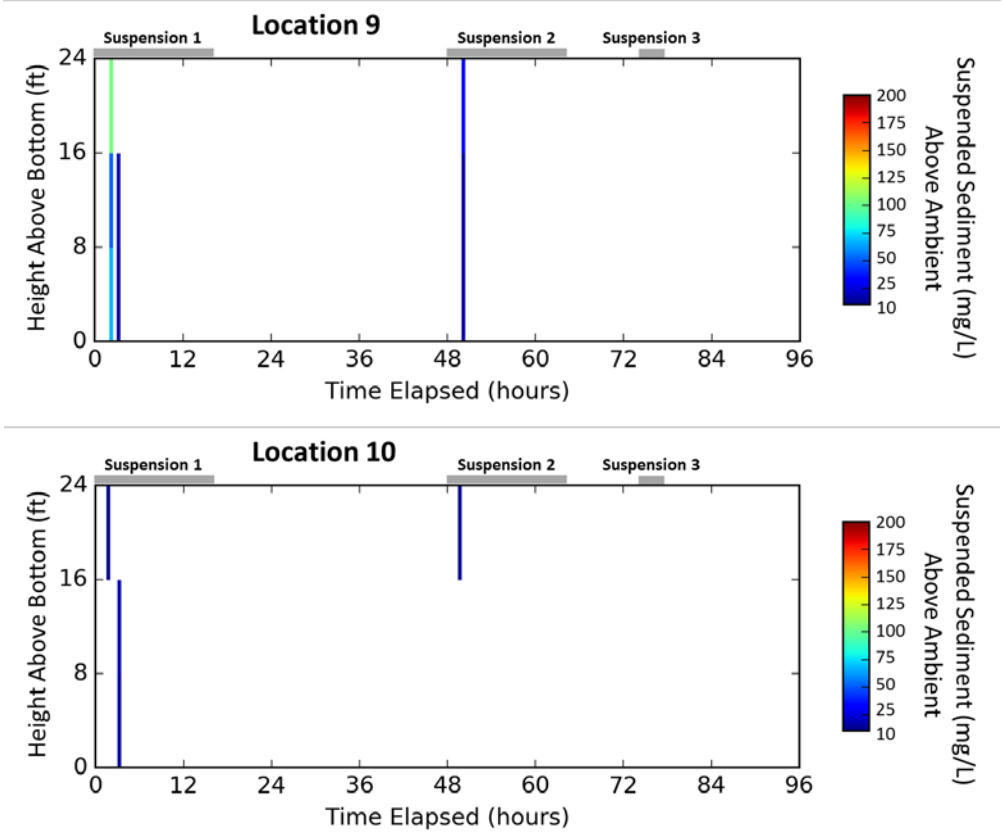
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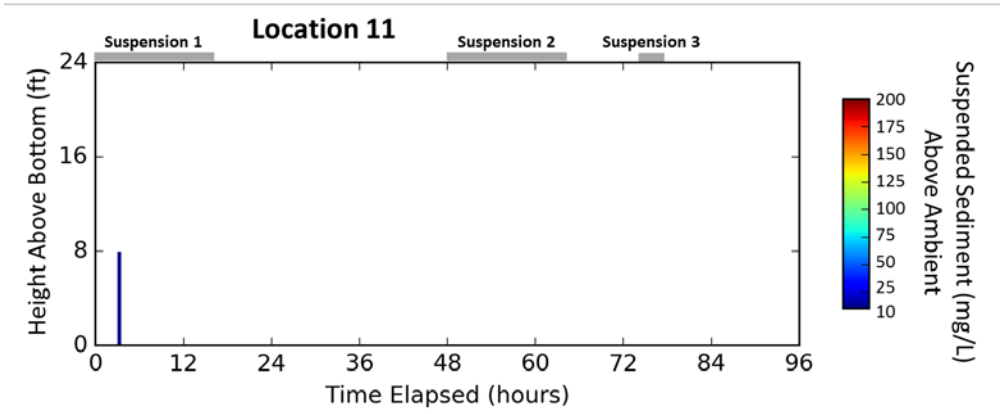


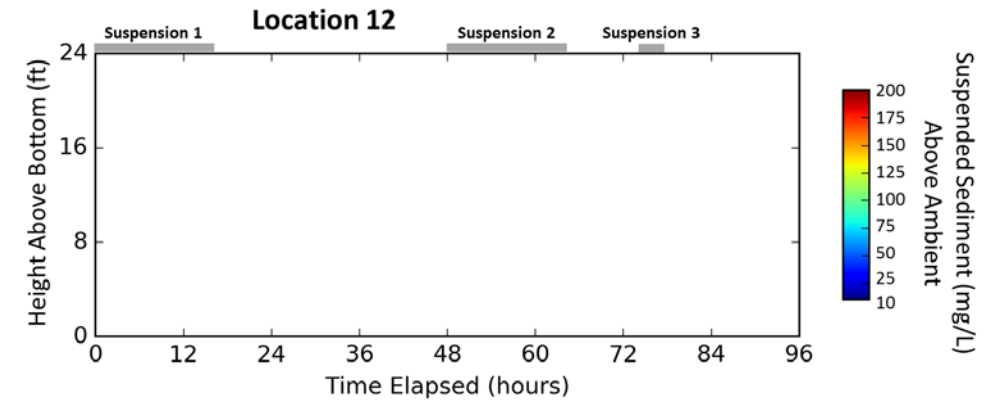
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Figure 15. Water Column Observation Locations 9–12 (Eastern)



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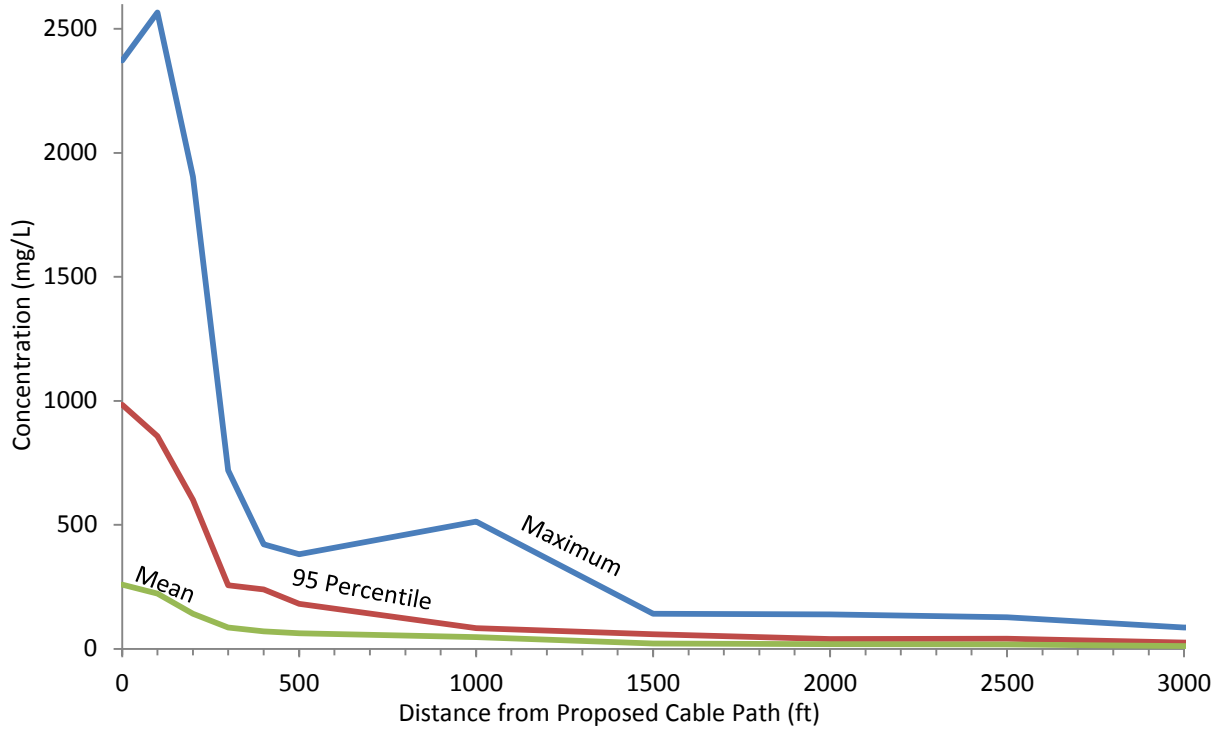


Figure 16. Predicted Suspended Sediment Concentration with Distance from Cable Route

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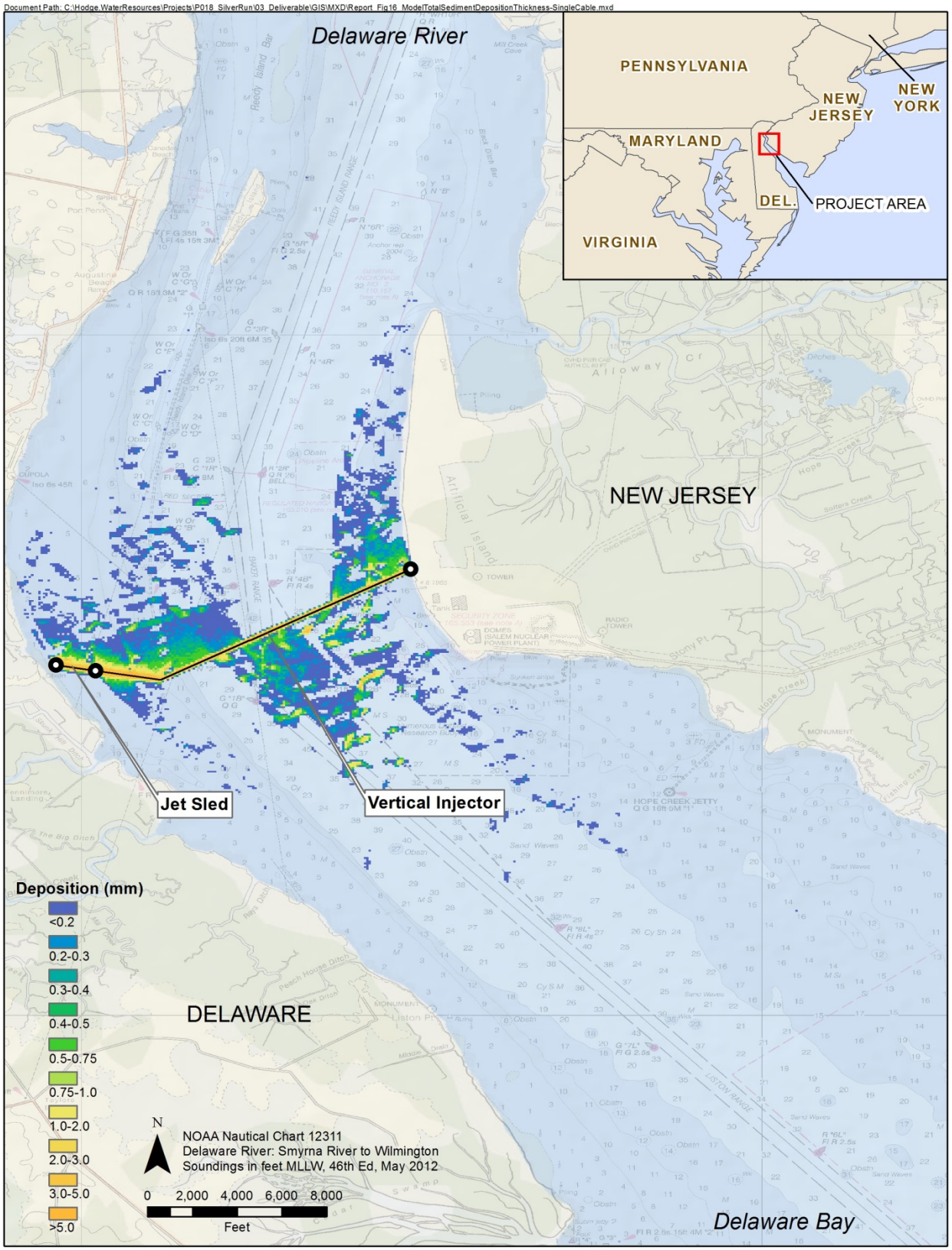


Figure 17. Model Predicted Total Sediment Deposition Thickness—Single Cable

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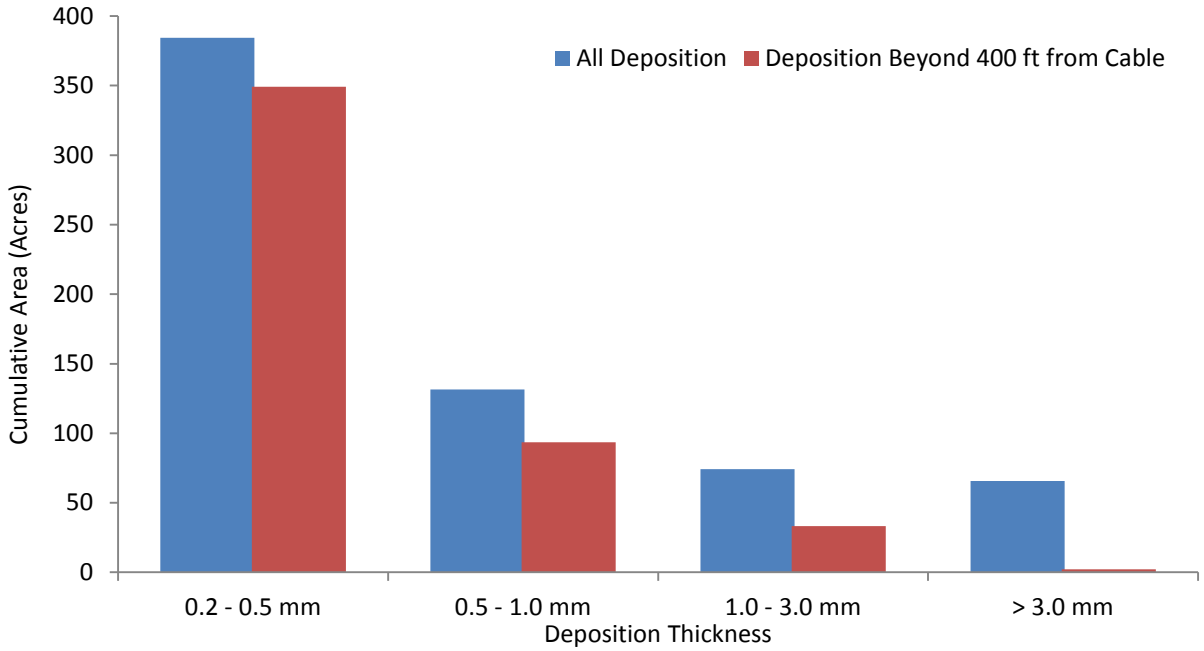


Figure 18. Single-Cable Predicted Sediment Deposition Thickness Histogram

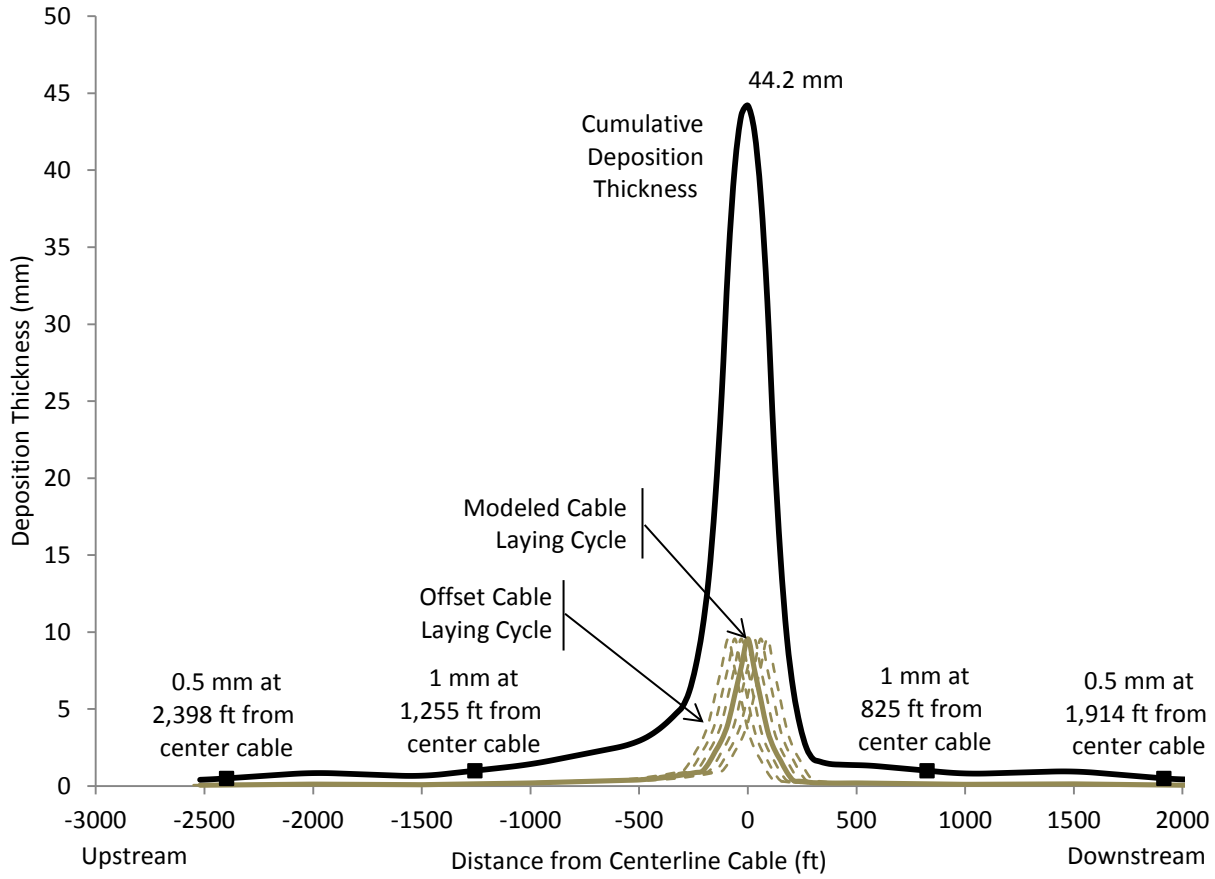


Figure 19. Seven Cables—Total Predicted Sediment Deposition Thickness

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Appendix A

Memorandum: *In-situ* Sediment Moisture Content Sampling

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M E M O R A N D U M

TO:	Matt Hodge	DATE:	April 1, 2016
FROM:	Andy Fallon	ESS PROJECT NO.:	S466-001.01
SUBJECT:	In situ sediment moisture content sampling		
PROJECT:	Silver Run Electric, LLC		

Overview

During the geotechnical survey for the Silver Run Project on the lower Delaware River sediment samples were taken to get an estimate of the moisture content of the sediment. The purpose of these samples was to provide Hodge Water Resources with information to aid in the creation of an accurate sediment transport model of the lower Delaware River.

Sampling Procedure

Upon the splitting of the vibracore samples, one representative sample was taken from five different cores for a total of five samples. Each sample was taken as a mixture of one lithology from a depth range of 2-10 ft below the sediment-water interface. This method was taken to ensure a representative sample at depths that would be encountered during cable installation. The sample was extracted from the inside of the core liner with a metal spoon and mixed in a cleaned bowl to homogenize the sample. The samples were then placed in pre-weighed jars and weighed to get the sample wet weight. Each sample air dried for a minimum of 24 hours before being weighed a second time. The two sample weights were then used to calculate percent water content using Equation 1 below.

Equation 1: $[1 - (weight_{dry} / weight_{wet})] * 100$

Results

Sample ID	Wet weight (g)	Dry weight (g)	%Water	Lithology description
1	962	653	32.1	Clay
2	1003	665	33.7	Clay
3	987	646	34.5	Clay w/ trace silt
4	996	635	36.2	Clay w/ trace silt
5	990	683	31.0	Silt and Clay mix

If you have any specific questions please let me know.

-Andy Fallon

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ATTACHMENT H

ATTACHMENT H
DECOMMISSIONING PLAN
SILVER RUN PROJECT
DELAWARE RIVER, NEW CASTLE COUNTY, DELAWARE

1.0 Introduction

This document presents the Decommissioning Plan ("Plan") for certain components of the Silver Run Electric ("SRE") transmission project ("Project") located within the Delaware River, New Castle County, State of Delaware (i.e., Delaware state waters). This Plan has been prepared in support of the permit application for the proposed expansion of the Project submitted by SRE to the Delaware Department of Natural Resources and Environmental Control ("DNREC"), Division of Water, Wetlands and Waterways Section. The Project components addressed in this Decommissioning Plan include segments of seven (7) existing submarine electric transmission cables, an existing in-river transition structure facility to be modified, and four (4) proposed submarine electric transmission cables located in Delaware state waters ("Project components"). The proposed modification to the in-river transition structure facility and the four (4) proposed submarine electric transmission cables are part of the proposed Silver Run Expansion Project (the subject of the pending DNREC permit application). These Project components are located at approximately River Mile 51.5.

As requested by the DNREC, Wetlands and Waterways Section, this Plan details SRE's anticipated procedures and the funding source for decommissioning of the Project components at the end of the Project's useful life, should decommissioning be required. The Plan is based on the existing conditions within this portion of the Delaware River. Should conditions change, alternative decommissioning activities may be proposed.

SRE anticipates that transmission circuits linking the existing Silver Run Substation in Delaware and the PSEG Nuclear Hope Creek Substation in New Jersey will continue to be needed for the reliability and efficiency of the PJM Interconnection, LLC ("PJM") electrical grid on a permanent basis, with no need for future decommissioning. However, decommissioning activities, should they eventually be necessary, would begin after the useful life of the Project has elapsed, assumed to be at least 40 to 50 years after commencement of operation.

2.0 Decommissioning Procedures

At decommissioning, SRE plans to implement the decommissioning procedures described in the following subsections. SRE would notify DNREC and obtain any required approvals from DNREC and other applicable agencies prior to commencing regulated decommissioning activities. Decommissioning activities are expected to be completed within a 120-day period, and SRE would abide by all applicable avoidance, minimization, and mitigation measures required for environmental resource protection (e.g., time-of-year restriction for in-water activities). All materials removed from the SRE facilities would be recycled to the greatest extent practicable. For any decommissioned materials requiring disposal, the materials would be transported and disposed of in accordance with applicable regulations.

2.1 In-Water Transition Structure

At decommissioning, the in-water transition structure would be decommissioned using barge-mounted equipment similar to that used for installation. The overhead cables would

be disconnected and disposed of or recycled at a licensed facility. The aboveground structures (i.e., steel structure, overhead electrical buswork, etc.) would be disassembled, removed, and disposed of or recycled. The supporting steel piles with concrete plugs would be vibrated/pulled out of the riverbed via crane or cut at or just below the mudline and left in place if it is not feasible to remove them in their entirety. The area above each cut pile would be allowed to backfill naturally by current-driven sediment dynamics.

2.2 Submarine Cables

For the majority of the submarine cable route, the burial depth is between 15 feet and 25 feet below the riverbed. At these depths, it is anticipated that environmental impacts of removing the cables via the available techniques such as mass flow excavators or dredging would greatly outweigh any benefits of removal since the presence of the decommissioned submarine cables far beneath the riverbed is not anticipated to impact the environment or maritime activities. Therefore, SRE plans to only remove the segments of the submarine cables in proximity to the in-river transition structure (DE-15), as explained below.

SRE would plan to remove all segments of the submarine cables where the burial depth is sufficiently shallow such that anchors from the heaviest vessels operating in the area after Project decommissioning might contact the cables beneath the riverbed, i.e., within approximately 120 feet of DE-15 where the original seven (7) cables have been covered with articulating concrete mats. Vessels and equipment used for cable removal would be similar to the equipment spread used for construction and decommissioning DE-15, such as spud barges, tugs, cranes, and crew vessels. Removal of the embedded submarine cables would begin with removal of the concrete mats via crane for recycling or disposal. The cable segments to be removed would be cut from the remaining cable segments. Cable removal in the shallow burial area would be expected to incorporate diver-assisted jet lances or minor excavation to allow for cable recovery. Once removed from the river, cable segments would be placed on a barge or other vessel before being transported to shore for disposal or recycling.

Along cable segments that can be successfully removed without using excavation, any furrow that may remain would be allowed to backfill naturally by current-driven sediment dynamics. Along any cable segments that require mechanical excavation for removal, the native sediment would be replaced in the excavation to restore riverbed contours to pre-removal conditions.

3.0 Funding for Decommissioning Activities

SRE is a regulated public utility company that receives revenue through PJM, with oversight by the Federal Energy Regulatory Commission (“FERC”). As with other fixed assets, an allowance for depreciation of SRE infrastructure incorporates a component for the expected cost of plant removal (also known as “negative salvage”). SRE’s annual revenue requirement (ARR), calculated through a formula rate on file at FERC and collected from transmission customers through PJM rates, includes these costs of removal as a component of yearly depreciation expense and accumulated depreciation over the depreciable life of the asset. To ensure that depreciation rates appropriately reflect the underlying characteristics, including the removal costs, of its fixed assets over time, SRE has committed to submit its depreciation rates to FERC for review every five years. This mechanism ensures that revenues collected by SRE will provide for

the future costs of infrastructure removal (“decommissioning”) at the end of the useful life of such infrastructure. Therefore, the State of Delaware government would not be responsible for funding the decommissioning of the Project, if decommissioning is required at the end of the useful life of the Project.

ATTACHMENT I

ATTACHMENT I
EMERGENCY PREPAREDNESS AND RESPONSE PLAN
SILVER RUN EXPANSION PROJECT

1.0 Introduction

This document presents the Emergency Preparedness and Response Plan for the components of the Silver Run Expansion Project ("Project") located in Delaware state waters (i.e., the Delaware River). This Plan has been prepared in support of the permit application for the Project submitted by Silver Run Electric, LLC ("SRE", an affiliate of LS Power) to the Delaware Department of Natural Resources and Environmental Control ("DNREC"), Division of Water, Wetlands and Waterways Section. The Project will add four submarine cables to the existing Silver Run Line, a 230 kV alternating current (AC) electric transmission line between SRE's existing 230 kV Silver Run substation located east of Odessa, Delaware and PSEG's Hope Creek substation in Lower Alloways Creek Township, New Jersey. The existing and proposed submarine cables cross the Baker Reach of the Delaware River Federal Navigation Channel at approximately River Mile 51.5.

2.0 Key Roles and Responsibilities

2.1 Construction

The following Project personnel will serve as key members of the Emergency Response Team during the construction phase. SRE's Emergency Response Team will serve as the first line of notification for Project contractors in the event of emergencies and other urgent situations.

Title	Company	Role
Health, Safety & Environmental Manager	SRE	Owner/Operator
Director of Asset Management	SRE	Owner/Operator
Project Director	SRE	Owner/Operator
Director of Field Services	SRE	Owner/Operator
Director of Transmission System Operations	SRE	Owner/Operator
Safety Director	To be determined	Construction Contractor
Director of Field Operations	To be determined	Construction Contractor
Construction Manager	To be determined	Construction Contractor
Senior Project Manager	To be determined	Construction Contractor

Installation contractors working on the Project will be required to provide SRE with project-specific Health and Safety Plans. SRE will require that its installation contractors ensure that the appropriate lines of communications are established with local hospitals, government agencies, and other emergency response organizations prior to site activities.

2.2 Operations

SRE owns and operates the existing Silver Run Line and will own and operate the proposed expansion infrastructure. SRE's team of operations, engineering, and maintenance staff work around-the-clock (24 hours/day, 7 days/week) to ensure the reliable and secure operation of SRE's transmission facilities using the latest advancements in equipment and energy management systems. The facilities from which the Silver Run Line are operated are fully redundant control centers certified by the North American Electric Reliability Corporation

("NERC") and are staffed and equipped to enable continuous, high-functioning operations during periods of prolonged emergency conditions. The SRE control center is operated by a team with decades of experience in operations, control, and management of the bulk electric system, including specific experience operating the transmission system in the PJM region, and others. In addition to the control centers, SRE maintains a field office at 1070 Industrial Drive, Middletown, Delaware, within a driving distance of approximately 20 minutes from the Delaware River shoreline near the existing in-river transition structure (DE-15).

For operations and maintenance, LS Power (parent company of SRE) maintains an Emergency Management Task Force ("EMTF") comprised of the following key personnel from various departments, including Field Services, System Operations, Operations Technology, and others.

2.2.1 Emergency Response Commander (ERC)

The ERC, possessing authority to act on behalf of SRE, has overall responsibility for managing and directing the implementation of the emergency response plan and emergency operations. The Director of Field Services will act as the ERC; if the Director of Field Services is unavailable, then the Asset Manager will act as the ERC.

2.2.2 Operations Manager

The Operations Manager notifies field personnel to assess and review the field conditions, then the Operations Manager assists the Director of Field Services in assigning the Emergency Scenario level (see Section 5.2.1 of this report).

2.2.3 Transmission System Operator (TSO)

The TSO is a NERC-certified and -authorized position that is authorized to perform all actions of the transmission system operator.

2.2.4 Director of Field Services

The Director of Field Services determines the Emergency Scenario level (see Section 5.2.1 of this report) and acts as the ERC.

2.2.5 Material Manager

The Material Manager locates spare parts, materials, and equipment that will be required to address the situation. The Material Manager also contacts vendors, LS Power affiliate companies, as well as industry partners for long-lead equipment. The Material Manager also arranges for delivery of materials to the required locations.

2.2.6 Safety Director

The Safety Director develops and executes the emergency safety plan. They are responsible for proper safety communication within the team and with external stakeholders. This includes ensuring all LS Power and contractor personnel are aware of and adhere to LS Power's safety work practices. The Safety Director also ensures the appropriate agencies are notified of any reportable accidents and/or injuries.

2.2.7 Communications Coordinator

The Communications Coordinator is responsible for coordinating the flow of prompt, accurate information during an emergency.

2.2.8 SRE Engineering Team

The engineering team is responsible for retrieving existing documentation related to any damage and will ensure all designs for new or retrofitted installations comply with applicable standards.

2.2.9 Designated First Responder (DFR)

LS Power's Maintenance Technician is the DFR. The DFR is the first person notified by the Operations Manager in the event of an emergency. The DFR responds to the field to complete the initial damage assessment.

2.2.10 Maintenance Supervisor

The Maintenance Supervisor acts as the crew leader and is responsible for overseeing inspection visits to the Project area.

2.2.11 Assistance Coordinator

The Assistance Coordinator informs the family of crew members involved in emergency situations and ensures that employees and contractors are provided with food and lodging.

2.2.12 Contractors

LS Power maintains Master Service Agreements with a select list of contractors. With a Master Service Agreement in place, the term and conditions, equipment rates, and other commercial terms have been pre-negotiated and agreed to, which allows for prompt engagement and mobilization.

3.0 Resources

Numerous agencies and resources are available in the region to assist in emergency response situations, as discussed in the following sections.

3.1 Federal

3.1.1 United States Coast Guard

The United States Coast Guard ("USCG") is responsible for maritime safety and will be an important resource for any emergency response situations that occur near the Project. The USCG is responsible for aids to navigation, search and rescue operations, oil spill response, vessel inspections, and maritime law enforcement.

USCG Sector Delaware Bay oversees activities within portions of Pennsylvania, New Jersey, and Delaware, including the Delaware River. There is a 24-hour Operations Center, which can be

reached at 215-271-4940. For maritime emergencies, the USCG may also be reached via VHF Channel 16.

3.1.2 National Response Center

The National Response Center is the designated federal point of contact for reporting oil or chemical spills anywhere in the United States. It is operated 24 hours per day by the USCG. The National Response Center can also be contacted to report suspicious activity and security breaches in the maritime environment. To contact the National Response Center, call 800-424-8802.

3.2 State and County Agencies

3.2.1 Delaware Department of Natural Resources and Environmental Control

DNREC's Emergency Response Team ("ERT"), within the Division of Waste and Hazardous Substances, are the designated responders for environmental emergencies in the state. The ERT provides 24/7 response for a variety of situations, including spills in Delaware waters and transportation-related incidents. They can be reached at 800-662-8802.

3.2.2 Delaware Emergency Management Agency (DEMA)

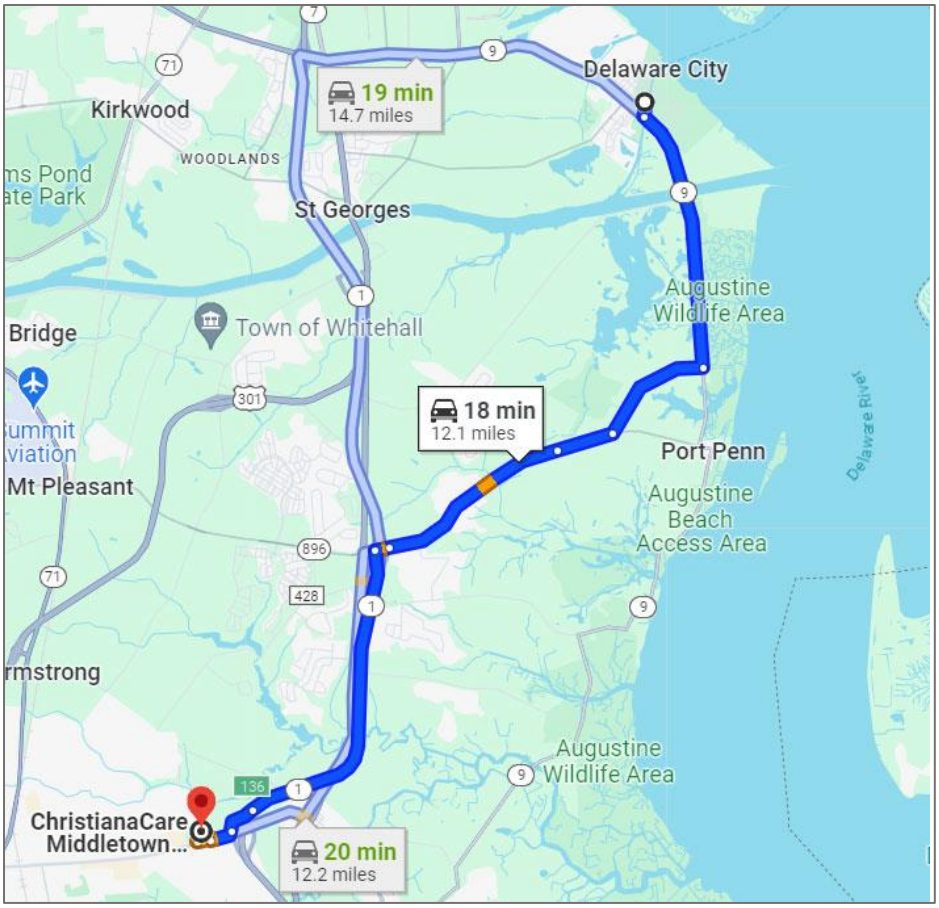
DEMA is the lead state agency for the coordination of emergency response services, including natural hazards, weather-related incidents, and human-related disasters, such as chemical spills and biological hazards. They can be reached at 302-659-3362.

3.2.3 New Castle County Office of Emergency Management (OEM)

The OEM is tasked to prepare the county and public to manage activities before, during, and after the impact of natural and technological disasters. The OEM works to manage emergencies in four main phases: mitigation, preparedness, response, and recovery. They can be reached at 302-573-2800 (non-emergencies) or by dialing 9-1-1 (emergencies).

3.3 Medical Services

In the event of a medical emergency, contact the USCG or dial 9-1-1 as appropriate. The nearest medical center on the Delaware side of the Project is ChristianaCare Middletown Emergency Department. It is located at 621 Middletown Odessa Road, Middletown, DE 19709, shown in the map below.



4.0 Training

Construction contractors will ensure that construction personnel having roles and responsibilities in the event of an emergency receive the appropriate training as per contractual requirements. Workers conducting construction and maintenance activities will be required to study and follow project-specific Health and Safety Plans to be developed by SRE's contractors. The Health and Safety Plans will provide information on potential safety hazards; procedures to be followed in the cases of accidents and emergencies, including lines of communication; and permit conditions, including any resource protection or avoidance measures, applicable to construction activities. Prior to the start of work each day, construction supervisors will hold meetings with construction personnel to identify site-specific and/or activity-specific safety risks and reinforce important health and safety measures.

5.0 Emergency Scenarios

5.1 Construction

The following emergency scenarios could arise during in-water construction:

- Man overboard
- Medical incident

- Collision or allision involving vessel(s)
- Fire
- Extreme weather events
- Oil or gas spill
- Marine debris incident

In all scenarios, SRE would work closely with stakeholders to quickly communicate information and respond safely to protect construction workers, the public, responders, and the environment.

5.2 Operations

SRE routinely takes steps to anticipate and prepare for potential storm-related damage to its transmission infrastructure, including, but not limited to, the following:

- Monitor the system and report any significant changes in the system or in the area's weather conditions and forecasts. This includes use of StormGeo, an advanced storm tracking and forecasting software, to forecast and track thunderstorms, lightning activity, hurricanes, tornados, ice storms, and high winds which could impact operations.

- Communicate with neighboring utilities to determine the extent of damage sustained from adverse weather.

- Check and stage the DFR and additional support, along with generators, trucks, fuel supplies, equipment, and materials.

LS Power maintains a schedule of on-call personnel to respond to outages and service requests that occur after normal business hours. In the event of a major outage, additional personnel may be called in to assist.

5.2.1 Response and Recovery

Proper assessment of the emergency situation must be completed before placing teams into action and declaring a crisis situation. Damage assessment will follow any major storm or natural disaster.

5.2.1.1 Initial Assessment of Damage

It is imperative that an initial assessment of damage is quickly made to ensure an effective and short restoration period. Following the TSO in the control center being alerted of an outage by the Supervisory Control and Data Acquisition ("SCADA") system, the Maintenance Supervisor will determine the anticipated fault location based on the outage information. The Operations Manager will dispatch the DFR to the anticipated fault location to perform an initial assessment of the damage. This initial assessment will provide a general overview as to the extent of damage and will be used to begin to determine the manpower, material, and equipment needed for the case-specific recovery plan. The DFR and additional support will be used to perform this initial assessment.

If the DFR determines that the damage is a hazard to the public during the initial assessment, they will attempt to make the area safe. The DFR should also immediately notify the Operations Manager of any unsafe field conditions so additional resources can be dispatched to standby and guard hazardous conditions until the hazard can be resolved.

In the event of a severe natural disaster, it may be necessary to survey from the air. Surveying areas of large damage, remote locations, or impassable roads often necessitates the use of helicopter. The DFR, Maintenance Supervisor, a contractor representative, and an engineering team member may be included in this flight inspection.

From the air, access maps can be confirmed accurate, the contractor's representative can begin to formulate the required manpower and equipment, and the engineering team can begin to photo-document property damage, structure damage, and access routes. Their findings would include the following, among other information:

- The nature of the emergency situation;
- Number of circuits involved and any critical circuits;
- Number of structures down;
- Extent of any substation damage including any transformers, switches, buses, communications, etc.;
- Note any exceptional problems related to the damage or access to the damages area such as large fallen trees, flooding and snow conditions;
- Any other information relative to the extent of damage to the system.

5.2.1.2 Classification

After the initial damage assessment has been conducted, the Operations Manager will classify the situation as one of the following three Emergency Scenarios:

Incident Classification	Weather Conditions & System Impact	Required Resources	Anticipated Timeframe for System Restoration (days)
Level 1 – Serious	• Scattered to widespread severe thunderstorms • Heavy rainfall with strong winds • Wind gusts greater than 45 mph • Localized moderate damage to the electric system	Internal resources and contractors	< 1

Incident Classification	Weather Conditions & System Impact	Required Resources	Anticipated Timeframe for System Restoration (days)
Level 2 – Extreme	• Widespread severe thunderstorms • Heavy rainfall with strong winds • Wind gusts greater than 50 mph • Moderate to heavy damage to the electric system	All operational internal resources, contractors, and localized mutual assistance	1 - 6
Level 3 – Full Scale	• Catastrophic weather events (tropical storms, heavy wet snow, severe icing) • Wind gusts greater than 55 mph • Heavy damage to the electric system	All LS Power Grid internal resources, contractors, and extensive mutual assistance	6+

The Operations Manager is designated to assemble information and data for evaluation purposes and may place service crews on standby until a determination is made on the severity of the crisis by the Director of Field Services and level of support needed.

5.2.1.3 Restoration Efforts

Depending on the Emergency Scenario classification, as described in Section 5.2.1.2, the ERC will lead efforts to restore power flow. Actions the ERC or his/her designees may take to organize the restoration effort may include, but are not limited to, the following:

- Assign a communications coordinator to begin notifying landowners and provide public information:

  - ✓ Emphasize and communicate SAFETY FIRST, “Do Not Touch”;
  - ✓ Mark the area off as necessary to notify landowners and the public of potential dangers;
  - ✓ Instruct landowners to stay well clear of any downed structures or wires;
  - ✓ Engage community leaders, service agencies, and police and fire departments as needed for support;
  - ✓ Provide status updates regarding recovery efforts;

- Notify Master Service Agreement contractors;

- Mobilize the DFR and other staff;

- Assign an Engineering Team to begin pulling documentation related to damage such as:

  - ✓ Plan & Profile drawings
  - ✓ Structure drawings
  - ✓ Foundation drawings
  - ✓ Access maps
  - ✓ One-line diagrams
  - ✓ Relay & communication drawings
  - ✓ Security drawings and details
  - ✓ Environmental constraints defined in construction permits

- Determine and locate spare parts, materials, and equipment;

- Contact vendors as required to assess equipment access;

- Contact LS Power affiliate companies, as well as industry partners or groups, such as EEI, for long-lead equipment that may be part of a formal or informal sharing program among utilities.

5.2.1.4 Safety

It is the intent of LS Power to provide a safe working environment for all employees, contractors, and local residents, in accordance with the premise that "SAFETY FIRST" is the foundation of all work. At LS Power, safety is paramount regardless of the classification of the emergency response. No work takes place without a detailed safety plan. The Safety Director develops and executes the emergency safety plan. They are responsible for proper safety communication within the team. This includes ensuring all LS Power and contractor personnel are aware of and adhere to LS Power safety work practices. Emergency restoration efforts take workers from their routine jobs and put them in extraordinary conditions. Adding to this, the potential for error increases as restoration efforts continue during nighttime hours. To minimize risk associated with nighttime field work, LS Power requires a task-specific lighting plan for any work expected after/before daylight hours. Details can get overlooked if not for the concerted effort to drive safety from all levels of the organization.

The emergency safety plan requires that all crews immediately report any accidents, injuries, or property damage involving their work. The Safety Director will ensure proper communication is maintained with all stakeholders and that the appropriate agencies are notified of any reportable accidents and/or injuries.

5.2.1.5 Communication

LS Power's EMTF is responsible for receiving external communications during emergencies and issuing official statements. During an emergency, the EMTF manages communications with the public, media, local public utility commissions, local and state governmental entities, officials, emergency operations centers, and PJM management. EMTF members are LS Power's emergency management personnel that have completed Federal Emergency Management

Agency (“FEMA”) National Incident Management System (“NIMS”) training and are designated to interact with local, state, and federal emergency management officials during an emergency.

Effective communication is the cornerstone of any effective work plan and even more so during emergency conditions. The ERC will establish daily conference calls with LS Power Management, the Operations Manager, Maintenance Manager, Safety Director, and Response Work Crews. This is critical to ensure response effort is coordinated and the entire team is aware of numerous ongoing efforts and issues.

The Response Work Crew, or Contractor depending on the severity of the event, is tasked with developing a Plan-of-the-Day (“POD”) and communicating with the team. The POD document outlines the work to be performed the next day highlighting challenges/opportunities and any safety concerns. The POD development will be a collaborative effort to include equipment and material deliveries as well as any unique landowner requirements.

5.2.2 Cables

The existing and proposed submarine cabling is protected through multiple means, as explained below, and does not require routine maintenance once installed. Each cable’s copper armoring provides mechanical protection. The cable design also includes redundant waterproofing measures to prevent infiltration of the brackish to salt water found in the Project Area such that the cabling installed beneath the riverbed requires no maintenance over the life of the Project.

The burial depth below the riverbed (up to 25 feet) provides protection against potential mechanical damage from activities such as anchoring or anchor dragging, maintenance dredging of the Delaware River Federal navigation channel, and fishing trawling. Where the cable burial depth is less than 15 feet adjacent to and within approximately 100 feet of the in-river transition structure (DE-15), articulated concrete mattresses are placed on the riverbed above each cable for added protection against accidental strike.

The segments of existing cables suspended between the foundation of DE-15 and the riverbed are protected by a plastic cable protection system (Tekmar sheathing), and the segments of proposed cables to be suspended between the modified foundation of DE-15 and the riverbed will be protected by rigid J-tubes. As a supplemental measure to limit wind and wave forces on the suspended cable segments, wave screens were installed around the perimeter of the vessel allision protection structure at DE-15 in 2024.

In the unlikely event that a segment of a Project submarine cable becomes exposed at or above the riverbed, SRE would take action to cover the exposed cable segment with rock and/or concrete mattressing as soon as possible after obtaining applicable authorization from permitting agencies. The cable protection would likely be installed using barge-mounted equipment, possibly with the assistance of divers.

To the extent that any maintenance would be needed due to unanticipated circumstances, such as placement of cable protection, those maintenance activities are expected to be conducted in accordance with the protective measures outlined in the Project’s construction permits to avoid and minimize impacts to environmental resources. Further, by planning to install a spare cable that could be used in the event of a cable failure, SRE is minimizing the potential for any need to perform repairs on a submarine cable during the in-water restricted period for fish (i.e., March 1 to June 30).

5.2.3 Storm Events

Per standard operating procedures, SRE Transmission System Operators continuously monitor weather conditions in the Project region using the StormGeo weather monitoring service available in SRE's control rooms. StormGeo has a phased alert system that provides a gradation of color-coded weather alerts keyed to specific threats, as outlined below:

Green	No threat of severe weather in the near future.
Yellow	Severe weather is likely within the next 2 to 18 hours. Issued when the threat is judged to be both severe and likely to occur. Time of issuance depends on the severity of the weather expected and the forecaster's confidence that the severe weather will actually affect the region of interest.
Orange	Severe weather is likely within the next 1 to 3 hours or less. The more severe and the more likely that severe weather will occur determines how far in advance that the alert status is upgraded to condition orange.
Red	Extremely severe weather is imminent within the next few minutes to an hour. If a condition red alert is issued, there is a high level of confidence that a very dangerous storm system is approaching the subject area, requiring immediate action on the part of the Transmission System Operator. Alert condition red is reserved only for the most life-threatening events, including tornadoes, hail over 2 inches in diameter, wind gusts of 60+ mph, blizzards, major ice storms, and tropical cyclones.

Further, SRE may be alerted to forecasted extreme weather conditions via regional weather services and PJM's Emergency Procedures postings.

Actions that SRE may take to prepare for extreme weather conditions include, but are not limited to, the following:

- Increasing situational awareness;
- Implementing Conservative Operations;
- Notifying affected field personnel to ensure they are clear of the threat;
- Delaying or canceling scheduled maintenance/repairs on the system;
- Dispatching field operations personnel to SRE facilities in order to prepare and quickly respond to operating emergencies caused by weather events;
- Requesting field operations to deploy backup generators to substations where loss of primary and secondary station service may occur due to the extreme weather;
- In the event a station service source is lost from a local distribution source, the SRE Transmission System Operator shall contact the provider for the cause and expected timeframe for restoration and notify SRE transmission system operations management and field operations.

Actions SRE transmission system operations management may take to prepare for extreme weather conditions may include, but are not limited to, the following:

- Conduct EMTF meetings to develop preparedness plans. The EMTF may conduct preparatory meetings upon receipt of severe weather advisories through PJM, StormGeo alerts, or at the discretion of task force members;
- Depending on storm impacts, post-weather event meetings may be held to review actions taken and lessons learned to ensure SRE system assets, personnel and material inventories are operating at the expected state of readiness;
- Increase staff levels of operations to require SRE Transmission System Operators to be on shift at both the primary control center and backup control center;
- Increase levels of operations support personnel at both the primary control center and backup control center;
- Check inventory and replenish stock of emergency supplies (e.g., food, water, and lodging) at the primary control center and backup control center in case personnel are required to stay onsite for extended durations during a weather event;
- Arrange for fuel delivery for standby generators at both the primary control center and backup control center ahead of expected extreme weather events. Monitor fuel usage during events if the generator operates.

The operational status and health of the Silver Run Line, including the submarine cables, is continuously monitored by SRE's Transmission System Operations team. Specific to the submarine cables, the integrated remote monitoring system provides continuous, real-time information regarding power flow, power load, cable core temperatures, and any faults or indicators of wear and tear. SRE's transmission system includes several built-in mechanisms with alarms that allow remote monitoring for system faults, such as phase-to-ground line trip, phase-to-phase fault, line lockout, loss of wide area network ("WAN") communication path, etc. If a fault alarm is activated at SRE's control center during or after an extreme weather event, SRE's field operations crew would be deployed to the suspected damage zone to conduct emergency inspection once field conditions are safe. If physical damage is observed and a forced outage is warranted to conduct repairs, SRE would activate the EMTF to develop a restoration plan and establish an incident command and control organizational structure. SRE will notify and coordinate with DNREC and other applicable agencies prior to making any necessary repairs or corrective actions affecting the riverbed.

The incident response team and EMTF will meet daily until all emergency restoration work is complete and systems are returned to service. Daily progress updates will be issued to affected stakeholders, including PJM, interconnected Transmission Service Providers, and interconnected power generation facilities.

6.0 Environmental Compliance

SRE maintains a strict environmental compliance policy, even in times of emergency. If emergency repairs are required, SRE would first review the permits and approvals obtained for construction of the Project to identify regulated areas and permit conditions, such as avoidance and minimization measures, applicable to emergency repair activities. Further, SRE would coordinate with the regulatory agencies having jurisdiction over the emergency repair activities to obtain the appropriate approvals for any regulated activities required to complete the repair work.

7.0 Record Retention and Information Dissemination

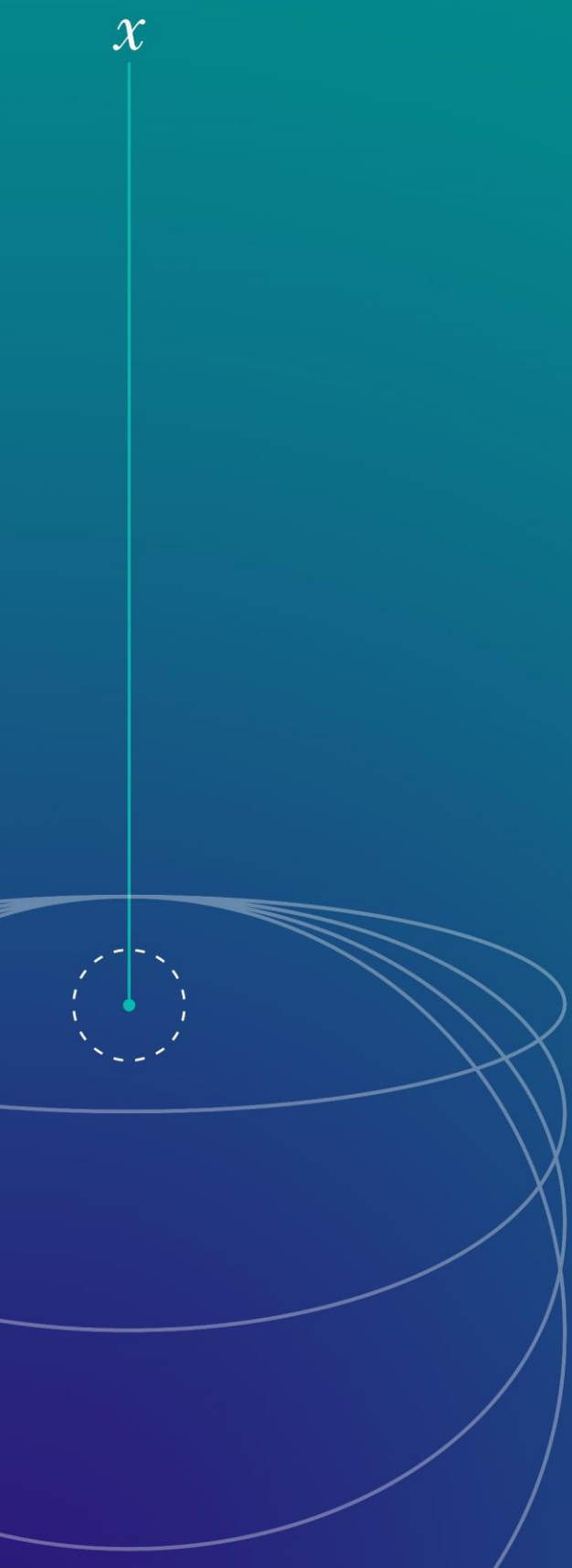
The final step in LS Power's emergency response process is to update all appropriate record documentation. All new information reflecting any changes to the transmission line and/or equipment are recorded during the restoration process. Some things that may change during the restoration process are structure locations, fiber splice locations, and wire sleeve locations. These construction "Red Lined" documents are then passed on to the engineering team for processing into the as-built record documents.

Emergency response information is disseminated to the appropriate LS Power departments via the company's file sharing system. Any information critical to day-to-day operations will be communicated immediately. After completion of restoration, the records will be utilized by many LS Power departments including operations, maintenance, compliance, and accounting.

LS Power's accounting department will process the appropriate information. This begins with retiring any old assets that may have been demolished during the response effort as well as adding any new assets installed. The accounting department will also support any insurance claims filed if the event is covered by the company's internal insurance reserve programs or the company's third party insurance policy.

ATTACHMENT J

Exponent®



Silver Run Expansion Project

Magnetic Field and Marine Assessment for Delaware River Crossing

Silver Run Expansion Project

Magnetic Field and Marine Assessment for Delaware River Crossing

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September 27, 2024

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Acronyms and Abbreviations

AC	Alternating current
EFH	Essential Fish Habitat
EMF	Electric and magnetic fields
Exponent	Exponent, Inc.
G	Gauss
Hz	Hertz
ICES	International Committee on Electromagnetic Safety
ICNIRP	International Commission on Non-Ionizing Radiation Protection
kV	Kilovolt
µT	Microtesla
mG	Milligauss
ms	Millisecond
MVA	Mega-volt-ampere
mV/m	Millivolt per meter
NJDEP	New Jersey Department of Environmental Protection
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRC	Nuclear Regulatory Commission
SRE	Silver Run Electric, LLC
V	Volt
V/m	Volt per meter

Limitations

At the request of Silver Run Electric LLC (SRE), Exponent Inc. (Exponent) evaluated 60-Hertz electric and magnetic fields associated with the Silver Run Expansion Project (the Project), which includes four proposed 230-kilovolt (kV) submarine/underground transmission cables to be constructed in parallel with seven previously installed submarine/underground 230-kV transmission cables crossing the Delaware River. This evaluation also assessed the potential for field effects on critical fish species in the vicinity of the Project.

This report summarizes work performed to date and presents the findings resulting from that work. In the analysis, we have relied on geometry, material data, usage conditions, specifications, and various other types of information provided by SRE. We cannot verify the correctness of these input data and rely on the client for the data's accuracy. SRE has confirmed to Exponent that the data provided herein are not subject to Critical Energy Infrastructure Information restrictions. Although Exponent has exercised usual and customary care in the conduct of this analysis, the responsibility for the design and operation of the Project remains fully with the client.

The findings presented herein were made to a reasonable degree of engineering and scientific certainty. Exponent reserves the right to supplement this report and to expand or modify opinions based on review of additional material as it becomes available, through any additional work, or review of additional work performed by others. The scope of services performed during this investigation may not adequately address the needs of other users of this report beyond the Project for which it was prepared, and any re-use of this report or its findings, conclusions, or recommendations presented herein are at the sole risk of the user. The opinions and comments formulated during this assessment are based on observations and information available at the time of the investigation. No guarantee or warranty as to future life or performance of any reviewed condition is expressed or implied.

Executive Summary

Silver Run Electric, LLC (SRE), proposes to construct, own, operate, and maintain the Silver Run Expansion Project (the Project or the Submarine Cable Crossing), which includes four new 230-kilovolt (kV) submarine/underground cables to be constructed under the Delaware River in parallel with seven existing 230-kV submarine/underground transmission cables. SRE requested that Exponent evaluate 60-Hertz electric and magnetic fields (EMF) associated with the proposed Project and to provide an assessment of the potential for field effects on select fish species in its vicinity. One of the four proposed cables (as well as one existing cable) are spares and were not included in the assessment. The Submarine Cable Crossing is located at Artificial Island, approximately 15 miles upriver from Delaware Bay at approximately River Mile 51.

Exponent reviewed the life history and ecology of key marine and freshwater fish species expected to occur in the vicinity of the Submarine Cable Crossing. These were selected based on migratory behaviors that would necessitate traversing the Submarine Cable Crossing, use of the area as an Essential Fish Habitat, and status as a threatened or endangered species. Next, we conducted a review of the relevant literature pertaining to the potential effects of operating alternating current power cables on key fish species, focusing specifically on the fish species of interest, where possible. We concluded that the Delaware River species perhaps most likely to detect EMF from the Submarine Cable Crossing would be the endangered Shortnose Sturgeon and Atlantic Sturgeon. Given these species' documented sensitivity to EMF together with their endangered status, our modeling assessment conservatively focused on these fish, as other fish species of interest exhibit more robust populations and less sensitivity to EMF and are therefore less likely to be affected by the Submarine Cable Crossing.

Exponent then calculated the 60-Hertz (Hz) magnetic field in the surrounding water and the 60-Hz electric field induced in the Shortnose Sturgeon and Atlantic Sturgeon from the four proposed and seven existing cables during operation. For almost the entire crossing, the calculated fields are quite low because the cables will be installed deep beneath the riverbed. The exception is where the submarine cables will be brought out of the water at an in-water transition structure in Delaware before connecting to existing overhead transmission lines. When compared to data from the published literature, the predicted 60-Hz magnetic field at the non-emergency rating of

the Project would be below the minimum threshold for 60-Hz detection by these sturgeon species, except within 1 meter of the cables where they exit the riverbed. Hence, we do not expect adverse population-level impacts to Delaware River sturgeon or other fish species of interest.

The Executive Summary does not summarize all of Exponent's technical evaluation, analysis, conclusions, and recommendations. Hence, the main part of this report is at all times the controlling document. Exponent reserves the right to supplement this report based on review of additional material that may become available, through any additional work, or review of additional work performed by others.

Introduction

Silver Run Electric, LLC (SRE) requested that Exponent, Inc. (Exponent) evaluate the 60-Hertz (Hz) magnetic-field and induced electric-field levels associated with the Silver Run Expansion Project (Project or the Submarine Cable Crossing), which includes four proposed submarine/underground 230-kilovolt (kV) transmission cables to be installed parallel to and south of seven similar existing submarine/underground cables, located approximately 15 miles upriver from Delaware Bay at approximately River Mile 51. The proposed cables with a capacity of approximately 455 mega-volt-amperes (MVA) will connect with transmission facilities in New Castle County, Delaware, and Salem County, New Jersey (near the site of the Salem Nuclear Generating Station), to expand the total capacity of the existing and proposed cables to approximately 1,364 MVA. Exponent previously evaluated the 60-Hz magnetic-field and induced electric-field levels associated with the operation of the seven existing Silver Run 230-kV transmission cables crossing under the Delaware River at Artificial Island.[1]

Exponent calculated the 60-Hz magnetic field associated with the operation of the proposed Submarine Cable Crossing, and computed the electric field induced in representative fish species by the oscillating magnetic field. With the addition of the 4 cables there will be a total of 11 cables with a non-emergency rating of approximately 1,364 MVA at the Submarine Cable Crossing. However, only nine of the cables will carry electricity (with the current to be divided equally between three sets of three cable groups) since two cables (one existing and one proposed) are reserved for use in cases of cable maintenance or repair. Over the majority of the route, the proposed cables will be horizontally separated from one another by 30 feet. The cables converge to a minimum horizontal spacing of approximately 6 to 8 feet in the vicinity of the in-river transition structure in Delaware. The burial depth of the cables will vary across the river; it will be deepest in the federal navigation channel and shallowest where the cables emerge near the Delaware shore to connect to overhead lines at the transition structure.

[1] Exponent, "Silver Run Project – Magnetic Field and Marine Assessment for Delaware River Crossing," July 19, 2016.

Exponent modeled the magnetic fields for representative configurations of the cables at four locations that differ in burial depth and spacing of the cables. These modeling configurations are generally consistent with those previously assessed.[1]

1. The Channel configuration, with maximum burial depth of 25 feet, near the center of the river comprises approximately 1,200 linear feet of the Submarine Cable Crossing route.
2. The River Crossing configuration where the cables are buried to a depth of 15 feet comprises approximately 12,000 linear feet, the majority of the Submarine Cable Crossing route.
3. The Jetting Sled configuration where the river is shallow, the existing cables were installed with a target depth of 10 feet and the proposed cables would be buried to a minimum depth of 6 feet by jet sled. The Jetting Sled configuration comprises approximately 800 linear feet of the Submarine Cable Crossing route.[2,3]
4. The Transition Structure configuration where the cables emerge from the riverbed (i.e., a burial depth of 0 feet) comprises one very small, distinct location at the in-river transition structure in Delaware where the submarine cables transition to overhead bare conductors.

For each modeling configuration, magnetic fields and induced electric fields were calculated at the surface of the riverbed, 1 meter (3.28 feet) above the riverbed, and at the river's surface. Since there are no government-mandated electric- and magnetic-field (EMF) standards applicable to fish species, the calculated results are compared to thresholds established based on the body of available scientific literature. The sections below discuss which fish species of concern may be present in the Submarine Cable Crossing area; the threshold levels of EMF strength that might result in detection and altered behavior by sensitive species; the methodology for calculating EMF levels from the Submarine Cable Crossing; the results of the EMF calculations; and an evaluation of the calculated EMF levels versus the established thresholds to determine whether any effects on fish species would be expected.

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[2] The first 350-feet riverward of the in-river transition structure in Delaware will be buried to a depth of 6 ft. Burial depth will be greater (approximately 15 feet) from that point until it reaches the federal navigation channel. Modeling was performed at a depth of 6-ft to conservatively overestimate field levels over the whole Jetting Sled configuration, even where buried to a depth of 15 ft where field levels would be lower.

[3] Modeling of the Jetting Sled configuration is also representative of EMF levels from a water jetting lance installation since the burial depth is equivalent to the jetting sled segment (i.e., 6-foot burial depth).

Magnetic-Field Standards

Although the focus of this report is on the potential effect of the magnetic field from the Submarine Cable Crossing on fish species, there is some minimal potential for people to encounter the magnetic field, primarily at the water surface, so standards for human exposure to magnetic fields are reviewed here.

The federal government, the state of Delaware, and the state of New Jersey have enacted no standards for magnetic fields from transmission lines or other sources at power frequencies.[4] Other states such as New York and Florida have limits on EMF that were designed to limit fields from new transmission lines, but these statutes or guidelines were not health-based; rather they were set to maintain the status quo (i.e., to levels produced by existing transmission lines) (FDEP, 1996; FDER, 1989; NYPSC, 1978, 1990).

Two scientific organizations, the International Committee on Electromagnetic Safety (ICES) and the International Commission on Non-ionizing Radiation Protection (ICNIRP), recommend guidelines relevant to human health. These guidelines limit exposure to very high EMF levels; they are based on extensive weight-of-evidence reviews and evaluations of relevant health research.

Table 1 summarizes reference levels (ICNIRP) and exposure reference levels (ICES) for the general public below which exposures will not exceed limits on magnetic fields in the body (ICES, 2019; ICNIRP, 2010).

Table 1. General public reference levels for whole body exposure to 60-Hz magnetic fields

Limit	Agency providing guideline	Comment
2.00 Gauss	ICNIRP	Whole body exposure to 60-Hz magnetic fields: general public
9.04 Gauss	ICES	

[4] New Jersey has an interim guideline regarding electric-field levels at the edge of a transmission line right of way (NJDEP, 1981), but there will be no electric fields directly produced above ground or above the river by the Submarine Cable Crossing.

Fish Species of Interest

The Delaware River and Bay system is a highly industrialized area that has been dredged several times in the past decades,[5] with the main navigation channel recently being deepened from 40 to 45 feet.[6] Industrial discharges, urban runoff, and discharge from wastewater treatment plants contribute to river contaminant loads, impacting critical riverine habitats (PDCNR, 2010). Thus, the area surrounding the proposed Submarine Cable Crossing is currently significantly altered from its natural state.

Exponent conducted an analysis of the fish likely to inhabit the Project area and concluded that the operation of the Submarine Cable Crossing at this proposed location could potentially impact two groups of fish:

1. Diadromous fish species that migrate along the Delaware River to reach spawning grounds, and

2. Key marine species that utilize lower portions of the Delaware River during certain seasons.

A list of diadromous fish species that inhabit the Delaware River was compiled by the U.S. Army Corps of Engineers during an essential fish habitat evaluation conducted as a part of the Delaware River Channel Deepening project (USACE, 2009). These fish include alewife, American Shad, blueback herring, hickory shad, and striped bass. Additionally, sampling within the Delaware River has indicated the presence of resident populations of diadromous American Eel and the endangered Shortnose Sturgeon[7] and Atlantic Sturgeon.[8] These diadromous species are expected to encounter the Submarine Cable Crossing only during migration, and therefore

[5] http://clearintothefuture.com/wp-content/uploads/HE-Environmental-History-of-Delawa re-Estuary.pdf

[6] http://www.nap.usace.army.mil/Missions/Factsheets/FactSheetArticleView/tabid/4694/Article/490804/delaware-river-main-channel-deepening.aspx

[7] http://www.state.nj.us/dep/fgw/artdelstudy_factsheets.htm

[8] http://www.conservewildlifenj.org/species/fieldguide/view/Acipenser%20oxyrinchus%20oxyrinchus/

exposures to the fields from the Submarine Cable Crossing are transitory and temporary for these three species.

In addition, a number of key marine fish species are also expected to inhabit the vicinity of the proposed Submarine Cable Crossing. The National Oceanic and Atmospheric Administration (NOAA) has established Essential Fish Habitats (EFH) for nearly 1,000 marine fish and invertebrate species. The Project route overlaps established EFHs of seven demersal and benthopelagic species: windowpane flounder, winter flounder, summer flounder, black sea bass, scup, Atlantic butterfish, and Atlantic herring (NOAA, 2024).[9] It should be noted, however, that these species will utilize the Project area to varying degrees and potentially only during certain life stages and seasons.

Diadromous Fish Species

Diadromous fish species include fish that predominantly inhabit marine waters, but travel upriver to spawn in freshwater sites (anadromous fish), as well as fish that inhabit freshwater environments, but spawn in coastal and marine waters (catadromous fish). In both cases, this life history requires fish to navigate long distances to reproduce, and for diadromous fish in the Delaware River system, this necessitates traversing the Submarine Cable Crossing. Therefore, these fish could encounter the magnetic field around the Project during migration.

American Eel

American Eel (*Anguilla rostrata*) is a catadromous species that is commercially and recreationally harvested through much of its range (Facey and Van Den Avyle, 1987). Spawning and early development take place in marine systems and the juvenile eels move into freshwater areas to complete growth; the reproductively immature eels may inhabit inland lakes and rivers for years prior to the first spawning trip to oceanic waters (Facey and Van Den Avyle, 1987).

[9] The mapping tool indicates that the longfin inshore squid EFH overlaps the proposed cable route, but an examination of the underlying NOAA documentation indicates that the EFH area does not stretch that far into the Delaware River.

The construction of dams and other structures that prevent easy migration have been implicated in the decline in American Eel populations (Brust, 2006).

American Eel are broadly distributed across the eastern United States, and given their catadromous life history, all individuals within the river system can be considered part of the same population (Nature Serve, 2024a). Captures of American Eels are common and have increased in the last decades according to New Jersey Department of Environmental Protection (NJDEP) surveys, with 2013 being the second-highest year recorded.[10]

Sturgeon: Atlantic and Shortnose Sturgeon

Sturgeon are primitive anadromous fish that have lifespans of multiple decades (Bowers-Altman, 2010), and both sturgeon species that inhabit the Delaware River are protected by the Endangered Species Act. The Shortnose Sturgeon (*Acipenser brevirostrum*) has been listed since 1973, while the New York Bight, Chesapeake Bay, Carolina, and South Atlantic populations of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*) were listed as endangered in 2012. Atlantic Sturgeon inhabit coastal waters, but spawn in large freshwater systems. Within the Delaware River, the main Atlantic Sturgeon spawning sites and juvenile nursery areas are believed to exist between Marcus Hook and Trenton, New Jersey (Hale et al., 2016), a range located more than 20 miles north of the Project area. Population estimates for the Delaware River Atlantic Sturgeon population are uncertain, but the National Marine Fisheries Service (NMFS) gives an approximate population of less than 300 spawning adults in a given year (Atlantic Sturgeon Review Team, 2007).

Conversely, the Shortnose Sturgeon is a smaller fish that rarely enters oceanic waters. In contrast to Atlantic Sturgeon, which can reach lengths of 14 feet and weigh up to 600 pounds, the maximum length and weight of Shortnose Sturgeon is approximately 4 feet and 50 pounds (Shortnose Sturgeon Status Review Team, 2010). Although an anadromous species, the bulk of the Shortnose Sturgeon population preferentially inhabits rivers and estuarine areas, rarely entering marine waters (Shortnose Sturgeon Status Review Team, 2010). For some Shortnose Sturgeon, this behavior could reduce their interactions with the Submarine Cable Crossing if they

[10] http://www.state.nj.us/dep/fgw/pdf/delriver/artdel_sp_ameel.pdf

remain upstream of the Project area, as compared to Atlantic Sturgeon that inhabit marine waters when not spawning at freshwater sites. Habitat near Artificial Island, New Jersey, however, may support populations of Shortnose Sturgeon juveniles (NMFS, 2001). As recently as 2014, Shortnose Sturgeon have been collected from cooling water intake screens at the Salem Generating Station (Wagner, 2014a, 2014b, 2014c). This indicates that Shortnose Sturgeon are likely to inhabit habitat in the vicinity of the Submarine Cable Crossing.

Threats to Shortnose and Atlantic Sturgeon include industrialization, development, poaching, and water and habitat degradation. Specific life history traits that increase the susceptibility to these threats include long lifespans and delayed age of first reproduction. Given their status, the New Jersey Division of Fish and Wildlife instituted acoustic receivers in Delaware Bay in 2013 to detect and track tagged Delaware River Atlantic Sturgeon.[11] Shortnose Sturgeon have been collected only once in annual NJDEP seine surveys conducted between 1980 and 2014.[12]

River Herring: Alewife and Blueback Herring

River herring collectively refers to small anadromous fish in the genus *Alosa*—Alewife (*Alosa pseudoharengus*) and Blueback Herring (*Alosa aestivalis*). These species have similar life histories, inhabiting coastal marine waters and traveling up rivers to natal spawning grounds in small tributaries (NOAA, 2009). Both Alewife and Blueback Herring are small forage fish that are harvested as bait fish for the recreational Striped Bass fishery (Himchak et al., 2011). Habitat degradation, including poor water quality and dam construction blocking fish passage, has threatened these species in the eastern United States, along with overfishing; populations of river herring have been declining over the past decades (NOAA, 2009). Several states, including Massachusetts, Rhode Island, Connecticut, and North Carolina, have enacted fishing moratoriums on river herring to counteract stock declines (Himchak et al., 2011).

Alewifes are found in rivers and coastal habitats from Newfoundland, Canada, south to North Carolina, while Blueback Herring have a more extensive southerly distribution down to the Florida coast. Because these fish are anadromous, populations within the Delaware River

[11] http://www.njfishandwildlife.com/news/2013/sturgeon_research13.htm

[12] http://www.state.nj.us/dep/fgw/pdf/delriver/artdel_sp_shrtnose_sturgeon.pdf

watershed would be considered single, interbreeding populations (NatureServe, 2016b, 2016c). Both species are common in NJDEP surveys, often caught in the thousands, and Blueback Herring was the second most abundant species captured in 2014 (NJDEP, 2014).

Shad: American Shad and Hickory Shad

Like river herring, shad are also members of the *Alosa* genus, though American Shad (*Alosa sapidissima*) and Hickory Shad (*Alosa mediocris*) are larger than river herring (DFW, undated). Adult shad inhabit coastal waters, but spawn in the tidal and non-tidal portions of rivers; associated bays, estuaries, and river stem habitats serve as nursery grounds for juveniles (ASMFC, undated). Like river herring, impediments to free access to spawning grounds can adversely impact shad populations (Delaware River Basin Fish and Wildlife Management Cooperative, 2014). Spawning adults migrate hundreds of miles upstream, where possible, to reach spawning sites (ASMFC, undated), and both species (American and hickory) mature quickly (Rulifson and Batsavage, 2014).

Hickory Shad have been found from Cape Cod, Massachusetts, to the St. Johns River in Florida (Rulifson and Batsavage, 2014). Similarly, American Shad inhabit the Atlantic coast from Canada to Florida, and are most abundant within the middle of the range (Stier and Crance, 1985). American Shad is the most abundant species caught in the Delaware River, according to NJDEP in 2014, with Hickory Shad being relatively rare, although they are collected in most years (NJDEP 2014; NJ Division of Fish and Wildlife, Undated-a).

Striped Bass

A popular fish targeted by recreational fishers, Striped Bass (*Morone saxatilis*), is a large long-lived fish that spends the bulk of its time in coastal Atlantic waters. Adult Striped Bass travel to natal spawning grounds in inland streams and tributaries, and once hatched, developing larvae drift back downstream (NOAA Fisheries 2024). Overfishing drastically reduced stocks in the 1980s, which resulted in management intervention (ASMFC, 2024).

Striped Bass live along the Atlantic coast from Maine to North Carolina. Although the Chesapeake Bay spawning areas are the most prolific in terms of the number of fish produced, a

significant Striped Bass population exists in the Delaware Bay as well. According to the NJDEP, the Delaware River Striped Bass population has increased in recent years (NJ Division of Fish and Wildlife, Undated-b). Striped Bass are also very common in NJDEP surveys, comprising about 5% of the catch in 2014 (NJDEP, 2014).

Marine Fish Species

Many coastal and oceanic fish inhabit estuarine and inshore habitat during certain life stages and seasons. Early life stages may utilize calmer, sheltered nearshore habitats as nursery grounds, while adults of other species may seasonally migrate into nearshore estuarine waters in pursuit of warmer environments. Marine fish that exhibit these nearshore-offshore movements could be seasonally exposed to magnetic fields generated by alternating current (AC) power cables at the Submarine Cable Crossing. As previously outlined, the proposed Submarine Cable Crossing overlaps the NOAA EFHs of seven demersal and benthopelagic species: windowpane flounder, winter flounder, summer flounder, black sea bass, scup, Atlantic butterfish, and Atlantic herring (NOAA, 2024).[13]

An EFH assessment conducted by the U.S. Nuclear Regulatory Commission (NRC) in support of the license renewal for the Salem Nuclear Generating Station, however, determined that a number of marine fish species identified by NOAA as inhabiting the mouth of the Delaware River are unlikely to be found at the Submarine Cable Crossing location. NRC staff compared water salinities measured in the Delaware River at Artificial Island to reported EFH salinity requirements for each species and concluded that measured salinities at this location were outside the ranges reported by NOAA EFH documentation for scup, summer flounder, Atlantic herring, and black sea bass (USNRC, 2011). Hence, these species would not be expected to inhabit the Submarine Cable Crossing location, despite the area's inclusion within their EFH. For Atlantic herring, black sea bass, and scup, this is largely supported by low or zero catches in the annual 1980 to 2014 NJDEP seine net sampling within the river.[14] In addition, the NRC's

[13] The mapping tool indicates that the longfin inshore squid EFH overlaps the proposed cable route, but an examination of the underlying NOAA documentation indicates that the EFH area does not stretch that far into the Delaware River.

[14] https://www.nj.gov/dep/fgw/artdelstudy20.htm

assessment indicates that a number of species with a listed EFH at the Submarine Cable Crossing location would be unlikely to inhabit this area or would be present in extremely low numbers.

Atlantic Butterfish

A commercially harvested species, the Atlantic butterfish (*Peprilus triacanthus*) is a thin, deep-bodied fish that at maturity is about 12-inches long. Spawning occurs offshore, followed by larval and juvenile development (Cross et al., 1999). Adults undergo a seasonal inshore-offshore and north-south migration, moving north and inshore in the summer months, and south and offshore in the winter (Cross et al., 1999). Hence, adult butterfish are likely to be the dominant life stage at the Submarine Cable Crossing.

The EFH for adult Atlantic butterfish encompasses the Submarine Cable Crossing location, but the reported frequency of occurrence for this species is low in that area, as butterfish appear to prefer high salinity waters (NOAA, 2011). Butterfish juveniles inhabit the lower Delaware River and Bay, but do not appear to inhabit more inland areas, as annual seine net sampling within the Delaware River by the NJDEP has not collected this species (NJ Department of Fish & Wildlife, 2020). As such, this species is unlikely to encounter the Submarine Cable Crossing with high frequency.

Flounder Species: Windowpane Flounder and Winter Flounder

Flounder and flatfish (select members of the order Pleuronectiformes) are thin, dorsoventrally flatted fish that inhabit sandy and muddy sea bottoms, frequently resting directly on the sea bottom (Pereira et al., 1999; Castonguay and Visel, 1988). For both flounder species of interest, eggs and larvae are planktonic with juveniles transitioning to the benthic habitat (Pereira et al., 1999; Chang et al., 1999). The presence of flounders in estuarine and coastal areas is seasonal, with individuals moving into offshore marine waters for a portion of the year. The Submarine Cable Crossing location is designated as an EFH for all life stages of both winter and windowpane Flounder (*Pseudopleuronectes americanus* and *Scophthalmus aquosus*), although it should be noted that this area represents a very small portion of both species' EFHs (NEFMC, 1998a, 1998b). The winter flounder's EFH occurs in coastal areas from Chesapeake Bay to Maine, while the windowpane flounder's EFH stretches from coastal North Carolina to northern

Maine. Windowpane flounder have not been observed by NJDEP since 1983,[15] and Winter flounder are observed only occasionally in the mouth of the Delaware River and not since 2000.[16] Further, a 2009 assessment of the winter flounder's EFH in the Delaware River determined that this species is unlikely to be found upstream of River Mile 35, which is located well below Artificial Island (i.e., River Mile 51) (USACE, 2009).

[15] http://www.state.nj.us/dep/fgw/pdf/delriver/artdel_sp_windowpane_flounder.pdf

[16] http://www.state.nj.us/dep/fgw/pdf/delriver/artdel_sp_wntrflounder.pdf

Effects of EMF on Fish Species

This section summarizes the life history and ecology of the identified fish species of interest and provides a review of the relevant literature pertaining to the potential effects of EMF from AC transmission cables on these key fish species. This review evaluates the thresholds above which AC magnetic fields may be detected by fish and interfere with their normal function. Further, some predators, including sturgeon, detect low frequency (<10 Hz) electric fields as well, utilizing these to locate prey. The oscillating magnetic field produced by an AC transmission line will also create an induced electric field (Bevelhimer et al., 2015), as will the movement of fish through the magnetic field. As such, these electrosensitive fish species also may respond to the induced electric field, so this assessment also incorporates an evaluation of induced electric fields in addition to magnetic fields.

Evidence from the literature indicates that certain fish species, to varying degrees, are capable of detecting and responding to magnetic fields. Multiple species of fish from diverse taxa, including salmonids, tuna, herrings, carp, and mackerel, contain magnetite particles within their skeletal system (Harrison et al., 2002; Mann et al., 1988). Magnetite particles, the most magnetic of all naturally-occurring minerals on earth, are thought to help fish detect and orient towards the earth's static geomagnetic field (Hanson and Westerberg, 1987; Walker et al., 1988; Öhman et al., 2007; Tanski et al., 2011; Nishi and Kawamura, 2005). The ability to utilize the earth's geomagnetic field as an external cue appears to be especially valuable to migratory fish including some salmonid species (Quinn, 1980; Quinn and Brannon, 1982) and sturgeon (Cada et al., 2011). More recently, researchers have proposed that geomagnetic field information is subordinate to other environmental cues in governing fish behaviors (Johnsen et al., 2020). The 60-Hz magnetic fields produced by the existing and proposed submarine cables at the Project area, at a level of about 30 milligauss (mG), are unlikely to affect fish by this mechanism because the physics of the interaction of 60-Hz magnetic fields with magnetite suggest no significant effects on these particles at magnetic-field levels less than 50 mG (0.05 Gauss [G]) (Adair, 1994; Normandeau et al., 2011).

In addition, the motion of fish and other aquatic species through the earth's geomagnetic field and respiration produce small, slowly-oscillating electrical fields that can be detected by some

species (Normandeau et al., 2011), usually as a way of identifying potential prey items or conspecifics. Sturgeon, in particular, are reported to be notably sensitive to magnetic fields and electric-field induction due the presence of sensitive electroreceptors called *ampullae of Lorenzini* on the snout and gills; these allow these fish to detect static electric-field gradients down to 5 millivolts per centimeter (Bouyoucos et al., 2013). The magnetic field produced by AC transmission cables results in an electrical field that oscillates at a frequency of 60 Hz, which electrosensitive fish might be able to detect outside the frequency range of natural stimuli if the strength of the applied field is much higher (i.e., thousands of times greater).[17]

The possibility that the variable magnetic field and subsequent induced electric field around the Project's AC cables could potentially impact the populations of resident and migratory fish species was assessed. Therefore, a review of the pertinent literature on the effects of AC EMF on aquatic life, including those on early fish life stages, behavior, migration, and physiology is provided below.

Potential Effects of EMF on Adult and Juvenile Fish

AC magnetic fields in theory might affect a number of behaviors of mobile adult and juvenile fish, and potentially development and physiological processes as well. Many of the documented effects, however, occur only following exposure to very strong magnetic fields or with chronic exposures within laboratory settings. These types of exposures are not particularly relevant to the dominant field conditions at the Submarine Cable Crossing. Yet, understanding the nature of fish responses under highly-controlled conditions is helpful in predicting the likelihood of population-level effects from the proposed Submarine Cable Crossing.

Effects on fish behavior under laboratory conditions

The effects of altered magnetic fields on fish behavioral homeostasis have been well-recorded in the literature; however, there are relatively few laboratory studies that quantify these effects following exposure to the magnetic field produced by AC power sources at 60 Hz (North

[17] This has been reported for other species that have developed sensors to detect EMF at frequencies of biological interest, rather than 60-Hz fields (see e.g., Kirschvink et al., 1997).

America) or 50 Hz (Europe). Such studies are critical in understanding the potential for effects of the proposed Submarine Cable Crossing on fish populations.

A series of studies were commissioned through the Marine Scotland Science Agency to determine if the swim behaviors of migratory European eel (*Anguilla anguilla*) and Atlantic salmon (*Salmo salar*) were affected by exposure to 50-Hz AC magnetic fields, similar to those expected to occur at submarine cable sites. Eel were exposed to a 950 mG 50-Hz AC magnetic field in a laboratory tank and observed for behavior that could indicate the ability to detect magnetic fields at this level. However, researchers observed no changes in eel orientation or movement within the tank system when exposed to the 950-mG field; similarly, swim behaviors also were unaffected by exposure (Orpwood et al., 2015). The authors thus concluded that eels were unlikely to detect or respond to 50/60-Hz magnetic fields at this level. In a separate study, Atlantic salmon were exposed to a gradient of 50-Hz magnetic fields from 1.3 to 950 mG within a laboratory tank system (Armstrong et al., 2015); this set-up allowed researchers to assess how salmonid behavior might change when moving through a magnetic-field gradient or if there was a notable attraction to or avoidance of particular magnetic-field strengths. During the exposures, salmon exhibited no changes in swim speed or time to cross the gradient. Fish also did not exhibit a startle response when exposed to the AC magnetic-field gradient. Given this, researchers concluded that there was no evidence that AC magnetic fields would alter swim behavior or affect survival under field conditions (Armstrong et al., 2015).

These results confirm early research conducted on American Eel (*Anguilla rostrata*) and Atlantic salmon. Richardson et al. (1970) exposed salmon to a 75-Hz 500-mG magnetic field to assess potential behavior effects under laboratory conditions. Exposed salmon did not demonstrate altered locomotor activity, leading the study authors to conclude that, under field conditions, such levels would not affect exposed wild salmon (Richardson et al., 1970). Similarly, there were no changes in eel swim behavior or orientation in the tank during exposures to both 60-Hz and 75-Hz 500-mG magnetic fields (Richardson et al., 1970).

Laboratory exposures to EMF produced by an AC power source were reported to elicit some behavioral responses in Redear Sunfish and Lake Sturgeon (Bevelhimer et al., 2013). Over a 46-hour exposure to an AC electromagnet, with a maximum field strength of 165,780 microtesla

(µT) (1,658 G), Redear Sunfish were found to more frequently inhabit shelters adjacent to magnets. Lake Sturgeon exhibited a number of altered swim behaviors in response to the AC magnetic field, including slowing and gliding, sudden stops near the magnetic-field source, pectoral fin flares, and body spasms (Bevelhimer et al., 2013). Adjustment of the intensity of the magnetic-field source determined the threshold detection level to be between 1,000 and 2,000 µT (10 and 20 G). Once the magnetic-field was discontinued, fish resumed normal swimming behaviors, and no long-term impacts were observed in the months following the exposure. Conversely, a more recent mesocosm study conducted with Pallid Sturgeon (*Scaphirhynchus albus*) indicated that under more realistic conditions, the magnetic field from an AC power source had no reliable attractive or repellant influence on sturgeon up to 25 G (Bevelhimer et al., 2015). In contrast to the small tanks (3 x 0.3 x 0.35 meters), Bevelhimer et al. (2015) conducted their trials in 22 x 7 x 1.5-meter net pens within a larger pond system containing surficial Lemna vegetation. Groups of fish were exposed to either 2,450 µT (24.5 G) or ~1,800 µT (18 G) magnetic fields produced by a 60-Hz AC power source at 40 Volts (V) and 30 V, respectively. For six of the eight trials, fish position and movement were not significantly different in the EMF versus control treatments; one trial at an electric field of 30 V indicated avoidance and one trial at an electric field of 40 V indicated attraction to the power source (Bevelhimer et al., 2015).

Flounder and related fish species are of interest for the Submarine Cable Crossing, given expected site utilization and because these fish rest directly on bottom sediments. *P. flesus* were observed to react to a 30-Hz electric field in the range of 1.3 to 1.7 volts per meter (V/m) (i.e., 1,300 to 1,700 millivolts per meter [mV/m]), and the orientation of fish in relation to the source did not alter the reaction threshold value (Balayev and Fursa, 1981), indicating that flounder detect and respond to only very strong electric fields. Thus, given the higher frequency of the proposed Project (i.e., 60 Hz) and 1,000-fold lower intensity of the fields in this Project, it is unlikely that flounder would detect EMF at the Submarine Cable Crossing, or if detected, the responses would probably be mild and similar to that of Redear Sunfish and sturgeon, as explained above.

Effects on migration and behaviors in the field

Sturgeon, eels, salmonids, and a number of other fish species undergo significant migrations to reach spawning grounds, and geomagnetic fields (i.e., 0-Hz static magnetic fields) are important environmental cues for migratory and diadromous fish species. However, as previously noted fish do not similarly react to 60-Hz magnetic fields, so observations about effects of 0-Hz fields have no relevance to predicted effects of 60-Hz fields (and vice versa). In addition, geomagnetic cues are used in conjunction with olfactory and visual cues to guide long-range migration and short-range movements.

Given the importance of the integration of multiple cues in fish migration behaviors, field studies provide key data on the potential population-level impacts of submerged AC cables on fish species. Since most effects observed in the laboratory are minor and transitory, it would be expected that field effects would also be minor and short-lived. Available information from the few field studies conducted appears to support this assessment.

A 3-year marine fish community survey was conducted at energized and unenergized surface-laid AC submarine cables at the Marine Science Institute at the University of California, Santa Barbara. During the course of the study, magnetic fields produced by the energized cable ranged between 510 and 2,050 mG (Love et al., 2016). Fish present at sites along both the energized and unenergized cables were recorded via video and diver surveys and compared. While both unburied cables served as fish aggregators (a factor of the physical presence), there were no noted differences in the fish communities present based on energized state (Love et al., 2016). The authors did note a small difference in the size of fish at the cables but concluded this was "biologically insignificant" (Love et al., 2016). Taken together, these surveys indicate that, in field conditions, AC magnetic fields up to 2,050 mG do not affect the populations or distribution of resident fish. Westerberg and Lagenfelt (2008) observed the behavior of migrating Baltic Sea European Eel (*Anguilla anguilla*) in the vicinity of an unburied, three-phase 130-kV AC power cable with metal sheathing. Although eels' swimming speeds were significantly slower when near the unburied AC cables, this was concluded to represent a very minor behavioral change unlikely to affect long-term fitness of eel populations (Westerberg and Lagenfelt, 2008). Because the cables were unburied, it is possible that eel were responding to the physical presence of the cable, not to magnetic fields.

Migrating Russian sturgeon (*Acipenser gueldenstaedtii*) also were observed to detect the presence of power transmission lines. In a field study, tagged sturgeon moved more slowly when passing underneath 100-kV AC overhead power transmission lines, veering away from high-voltage overhead lines (Poddubny, 1969). The level of electric fields induced by the magnetic field (0.6 G in the water) of the line attributed to have caused this effect were not reported (the sturgeon would have been effectively shielded from the direct electric field from the voltage on the line by the water) (Polk and Postow, 1986). This suggests, however, that migrating sturgeon might be expected to react similarly to migrating eel (i.e., reduced swimming speeds) to the magnetic field when crossing a submerged AC cable if the field intensity is high enough. However, it should be noted that the magnetic field produced in the water was extremely high. In a few cases, electric barriers have been constructed intentionally to prevent the migration of invasive fish species (e.g., within the Chicago Area Waterways System). At these sites, however, the applied fields must be extremely high to be an effective barrier to fish movement (2.5 millisecond [ms] pulses, 30 Hz, 91 V/m) (Parker et al., 2015). The low magnetic fields associated with submarine AC cables are unlikely to cause a barrier effect similar to intense electric fields.

A comparison of fish species caught in baseline and post-construction surveys conducted along the route of the AC export cable from the Nysted windfarm to shore indicated that fish abundances were largely unaffected by the presence of the cable. Post-construction and operations monitoring indicated that fish populations demonstrated significant temporal variations (DONG Energy, 2006). At times, however, the abundance of flounder (*Platichthys flesus*) appeared to be correlated with current flow (and with produced EMF) through the AC export cable (DONG Energy, 2006; Normandeau et al., 2011), although it is likely that the aforementioned temporal variability may have complicated this assessment. The distributions of some fish were also noted to differ between the east and west sides of the cable, although the disturbed state of the seabed in the proximity of the cable may indicate that habitat factors rather than the presence of elevated EMF were structuring fish community distributions (DONG Energy, 2006). Other monitoring studies, however, noted that the east-west distributions of flounder in the vicinity of the cable were apparently not influenced by its presence, remaining largely stable in the 2 years following installation (Hvidt et al., 2003).

Electric-field effects on sturgeon

Electrosensitivity in fish species is much rarer than magnetosensitivity, and the only species within the Project area demonstrated to be electrosensitive are Shortnose and Atlantic Sturgeon. Basov (1999) assessed the electrosensitivity of closely related sturgeon species, sterlet (*Acipenser ruthenus)*, and Russian sturgeon (*A. gueldenstaedtii),* to a range of electric fields produced by frequencies between 0.1 and 50 Hz. At 50 Hz, electric fields between 20 and 500 mV/m elicited significant avoidance behaviors by sturgeon. Conversely, the same field intensities produced by 0.1- to 18-Hz sources triggered sturgeon investigation and foraging behaviors (Basov 1999). It is probable that the lower frequencies mimicked the signals of potential prey items. More recently, juvenile lake sturgeon were assessed for sensitivity to 0.1- to 100-Hz electric fields between 40 and 500 mV/m, with exposed fish responding with avoidance behaviors and gill flare (Stoot et al., 2018). Interestingly, over the course of the experiment, the authors observed an acclimatization to the elevated electric fields, a phenomenon also reported by Newton et al. (2019) for other electrosensitive species.

Effects on fish development and physiology

The effects of AC magnetic fields on fish development and physiology, especially behavior, have been rarely studied. Physiological effects in individuals, however, may reflect a broader sensitivity and therefore warrant evaluation of implications for the long-term survival and fitness of fish.

Two recent studies have examined the effects of long-term exposure of embryonic rainbow trout to 50-Hz AC magnetic fields (Fey et al., 2019; Stankevičiūtė et al. 2019). Constant exposure to a 10,000-mG magnetic field for up to 40 days increased markers of cellular and genetic disruption in the cells of rainbow trout at this very high field strength. However, Fey et al. (2019) reported no impacts on mortality, time to hatching, growth, or swim-up time. Given this, while cellular and genetic damage biomarkers increased, these did not seem to correlate to effects on growth and survival. Similarly, Skauli et al. (2000) exposed zebrafish embryos to the same magnetic-field strength (10,000 mG at 50 Hz) for 4 days, finding only temporary delays in development at some timepoints in exposure. On the other hand, medaka embryos exposed to a lower 1,000-mG 60-Hz magnetic field for 2 days did exhibit some developmental delays; however, these did not

result in reduced survival, decreased hatch success, or increased physical deformities (Cameron et al., 1985). Electric fields of variable strengths (5 to 5,000 mV/m) generated by an AC source had no effects on the embryonic development or survival of rainbow trout (Brouard et al., 1996). In addition, chronic (~2 month) exposure to AC electric fields between 5 and 500 mV/m indicated no adverse effects on fry and fingerling growth and survival (Brouard et al., 1996). , Early life stages are generally considered more sensitive than adult fish; hence these studies comprise a conservative assessment of the effects of EMF on fish development and growth. The Submarine Cable Crossing location is not expected to be used as nursery grounds for finfish. As such, it can be concluded that the EMF associated with the Project cables are unlikely to affect the survival or development of immature fish.

The effects of AC cables on aspects of fish physiology also have been studied infrequently, but available findings suggest that effects are not likely to result in population-level impacts to fish species. Juvenile Nile tilapia (*Oreochromis niloticus*) were exposed in a laboratory setting to 50-Hz magnetic fields between 300 and 2,000 mG; the resultant effects on growth and digestive enzyme activity were assessed (Li et al., 2015). Researchers noted no apparent relationship between increased field strength and strength of response. However, following a month-long exposure to 300 mG, fish exhibited reduced enzyme activity and growth. These effects were temporary and reversed when the fish were removed from the field (Li et al., 2015). Laboratory exposure to a 40 μT (400 mG) magnetic field with a frequency of 1 Hz (produced by current pulses of 200 ms on and 800 ms off) increased nocturnal melatonin[18] levels in adult Brook Trout (*Salvelinus fontinalis*) (Lerchl et al., 1998). The authors theorized that the magnetic field may have stimulated pineal gland activity, leading to a release of melatonin; alternatively, increased melatonin levels may be indicative of a generalized stress response (Lerchl et al., 1998). Regardless of the mechanism, it is unlikely that increased melatonin levels or a generalized stress response would cause long-term physiological damage in fish. Moreover, the frequency of the magnetic field tested is just above that of a static field and within the range of frequencies <10 Hz that have known biological significance to aquatic species (Normandeau et al., 2011).

[18] Melatonin is a hormone that regulates fish sleep-wake cycles along with other seasonal physiological rhythms.

Estimated EMF Detection Thresholds

Since the effects of AC EMF have been tested in salmonids, eel, and various sturgeon species, we can conclude that assessment of these effects provides a reasonable estimation of the likely sensitivities of the key species of interest in the Delaware River: Shortnose Sturgeon, Atlantic Sturgeon, and American Eel. Conversely, less is known about the potential responses of flounder species to such environmental conditions, and the sensitivity of remaining species to altered magnetic fields has not been tested and therefore is unknown. Although this comprises an uncertainty within the assessment, it can be reasonably assumed that the ability of these species to detect altered magnetic fields is similar to that of the species reviewed herein.

Based on the review above, the most sensitive fish species were identified to be the Shortnose and Atlantic Sturgeon based on sensitivity to EMF, and their endangered status could make their populations more sensitive to environmental changes. According to our review of the literature, sturgeon are expected to exhibit magnetic-field and electric-field detection thresholds at 10 to 20 G and 20 to 60 mV/m, respectively; detection and behavioral responses are not predicted below these levels.

Methodology for Calculating EMF Levels

Magnetic Fields

Magnetic-field levels for the Project were calculated using computer algorithms developed by the Bonneville Power Administration, an agency of the U.S. Department of Energy (BPA, 1991). These algorithms have been shown to accurately predict magnetic-field levels measured near power lines. The magnetic fields were calculated as the resultant of x, y, and z field vectors.

The inputs to the program are data regarding voltage, current flow, phasing of voltages and currents, and conductor configurations as provided by SRE. The existing Silver Run cables comprising the A, B, and C phases were installed in a horizontal configuration: A-B-C-spare-C-B-A. The proposed total configuration (including new cables) would be A-B-C-spare-C-B-A-C-B-A-spare as illustrated by Figure 1.

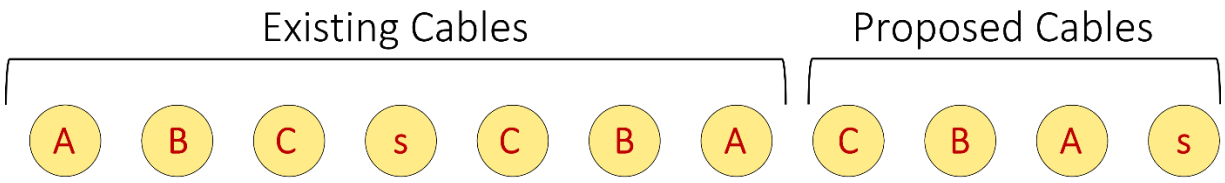


Figure 1. Illustrative cross-sectional view of the existing and proposed cables and phase configuration.

A, B, and C refer to phases 0°, 120°, and 240° respectively, and "s" refers to a spare de-energized cable. View facing east, towards Artificial Island.

Using this phase configuration, modeling was performed for each of four configurations:

1. The Channel configuration was modeled at a burial depth of 25 feet and a uniform horizontal cable spacing of 30 feet. This configuration comprises approximately 1,200 linear feet of the Submarine Cable Crossing route.

2. The River Crossing configuration was modeled at a burial depth of 15 feet and a uniform horizontal cable spacing of 30 feet. This configuration comprises approximately 12,000 linear feet of the Submarine Cable Crossing route.

3. The Jetting Sled configuration was modeled with the existing cables at a burial depth of 10 feet, the proposed cables at a burial depth of 6 feet, and a uniform horizontal cable spacing of 16 feet. This configuration comprises approximately 800 linear feet of the Submarine Cable Crossing route.[19,20]

4. The Transition Structure configuration was modeled to describe the magnetic field as the cables emerge from the riverbed (a burial depth of 0 feet and a uniform horizontal cable spacing of 6 feet, but with a gap of 31 feet between the proposed and original cables). This configuration is at the in-river transition structure facility where the cables transition (in protective J-tubes) from underground cables to overhead bare conductors. This in-river transition structure is located approximately 700 feet from the Delaware shoreline.

The modeling results do not include the shielding effect of cable armoring and sheaths, which will reduce the magnetic-field level outside the cable. The shielding effects result from flux shunting by the cable armoring, as well as eddy currents in the conductive sheathing materials. Previous calculations for a 138-kV AC undersea cable indicated that the magnetic field may be reduced by a factor of nearly 2 due to flux shunting, with a significantly smaller reduction attributable to eddy currents (Silva et al., 2006). The calculated magnetic-field levels in this report therefore represent a conservative maximum magnetic-field level in the vicinity of the existing and proposed cables.

Induced Electric Fields

Unlike overhead transmission lines, underground cables are not a direct source of electric fields because the grounded, metallic cable sheathing around the cables effectively blocks electric

[19] The first 350-feet riverward of the in-river transition structure in Delaware will be buried to a depth of 6 ft. Burial depth will be greater (approximately 15 feet) from that point until it reaches the federal navigation channel. Modeling was performed at a depth of 6-ft to conservatively overestimate field levels over the whole Jetting Sled configuration, even where buried to a depth of 15 ft where field levels would be lower.

[20] Modeling of the Jetting Sled configuration is also representative of EMF levels from a water jetting lance installation since the burial depth is equivalent to the jetting sled segment (i.e., 6-foot burial depth).

fields. The oscillating magnetic field produced by the cables, however, induces an electric field in the water and soil near the cables, as well as in nearby marine species.

The magnitude of the electric field induced within marine species depends on the size of the animal as well as its distance from the cables. For this analysis, the Shortnose Sturgeon (*Acipenser brevirostrum*) was selected as a representative species due to: 1) its tendency to be a bottom-dwelling species; and 2) its reported ability to detect EMF (Normandeau et al., 2011). Modeling of Atlantic Sturgeon was also considered, but given the unknown status of the Delaware River adult Atlantic Sturgeon stock[21] and that freshwater tidal areas are utilized as Atlantic Sturgeon juvenile habitat (NOAA, 2007), we concluded that the Shortnose Sturgeon model would be inclusive of most Atlantic Sturgeon encountering the Submarine Cable Crossing. The induced electric field was calculated by modeling the Shortnose Sturgeon as a homogeneous ellipsoid with major axes 40-inches long[22] and minor axes 14-inches wide (1.02 meters by 0.36 meters). The methods for calculating the induced electric field in this homogeneous ellipsoid are described by ICES (IEEE, 2002).

[21] The number of adult Atlantic Sturgeon, their preferred habitat, and the lengths of Delaware River they inhabit are not well described. The few adult carcasses recovered from the Delaware River system, however, are largely within in the range of 40 to 60 inches long (i.e., 106 to 160 centimeters) (NOAA, 2007), indicating that the Shortnose Sturgeon model is likely appropriate to predict induced electric fields produced by both juvenile Atlantic Sturgeon and many of the adults as well.

[22] For Shortnose Sturgeon, www.fishbase.org reports a maximum length of approximately 56 inches (143 centimeters), with a common length of approximately 19.5 inches (~50 centimeters). Hence, a length of 40 inches was selected to model the induced electric field produced by a large, mature Shortnose Sturgeon.

Results

Calculated magnetic-field levels for all existing and proposed cables at maximum (non-emergency) ratings (reported in units of G), are presented graphically in Figure 2 to Figure 6. Figure 2 provides zoomed-in views of the magnetic-field modeling results for all four modeled configurations, along with representative locations along the Submarine Cable Crossing for each configuration for visual reference and where in each configuration the maximum magnetic-field level (B_{max}) . The distance between each conductor is large enough that there is little mutual cancellation of magnetic fields from adjacent cables and hence the distance over which magnetic-field levels are present is determined primarily by the separation distance of the various cables.

Figure 3 to Figure 6 show the magnetic-field levels as a function of distance from the centerline of the Submarine Cable Crossing located at the spare cable. In each figure, magnetic-field levels are shown by calculated profiles at the riverbed, at a height of 1 meter (3.28 feet) above the riverbed, and at the river's water surface. The magnetic fields at the Jetting Sled and Transition Structure configurations are limited to a region within approximately 100 feet from either side of the configuration centerline, while the magnetic field at the Channel and River Crossing configurations extend out to approximately 200 feet to either side of the configuration centerline.

Table 2 provides a summary of the calculated magnetic-field levels for the four configurations at the three modeled vertical positions. This table shows the magnetic-field level at 50-foot intervals out to 200 feet from the Submarine Cable Crossing centerline as well as the maximum magnetic-field level (in units of G) for each modeled configuration. In addition, the table also shows the maximum induced electric field (in units of mV/m) in a large, mature Shortnose Sturgeon.[23]

Table 3 shows a comparison summary of calculated magnetic-field levels and induced electric-field levels for both the existing condition (i.e., 7 Silver Run cables) and the proposed condition

[23] For the given size assumptions for Shortnose Sturgeon, the maximum induced electric field within the fish is linearly related to the magnetic-field level, so only the maximum induced electric field (corresponding to the maximum magnetic field) for each modeled configuration is reported in Table 2.

(11 Silver Run cables). Field levels generally decrease or remain the same as a result of the addition of the proposed cables, with a maximum magnetic-field and induced electric-field decrease of approximately 1 G and 7 mV/m, respectively, at the riverbed beneath the in-river transition structure compared to calculations of the Existing cables. The slight decrease in field levels is due primarily to the lower (non-emergency cable) per-cable rating of the proposed configuration compared to the existing seven cables.

Throughout the majority (nearly 85%) of the Submarine Cable Crossing (including the Channel and River Crossing segments comprising approximately 12,000 feet of the approximately 14,000-foot total length), the cables will be installed to a depth of 15 to 25 feet and the magnetic- and induced electric-field levels at the riverbed for these locations at non-emergency cable rating are calculated to be approximately 0.55 G and 3.3 mV/m, respectively, or less. These field levels diminish with horizontal distance from the outside cables and with vertical distance away from the riverbed. At the water surface the calculated magnetic-field and induced electric-field levels will diminish to 0.36 G and 2.1 mV/m, respectively, or less.

At the Jetting Sled segment (comprising approximately 800 feet of the approximately 14,000-foot total length), where the cables converge horizontally and come to a shallower burial depth, maximum magnetic-field and induced electric-field levels at non-emergency cable rating are calculated to be approximately 1.3 G and 7.5 mV/m, respectively, an increase from approximately 0.74 G and 4.4 mV/m for the existing cables (Table 3).[24] The increase in field levels is due to the addition of the four proposed cables at a shallower burial depth of 6 feet compared with the 10-foot burial depth of the existing cables (Table 3).

The highest field levels will occur at the in-river transition structure (0-foot burial depth) where the submarine cables will exit the riverbed and extend vertically through a cable protection system and J-tube suspended from the transition structure.[25] In this very small area immediately surrounding the transition structure, the calculated magnetic- and induced electric-field levels at

[24] Where separated by a distance of 6 feet, field levels would be somewhat lower.

[25] Where the cables exit the riverbed they will be installed inside J-tubes for physical protection. These J-tubes will extend through the water column down to a depth of 6 feet beneath the riverbed. These J-tubes will provide additional separation distance between the cables and any marine species and so calculated field levels here will conservatively overestimate field levels encountered by any animal.

the non-emergency cable rating are approximately 32.2 G and 192 mV/m, respectively. These levels, however, decrease quickly with vertical distance (see Table 2); at 1 meter (3.28 feet) above the riverbed in the water column, the maximum magnetic field falls to approximately 2.5 G (92% reduction versus the riverbed level), and the maximum induced electric field falls to approximately 15 mV/m (92% reduction compared to field levels at the riverbed). These levels also decrease quickly with distance horizontally to 0.028 G (a reduction of more than 99.9%) within less than 50 feet from the outermost cable (Table 3).

During emergency periods typically lasting no more than a few hours, the cables may carry additional power (i.e., 1,614 MVA total for all existing and proposed cables). In such an emergency scenario, all calculated magnetic-field levels would be expected to be approximately 20% higher than for non-emergency rating calculated here.

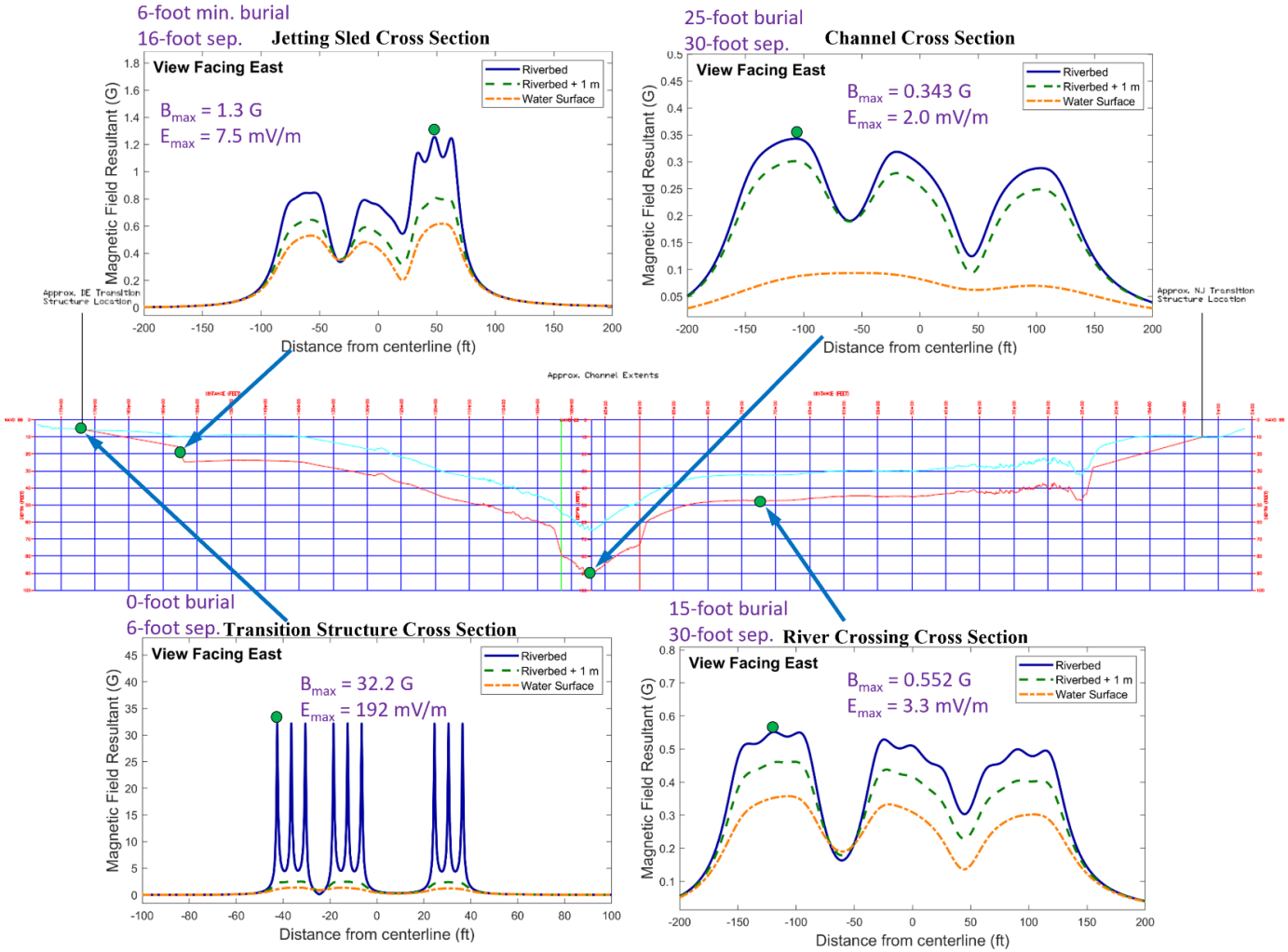


Figure 2. Cross sections for calculated magnetic fields and induced electric fields at non-emergency cable rating for each representative modeling configuration.

For the Jetting Sled configuration, magnetic-field and induced electric-field levels were calculated with the proposed cables at a burial depth of 6 feet and the existing cables at burial depth of 10 feet. B_{max} = maximum magnetic field; E_{max} = maximum induced electric field in a representative Shortnose Strugeon.

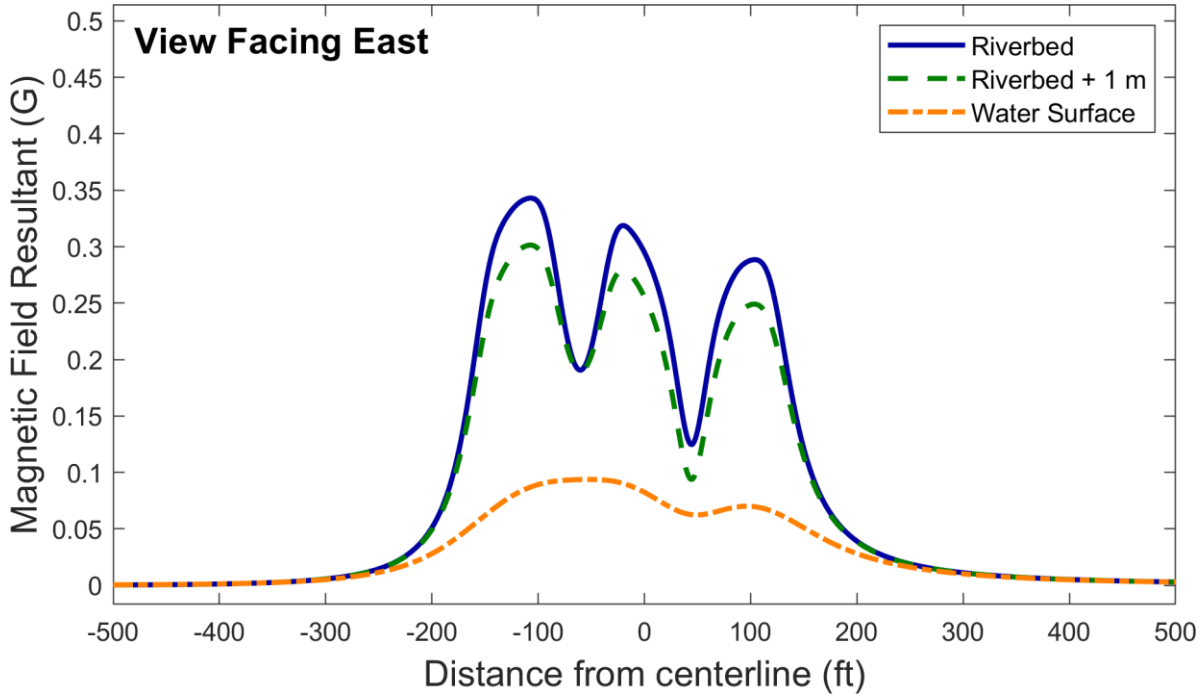


Figure 3. Calculated magnetic field for the Channel configuration at non-emergency cable rating.

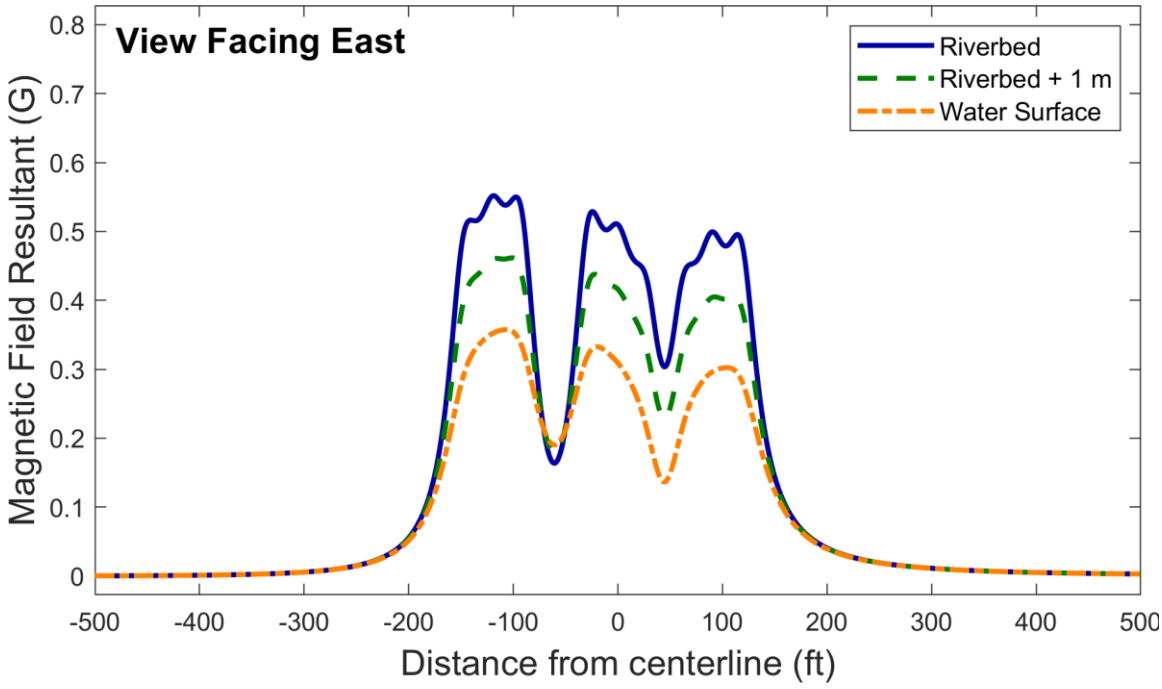


Figure 4. Calculated magnetic field for the River Crossing configuration at non-emergency cable rating.

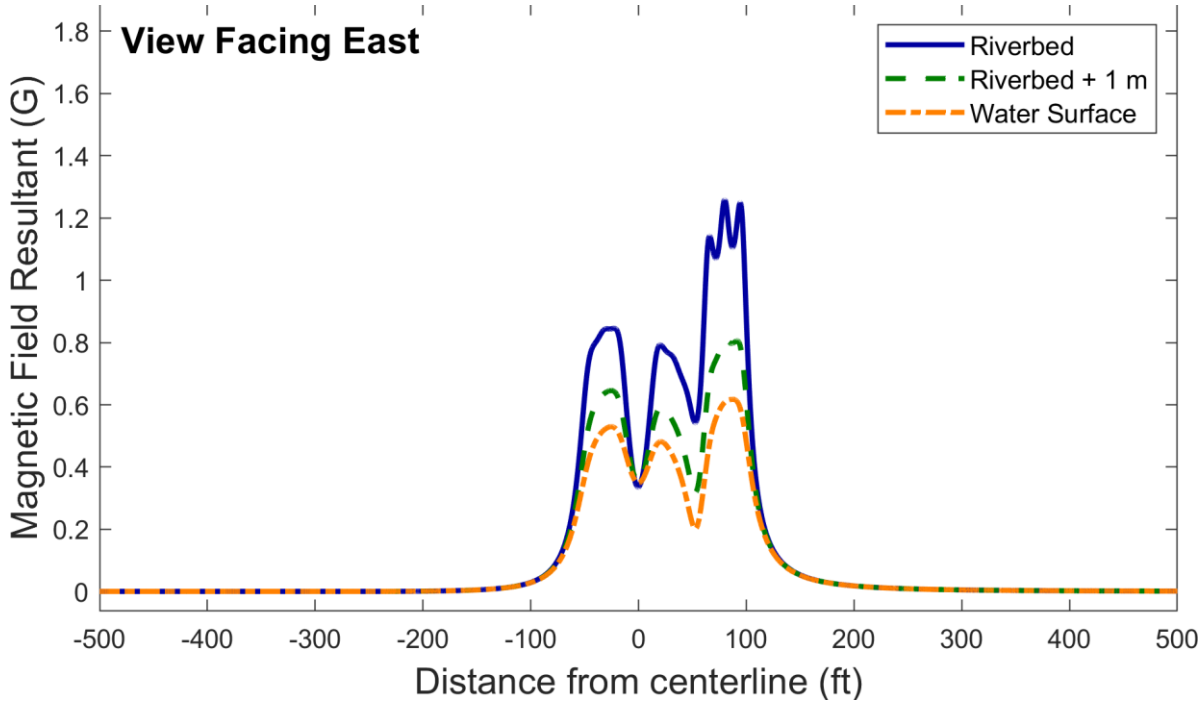


Figure 5. Calculated magnetic field for the Jetting Sled configuration at non-emergency cable rating.
Magnetic-field levels were calculated with the proposed cables at a burial depth of 6 feet and the existing cables at burial depth of 10 feet.

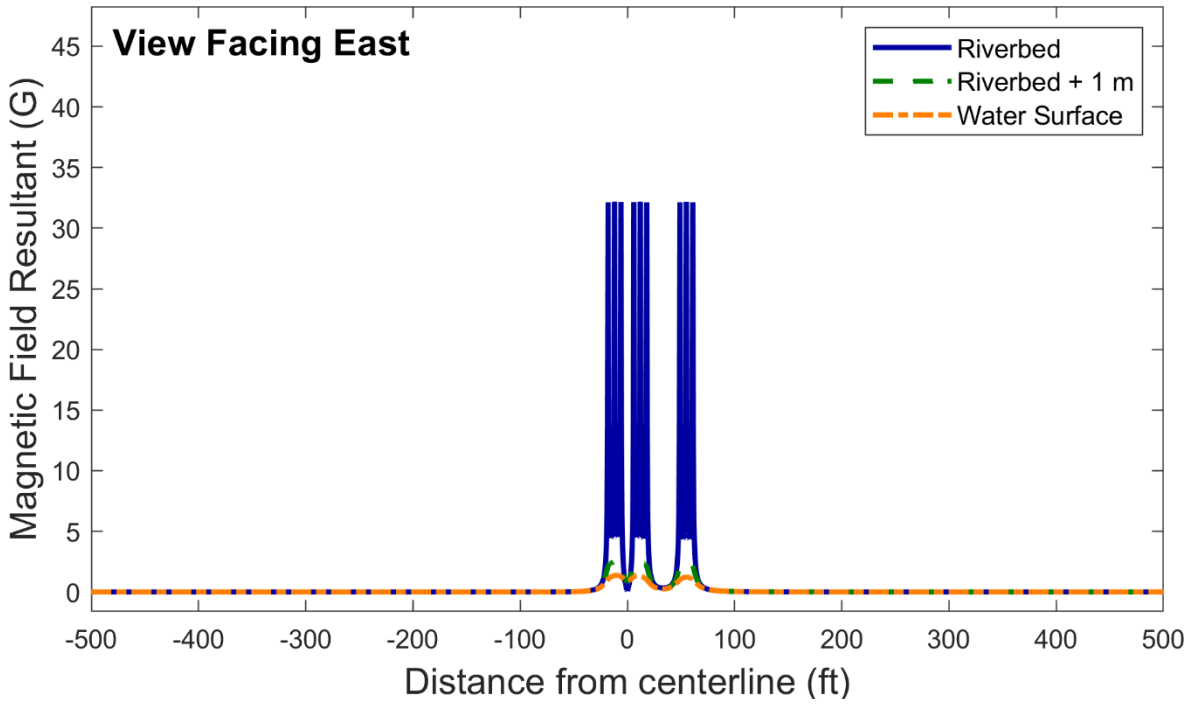


Figure 6. Calculated magnetic field for the Transition Structure configuration at non-emergency cable rating.

Table 2. Summary of magnetic-field and induced electric-field levels for non-emergency cable rating

Modeling Configuration	Calculation Point	Magnetic-Field Level (G) at Non-Emergency Cable Rating†										Induced Electric field (mV/m)*
		-200 feet	-150 feet	-100 feet	-50 feet	0 feet	50 feet	100 feet	150 feet	200 feet	Max	Max
Channel (25-foot burial)	**Riverbed**	0.012	0.038	0.202	0.343	0.191	0.311	0.132	0.282	0.162	0.343	2.0
	Riverbed + 1 meter (3.28 feet)	0.012	0.037	0.178	0.301	0.189	0.272	0.100	0.242	0.148	0.301	1.8
	Water Surface (48 feet)	0.010	0.023	0.054	0.086	0.094	0.087	0.063	0.070	0.056	0.094	0.6
River Crossing (15-foot burial)	**Riverbed**	0.012	0.041	0.315	0.539	0.164	0.502	0.319	0.499	0.214	0.552	3.3
	Riverbed + 1 meter (3.38 feet)	0.012	0.040	0.269	0.460	0.179	0.424	0.240	0.404	0.196	0.462	2.8
	Water Surface (9 feet)	0.012	0.038	0.210	0.357	0.190	0.324	0.144	0.296	0.167	0.357	2.1
Jetting Sled (6-foot burial)	**Riverbed**	0.001	0.005	0.029	0.626	0.336	0.565	0.886	0.054	0.018	1.259	7.5
	Riverbed + 1 meter (3.28 feet)	0.001	0.005	0.029	0.457	0.354	0.335	0.619	0.053	0.018	0.807	4.8
	Water Surface (6 feet)	0.001	0.005	0.028	0.368	0.349	0.219	0.483	0.052	0.018	0.617	3.7
Transition Structure (0-foot burial)	**Riverbed**	0.001	0.001	0.001	0.028	01.084	8.351	0.043	0.010	0.004	32.2	192
	Riverbed + 1 meter (3.28 feet)	0.001	0.001	0.001	0.028	0.835	2.266	0.043	0.010	0.004	2.52	15
	Water Surface (6 feet)	0.001	0.001	0.001	0.028	0.906	1.092	0.042	0.010	0.004	1.38	8.3

* Induced electric-field levels were calculated assuming a large, mature Shortnose Sturgeon. The Shortnose Sturgeon was modeled as an ellipse with major and minor axes of 40-inches long and a 14-inch girth, respectively (1.02 meters by 0.36 meters).

† The existing and proposed cables are placed asymmetrically about the cross-section centerline (0 ft), thus the calculated magnetic-field level profiles shown in the figures and this table are also asymmetric about the centerline as expected.

Table 3. Summary of maximum magnetic-field and maximum induced electric-field levels for existing 7 cable (green highlight) and proposed 11 cable (blue highlight) project configurations

Modeling Configuration	Calculation Point	Maximum Magnetic-Field Level (G) at Non-Emergency Cable Rating		Maximum Induced Electric-Field Level (mV/m)*	
		7 Existing Cables*	7 Existing + 4 Proposed Cables †	7 Existing Cables*	7 Existing + 4 Proposed Cables†
Channel (25 foot burial)	Riverbed	0.346	0.343	2.1	2.0
	Riverbed + 1 meter (3.28 feet)	0.302	0.301	1.8	1.8
	Water Surface (48 feet)	0.084	0.094	0.5	0.6
River Crossing (15 foot burial)	Riverbed	0.564	0.552	3.4	3.3
	Riverbed + 1 meter (3.28 feet)	0.469	0.462	2.8	2.8
	Water Surface (9 feet)	0.360	0.357	2.2	2.1
Jetting Sled‡	Riverbed	0.735	1.259	4.4	7.5
Existing Cable Burial / Proposed Cable Burial	Riverbed + 1 meter (3.28 feet)	0.487	0.807	2.9	4.8
10 feet / 6 feet	Water Surface (6 feet)	0.365	0.617	2.2	3.7
Transition Structure (0 foot burial)	Riverbed	33.3	32.2	199	192
	Riverbed + 1 meter (3.28 feet)	2.59	2.52	15	15
	Water Surface (6 feet)	1.41	1.38	8.4	8.3

* The 7 Existing Cables refer to the 6 energized cables and 1 spare cable associated with the Silver Run project.

† The 7 Existing + 4 Proposed Cables refer to the total nine (i.e., 6 + 3) energized cables and two (1+1) spare cables (Silver Run plus Silver Run Expansion).

‡ Original modeling of the 7 existing cables was performed assuming a separation distance between cables of 6 feet. Updated information regarding the as-built configuration of the 7 existing cables indicates they were installed with a separation distance of 16 feet. Therefore, the revised calculations herein incorporate a 16-foot separation distance for all 11 cables.

Assessment of Results and Discussion

The project site is located in an ecological area that coincides with the potential migratory route of a number of fish species; these include American Eel, Shortnose and Atlantic Sturgeon, alewife, blueback herring, American shad, hickory shad, and striped bass. Fish migration is a complex process that requires the constant integration of multiple environmental cues. In addition, non-anadromous marine fish species sometimes inhabit estuarine and coastal riverine habitats; an assessment of the NOAA EFHs indicated that several demersal and benthopelagic fish species (windowpane flounder, winter flounder, summer flounder, black sea bass, scup, Atlantic butterfish, and Atlantic herring) might occasionally inhabit the Project area.

The Delaware River species perhaps most likely to respond to the EMF associated with the Project would be the endangered Shortnose Sturgeon and Atlantic Sturgeon. Since both species' ranges overlap the proposed Submarine Cable Crossing location and both undergo significant reproductive migrations, it is likely that a larger proportion of the populations of these diadromous species could pass through the Project area on a seasonal basis. The Atlantic Sturgeon in particular would be expected to regularly cross the cable route during migrations up and down river. Additionally, sturgeons are believed to be particularly capable of detecting static and low-frequency EMF at low intensities. As described in the literature review above, sturgeons are expected to exhibit magnetic-field and induced electric-field detection thresholds of 10 to 20 G and 20 to 60 mV/m, respectively. Below these levels of detection, adverse effects are not predicted to occur in populations of key fish species.

The calculated maximum magnetic-field and induced electric-field levels among the Channel, River Crossing, and Jetting Sled portions of the proposed Submarine Cable Crossing were 1.3 G and 7.5 mV/m, respectively, or less, at a non-emergency cable rating (see Table 2). These levels of 60-Hz fields are substantially below the reported detection thresholds for magnetic fields and induced electric fields for sturgeon species; hence, no adverse effects on these or populations of smaller-sized fish are expected from the fields from the cables along these portions of the route. This conclusion applies to not only sturgeons, which are among those fish species most capable of detecting EMF, but other migratory species that occur in the Project area as well.

Results from the modeling of expected AC magnetic and induced electric fields around the proposed cables, however, suggest that sturgeon might only detect and respond to the maximum predicted fields within 1 meter (3.28 feet) of the cable exiting the riverbed at the transition structure. Beneath the transition structure where the cables will be suspended in the water column and enclosed in a cable protection system, the magnetic-field level at the riverbed is far higher (32.2 G) at non-emergency cable rating (Table 2) and produces a higher induced electric field (192 mV/m). Within as little as 1 meter (3.28 feet) from the cables at this location, however, the magnetic field and induced electric field will be much lower, 2.52 G and 15 mV/m, respectively, and will be below reported limits of detection for sturgeon. Hence, the calculated magnetic field and induced electric field produced by the proposed cable configuration in all segments of the route, except for a zone within about 1 meter (3.28 feet) of the submarine cables exiting the riverbed and rising vertically up the transition structure, are below the minimum thresholds for sturgeon detection.[26] Within this limited zone located within 1 meter (3.28 feet) of the cables, sturgeon would be expected to detect elevated magnetic or induced electric fields from the Project's cables and would likely avoid this very small area, considering findings from empirical studies (see literature review above) and the availability of other adjacent areas of the Delaware River where fields are predicted to be well below threshold levels for sturgeon. Because this area is both isolated and outside of the main channel, the field strengths at the transition structure do not constitute a barrier to the migration of sturgeon or other species. If individual fish do encounter these areas, it is expected that they will be able to move around them and continue migration through the river. Because of this, these areas beneath the transition structure are unlikely to cause any adverse effects to individuals or the larger populations of migratory fish. Moreover, it should also be noted that the transition structure is located in shallow edge waters (approximately 3 feet plus-or-minus at mean low water), which may not be a desired migratory habitat for fish. In addition, for any loading level less than the non-emergency cable rating, magnetic-field levels and induced electric-field levels would be proportionally less.

[26] It is also important to note that the modeling did not account for the shielding effect of the cables which previous work suggests may reduce field levels by a factor of approximately 2. The calculated EMF levels reported herein therefore represent a conservative maximum magnetic-field level in the vicinity of the Submarine Cable Crossing.

It is important to note that the area of the Delaware River fish habitat in which magnetic fields are greatest from the Project is very small in comparison to the width of the Delaware River at the Project location and the estimated total area utilized by each of the fish species of interest. For all assessed marine fish species, the ranges of interbreeding populations are very large, which indicates that minor impacts over a few meters (as expected at the transition structure site near the shore in Delaware) would not impact the viability of these populations. Populations of anadromous and diadromous fish species that will cross over the Submarine Cable Crossing during operations also are not expected to be adversely impacted.

Conclusion

Based on modeling of the magnetic field associated with the operation of the Project's 230-kV Submarine Cable Crossing in the vicinity of Artificial Island in the Delaware River, Exponent has determined that the levels of the 60-Hz magnetic fields and induced electric fields at the riverbed and above for essentially all of the proposed Submarine Cable Crossing will be below reported levels of detection and effect, even in fish species with sensory mechanisms that can detect the earth's geomagnetic field or low frequency (< 10 Hz) electric fields associated with prey.

Based on the available scientific literature, populations of key fish species will not be significantly adversely impacted by the operation of the proposed Submarine Cable Crossing, given the very small area of the highest predicted fields, expected small resident fish populations, and transient exposures.

References

Adair RK. Constraints of thermal noise on the effects of weak 60-Hz magnetic fields acting on biological magnetite. Proceed Nat Acad Sci 91(8):2925-2929, 1994.

Armstrong J, Hunter D, Frayer R, Rycroft P, Orpwood J. Behavioural responses of Atlantic Salmon to mains frequency magnetic fields. Scottish Marine and Freshwater Science 6:9, 2015.Atlantic States Marine Fisheries Commission (ASMFC). American Shad (*Homanus americanus*): Life History and Habitat Needs. Undated. Available at http://www.asmfc.org/uploads/file//568edfedAmericanShad.pdf. Last Accessed September 2024.

Atlantic States Marine Fisheries Commission (ASMFC). Atlantic Striped Bass. 2024. Available at species - Atlantic States Marine Fisheries Commission (asmfc.org). Last Accessed September 2024.

Atlantic Sturgeon Status Review Team. Status Review of Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*). 2007. Available at https://repository.library.noaa.gov/view/noaa/16197. Last Accessed September 2024.

Balayev LA and Fursa NN. The behavior of ecologically different fish in electric fields II. Threshold of anode reaction and tetanus. J Ichthyol 21:134-143, 1981.

Basov BM. Behavior of sterlet Acipenser ruthenus and Russian sturgeon A. gueldenstaedtii in low-frequency electric fields. J Ichthyol 39(9):782-787, 1999.

Bevelhimer MS, Cada GF, Fortner AM, Schweizer PE, Riemer K. Behavioral responses of representative freshwater fish species to electromagnetic fields. Trans Am Fish Soc 142(3):802-813, 2013.

Bevelhimer MS, Cada GF, Scherelis C. Effects of Electromagnetic Fields on Behavior of Largemouth Bass and Pallid Sturgeon in an Experimental Pond Setting. Oak Ridge, TN: Oak Ridge National Laboratory, 2015.

Bonneville Power Administration (BPA). Corona and Field Effects Computer Program. Portland, OR: Bonneville Power Administration, 1991.

Bouyoucos I, Bushnell P, Brill R. Potential for electropositive metal to reduce the interactions of Atlantic sturgeon with fishing gear. Conserv Biol 28:278-282, 2014.

Bowers-Altman, J. Endangered Species Spotlight – Shortnose Sturgeon. Conserve Wildlife Foundation of New Jersey. Summer 2010. Available at http://www.conservewildlifenj.org/downloads/cwnj_62.pdf. Last Accessed September 2024.

Brouard D, Harvey C, Goulet D, Nguyen T, Champagne R, Dubs P. Technical notes: Evaluation of potential effects of stray voltage generated by alternating current on hatchery-raised Rainbow Trout. Prog Fish Cult 58(1):47-51, 1996.

Brust J. Species Profile: American Eel. Fish and Wildlife Digest 19:20, 2006. http://www.state.nj.us/dep/fgw/pdf/2006/digmar20-27.pdf.

Cada GF, Bevelhimer MS, Riemer KP, Turner JW. Effects on Freshwater Organisms of Magnetic Fields Associated with Hydrokinetic Turbines (ORNL/TM-2011/244). Oak Ridge, TN: Oak Ridge National Laboratory, 2011.

Cameron IL, Hunter KE, Winters WD. Retardation of embryogenesis by extremely low frequency 60 Hz electromagnetic fields. Physiol Chem Phys Med NMR 17(1):135-138, 1985.

Castonguay W and Visel TC. A Winter Flounder Habitat Index for Connecticut. New Haven, CT: The South School Regional Vocational Aquaculture School, 1988. https://sound.school/wp-content/uploads/2016/08/flounderindex.pdf.

Chang S, Berrien PL, Johnson DL, Morse WW. Essential Fish Habitat Source Document: Windowpane, *Scophthalmus aquosus*, Life History and Habitat Characteristics (NOAA Technical Memorandum NMFS-NE-137). Woods Hole, MA: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1999.

Cross JN, Zetlin CA, Berrien PL, Johnson DL, and McBride C. (1999). Essential Fish Habitat Source Document: Butterfish, *Peprilus triacanthus*, Life History and Habitat Characteristics. (NOAA Technical Memorandum NMFS-NE-145). Woods Hole, MA: U.S. Department of Commerce, National Oceanic and Atmospheric Administration.

Delaware Fish & Wildlife (DFW). Delaware's Shad and River Herring: A Recreational Anglers Guide. Undated. Available at http://www.dnrec.delaware.gov/fw/Fisheries/Documents/Delaware's%20Shad%20and%20River%20Herring%20ID%20Guide.pdf. Last Accessed September 2024.

Delaware River Basin Fish and Wildlife Management Cooperative. American Shad Habitat Plan for the Delaware River. October 7, 2013. Available at http://www.asmfc.org/files/ShadHabitatPlans/AmShadHabitatPlan_DE_RiverCoop.pdf. Last Accessed September 2024.

DONG Energy. Danish Offshore Wind: Key Environmental Issues. Copenhagen, Denmark: DONG Energy, Vattenfall, The Danish Energy Authority, The Danish Forest and Nature Agency, 2006.

Facey DE and Van Den Avyle MJ. Species profiles: life histories and environmental requirements of coastal fishes and invertebrates (North Atlantic): American eel. U.S. Fish Wildlife. Serv. Biol. Rep. 82(11.74). U.S. Army Corps of Engineers, TR EL-82-4, 1987.

Fey DP, Jakubowska M, Greszkiewicz M, Andrulewicz E, Otremba Z, Urban-Malinga B. Are magnetic and electromagnetic fields of anthropogenic origin potential threats to early life stages

of fish? Aquat Toxicol 209:150-158, 2019.Florida Department of Environmental Regulation (FDER). Electric and Magnetic Fields. Chapter 17-274. 1989.

Florida Department of Environmental Protection (FDEP). Electric and Magnetic Fields. Chapter 62-814. 1996.

Hale EA, Park IA, Fisher MT, Wong RA, Stangl MJ, Clark JH. Abundance Estimate for and Habitat Use by Early Juvenile Atlantic Sturgeon within the Delaware River Estuary. Trans Amer Fisheries Soc 145(6), 1193–1201, 2016. https://doi.org/10.1080/00028487.2016.1214177.

Hanson M and Westerberg H. Occurrence of magnetic material in teleosts. Compar Biochem Physiol Part A: Physiol 86(1):169-172, 1987.

Harrison RJ, Dunin-Borkowski RE, Putnis A. Direct imaging of nanoscale magnetic interactions in minerals. Proceed Nat Acad Sciences 99 (26):16556-16561, 2002.

Himchak, P. Last call for River Herring. New Jersey Fish & Wildfire Digest: 23, May 2011. http://www.state.nj.us/dep/fgw/pdf/2011/digmar_herring.pdf

Hvidt CB, Bech M, Klaustrup M. Monitoring Programme – Status Report 2003. Fish at the Cable Trace. Nysted Offshore Wind Farm at Rødsand. Bioconsult, 2003.

International Commission on Non-ionizing Radiation Protection (ICNIRP). Guidelines for limiting exposure to time-varying electric and magnetic fields (1 Hz to 100 kHz). Health Phys 99:818-36, 2010.

Institute of Electrical and Electronics Engineers (IEEE). IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0-3 KHz (IEEE Std. C95.6-2002). New York: IEEE, 2002.

International Committee on Electromagnetic Safety (ICES). IEEE Standards for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz. IEEE Std C95.1-2019 (Revision of IEEE Std C95.1-2005/Incorporates IEEE Std C95.1-2019/Cor 1-2019/Cor 2-2020). New York: IEEE, 2019.

Johnsen S, Lohmann KJ, Warrant EJ. Animal navigation: a noisy magnetic sense? Journal of Experimental Biology 223(18):jeb164921, 2020.

Kirschvink JL, Padmanabha S, Boyce CK, Oglesby J. Measurement of the threshold sensitivity of honeybees to weak, extremely low-frequency magnetic fields. J Exp Biol 200:1363-1368, 1997.

Lerchl A, Zachmann A, Ali MA, Reiter RJ. The effects of pulsing magnetic fields on pineal melatonin synthesis in a teleost fish (brook trout, *Salvelinus fontinalis*). Neurosci Lett 256(3): 171-173, 1998.

Li Y, Ru B, Liu X, Miao W, Zhang K, Han L, Ni H, Wu H. Effects of extremely low frequency alternating-current magnetic fields on the growth performance and digestive enzyme activity of tilapia Oreochromis niloticus. Environ Biol Fishes 98(1):337-343, 2015.

Love MS, Nishimoto MM, Clark S, Bull AS. Renewable Energy *In Situ*: Power Cable Observation. Camarillo, CA: U.S. Department of the Interior, Bureau of Ocean Energy Management, 2016. https://tethys.pnnl.gov/sites/default/files/publications/BOEM-2016-008_0.pdf

Mann S, Sparks NH, Walker MM, Kirschvink JL. Ultrastructure, morphology and organization of biogenic magnetite from sockeye salmon, Oncorhynchus nerka: implications for magnetoreception. J Exper Biol 140(1):35-49, 1988.

Metcalfe JD, Holford BH, Arnold GP. Orientation of plaice (Pleuronectes platessa) in the open sea: evidence for the use of external directional clues. Marine Biol 117(4):559-566, 1993.

National Marine Fisheries Service (NMFS). Atlantic Sturgeon New York Bight Distinct Population Segment: Endangered. Available at http://www.nmfs.noaa.gov/pr/pdfs/species/atlanticsturgeon_nybright_dps.pdf.

National Marine Fisheries Service (NMFS). National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion: Shortnose Sturgeon. 2001. Available at http://www.nap.usace.army.mil/Portals/39/docs/Civil/Deepening/DelawarePermit/sturgeon.pdf.

National Oceanic and Atmospheric Administration (NOAA). Status Review of Atlantic Sturgeon (Acipenser oxyrinchus oxyrinchus). Updated July 27, 2007. Available at http://www.nmfs.noaa.gov/pr/pdfs/statusreviews/atlanticsturgeon2007.pdf.

National Oceanic and Atmospheric Administration (NOAA). Species of Concern: River herring (Alewife & Blueback herring). May 19, 2009. https://www.ijc.org/sites/default/files/RiverHerring.pdf. Last Accessed September 2024.

National Oceanic and Atmospheric Administration (NOAA). Amendment 11 to the Atlantic Mackerel, Squid, and Butterfish (MSB) Fishery Management plan (FMP) Includes Final Environmental Impact Statement (FEIS). Mid Atlantic Fishery Management Council in cooperation with the National Marine Fisheries Service. May 2011.

National Oceanic and Atmospheric Administration (NOAA). Essential Fish Habitat Mapper. https://www.habitat.noaa.gov/apps/efhmapper/. (Accessed September 2024).

National Oceanic and Atmospheric Administration (NOAA) Fisheries. Species Directory: Atlantic Striped Bass. Available at Atlantic Striped Bass | NOAA Fisheries. Last Accessed September 2024.

Nature Serve. (2024a). *Anguilla rostrata.* Available at Available at http://explorer.natureserve.org/servlet/NatureServe?searchSciOrCommonName=american+eel&x=0&y=0. Last accessed September 2024.

Nature Serve. (2024b). *Alosa pseudoharengus.* Available at http://explorer.natureserve.org/servlet/NatureServe?searchSciOrCommonName=Alosa+pseudoharengus+&x=0&y=0. Last accessed September 2024.

Nature Serve. (2024c). *Alosa aestivalis.* Available at http://explorer.natureserve.org/servlet/NatureServe?searchSciOrCommonName=blueback+herring&x=0&y=0 . Last accessed September 2024.

Newton KC, Gill AB, Kajiura SM. Electroreception in marine fishes: chondrichthyans. Journal of Fish Biology 95(1):135-154, 2019.

New England Fishery Management Council (NEFMC). Essential Fish Habitat Description: Windowpane flounder (*Scophthalmus aquosus*). NEFMC EFH Amendment. NEFMC, 1998a. Available at EFH.PDF (nefmc.org). Last Accessed September 2024.New England Fishery Management Council (NEFMC). 1998b. Essential Fish Habitat Description Winter flounder (*Pseudopleuronectes americanus*). NEFMC EFH Amendment. NEFMC, 1998b. Available at EFH.PDF (nefmc.org). Last Accessed September 2024.

New Jersey Department of Environmental Protection (NJDEP). Guidelines for High Voltage Transmission Lines Adopted. NJDEP News, June 4, 1981.

New Jersey Department of Environmental Protection (NJDEP). Data Summary of 2014 – Delaware River Seine Survey. Available at Data Summary of 2014 Delaware River Seine Survey (nj.gov). Last Accessed September 2024.

New Jersey Division of Fish and Wildlife. Delaware River Estuary Species and Fact Sheets. Available at NJDEP Division of Fish & Wildlife - Delaware River Species and Fact Sheets. Last updated August 11, 2020. Last Accessed September 2024.

New Jersey Division of Fish and Wildlife. Hickory Shad – Alosa mediocris Fact Sheet. Undated-a. Available at https://www.nj.gov/dep/fgw/pdf/delriver/artdel_sp_hickshad.pdf. Last Accessed September 2024.

New Jersey Division of Fish and Wildlife. Striped Bass – Morone saxatilis Fact Sheet. Undated-b. Available at https://www.nj.gov/dep/fgw/pdf/delriver/artdel_sp_strbass.pdf. Last Accessed September 2024

New York Public Service Commission (NYPSC). Opinion No. 78-13. Opinion and Order Determining Health and Safety Issues, Imposing Operating Conditions, and Authorizing, in Case 26529, Operation Pursuant to those Conditions. 1978.

New York Public Service Commission (NYPSC). Statement of Interim Policy on Magnetic Fields of Major Transmission Facilities. Cases 26529 and 26559 Proceeding on Motion of the Commission. 1990.

Nishi T and Kawamura G. Anguilla japonica is already magnetosensitive at the glass eel phase. J Fish Biol 67(5):1213-1224, 2005.

Normandeau, Exponent, Tricas T, Gill A. Effects of EMFs from Undersea Power Cables on Elasmobranchs and Other Marine Species (OCS Study BOEMRE 2011-09). Camarillo, CA: U.S. Department of the Interior, Bureau of Ocean Energy Management, Regulation, and Enforcement, Pacific OCS Region, 2011.

Öhman MC, Sigray P, Westerberg H. Offshore windmills and the effects of electromagnetic fields on fish. AMBIO: A Journal of the Human Environment 36(8):630-633, 2007.

Orpwood J, Fryer R, Rycroft P, Armstrong J. Effects of AC Magentic Fields (MFs) on Swimming Activity in European Eels Anguilla anguilla. Edinburgh: Marine Scotland Science, 2015.

Parker AD, Glover DC, Finney ST, Rogers PB, Stewart JG, Simmonds RL. Fish Behavior and Abundance at the Electric Dispersal Barrier in the Chicago Sanitary and Shipping Canal at Reduced and Current Voltage Operating Parameters. Region 3 Final Report. Marion, Illinois: U.S. Fish and Wildlife Service, Carterville Fish and Wildlife Conservation Office, 2015.

Pennsylvania Department of Conservation and Natural Resources (PDCNR). Delaware River Basin Character Statement. Bureau of State Parks, Outdoor Programming Services Division, 2010. Available at http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20031258.pdf.

Pereira JJ, Goldberg R, Ziskowski JJ, Berrien PL, Morse WW, Johnson DL. Essential fish habitat source document: Winter flounder, *Pseudopleuronectes americanus*, life history and habitat characteristics (NOAA Technical Memorandum NMFS-NE-138). Woods Hole, MA: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, 1999.

Poddubny AG. Sonic tags and floats as a means of studying fish response to natural environmental changes and to fishing gear. FAO Fisheries and Aquaculture Report, 1969.

Polk C and Postow E. CRC Handbook of Biological Effects of Electromagnetic Fields. Boca Raton, FL: CRC Press, 1986.

Quinn TP and Brannon EL. The use of celestial and magnetic cues by orienting sockeye salmon smolts. J Comp Physiol 147(4): 547-552, 1982.

Quinn T. Evidence for celestial and magnetic compass orientation in lake migrating sockeye salmon fry. J Comp Physiol A 137: 243−248, 1980.

Richardson NE, McCleave JD, Albert EH. Effect of extremely low frequency electric and magnetic fields on locomotor activity rhythms of atlantic salmon (Salmo Salar) and american eels (Anguilla rostrata). Environmental Pollution (1970) 10(1):65-76, 1976.

Rulifson RA and Batsavage CF. Population demographics of Hickory Shad (*Alosa mediocris*) during a period of population growth. Fishery Bull 112(2-3), 221-237, 2014.

Shortnose Sturgeon Status Review Team. 2010. A Biological Assessment of shortnose sturgeon (Acipenser brevirostrum). Report to National Marine Fisheries Service, Northeast Regional Office. November 1, 2010. 417 pp.

Silva JM, Zaffanella LE, Daigle JP. EMF Study: Long Island Power Authority (LIPA), Offshore Wind Project, 2006.

Skauli KS, Reitan JB, Walther BT. Hatching in zebrafish (Danio rerio) embryos exposed to a 50 Hz magnetic field. Bioelectromagnetics 21(5):407-410, 2000.

Stankevičiūtė M, Jakubowska M, Pažusienė J, Makaras T, Otremba Z, Urban-Malinga B, Fey DP, Greszkiewicz M, Sauliutė G, Baršienė J, Andrulewicz E. Genotoxic and cytotoxic effects of 50 Hz 1 mT electromagnetic field on larval rainbow trout (*Oncorhynchus mykiss*), Baltic clam (*Limecola balthica*) and common ragworm (*Hediste diversicolor*). Aquat Toxicol 208:109-117, 2019.

Stier DJ and Crance JH. Habitat suitability index models and instream flow suitability curves: American shad. Biological Report No. 82(10.88). Washington, D.C.: U.S. Fish and Wildlife Service, 1985.

Stoot LJ, Gibson DP, Cooke SJ, Power M. Assessing the potential for using low-frequency electric deterrent barriers to reduce lake sturgeon (Acipenser fulvescens) entrainment. Hydrobiologia 813:223-235, 2018.

Tański A, Korzelecka-Orkisz A, Grubišić L, Tičina V, Szulc J, Formicki, K. (2011). Directional responses of sea bass (Dicentrarchus labrax) and sea bream (Sparus aurata) fry under static magnetic field. Electron J Pol Agric Univ 14(4), 2011.

U.S. Army Corps of Engineers (USACE). Draft Delaware River Main Stem and Channel Deepening Project Essential Fish Habitat Evaluation. Philadelphia, PA: Philadelphia District U.S. Army Corps of Engineers, 2009.

U.S. Nuclear Regulatory Commission (USNRC). Essential Fish Habitat Assessment Salem Nuclear Generating Station Units 1 and 2. Hope Creek Generating Station License Renewal. Docket Numbers 50-272, 50-311, and 50-354. Rockville, MD: U.S. Nuclear Regulatory Commission, 2011.

Wagner LM. Report of Impingement of Shortnose Sturgeon, Salem Generating Station Unit No. 2. Docket No. 50-311. Hancock Bridge, NJ: PSEG Nuclear LLC, 2014a. Available at http://www.nrc.gov/docs/ML1436/ML14364A193.pdf.

Wagner LM. Report of Impingement of Shortnose Sturgeon, Salem Generating Station Unit No. 1. Docket No. 50-272. Hancock Bridge, NJ: PSEG Nuclear LLC, 2014b. Available at http://www.nrc.gov/docs/ML1436/ML14364A194.pdf.

Wagner LM. Report of Impingement of Shortnose Sturgeon, Salem Generating Station Unit No. 1. Docket No. 50-272. Hancock Bridge, NJ: PSEG Nuclear LLC, 2014c. Available at http://www.nrc.gov/docs/ML1415/ML14154A286.pdf.

Walker MM, Quinn TP, Kirschvink JL, Groot C. Production of single-domain magnetite throughout life by sockeye salmon, *Oncorhynchus nerka*. J Exper Biol 140(1):51-63, 1988.

Westerberg H and Lagenfelt I. Sub-sea power cables and the migration behaviour of the European eel. Fisheries Management and Ecology 15 (5-6):369-375, 2008.